DRAFT

DRAFT SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT FOR AMENDMENT TO THE OPERATIONS SPECIFICATIONS FOR AIR CARRIER OPERATIONS AND AMENDMENT TO A PART 139 AIRPORT OPERATING CERTIFICATE

Snohomish County Airport/Paine Field
Everett, Washington

Prepared for:

ALASKA AIRLINES, UNITED AIRLINES INC., AND SOUTHWEST AIRLINES CO.
and
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
As lead Federal Agency pursuant to the National Environmental Policy Act

Prepared by:

Environmental Science Associates

September 2018

This Environmental Assessment becomes a Federal document when evaluated, signed and dated by the Responsible FAA Official.

_____ _____

Responsible FAA Official **Date**

DRAFT

DRAFT SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT FOR AMENDMENT TO THE OPERATIONS SPECIFICATIONS FOR AIR CARRIER OPERATIONS AND AMENDMENT TO A PART 139 AIRPORT OPERATING CERTIFICATE

Snohomish County Airport/Paine Field
Everett, Washington

Prepared for:

ALASKA AIRLINES, UNITED AIRLINES INC., AND SOUTHWEST AIRLINES CO.
and
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
As lead Federal Agency pursuant to the National Environmental Policy Act

Prepared by:

Environmental Science Associates

September 2018

This Environmental Assessment becomes a Federal document when evaluated, signed and dated by the Responsible FAA Official.

_____ _____

Responsible FAA Official **Date**

This Page

Intentionally Left Blank

NOTICE OF AVAILABILITY OF A DRAFT SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT AND NOTICE OF PUBLIC INFORMATION WORKSHOP/PUBLIC HEARING FOR AMENDMENT TO THE OPERATIONS SPECIFICATIONS FOR AIR CARRIER OPERATIONS AND AMENDMENT TO A PART 139 CERTIFICATE FOR THE SNOHOMISH COUNTY AIRPORT/PAINE FIELD

Draft Supplemental Environmental Assessment Available:
The Federal Aviation Administration (FAA) announces the availability of the Draft Supplemental Environmental Assessment (EA), which examines the potential environmental impacts of the Proposed Action, which is to Operations Specifications and Part 139 Certificate Amendments to allow Alaska Airlines, United Airlines, Inc., and Southwest Airlines Co. to commence scheduled commercial airline service to Snohomish County Airport/Paine Field. This is a Supplement to the FAA-approved *Final Environmental Assessment for Amendment to the Operations Specifications for Air Carrier Operations, Amendment to a FAR Part 139 Certificate, and Modification of the Terminal Building* (2012). The Draft Supplemental EA is now available for public review and comment.

The Draft Supplemental EA has been made available for public review and comment from September 29, 2018 through November 2, 2018. Copies of the Draft Supplemental EA are available for review at the following locations:

- Paine Field Administrative Office - 3220 100th St. SW, Suite A; Everett, WA 98204
- Mukilteo Library - 4675 Harbour Pointe Blvd, Mukilteo, WA 98275
- Everett Public Library - 2702 Hoyt Ave, Everett, WA 98201
- Lynwood Library - 19200 44th Ave W, Lynnwood, WA 98036

The Draft Supplemental EA is also available to the public on the following website: https://www.painefield.com/219/2018-Air-Service-Environmental-Assessmen

Public Information Workshop/Public Hearing: October 29, 2018
A Public Information Workshop/Public Hearing will be held on October 29, 2018 at the Lynnwood Convention Center, at 3711 196th St SW, Lynnwood, WA 98036, from 5:30 to 8:30 p.m. The Public Information Workshop will be an informal Open House format, to allow for one-on-one interaction with the Study Team. The public can attend the workshop at any time between 5:30 and 6:30 p.m. to review information related to the Draft Supplemental EA and speak with the Study Team.

At 6:30 p.m., the Public Information Workshop will close, and the Public Hearing will begin. A brief presentation will be made at the start of the Public Hearing to explain the purpose, procedures, and rules of conduct. The Public Hearing will allow the public to enter their comments verbally into the record but will not include answering questions posed by members of the public. Attendees may sign up to speak at the Public Hearing until 8:30 p.m.

Public Comment Period: Written comments will be accepted through November 2, 2018.
The purpose of the public comment period is to receive comments on the Draft Supplemental EA. Comments should be as specific as possible and should be organized so that they are meaningful and make the FAA clearly aware of the commenter's views, interests, and concerns.

All written comments may be provided at the Public Information Workshop/Public Hearing or submitted to the following address through November 2, 2018: Environmental Science Associates, Paine Field Supplemental EA; 5309 Shilshole Ave NW, Suite 200; Seattle, WA 98107.

This Page

Intentionally Left Blank

TABLE OF CONTENTS

Page

Page

Page

Appendices

List of Figures

Page

List of Tables

This Page

Intentionally Left Blank

CHAPTER 1
Introduction and Background

1.1 Introduction

Snohomish County Airport/Paine Field (Paine Field) is a public-use airport owned and operated by Snohomish County. The airport is located southwest of the City of Everett (adjoining the City boundary) and approximately 30 miles north of downtown Seattle. The location of the airport is shown on **Figure 1-1**. The airport and its environs are depicted on **Figure 1-2**.

Paine Field is designated in the Federal Aviation Administration's (FAA) *National Plan of Integrated Airport Systems* (NPIAS)[1] as an airport having a national role. The NPIAS also defines the airport's Service Level as a Reliever Airport (for Seattle-Tacoma International Airport).[2] Paine Field currently has a Class IV Part 139 operating certificate (allowing unscheduled air carrier operations but not commercial air service). Title 14 Code of Federal Regulations (CFR) Part 139 provides certification requirements for airports to provide scheduled or unscheduled commercial air service. Paine Field presently has no scheduled commercial air service.

Alaska Airlines and its partners (Horizon Air and SkyWest Airlines),[3] United Airlines, Inc. and its partner (SkyWest Airlines operating as United Express), and Southwest Airlines Co. submitted separate requests to the FAA to amend each airline's Operations Specifications[4] to conduct scheduled commercial air service at Paine Field. The federal actions of amending the airlines' Operations Specifications and amending the Part 139 certification at Paine Field are subject to environmental review under the *National Environmental Policy Act of 1969* (NEPA).

1 *Report to Congress, National Plan of Integrated Airport Systems (NPIAS) 2017-2021.* Federal Aviation Administration. September 30, 2016.

2 Reliever airports are airports designated by the FAA to relieve congestion at Commercial Service airports and to provide improved general aviation access to the overall community.

3 Horizon Air is owned by Alaska Air Group, Inc., but is independently managed and operated. SkyWest Airlines is a regional partner for Alaska Airlines and United Airlines, among others.

4 Title 14 CFR Part 119, "Certification: Air Carriers and Commercial Operators," requires airlines to obtain an Air Carrier Certificate, Operating Certificate, and Operations Specifications from the FAA. Operational Specifications prescribe the authorizations, limitations, and procedures under which each kind of operation must be conducted, including routes, areas served, and aircraft types.

Through an Environmental Assessment (EA) prepared in 2012,[5] the FAA previously environmentally reviewed a proposed amendment to the airport's Part 139 operating certificate that would authorize scheduled commercial air service operations by aircraft with at least 31 passenger seats, issuance of operations specifications under Part 119, and construction of a modular terminal building. The FAA issued a Finding of No Significant Impact and Record of Decision (FONSI/ROD) on December 4, 2012, environmentally approving the above actions.

The only action taken on those approvals was the construction of a terminal building. The new requests to amend the Operations Specifications by Alaska Airlines, United Airlines, and Southwest Airlines (Proposed Action) would result in the introduction of new service by different airlines, aircraft, and operational levels at Paine Field than what the prior EA analyzed. Therefore, this Supplemental EA was prepared to review any potentially significant changes to the previously studied environmental impacts from the prior environmentally approved scheduled commercial air service at Paine Field. This Supplemental EA was prepared pursuant to Section 102(2)(c) of NEPA and the President's Council on Environmental Quality (CEQ) Regulations Title 40 CFR §§ 1500-1508, the implementing regulations for NEPA. This Supplemental EA has also been prepared in accordance with FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, and FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*.

1.2 Background

1.2.1 2012 Final Environmental Assessment and Finding of No Significant Impact/Record of Decision

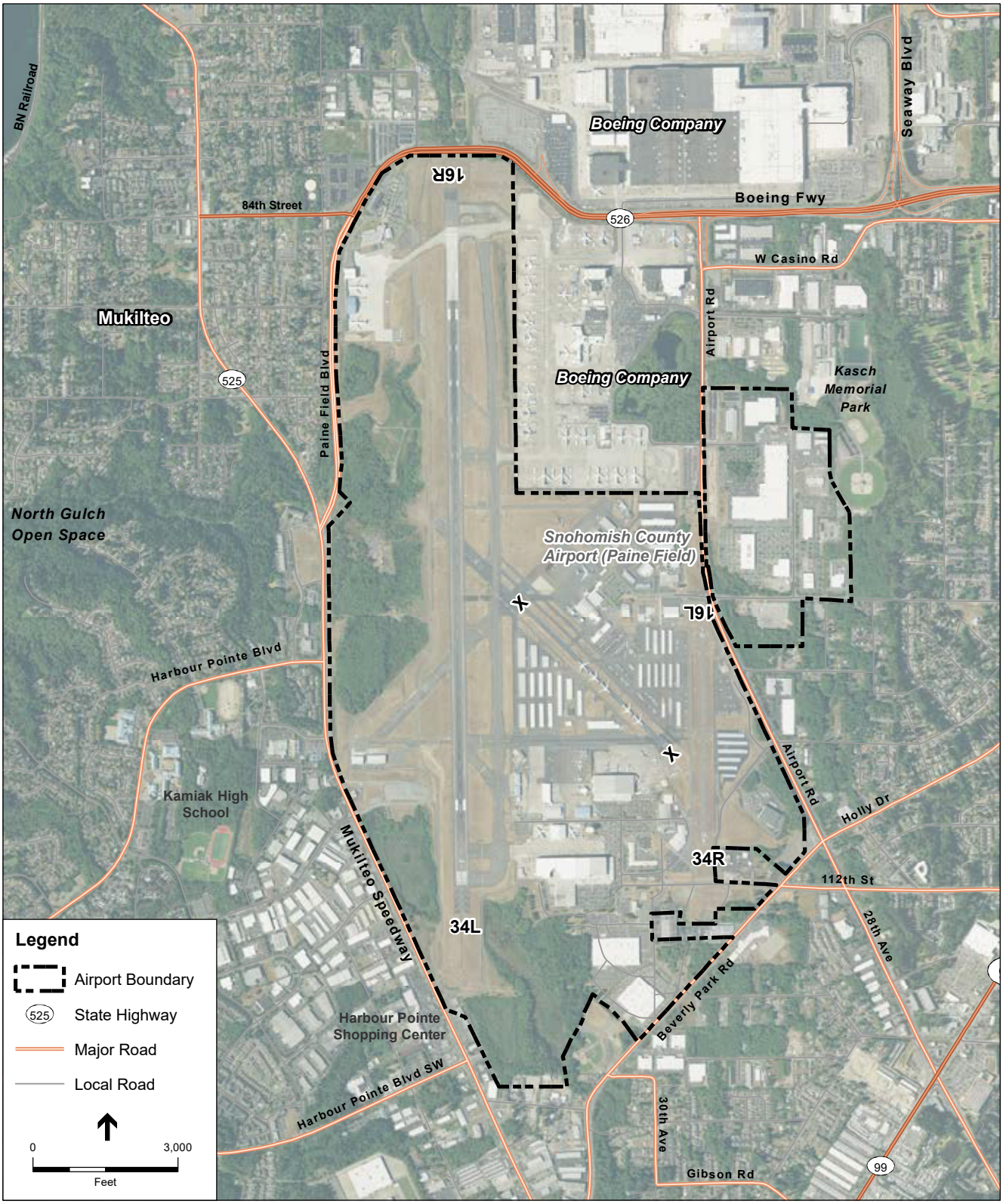
In 2008, Allegiant Air and Horizon Air each requested FAA approvals and issuance of amendments to their respective Operations Specifications to conduct scheduled commercial air service at Paine Field. The Proposed Action analyzed in the 2012 Final EA included the initiation of scheduled commercial air service to Paine Field in 2013 by Allegiant Air using 150-seat Boeing MD-83 aircraft and by Horizon Air, using 76-seat Bombardier Q400 aircraft. At the same time, Snohomish County sought FAA approval of amendments to Paine Field's Part 139 operating certificate to change the airport's certificate from Class IV to Class I. A Class I certificate is required for an airport to serve scheduled commercial air service operations by aircraft with 31 or more seats. Because the existing terminal building at Paine Field was not suited to serve the projected number of passengers, the County proposed to construct a new terminal building with the aid of federal funds available through the FAA's Airport Improvement Program. The proposed new passenger terminal building was to be a 18,000-square foot building placed on an existing paved aircraft parking apron located west of, and connected via a covered breezeway, to the existing terminal building. Aircraft parking apron and vehicle parking space was sufficient to accommodate the proposed commercial air service, and no apron or parking lot improvements were proposed.

[5] *Environmental Assessment for Amendment to the Operations Specifications for Air Carrier Operations, Amendment to a FAR Part 139 Certificate, and Modification of the Terminal Building*. Prepared by Barnard Dunkelberg & Company. September 2012.

SOURCE: ESA, 2016; ESRI Mapping Services, USDA, 2015 (Aerial Imagery).

Figure 1-1
Airport Location Map

This Page Left Intentionally Blank



SOURCE: ESA, 2018; ESRI Mapping Services; USDA, 2015 (Aerial Imagery).
NOTE: Runway 11-29 closed indefinitely.

Figure 1-2
Airport Vicinity Map

This Page Left Intentionally Blank

An EA was prepared for the requested amendments to: 1) the Operations Specifications of Allegiant Air and Horizon Air, 2) amendments to Paine Field's Part 139 airport certificate, and 3) FAA approvals necessary to issue grants for the construction of the new terminal building. The EA, hereinafter referred to as the "2012 Final EA," examined the environmental impacts of the requested federal actions and concluded there would be no significant impacts associated with the proposed federal actions.

Based on the information and analyses contained in the 2012 Final EA and other information considered, including agency and public comments, the FAA issued a FONSI/ROD on December 4, 2012.

1.2.2 Petition for Review

On January 31, 2013, a petition was filed in the United States Court of Appeals for the Ninth Circuit challenging the FONSI/ROD.[6] The petitioners claimed the FAA failed to analyze "reasonably foreseeable" impacts of amendments to Paine Field's Part 139 certificate, alleging that it would open the airport to "virtually unlimited commercial passenger operations" and would allow Allegiant Air and Horizon Air to offer "unconstrained service" at Paine Field. The petition also challenged the proposed terminal improvements. The FAA argued that it did not view the possibility of unlimited commercial service at Paine Field as reasonably foreseeable. The FAA pointed to a number of constraints and physical limits at Paine Field that limit the number of commercial air service operations that can be accommodated at the airport including the size and capacity of the proposed modular passenger terminal. The FAA also noted that additional environmental review would be required for expansion of the proposed terminal, the introduction of service at Paine Field by another airline, or the introduction of another aircraft model at Paine Field by either Allegiant Air or Horizon Air.

During the litigation, funding sources for the terminal building changed, and neither Allegiant Air nor Horizon Air moved to initiate commercial air service at Paine Field. This inaction by the two airlines caused the court to withhold a final ruling until it could be determined if a legal controversy regarding the future of Paine Field continued to exist. In September 2015, the U.S. Department of Justice informed the court that the challenged FONSI/ROD remained valid. In March 2016, the Court issued its ruling, denying the petition for review and upholding the FAA's decisions and issuance of the FONSI/ROD.

Thereafter, Snohomish County Planning and Development Services received an application for a building permit from Propeller Group. After the County's review of the 2012 EA, the County issued a Mitigated Determination of Nonsignificance in accordance with the State Environmental Policy Act, and granted its approval to allow construction of the terminal building. Paine Field also executed a lease with the Propeller Group, a private entity, requiring Propeller to construct the facility and make it available to air carriers.

Construction of the new terminal building and amendments to Paine Field's Part 139 operating certificate have undergone NEPA review and previously received FAA approval. Based on the

6 *City of Mukilteo v. FAA*, No. 13-70385 (9th Cir. 2016)

court's ruling that the 2012 Final EA satisfies NEPA, and the fact that the terminal building has not changed, additional analysis of that structure or its use is not required in this Supplemental EA. Although the change to the Part 139 operating certificate likewise is the same (i.e., from Class IV to Class I), due to the passage of time, this Supplemental EA will address its issuance as part of the Proposed Action of introducing newly scheduled commercial service to Paine Field.

1.3 Description of the Proposed Action

Alaska Airlines, United Airlines, and Southwest Airlines propose to conduct scheduled commercial air service at Paine Field. The service, which currently is proposed to commence in early 2019, would offer up to 24 daily domestic round trip flights using Embraer 175 and Boeing 737 aircraft. A summary of the proposed commercial air service to and from Paine Field in 2019 (first full year of service) is presented in **Table 1-1**. A summary of the proposed service to and from Paine Field in 2024 (the second study year) is presented in **Table 1-2**. All of the market airports that would be served by Alaska Airlines, United Airlines, and Southwest Airlines from Paine Field are presently served by scheduled air carriers using turbojet aircraft of a size equal to or greater than the Boeing 737.

The proposed commercial service at Paine Field would be supported by customer service agents, ramp employees, fleet service personnel, and other providers (e.g., aircraft fueling). The flights would also be supported by ground support equipment (GSE), including, but not limited to, belt loaders, baggage carts, push-back tugs, lavatory trucks, and water trucks. While parked, the aircraft would be serviced by mobile and/or jet bridge-mounted ground power units, consistent with Alaska Airlines, United Airlines, and Southwest Airlines standards. The use of aircraft auxiliary power units (APUs) would be minimal; the APU is only used between engine shutdown/startup and APU connection/disconnection. Aircraft that remain overnight would be parked at assigned passenger gate positions or at the existing remain overnight (RON) parking position.

Alaska Airlines, United Airlines, and Southwest Airlines are not proposing to construct any new, or expand any existing, terminal buildings, concourses, aircraft parking aprons, or support buildings at Paine Field. The airlines would use the airport's newly constructed commercial passenger terminal building. However, the level of service proposed by Alaska Airlines, United Airlines, and Southwest Airlines would require approximately 424 additional public parking spaces. The additional parking spaces would be provided on existing airfield pavement areas in proximity to the terminal building. Converting the existing aircraft parking apron pavement to vehicle parking use would require the installation of curbing, access gates, lighting, fencing, and related improvements.

Amendments to Paine Field's Part 139 Operating Certificate will require the installation of a Segmented Circle.[7] The selected site will be on previously disturbed airfield land and thus will not require the evaluation of impacts to natural and archaeological resources.

[7] A segmented circle is a visual ground-based structure, utilized when PAE's air traffic control tower is closed, to provide aircraft traffic pattern information. It typically includes wind direction, landing direction, landing strip, and traffic pattern indicators.

TABLE 1-1
PROPOSED COMMERICAL AIRLINE PASSENGER SERVICE (2019)
TO/FROM SNOHOMISH COUNTY AIRPORT – PAINE FIELD

Proposed Carrier	Daytime Roundtrip Flights (2019)	Nighttime Roundtrip Flights (2019)	Market Served from Paine Field (*Aircraft Type*)
Alaska Airlines and its partners (Horizon Air and SkyWest Airlines)			
Horizon Air	1.0	0.0	LAS (Embraer 175)
SkyWest Airlines	1.0	0.0	LAX (Embraer 175)
Horizon Air	1.0	0.0	LAX (Embraer 175)
Horizon Air	2.0	1.0	PDX (Embraer 175)
Horizon Air	1.0	0.0	PHX (Embraer 175)
Horizon Air	1.0	0.0	SAN (Embraer 175)
Horizon Air	1.0	1.0	SFO (Embraer 175)
Horizon Air	2.0	0.0	SJC (Embraer 175)
Horizon Air	1.0	0.0	SNA (Embraer 175)
Subtotal	**11.0**	**2.0**	
United Airlines and its partner (SkyWest Airlines operating as United Express)			
SkyWest Airlines	1.5	0.5	DEN (Embraer 175)
SkyWest Airlines	3.0	1.0	SFO (Embraer 175)
Subtotal	**4.5**	**1.5**	
Southwest Airlines			
Southwest Airlines	2.0	1.0	OAK (Boeing 737-700)
Southwest Airlines	1.0	0.0	LAS (Boeing 737-700)
Southwest Airlines	1.0	0.0	LAS (Boeing 737-700)
Subtotal	**4.0**	**1.0**	
Total Roundtrip Flights	**19.5**	**4.5**	

DEN = Denver International Airport
LAS = Las Vegas McCarran International Airport
LAX = Los Angeles International Airport
PDX = Portland International Airport
PHX = Phoenix Sky Harbor International Airport
SAN = San Diego International Airport
SFO = San Francisco International Airport
SJC = San Jose Mineta International Airport
SNA = John Wayne – Orange County Airport
OAK = Oakland International Airport

Daytime is 7:00 A.M. to 9:59 P.M. Nighttime is 10:00 P.M. to 6:59 A.M.

Sources: Alaska Airlines and its partners (Horizon Air and SkyWest Airlines), 2017.
United Airlines and its partner (SkyWest Airlines operating as United Express) and Southwest Airlines, 2018.

TABLE 1-2
PROPOSED COMMERICAL AIRLINE PASSENGER SERVICE (2024)
TO/FROM SNOHOMISH COUNTY AIRPORT – PAINE FIELD

Proposed Carrier	Daytime Roundtrip Flights (2024)	Nighttime Roundtrip Flights (2024)	Market Served from Paine Field (*Aircraft Type*)
Alaska Airlines and its partners (Horizon Air and SkyWest Airlines)			
Horizon Air	1.0	0.0	LAS (Embraer 175)
Horizon Air	1.0	0.0	LAX (Embraer 175)
Alaska Airlines	1.0	0.0	LAX (Boeing 737-800)
Horizon Air	2.0	1.0	PDX (Embraer 175)
Horizon Air	1.0	0.0	PHX (Embraer 175)
Horizon Air	1.0	0.0	SAN (Embraer 175)
Horizon Air	1.0	1.0	SFO (Embraer 175)
Horizon Air	2.0	0.0	SJC (Embraer 175)
Horizon Air	1.0	0.0	SNA (Embraer 175)
Subtotal	**11.0**	**2.0**	
United Airlines and its partner (SkyWest Airlines operating as United Express)			
United Airlines	0.5	0.5	DEN (Boeing 737-800)
SkyWest Airlines	1.0	0.0	DEN (Embraer 175)
United Airlines	1.0	0.0	SFO (Boeing 737-800)
SkyWest Airlines	2.0	1.0	SFO (Embraer 175)
Subtotal	**4.5**	**1.5**	
Southwest Airlines			
Southwest Airlines	2.0	1.0	OAK (Boeing 737-700)
Southwest Airlines	1.0	0.0	LAS (Boeing 737-700)
Southwest Airlines	1.0	0.0	LAS (Boeing 737-700)
Subtotal	**4.0**	**1.0**	
Total Roundtrip Flights	**19.5**	**4.5**	

DEN = Denver International Airport
LAS = Las Vegas McCarran International Airport
LAX = Los Angeles International Airport
PDX = Portland International Airport
PHX = Phoenix Sky Harbor International Airport
SAN = San Diego International Airport
SFO = San Francisco International Airport
SJC = San Jose Mineta International Airport
SNA = John Wayne – Orange County Airport
OAK = Oakland International Airport

Daytime is 7:00 A.M. to 9:59 P.M. Nighttime is 10:00 P.M. to 6:59 A.M.

Sources: Alaska Airlines and its partners (Horizon Air and SkyWest Airlines), 2017.
United Airlines and its partner (SkyWest Airlines operating as United Express) and Southwest Airlines, 2018.

Although proposed amendment to Paine Field's Part 139 operating certificate has undergone NEPA review in the 2012 EA and received FAA's environmental approval, the amendments have not yet been obtained by the County. Given the amount of time that elapsed since the prior environmental approval, the issuance of an amendment to the Part 139 operating certificate for Paine Field is included in this Supplemental EA as it relates to the Part 119 operations specification that are the focus of this Supplemental EA. In this document, the request to amend the Operational Specifications for Alaska Airlines, United Airlines, and Southwest Airlines and the present request to amend Paine Field's Part 139 operating certificate are collectively referred to as the "Proposed Action."

1.4 Approach Used in Preparing the Supplemental EA

Federal Aviation Administration (FAA) Order 1050.1F, Section 9.3, states that a supplemental report must be prepared if, "(1) there are substantial changes to the Proposed Action that are relevant to environmental concerns, or (2) there are significant new circumstances or information relevant to environmental concerns and bearing on the Proposed Action or its impacts (*see* 40 CFR § 1502.9(c)(1), CEQ Regulations)."

As discussed previously, an EA for the initiation of scheduled commercial air service operations at Paine Field was completed in 2012 and the FAA issued a FONSI/ROD for the 2012 Final EA on December 4, 2012. In a challenge to the adequacy of that EA by the City of Mukilteo, the United States Court of Appeals for the Ninth Circuit held that the FAA had fully satisfied all obligations under NEPA and dismissed the City's petition for review. Neither Allegiant Air nor Horizon Air has initiated the proposed commercial air service operations to/from Paine Field that were studied in the 2012 Final EA. However, the County has authorized construction of the passenger terminal addressed in the 2012 Final EA, and construction is estimated to be complete in October 2018.

In 2017, Alaska Airlines and its partners Horizon Air and SkyWest Airlines submitted a proposal to Snohomish County to provide commercial air service at Paine Field beginning in 2018. In 2018, United Airlines and its partner SkyWest Airlines (operating as United Express) and Southwest Airlines also submitted proposals to provide commercial air service at Paine Field beginning in 2018. Under the present proposal, Horizon Air and SkyWest Airlines would provide service to/from Paine Field using Embraer 175 aircraft. Alaska Airlines, United Airlines, and Southwest Airlines would provide service to/from Paine Field using Boeing 737 aircraft. Due to the time that has passed since the FAA issued its FONSI/ROD for the 2012 Final EA and in light of the changes in aircraft types and number of operations that are proposed to be used for commercial air service at Paine Field, the FAA has determined that a Supplemental EA is appropriate.

The first step in preparing the Supplemental EA involved developing an updated airport activity forecast for Paine Field. In addition, the FAA re-affirmed the project's purpose and need based on the updated forecast (see Chapter 2, Project Need and Approach). The methodology and approach used to develop an updated forecast of aircraft operations and passenger enplanements for Paine Field for all alternatives, including No Action, is consistent with the methodology and approach taken to develop the airport activity forecast documented in the 2012 Final EA (see Chapter 3,

Forecast and **Appendix C** for additional information). Project alternatives were reviewed as part of this Supplemental EA (see Chapter 4, Alternatives). Consideration was also given to changes that have occurred at Paine Field and in the airport environs since the 2012 EA was prepared (see Chapter 5, Affected Environment). For example, background motor vehicle traffic volumes on airport area roadways were updated to reflect existing (2017) conditions. Similarly, information regarding planned land uses in the airport environs was updated based on a review of updated information from Snohomish County. Chapter 6, Environmental Consequences, of this Supplemental EA assesses the environmental effects of the "new" Proposed Action compared to the No Action alternative. Chapter 6 also describes where the environmental findings/consequences differ from the findings documented in the 2012 Final EA Chapter 7 will include a summary of the public meeting/public hearing and summary of comments received on the Supplemental EA.

The 2012 Final EA and Finding of No Significant Impact (FONSI)/Record of Decision (ROD) is incorporated herein by reference. It is available at:
https://www.painefield.com/documentcenter/view/209

CHAPTER 2
Project Need and Approach

2.1 Purpose of and Need for the Proposed Action

The need for the project and the original purpose as documented in the 2012 Final EA have been re-examined and re-affirmed in light of the new and revised airline proposals.

The Proposed Action evaluated in this Supplemental EA would allow up to 24 daily domestic round trip flights for passengers to fly between Paine Field and domestic markets such as Denver, CO; Las Vegas, NV; Los Angeles, CA; Oakland, CA; Orange County, CA; Portland, OR; Phoenix, AZ; San Diego, CA; San Francisco, CA; and San Jose, CA.

The purpose of the Proposed Action is to allow passengers to fly between Paine Field and destinations in Arizona, California, Colorado, Nevada, and Oregon. The FAA will evaluate the requests from Alaska Airlines, United Airlines, and Southwest Airlines to amend their operations specifications to allow scheduled commercial air service to Paine Field, and to authorize the amendment to the Part 139 airport operating certificate for Paine Field. The need for the proposed action is to meet demand for scheduled commercial air service within the area, as identified by Alaska Airlines, United Airlines, and Southwest Airlines.

2.2 Federal Actions Requested

The FAA actions, determinations, and approvals necessary for this project to proceed include the following:

- Issuance of the Operations Specifications amendments for Alaska Airlines and its partners (Horizon Air and SkyWest Airlines), United Airlines and its partner (SkyWest Airlines operating as United Express), and Southwest Airlines to permit scheduled commercial air service at Paine Field using Embraer 175 and Boeing 737 aircraft, pursuant to 14 CFR Part 119.
- Issuance of an amendment to the Snohomish County Airport/Paine Field Part 139 Operating Certificate.
- Unconditional approval of the Segmented Circle on the Airport Layout Plan (ALP).
- A determination that the environmental analysis prerequisites associated with any future Airport Improvement Program (AIP) funding application concerning the Proposed Action have been fulfilled pursuant to 49 USC 47101.

2.2.1 Operations Specifications Amendment

FAA's primary mission is to ensure safety and efficiency in air commerce. Part of this mission is the issuance of Operations Specifications to scheduled commercial air carriers. Alaska Airlines, United Airlines, Southwest Airlines, SkyWest Airlines, and Horizon Air have requested amendments of their respective Operations Specifications to operate at Paine Field with the Embraer 175 and Boeing 737 aircraft. The FAA must review amendments to each airline's Operations Specifications and either grant or deny the amendments based on a number of criteria including, but not limited to, adequate runway length and adequate aircraft servicing and handling facilities. Air commerce safety is the primary consideration in determining the issuance of the specifications. As stated in 49 USC Section 44705:

> "The Administrator of the Federal Aviation Administration shall issue an air carrier operating certificate to a person desiring to operate as an air carrier when the Administrator finds, after investigation, that the person properly and adequately is equipped and able to operate safely under this part and regulations and standards prescribed under this part. An air carrier operating certificate shall (1) contain terms necessary to ensure safety in air transportation; and (2) specify the places to and from which, and the airways of the United States over which, a person may operate as an air carrier."

Therefore, the FAA will evaluate the requested amendments to each airline's Operations Specifications to determine that safety in air commerce will allow the amendment of those specifications, pursuant to 14 CFR Section 119.51 and 14 CFR Section 121, and FAA Order 9800.1, Volume 3, Chapter 18, Section 5, paragraph 3-871.

Snohomish County, as the owner and operator of the airport, has limited discretion to deny an airline request to operate at the airport, assuming airport facilities can safely accommodate the commercial aircraft operations. As a recipient of numerous grants from the FAA, the County is bound by standard grant assurances. The standard grant assurances commit the County to certain requirements. The pertinent Grant Assurance in this case is 22(a) which addresses Economic Nondiscrimination issues, including allowing scheduled commercial service operations to occur at the airport. The actual text of the Grant Assurance is as follows and is a requirement found in 49 United States Code (USC) Section 47107, as amended:

> 22. Economic Nondiscrimination
>
> a. It will make the airport available as an airport for public use on reasonable terms and without unjust discrimination to all types, kinds and classes of aeronautical activities, including commercial aeronautical activities offering services to the public at the airport.

2.2.2 Part 139 Airport Operating Certificate Amendment

In addition to amending the operations specifications, the FAA has been asked to issue approval of an amendment to the Part 139 airport operating certificate for Paine Field. Part 139, Section 107 states:

> An applicant for an airport operating certificate is entitled to a certificate if (1) The provisions of Section 139.103 of this subpart are met; (2) the Administrator, after investigation, finds that the applicant is properly and adequately equipped and able to provide a safe airport operating environment in accordance with (i) Subpart D of this part, and (ii) any limitation which the Administrator finds necessary in the public interest; and (3) the Administrator approves the airport certification manual.

Per the FAA Airport Certification Program Handbook, a change from a Class IV operating certificate to a Class I operating certificate is required to serve scheduled commercial air service operations by large aircraft with at least 31 passenger seats. FAA must review the change in the operating certificate to ensure that it meets all safety standards. In 2012 FAA approved a change in Paine Field's Part 139 operating certificate from Class IV to Class I in conjunction with the proposed scheduled commercial air service at that time, which never occurred.

2.3 Project Timing

If approved Alaska Airlines, United Airlines, and Southwest Airlines have indicated that they would initiate service at Paine Field in early 2019 pending completion of the environmental review process. For the evaluation of impacts in this Supplemental EA, calendar year 2019 represents the first full year of scheduled commercial air service.

This Page

Intentionally Left Blank

CHAPTER 3
Forecasts

This chapter briefly summarizes the forecast of aviation activity presented in the 2012 Final Environmental Assessment along with those updated forecasts prepared as part of this Supplemental EA. Additional details regarding the forecasts prepared for this Supplemental EA are included in **Appendix C**, Airport Activity Forecast Memorandum.

3.1 2012 Final Environmental Assessment – Aviation Activity Forecast

An EA for the initiation of commercial air service operations at Snohomish County Airport/Paine Field (Paine Field) was completed in 2012. Because that Draft 2012 EA was submitted to the FAA in 2009, 2008 was used to represent the baseline (existing) level of annual aircraft operations.[8]

The FAA's 2012 Terminal Area Forecast (TAF) was used to define the level of aircraft operations expected in 2013 (when commercial air service by Allegiant Air and Horizon Air was projected to commence) and 2018 (the fifth full year of commercial air service to Paine Field). The existing and future levels of aircraft operations included an adjustment to account for those operations that occurred at night when the Paine Field airport traffic control tower (ATCT) was closed.

Aircraft operations data for the existing conditions (in 2008) and future No Action scenario are documented in **Table 3-1**. Table 3-1 also presents aircraft operations data for the Proposed Action evaluated in the 2012 Final EA. Air carrier operations associated with Allegiant Air and Horizon Air in 2013 and 2018 are reflected in the totals for the Proposed Action. Under the Proposed Action there would have been approximately 112,000 annual enplanements (passengers boarding an aircraft at Paine Field) in 2013 and approximately 238,200 annual enplanements in 2018. As presented in **Table 3-2,** Allegiant Air proposed operating 150-seat Boeing MD-83 aircraft to/from Paine Field, and Horizon Air proposed operating 76-seat Bombardier Q400 aircraft to/from Paine Field.

[8] An operation is equivalent to one arrival/landing or one departure/takeoff of an aircraft.

TABLE 3-1
2012 FINAL ENVIRONMENTAL ASSESSMENT – ANNUAL AIRCRAFT OPERATIONS FORECAST
SNOHOMISH COUNTY AIRPORT/PAINE FIELD

Aircraft Category	Aircraft Operations		
	No Action	New Activity	Proposed Action
2008 (Existing)			
Air Carrier (AC)	3,132		
Air Taxi (AT)	2,782		
General Aviation (GA)	136,900		
Military (MIL)	908		
Total	**143,722**		
2013 (Initial)			
Air Carrier (AC)	5,591	4,588	10,179
Air Taxi (AT)	2,464	-	2,464
General Aviation (GA)	103,425	-	103,425
Military (MIL)	1,253	-	1,253
Totals	**112,733**	**4,588**	**117,321**
2018 (Future)			
Air Carrier (AC)	5,591	8,340	13,931
Air Taxi (AT)	2,464	-	2,464
General Aviation (GA)	104,479	-	104,479
Military (MIL)	1,253	-	1,253
Totals	**113,787**	**8,340**	**122,127**

Source: Barnard Dunkelberg Company, September 2012. Adapted by ESA, 2018.

TABLE 3-2
2012 FINAL ENVIRONMENTAL ASSESSMENT - ANNUAL PROPOSED NEW COMMERCIAL PASSENGER ENPLANEMENTS
SNOHOMISH COUNTY AIRPORT/PAINE FIELD

Aircraft	New Annual Aircraft Operations	Annual Roundtrip Flights[1]	Number of Seats	Average Load Factor	Annual Enplanements
2013					
Bombardier Q400	4,380	2,190	76	61.0%	98,000
Boeing MD-83	208	104	150	90.0%	14,000
Totals	**4,588**	**2,294**			**112,000**
2018					
Bombardier Q400	7,300	3,650	76	63.0%	168,000
Boeing MD-83	1,040	520	150	90.0%	70,200
Totals	**8,340**	**4,170**			**238,200**

Notes: 1. These figures, which represent approximately half of the operations generated (takeoffs and landings), are used since enplanements are only based on the passengers departing the airport.

Source: Barnard Dunkelberg Company, September 2012. Adapted by ESA, 2018.

3.2 Supplemental Environmental Assessment – Aviation Activity Forecast

Snohomish County has received a proposal from Alaska Airlines and its partners (Horizon Air and SkyWest Airlines), United Airlines and its partner (SkyWest Airlines operating as United Express) and Southwest Airlines to provide commercial air service at Paine Field. To evaluate this new proposal, the FAA has decided to conduct certain analyses requiring updated information regarding existing and future airport activity levels. For the first full calendar year of activity (2019) the proposals include 24 daily roundtrip flights at Paine Field. For 2024, the proposals anticipate operating the same number of daily roundtrips within Paine Field's physical and operational constraints. Therefore, historic operational data through the end of calendar year 2017, as well as activity projections for the future study years of 2019 and 2024 were developed.

Similar to the methodology used in the 2012 Final EA, annual aircraft operations data for the future No Action scenario were based on the FAA's TAF[9] with adjustments for nighttime activity when the ATCT is closed and for the Boeing Company's anticipated production schedule during the 2019 and 2024 future study years. The projected number of annual aircraft operations for the No Action Alternative, by aircraft type, is shown in **Table 3-3**.

The projected number of annual aircraft operations in 2019 and 2024 under the Proposed Action includes the air carrier operations proposed by Alaska Airlines and its partners Horizon Air and SkyWest Airlines), United Airlines and its partner SkyWest Airlines (operating as United Express) and Southwest Airlines. In 2019, the first full year of service, the airlines would provide up to 24 daily roundtrip flights at Paine Field. The airlines also expect to provide up to 24 daily roundtrip flights at the airport in 2024. The projected number of new aircraft operations associated with the Proposed Action and the total number of aircraft operations (No Action Alternative baseline plus the Proposed Action) are presented in **Table 3-4**.

To meet anticipated customer demands, both Alaska Airlines and United Airlines have anticipated the need to up-gauge[10] their aircraft on one or more flights during the Supplemental EA study period. This will likely include the long-term or seasonal substitution of aircraft. Based on the current proposal from Alaska Airlines, one 76-seat SkyWest Airlines Embraer 175 will be substituted in the 2024 study year with a 159-seat Alaska Airlines Boeing 737-800. The current proposal from United Airlines shows two 76-seat SkyWest Airlines Embraer 175s will be substituted in the 2024 study year with 166-seat United Airlines Boeing 737-800 aircraft. Southwest Airlines' proposal has their 143-seat Boeing 737-700 aircraft being utilized at Paine Field from 2019 through 2024. Based on these assumptions and other information provided by each airline, **Table 3-5** shows that the Proposed Action would generate approximately 656,235 annual passenger enplanements in 2019 (approximately 1,312,000 total passengers) and

9 The 2017 Terminal Area Forecast was issued by the FAA in January 2018.

10 Up-gauging of aircraft refers to assigning an aircraft with more seats to a particular market or route to increase passenger capacity. This allows an airline to accommodate increases in passenger demand and/or seasonal peaks without the need to increase the number of flights at an airport.

approximately 736,316 passenger enplanements in 2024 (approximately 1,473,000 total passengers).

TABLE 3-3
NO ACTION ALTERNATIVE (BASELINE) ANNUAL FORECAST

Aircraft Category	Aircraft Operations			
	Source Data	Additional from Boeing Co. Production Schedule	Additional Conducted when ATCT is Closed	Adjusted No Action Baseline
2017 (Existing)	**OPSNET Data**			
Air Carrier (AC)	3,684	n/a	538	**4,222**
Air Taxi (AT)	1,191	n/a	40	**1,231**
General Aviation (GA)	102,870	n/a	3,498	**106,368**
Military (MIL)	605	n/a	-	**605**
Totals	108,350	-	4,076	**112,426**
2019 (Future)	**2017 TAF Data**			
Air Carrier (AC)	3,722	282	585	**4,589**
Air Taxi (AT)	1,158	n/a	39	**1,197**
General Aviation (GA)	97,133	n/a	3,303	**100,436**
Military (MIL)	614	16	-	**630**
Totals	102,627	298	3,927	**106,852**
2024 (Future)	**2017 TAF Data**			
Air Carrier (AC)	3,722	339	593	**4,654**
Air Taxi (AT)	1,158	n/a	39	**1,197**
General Aviation (GA)	98,135	n/a	3,337	**101,472**
Military (MIL)	614	16	-	**630**
Totals	103,629	355	3,969	**107,953**

Source: FAA OPSNET (2018), FAA 2017 TAF, and ESA analysis 2018.

TABLE 3-4
PROPOSED ACTION ANNUAL FORECAST

Aircraft Category	Aircraft Operations		
	No Action Baseline	New Activity (Proposed Action)	Total
2017 (Existing)			
Air Carrier (AC)	4,222	--	--
Air Taxi (AT)	1,231	--	--
General Aviation (GA)	106,368	--	--
Military (MIL)	605	--	--
Total	**112,426**	--	**--**
2019 (Initial)			
Air Carrier (AC)	4,589	17,520	17,520
Air Taxi (AT)	1,197	-	1,197
General Aviation (GA)	100,436	-	100,436
Military (MIL)	630	-	630
Totals	**106,852**	**17,520**	**124,372**
2024 (Future)			
Air Carrier (AC)	4,654	17,520	17,520
Air Taxi (AT)	1,197	-	**1,494**
General Aviation (GA)	101,472	-	**101,086**
Military (MIL)	630	-	**944**
Totals	**107,953**	**17,520**	**125,473**

Sources: FAA OPSNET (2018), FAA 2017 TAF, and ESA Analysis 2018.

TABLE 3-5
ANNUAL PASSENGER ENPLANEMENTS – PROPOSED ACTION

Aircraft	New Annual Aircraft Operations	Annual Roundtrip Flights[1]	Number of Seats	Average Load Factor	Annual Enplanements
2019					
Alaska Airlines and its partners (Horizon Air and SkyWest Airlines)					
Embraer 175	9,490	4,745	76	80.0	288,496
United Airlines and its partner (SkyWest Airlines operating as United Express)					
Embraer 175	4,380	2,190	76	85.0%	141,474
Southwest Airlines					
Boeing 737-700	3,650	1,825	143	86.7%	226,265
2019 Total	**17,520**	**8,760**			**656,253**
2024					
Alaska Airlines and its partners (Horizon Air and SkyWest Airlines)					
Embraer 175	8,760	4,380	76	80.0%	266,304
Boeing 737-800	730	365	159	80.0%	46,428
Subtotal	**9,490**	**4,745**			**312,732**
United Airlines and its partner (SkyWest Airlines operating as United Express)					
Embraer 175	2,920	1,460	76	85.0%	94,316
Boeing 737-800	1,460	730	166	85.0%	103,003
Subtotal	**4,380**	**2,190**			**197,319**
Southwest Airlines					
Boeing 737-700	3,650	1,825	143	86.7%	226,265
2024 Total	**17,520**	**8,760**			**736,316**

Notes: 1. These figures, which represent half of the operations generated (takeoff and landing), are used since enplanements are only based on the passengers departing the airport.

Source: Alaska Airlines and its partners (Horizon Air and SkyWest Airlines), 2017.
United Airlines and its partner (SkyWest Airlines operating as United Express) and Southwest Airlines, 2018.
ESA analysis, 2018.

3.3 Forecast Comparison

Table 3-6 compares the number of annual aircraft operations and number of annual passenger enplanements that were evaluated in the 2012 Final EA to the number of annual aircraft operations and passenger enplanements associated with the Proposed Action that is the subject of this Supplemental EA. Due to the increased number of flights and use of larger aircraft on some routes, the Proposed Action would generate 7,051 more aircraft operations at Paine Field in 2019 than in 2013 and 3,346 more operations in 2024 than in 2019, when compared to the level of

service evaluated in the 2012 Final EA. Similarly, the number of annual passenger enplanements associated with the Proposed Action would be more than that evaluated in the 2012 Final EA (544,235 more in 2019 and 498,116 more in 2024).

TABLE 3-6
COMPARISON OF ENVIRONMENTAL ASSESSMENT FORECASTS
SNOHOMISH COUNTY AIRPORT/PAINE FIELD

	2012 Final EA Proposed Action	Supplemental EA Proposed Action
Annual Aircraft Operations (Proposed Action)		
2013	117,321	-
2018	122,127	-
2019	-	124,372
2024	-	125,473
Annual Passenger Enplanements		
2013	112,000	-
2018	238,200	-
2019	-	656,235
2024	-	736,316

Sources: Snohomish County Airport Final Environmental Assessment, September 2012. FAA OPSNET (2017) and FAA 2016 TAF data. Airline information and assumptions. ESA analysis, 2018.

This Page

Intentionally Left Blank

CHAPTER 4
Alternatives

4.1 Scope of the Alternatives Evaluation

Alternatives evaluated in the 2012 Final EA were reviewed in light of the current proposal to establish commercial air service at Paine Field. Because the passenger terminal building and related development evaluated in the 2012 Final EA were approved and are under construction and anticipated to be complete in October 2018, the scope of the alternatives evaluation was limited to those alternatives associated with establishing scheduled commercial air service at Paine Field.

4.2 Alternatives Considered in this Supplemental EA

The Proposed Action and reasonable alternatives were considered for this Supplemental EA. To determine the range of alternatives considered, the first step was to take into account the purpose of and need for the Proposed Action. As discussed in Chapter 2 of the Supplemental EA, the need for the Proposed Action is to meet the demand for commercial air service within the greater Seattle area, as identified by Alaska Airlines, United Airlines, and Southwest Airlines. The purpose of the Proposed Action is to allow up to 24 daily domestic round-trip flights for passengers to fly between Paine Field and destinations in Arizona, California, Colorado, Oregon, and Nevada.

The second step involved comparing the Proposed Action considered in this Supplemental EA to the Proposed Action evaluated in the 2012 Final EA. A detailed discussion and comparison of the former and present proposed actions is provided in Chapter 2 of this Supplemental EA. Because the nature of the 2012 proposal and the current Proposed Action are substantially similar (i.e., introduction of scheduled commercial service at Paine Field) the alternatives that were identified (and retained or dismissed) in the 2012 Final EA were again evaluated in light of the present Proposed Action to determine if they would be considered reasonable. An evaluation of these alternatives is provided below.

4.2.1 No Action Alternative

Under the No Action Alternative, none of the airlines would initiate scheduled commercial service at Paine Field and the airport's Part 139 Operating Certificate would not be amended. The No Action Alternative would not meet the demand for commercial air service within the greater Seattle area. The passenger terminal building that was previously approved and is presently under construction would remain empty or be re-purposed for other aviation or non-aviation uses. Although the No Action Alternative would not satisfy the purpose of and need for the Proposed

Action, the alternative was retained for further detailed evaluation in this EA in accordance with NEPA.

4.2.2 Proposed Action

Alaska Airlines, United Airlines, and Southwest Airlines propose to conduct scheduled commercial air service at Paine Field. The service, which currently is proposed to commence in early 2019, would offer up to 24 daily domestic round trip flights using Embraer 175 and Boeing 737 aircraft.

The proposed commercial air service at Paine Field would be supported by customer service agents, ramp employees, fleet service personnel, and other providers (e.g., aircraft fueling). The flights would also be supported by ground support equipment (GSE). While parked, the aircraft would be serviced by mobile and/or jet bridge-mounted ground power units, consistent with Alaska Airlines, United Airlines, and Southwest Airlines standards. The use of aircraft auxiliary power units would be minimal; the APU is only used between engine shutdown/startup and APU connection/disconnection.

There is no proposal to construct any new, or expand any existing, terminal buildings, concourses, aircraft parking aprons, or support buildings at Paine Field. The airlines would use the airport's newly constructed commercial passenger terminal building. However, the level of service proposed by Alaska Airlines, United Airlines, and Southwest Airlines would require an additional 424 public vehicle parking spaces. The additional vehicle parking spaces would be provided on existing airfield pavement areas in proximity to the terminal building. Converting the existing aircraft parking apron pavement to vehicle parking would require the installation of curbing, access gates, lighting, fencing, and related improvements.

Amendments to Paine Field's Part 139 Operating Certificate would also require the installation of a Segmented Circle, which would be located on previously disturbed airfield land.[11]

Although proposed amendment to Paine Field's Part 139 operating certificate underwent NEPA review in the 2012 EA and received FAA's environmental approval, the amendments have not yet been obtained by the County. Given the amount of time that has elapsed since the prior environmental approval, the issuance of an amendment to the Part 139 operating certificate for Paine Field is included in this Supplemental EA as it relates to the Part 119 Operations Specifications that are the focus of this Supplemental EA. In this document, the request to amend the Operation Specifications for Alaska Airlines, United Airlines, and Southwest Airlines and the present request to amend Paine Field's Part 139 operating certificate are collectively referred to as the "Proposed Action."

[11] A segmented circle is a visual ground-based structure, utilized when PAE's air traffic control tower is closed, to provide aircraft traffic pattern information. It typically includes wind direction, landing direction, landing strip, and traffic pattern indicators.

4.2.3 Use of Other Airports

This alternative would use and/or develop facilities at other public-use airports to accommodate the demand for commercial air service within the greater Seattle area. Just as Alaska Airlines and Allegiant Air currently offer scheduled commercial air service at the Bellingham International Airport. Alaska Airlines, United Airlines, and Southwest Airlines also offer scheduled commercial air service at the Seattle-Tacoma International Airport. Offering scheduled commercial air service at a particular airport is a business decision made by each airline. To date, none of the airlines proposing to initiate service at Paine Field has indicated interest in establishing service at an alternate airport in Snohomish County or the greater Seattle area.

The FAA does not have the authority to direct or place influence upon commercial service providers to provide commercial air carrier services at a particular airport or to require them to shift services from one airport to another. Because the concept of directing air carrier services to use another airport is not reasonable, this evaluation concurred with the similar finding in the 2012 Final EA and this alternative was not retained for further consideration in this Supplemental EA.

4.2.4 Use of Other Aircraft

This alternative would direct the airlines to operate different aircraft when providing scheduled commercial service at Paine Field. However, the FAA and Airport Sponsors do not dictate what aircraft use an airport or what aircraft are assigned to commercial air carrier routes if the proposed aircraft could safely operate at the proposed airport in compliance with all applicable statutes. Additionally, public use airports such as Paine Field cannot deny access to an aircraft operator if they can safely operate at that facility.

After careful evaluation of the various alternatives considered in 2012, and of the ability of these alternatives to satisfy the identified purpose and need for the Proposed Action, no additional alternatives were identified for this Supplemental EA. Because the concept of directing air carrier services to use other aircraft types at a particular airport is not reasonable, this evaluation concurred with the similar finding in the 2012 Final EA and this alternative was not retained for further consideration in this Supplemental EA.

4.3 Alternatives Retained

For the reasons presented above, the alternatives retained for consideration were the Proposed Action and the No Action Alternative.

This Page

Intentionally Left Blank

CHAPTER 5
Affected Environment

5.1 Introduction

This section describes existing physical, natural, and human environmental conditions that have potential to be directly or indirectly affected by the Proposed Action. This section includes a review of information contained in the 2012 EA and 2017 existing condition information.

5.1.1 Resources Not Affected

Environmental resource categories that would not be affected by the Proposed Action and its alternatives, due to their absence in the study areas (defined on the following page), are summarized below. These resources will not be addressed further in this chapter and will not be subject to detailed evaluation in this Supplemental EA.

Wild and Scenic Rivers - There are no designated Wild and Scenic Rivers segments and no river segments listed in the Nationwide Rivers Inventory located in on or within one mile of Paine Field.

Farmlands - The Proposed Action does not involve land acquisition or the conversion of agricultural land to airport use. The airport is located within an urbanized area and the provisions of the Farmland Protection Policy Act do not apply.

5.1.2 Study Areas

Study areas were identified to describe existing conditions in the vicinity of Paine Field and to assess direct and indirect impacts of the Proposed Action and the alternatives carried forward for analysis. The study areas are described below.

5.1.2.1 Generalized Study Area (GSA)

For environmental considerations that deal with broad, indirect impacts and issues, a Generalized Study Area (GSA) was established (see **Figure 5.1-1**). The GSA includes a geographic area in which certain potential impacts may affect the surrounding community (i.e., aircraft noise, air quality, and land use impacts). Because noise often has the most far-reaching impacts of an airport-related action, the size and configuration of the GSA was designed to encompass an area larger than the future 65 Day-Night Noise Level (DNL) exposure contours of the Proposed Action. Areas with potential for land use, socioeconomic, and Section 4(f) resource impacts were also considered when the GSA was defined.

5.1.2.2 Detailed Study Area (DSA)

A Detailed Study Area (DSA) was established for environmental considerations that deal with construction and operational impacts that directly affect natural resources, such as wetlands, protected species, and biotic resources. Although no construction activities are associated with the Proposed Action, the DSA includes the areas of existing airfield pavement that would be converted for use as vehicle parking (see **Figure 5.1-2**).

5.1.3 Existing Condition Study Year

This EA describes existing conditions for the year 2017, which represents the best available information for this EA. Existing conditions described in the 2012 EA were also reviewed to determine whether there were any relevant changes in the interim.

5.2 Air Quality

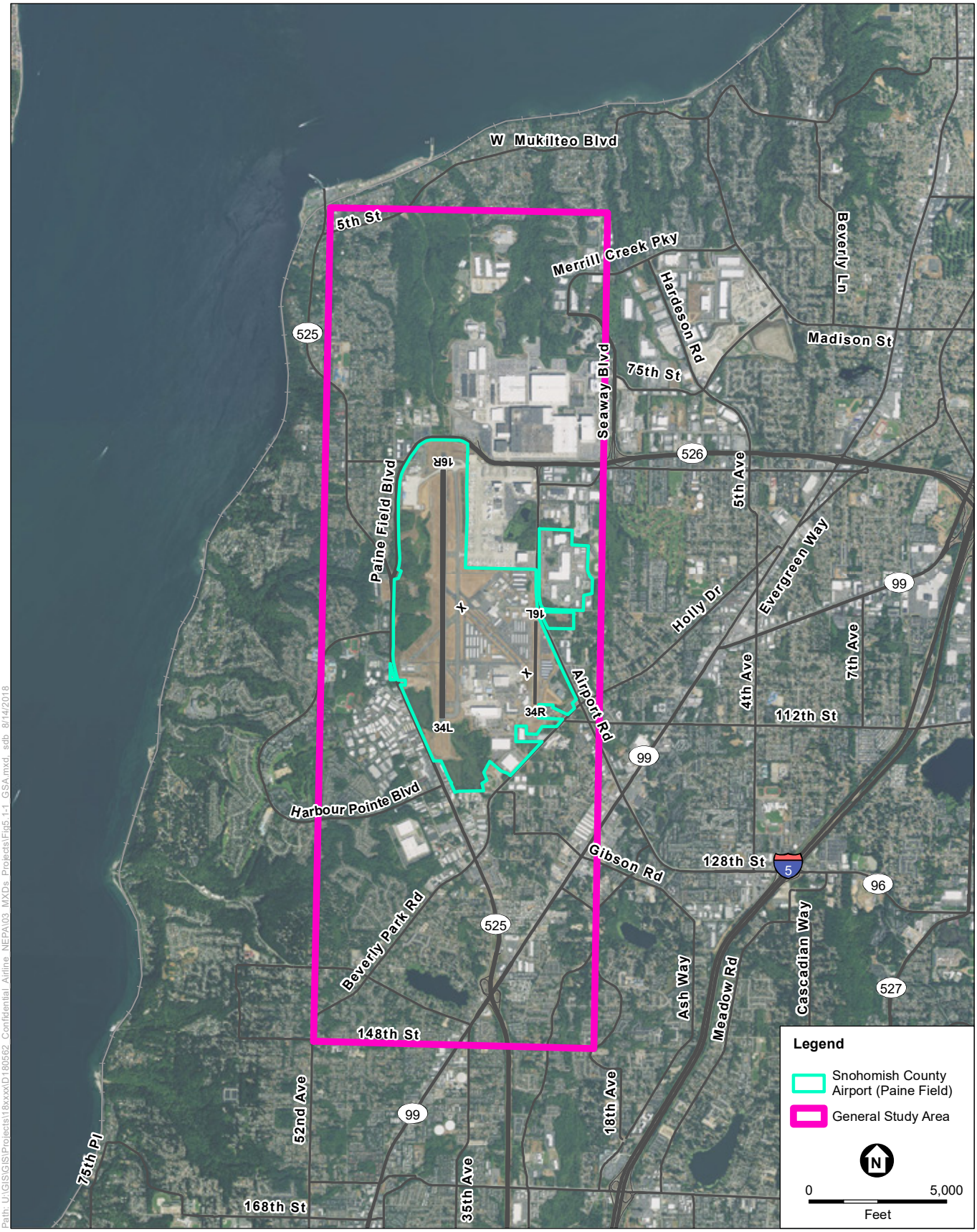
This section contains a brief discussion of existing air quality conditions in the study area. Information on applicable air quality standards, current attainment/nonattainment designations, and existing air monitoring data is also provided.

5.2.1 Introduction

The federal *Clean Air Act* (CAA), as amended, required the U.S. Environmental Protection Agency (USEPA) to set National Ambient Air Quality Standards (NAAQS) for criteria pollutants considered harmful to public health and the environment. Those areas where the NAAQS are not met are designated as "nonattainment." A state with a nonattainment area must prepare a State Implementation Plan (SIP) that details the programs and requirements the state will use to meet the NAAQS by the deadlines specified in the 1990 amendments to the CAA.

The USEPA, under mandates of the CAA, as amended, established primary and secondary NAAQS for seven air contaminants ("criteria air pollutants"). These contaminants include: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter less than or equal to 10 microns in diameter (coarse particulates or PM_{10}), particulate matter less than or equal to 2.5 microns in diameter (fine particulates or $PM_{2.5}$), and lead. Primary standards were established at levels sufficient to protect public health with a satisfactory margin of safety. Secondary standards were established to protect public welfare from other adverse effects of air pollution. The primary standards for the seven criteria pollutants listed in the NAAQS are provided in **Table 5.2-1**. Since the publication of the 2012 EA, in 2015, the 8-hour Ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

The Washington State Department of Ecology manages air quality, regulates mobile emissions sources, and oversees the activities of county and regional air districts within Washington. The Puget Sound Clean Air Agency (PSCAA) is responsible for ensuring that federal air quality standards are met within Snohomish County. The PSCAA monitors ambient air pollutant levels throughout the region and implements strategies to ensure the region attains the NAAQS.



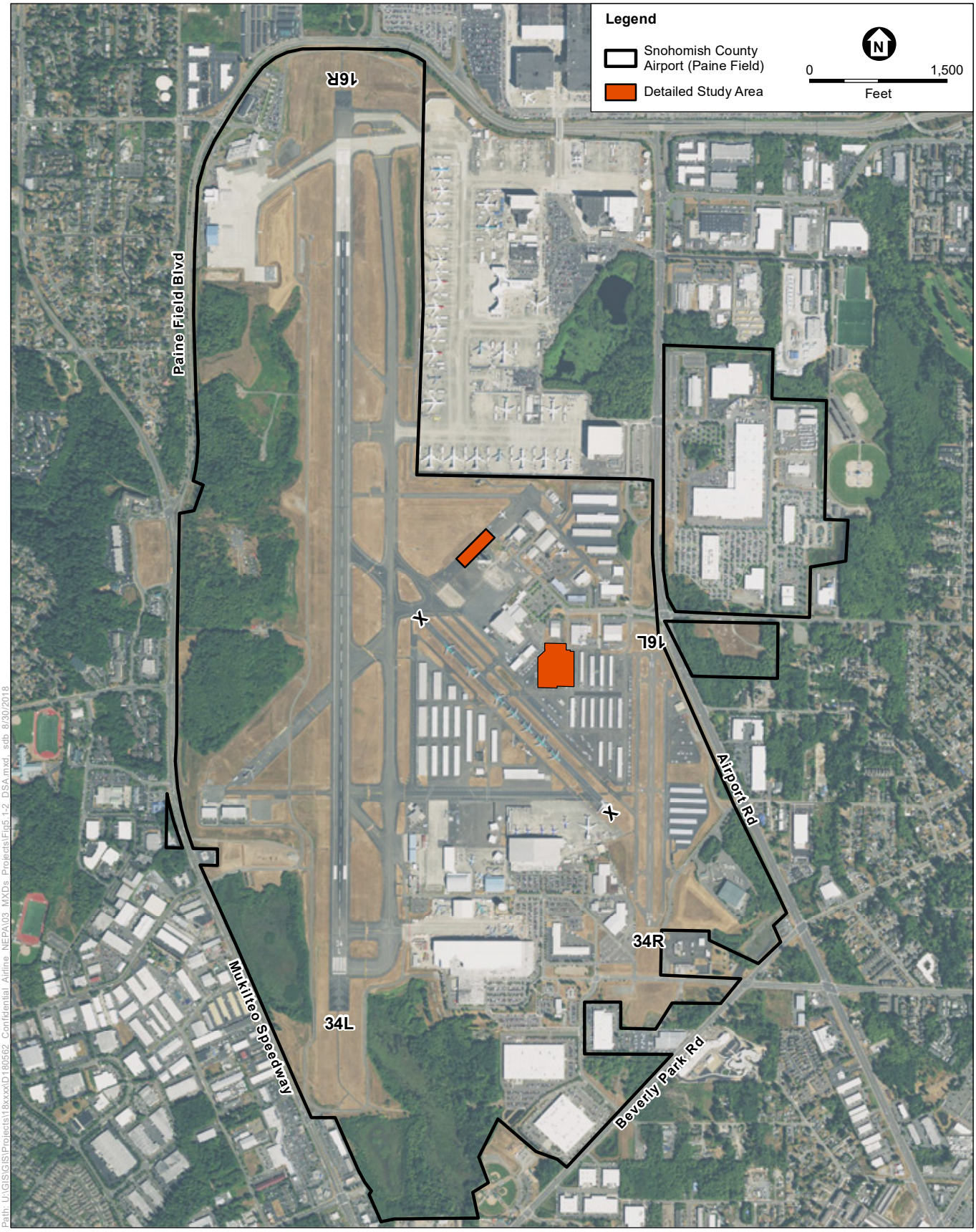
Path: U:\GIS\GIS\Projects\18xxxx\D180562_Confidential_Airline_NEPA\03_MXDs_Projects\Fig5.1-1_GSA.mxd sdb 8/14/2018

SOURCE: ESRI; USDA NAIP (Aerial Imagery); ESA, 2018
NOTE: Runway 11-29 closed indefinitely.

Figure 5.1-1
General Study Area
Snohomish County Airport (Paine Field)

ESA

This Page Left Intentionally Blank



Path: U:\GIS\GIS\Projects\18xxxx\D180562_Confidential_Airline_NEPA\03_MXDs_Projects\Fig5.1-2_DSA.mxd_sdb 8/30/2018

SOURCE: ESRI; USDA NAIP (Aerial Imagery); ESA, 2018
NOTE: Runway 11-29 closed indefinitely.

Figure 5.1-2
Detailed Study Area
Snohomish County Airport (Paine Field)

ESA

This Page Left Intentionally Blank

5.2.2 Regulatory Context

5.2.2.1 Attainment Status

The Washington Department of Ecology and the PSCAA have established State and local ambient air quality standards for the same criteria air pollutants addressed in the NAAQS. The Puget Sound Region, including Snohomish County, is currently designated by the USEPA as being in attainment for all seven NAAQS.

Carbon Monoxide

The Puget Sound Region, including Snohomish County, was designated as a 'high-moderate' non-attainment area for carbon monoxide until 1996, when attainment with the standards was demonstrated and a maintenance plan was developed to ensure that pollutant levels do not increase. The 1996 carbon monoxide Maintenance Plan/State Implementation Plan was promulgated in 1996 with a 20-year duration. The end date of the 20-year maintenance plan was reached in 2016, so the region is no longer a maintenance area for carbon monoxide.

Ozone

The Puget Sound Region, including Snohomish County, was designated as a 'marginal' ozone nonattainment area until 1996, when attainment with the standards was demonstrated and a maintenance plan promulgated to ensure that pollutant levels do not increase. The end date of the 20-year maintenance plan was reached in 2016, so the region is no longer a maintenance area for ozone. In 2005, the 1-hour ozone standard, for which the Puget Sound Region was in nonattainment, was rescinded. The Region has continued to achieve attainment for the 8-hour ozone standard, which supersedes the 1-hour standard.

Particulate Matter

No exceedances of the PM_{10} standard have occurred in the region since 1990.

In conclusion, Snohomish County is in attainment for all air pollutant standards, and is no longer considered a maintenance area as confirmed by PSCAA, the lead regulatory agency for the area.[12]

[12] K.H. Strange (personal communication, June 18, 2018).

TABLE 5.2-1
NATIONAL AMBIENT AIR QUALITY STANDARDS
ATTAINMENT STATUS - SNOHOMISH COUNTY

Pollutant	Averaging Time	Federal Standards (NAAQS)	
		Primary Standard	Snohomish County Status
Ozone (O_3)	1 Hour	0.12 ppm	n/a
	8 Hour	0.070 ppm	Attainment
Particulate Matter (PM_{10})	24 Hour	150 µg/m^3	Attainment
Particulate Matter ($PM_{2.5}$)	24 Hour	35 µg/m^3	Attainment
	1 Year	12 µg/m^3	Attainment
Carbon Monoxide (CO)	1 Hour	35 ppm	Attainment
	8 Hour	9 ppm	Attainment
Nitrogen Dioxide (NO_2)	1 Hour	100 ppb	Attainment
	1 Year	53 ppb	Attainment
Sulfur Dioxide (SO_2)	1 Hour	75 ppb	Attainment
	24 Hour	0.14 ppm	Attainment
Lead (Pb)	Rolling 3 month Average	0.15 µg/m^3	Attainment

Federal standards listed in this table are the primary standards. The secondary standards are not shown.
n/a = Not Applicable
µg/m^3 = micrograms per cubic meter
NAAQS = National Ambient Air Quality Standards
PM_{10} = particulate matter less than or equal to 10 microns in diameter
$PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter
ppm = parts per million

SOURCES: U.S. EPA National Ambient Air Quality Standards, October 1, 2015. U.S, EPA Green Book, June 30, 2018

5.2.2.2 State Implementation Plans

The PSCAA is responsible for administering SIPs for Snohomish County. The PSCAA has adopted several SIPs that cover Snohomish County, as described below:

- The 1993 Puget Sound Carbon Monoxide Attainment Plan. The Central Puget Sound Area was designated nonattainment for CO and classified as moderate upon enactment of the Clean Air Act Amendments in 1990. The State of Washington submitted a CO maintenance plan on February 29, 1996. On October 11, 1996, USEPA approved the Central Puget Sound Area CO maintenance plan (61 Federal Register 53323)
- The Central Puget Sound Area 2nd 10-Year CO Maintenance Plan. Washington submitted a second 10-year CO/ozone maintenance plan on December 17, 2003. On August 5, 2004, USEPA approved the Central Puget Sound Area 2nd 10-year CO/ozone maintenance plan (69 Federal Register 30847).

The Maintenance Plans for both CO and Ozone have expired and the region has been confirmed by PSCAA to be in attainment with all seven criteria pollutants contained in the NAAQS.

5.2.3 Existing Conditions

5.2.3.1 Ambient Air Quality Conditions

The PSCAA monitors air quality at 23 locations throughout the Puget Sound region. The closest air quality monitoring stations to Paine Field are located in Marysville (7th Ave), about 10 miles north of Paine Field, and Lynnwood (on 212th) about 9 miles south of Paine Field. Both the

Marysville and Lynwood stations monitor concentrations of $PM_{2.5}$ only. There are no other monitoring stations in Snohomish County that measure ozone, NO_2, CO, or PM_{10}. The closest monitoring stations that measure these pollutants are the Seattle 10th & Weller Street station in King County, about 22 miles south of Paine Field, which monitors CO and NO_2, and the Seattle-Beacon Hill station in King County (4103 Beacon Ave S.), about 24 miles south of Paine Field, which monitors ozone, NO_2, and PM_{10}. **Table 5.2-2** summarizes air quality data from these stations for the most recent three years.

TABLE 5.2-2
AIR QUALITY MONITORING DATA SUMMARY (2016-2018)

Pollutant	Monitoring Data by Year		
	2016	2017	2018[c]
Ozone (O_3) – Seattle-Beacon Hill Station			
Highest 1 Hour Average (ppm)[b]	0.044	0.064	0.06
Days over National Standard	0	0	0
Highest 8 Hour Average (ppm)[b]	0.042	0.052	0.05
Days over National Standard (0.070 ppm)[a]	0	0	0
Nitrogen Dioxide (NO_2) – Seattle-10th & Weller Street Station			
Highest 1 Hour Average ($\mu g/m^3$)[b]	71	86	56
Days over National Standard (118 $\mu g/m^3$)[a]	--	--	--
Carbon Monoxide (CO) – Seattle-10th & Weller Street Station			
Highest 1 Hour Average (ppm)[b]	1.9	2.9	1.4
Days over Federal Standard (35 ppm)[a]	0	0	0
Highest 8 Hour Average (ppm)[b]	1.6	2.2	1.3
Days over National Standard (9.0 ppm)[a]	0	0	0
Particulate Matter (PM_{10}) – Seattle-Beacon Hill Station			
Highest 24 Hour Average – State/National ($\mu g/m^3$)[b]	--	--	16
Estimated Days over National Standard (150 $\mu g/m^3$)[a,b]	--	--	0
Particulate Matter ($PM_{2.5}$) – Marysville Station			
Highest 24 Hour Average ($\mu g/m^3$)[b] – National Measurement	38.7	49.0	24.6
Estimated Days over National Standard (35 $\mu g/m^3$)[a,b]	--	--	--

a Generally, national standards are not to be exceeded more than once per year.
b PM_{10} and $PM_{2.5}$ are not measured every day of the year. Number of estimated days over the standard is based on 365 days per year.
c Indicates partial year value.

ppm = parts per million
$\mu g/m^3$ = micrograms per cubic matter
-- There was insufficient data available to determine the value.

SOURCE: Environmental Protection Agency. Outdoor Air Quality Data; Monitor Values Report. 2018.

5.2.3.2 Meteorological and Topographical Conditions

Paine Field is located between Puget Sound and the Cascade Mountains and is influenced by prevailing winds out of the West. The topography, climate and meteorology of the Paine Field site allows for generally rapid dispersion and deposition of pollutants due to relatively windy conditions and among the highest frequencies of precipitation in the US. The region is classified

as a Mediterranean climate with cool, wet winters and mild, relatively dry summers.[13] Paine Field lies in a region that is considered the cloudiest region of the United States, due in part to frequent storms and low pressure systems moving in from the Pacific Ocean. The region has many more precipitation days than nearly all U.S. cities east of the Rocky Mountains.[14]

5.2.3.3 Existing Condition Emissions Inventory

The sources of air emissions associated with Paine Field are typical of sources associated with airports. Emission sources include aircraft (startup, taxi, takeoff, climb-out below mixing height, approach below mixing height, landing, and taxi[15]), ground support equipment (GSE), airport-related motor vehicles within the airport roadway network (e.g., pilots, passengers, airport employees, delivery trucks, etc.), and stationary sources (e.g., generators and fuel storage tanks).[16] There are no large sources of air emissions in the areas immediately adjacent to Paine Field.

The existing condition (2017) air pollutant emissions inventory for Paine Field is presented in **Table 5.2-3**. The existing conditions air pollutant emissions inventory presented in this Supplemental EA was developed using the most recent version of FAA's Aviation Environmental Design Tool (AEDT Version 2d)[17] and the USEPA's MOVES2014a model.

[13] *World Map of the Köppen-Geiger Climate Classification Updated*. Meteorol. Z. **15** (3): 259–263. doi:10.1127/0941-2948/2006/0130. Retrieved February 15, 2007.

[14] *Mean Number of Days with Precipitation 0.01 Inch or More.* NOAA Satellites and Information. Archived at *http://www1.ncdc.noaa.gov/pub/data/ccd-data/prge0112.txt* on September 28, 2013.

[15] Appendix C of FAA's *1050.1F Desk Reference* describes the mixing height as "the top of the vertical region of the atmosphere in which pollutant mixing occurs and affects ground level concentrations. Above this height, pollutants that are released generally do not mix with ground level emissions and do not have an effect on ground level concentrations in the local area." AEDT's default mixing height of 3,000 feet above ground level (AGL) was used for this analysis.

[16] Existing Condition GSE emissions values reflect that operational data was only provided for certain Boeing facility-related operations. APU operational data was not available.

[17] The AEDT model replaced FAA's legacy modeling tools for emissions (the Emissions and Dispersion Modeling System (EDMS)) and noise (the Integrated Noise Model (INM)).

TABLE 5.2-3
EXISTING CONDITIONS (2017) CRITERIA AIR POLLUTANT

Emissions Source	Criteria Pollutant Emissions (Tons per year)					
	CO	VOC	NO_X	SO_X	PM_{10}	$PM_{2.5}$
Aircraft	596.89	24.88	75.97	7.35	1.02	1.02
Ground Support Equipment	0.98	0.19	1.40	0.01	0.13	0.12
Off-road equipment[1]	1.03	0.11	1.12	<0.01	0.03	0.03
Mobile Sources (traffic)	8,077	1,258	604.36	0.56	21.32	18.86
Stationary Sources[2]	0.69	0.08	0.57	<0.01	0.04	0.04
2017 Total	**8,676.63**	**1,283.51**	**683.43**	**7.93**	**22.53**	**20.06**

[1] Emergency fire rescue equipment
[2] Includes fire pumps, emergency generators, and natural gas combustion.

CO = carbon monoxide
VOC = volatile organic compounds
NO_x = oxides of nitrogen
SO_X = oxides of sulfur
PM_{10} = particulate matter less than or equal to 10 microns in diameter
$PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter
Note - Numbers may not add, due to rounding.

SOURCE: Environmental Science Associates, 2018.

The 2012 EA included an existing condition (2008) air pollutant emissions inventory that was calculated using the Emissions and Dispersion Modeling System (EDMS) Version 5.1.3, the FAA-approved model for use at that time. Overall, the annual emissions of criteria air pollutants generated by aircraft operations at Paine Field are marginally lower in 2017 compared to levels in 2008. This is partly due to a reduction in the number of annual aircraft operations at Paine Field between 2008 and 2017.

5.3 Biological Resources

5.3.1 Land Cover, Habitat Types and Wildlife

The predominant land cover type on and in the vicinity of Paine Field is Urban Matrix. Land cover type is dominated by maintained grassed airfield; aviation, commercial and industrial buildings; runway, taxiways, aircraft parking aprons, roads, and highways; and scattered drainage ways, streams, and wetlands. Plant communities are predominantly maintained grassed airfield with a mix of native and ornamental trees and shrubs around buildings and along fence lines. These plant communities provide limited wildlife habitat. Habitat types in the airport vicinity are characterized by mixed coniferous and deciduous forested ravines extending north and west off of the field, which likely provide wildlife habitat for a variety of urban species. No field surveys were conducted in preparation of this Supplemental EA.

Wildlife on and in the vicinity of Paine Field are generally those common urban species that have adapted to airport activities and ongoing airfield maintenance. Common bird species include, but are not limited to, American crow, pigeons, European starlings, American robin, Red-tailed hawks, American kestrels, Cooper's hawks, and mallards. Common mammals include deer, opossum, raccoon, Norway rat, and coyotes.

Snohomish County implements an FAA-approved Wildlife Hazard Management Plan at Paine Field. The purpose of this plan is to enhance safety by reducing the risk of wildlife incidents and aircraft strikes at the airport. The plan concentrates on minimizing wildlife attractants on the airport (e.g., ponds and wetlands) and managing wildlife that frequent the airport. Of particular note, the airfield is maintained specifically to not attract wildlife.

5.3.2 Federally-Protected Species and Critical Habitat

Section 7 of the *Endangered Species Act* (ESA) of 1973 requires federal agencies to determine if their actions may have an adverse impact on federally-listed threatened or endangered species or result in destruction or adverse modification of their designated critical habitat. These listed species include both animals and plants. The Act is administered by the U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration (NOAA) Fisheries. USFWS is responsible for terrestrial and freshwater organisms, while NOAA Fisheries is mainly responsible for marine wildlife and anadromous fish, such as salmon. Under the Act, species are listed as either Endangered or Threatened. Endangered means a species is in danger of extinction throughout all or a significant portion of its range. Threatened means a species is likely to become endangered within the foreseeable future. The Bald Eagle and Golden Eagle Protection Act (CFR 50 Part 22), first enacted in 1940, prohibits the "take" of bald and golden eagles including their parts, nests or eggs without a permit. For example, the Act protects eagle nests which might be affected as a result of tree removal or clearing.

The USFWS and NOAA Fisheries list several endangered, threatened and candidate species, along with species of concern for Snohomish County, as shown in **Table 5.3-1**. The southern resident killer whale, streaked horned lark, and North American wolverine were not included in the 2012 EA. Included state-listed species are described in Section 5.3.4.

Of the federally-listed species identified in Snohomish County, only three of these species could potentially be present on the airport. The last peregrine falcon sighting at the airport was in 2004; no nests have been observed. Bald eagles are occasionally seen at the airport, but no nests have been observed. Although suitable habitat for streaked horned larks may exist at Paine Field in the form of maintained grassy areas like those associated with runways and taxiways, streaked horned larks are not believed to be present at Paine Field as the current range for the species does not appear to extend north of Tacoma Narrows, Washington. The FAA coordinates with USFWS and Washington Department of Fish and Wildlife (WDFW) regarding the presence of streaked horned larks at airports in Oregon and Washington and Paine Field has never been raised as an airport location requiring a survey. Other species listed in Table 5.3-1 are not likely to occur and not documented on Paine Field due to lack of suitable habitat. When a species is proposed for listing under the Endangered Species Act, the USFWS and NOAA Fisheries must determine whether there are habitats that are essential to the species' conservation. Those habitat areas may be designated as "critical habitat." No designated Critical Habitat is located on or adjacent to Paine Field.

The USFWS has designated Critical Habitat for bull trout and Marbled murrelet in Snohomish County, but this Critical Habitat does not exist on or adjacent to Paine Field (USFWS, 2013). Further, NOAA Fisheries has designated Critical Habitat for Puget Sound Chinook salmon and

Southern Resident killer whale throughout the saltwater of Puget Sound, including Possession Sound, which is located approximately one mile west of the airport. Puget Sound Steelhead have designated Critical Habitat in the Snohomish River, which is located five miles east of Paine Field.

TABLE 5.3-1
FEDERAL AND STATE-LISTED THREATENED AND ENDANGERED SPECIES AND SPECIES OF CONCERN IN SNOHOMISH COUNTY, WASHINGTON

Common Name	Scientific Name	Species Type	Federal Listing[1]	State Listing[2]
Gray wolf	*Canis lupus*	Mammal	E	SE
Southern Resident killer whale	*Orcinus orca*	Mammal	E	SE
Grizzly bear	*Ursus arctos*	Mammal	T	SE
Canada lynx	*Lynx canadensis*	Mammal	T	SE
Northern spotted owl	*Strix occidentalis*	Bird	T	SE
Bull trout	*Salvelinus confluentus*	Fish	T	SC
Marbled murrelet	*Brachyramphus marmoratus*	Bird	T	SE
Streaked horned lark	Eremophila alpestris strigata	Bird	T	SE
North American wolverine	*Gulo gulo luteus*	Mammal	PT	SC
Puget Sound Chinook salmon	*Oncorhynchus tshawytscha*	Fish	T	SC
Puget Sound steelhead trout	*Oncorhynchus mykiss*	Fish	T	--
Oregon spotted frog	*Rana pretiosa*	Amphibian	T	SE
Yellow-billed cuckoo	*Coccyzus americanus*	Bird	T	SC
Golden paintbrush	*Castilleja levisecta*	Plant	T	ST
White-bark pine	*Pinus albicaulis*	Plant	C	--
Bald eagle	*Haliaeetus leucocephalus*	Bird	SOC	--
Peregrine falcon	*Falco peregrines*	Bird	SOC	--
River lamprey	*Lampetra ayresi*	Fish	SOC	--

[1]E = Endangered, T = Threatened, PT = Proposed Threatened, C = Candidate, SOC = Federal Species of Concern
[2]SE = State Endangered, ST = State Threatened, SC = State Candidate

SOURCE: NOAA Fisheries (2018); USFWS (2018a); USFWS (2018b); WDFW (2018b).

5.3.3 Essential Fish Habitat

Essential Fish Habitat is designated under the *Magnuson-Stevens Act of 1976*, which regulates and manages marine fisheries in the U.S. and its territorial seas. The nearest Essential Fish Habitat is approximately one mile away in Possession Sound.

5.3.4 State and County-Listed Species

The Washington Department of Fish and Wildlife's Priority Habitats and Species (PHS) database does not indicate the presence of any state-listed priority species within the airport boundary. The PHS database indicates presence of coho and residential coastal cutthroat in Big Gulch Creek (WDFW, 2018a). In addition to the federal and state listed species in **Table 5.3-1**, there are also several state-listed species of concern or sensitive species in Snohomish County. These species are listed in **Table 5.3-2**. The Larch mountain salamander, Common loon, Olympic mudminnow, Pygmy whitefish, Margined sculpin, and Gray whale were not included in the 2012 EA. Only four of the state-listed species have any potential to be found on the airport; these are northern

goshawk and the three bat species, which could potentially fly over or around the airport. No nesting or roosting habitat is available on the airport, so these sensitive species may be present occasionally.

TABLE 5.3-2

STATE-LISTED SPECIES OF CONCERN OR SENSITIVE SPECIES IN SNOHOMISH COUNTY, WASHINGTON

Common Name	Scientific Name
Long-eared Myotis (bat)	*Myotis evotis*
Long-legged Myotis (bat)	*Myotis volans*
Pacific Townsend's big-eared bat	*Corynorhinus townsendii*
Northern Goshawk	*Accipiter gentilis*
Larch mountain salamander	*Plethodon larselli*
Common loon	*Gavia immer*
Olympic mudminnow	*Novumbra hubbsi*
Pygmy whitefish	*Prosopium coulteri*
Margined sculpin	*Cottus marginatus*
Gray whale	*Eschrichtius robustus*

SOURCE: WDFW (2018b).

5.3.5 Migratory Birds

The *Migratory Bird Treaty Act of 1918* makes it illegal for anyone to take any migratory bird, nest, or eggs except under the terms of a valid permit. The migratory bird species in the area include hawks and other raptors, among many others. Great blue heron, olive-sided flycatcher, red-throated loon, and rufous hummingbird are all migratory birds identified by the USFWS specifically as birds of conservation concern in Snohomish County. Certain birds and their nests can be removed from the airport area under the terms and conditions of the approved Wildlife Hazard Management Plan.

5.4 Climate

Greenhouse gases (GHGs) include carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Increasing concentrations of GHGs in the atmosphere affect the global climate. GHG emissions can result from anthropogenic sources, such as the combustion of fossil fuels (which include aviation fuel).

The most recent available USEPA data indicate that the transportation sector accounted for 28.5 percent of total GHG emissions nationally in 2016. Of that 28.5 percent, commercial aviation accounted for 6.5 percent of the total transportation sector, or 1.9 percent of the total gross carbon dioxide-equivalent (CO_2e) emissions in the US for all sectors. Other sector emission contributions include electric power (28.4 percent), industrial activities (22 percent), commercial activities (6

percent), residential (5 percent), agricultural activities (9 percent) and U.S. territory emissions (1 percent).[18,19]

FAA Order 1050.1E, Change 1 and FAA order 5050.4B, did not address climate change or GHGs when the 2012 EA was prepared. Therefore, GHG emissions were not quantified in the 2012 EA for the existing conditions or future conditions scenarios. Current FAA guidance (1050.1F Desk Reference) states that GHG emissions should be quantified when emissions are quantified for air quality purposes and therefore, GHG emissions calculations are included in this Supplemental EA.

This section provides information on existing conditions (2017) GHG emissions at Paine Field, shown in **Table 5.4-1**.[20] Using AEDT, Version 2d, the amount of CO_2 was calculated for aircraft operations. CH_4 and N_2O for aircraft were calculated using the methods found in the FAA *Aviation Emissions and Air Quality Handbook* (Version 3, Update 1), as were CO_2, CH_4, and N_2O for GSE. Emissions are expressed in CO_2e; which is calculated by multiplying GHGs by their Global Warming Potential (GWP). Mobile source emissions of GHGs, such as light-duty vehicles associated with passenger traffic, were calculated using MOVES2014.

TABLE 5.4-1
EXISTING CONDITIONS (2017) GREENHOUSE GAS EMISSIONS (ANNUAL METRIC TONS)

Source	Carbon Dioxide Equivalent (CO_2e) (metric tons)
Aircraft	26,409
Ground Support Equipment	298
Off-road equipment[1]	79
Mobile Sources (traffic)	92,897
Area Sources[2]	306
Stationary Sources[3]	39
Electricity Use	64
Solid Waste	137
Water and Wastewater	60
2017 Total	**120,288**

[1] Emergency fire rescue equipment
[2] Natural gas combustion.
[3] Includes fire pumps and emergency generators.

SOURCE: Environmental Science Associates, 2018.

5.5 Coastal Resources

The federal *Coastal Zone Management Act of 1972* provides authority for management of coastal resources nationwide. The Washington Coastal Zone Management Program (CZMP), approved

18 *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2016.* U.S. Environmental Protection Agency. 2018.

19 Numbers do not add to 100-percent due to rounding.

20 Existing Condition GSE emissions values reflect that Existing Condition GSE operational data was only provided for certain Boeing facility-related operations. APU operational data was not available.

by NOAA in 1976, is managed by the Washington Department of Ecology. Snohomish County is included among the 15 counties that comprise the Washington State Coastal Zone.

As noted by the Department of Ecology, federal consistency requires that federal actions within and outside the coastal zone, which have reasonably foreseeable effects on any coastal use (land or water) or natural resource of the coastal zone be consistent with the enforceable policies of a state's federally approved CZMP. The specific type of federal action will determine whether a consistency determination or certification is required.

5.6 Department of Transportation Act, Section 4(f)

5.6.1 Introduction

This section describes recreational and other resources in the vicinity of Paine Field that are subject to the protective provisions of Section 4(f) or Section 6(f) of the Department of Transportation Act.

5.6.2 Regulatory Context

Section 4(f) of the *Department of Transportation Act of 1966* (re-codified and renumbered as Section 303(c) of 49 United States Code) established policy for certain resources affected by transportation projects that are funded or approved by the Department of Transportation (DOT) and its administrations and agencies. Section 4(f) states that the Secretary of Transportation may approve a transportation program or project (other than any project for a park road or parkway under section 204 of title 23) requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state or local significance, or land of an historic site of national, state or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge, or site) only if -

(1) there is no prudent and feasible alternative to using that land; and

(2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

Section 4(f) also applies to constructive use, which occurs if Section 4(f) lands are substantially impaired (diminished activities, features or attributes that contribute to its significance or enjoyment) by the project.

Section 6(f) of the *Land and Water Conservation Fund Act* (LWCF), as amended, provides funding for the purchase and improvement of recreational lands, wildlife and waterfowl refuges, and other similar resources. The LWCF established a fund for federal acquisition of park and recreational lands and also provides matching grants to state and local governments for recreation planning, acquisition, and development. Lands purchased by this fund are protected from conversion to uses other than public outdoor recreation. The inventory of park and recreation facilities in this section presents both Section 4(f) and 6(f) resources.

5.6.3 Sections 4(f) and 6(f) Resources

Information from the City of Everett, City of Mukilteo, Snohomish County, and other sources was used to identify publicly-owned parks, recreation areas, historic sites, and wildlife or waterfowl refuge of national, state, or local significance in the immediate vicinity of Paine Field. Based on this review, **Table 5.6-1** identifies Section 4(f) and 6(f) resources in or near the project area. The location of each resource is shown on **Figure 5.6-1**. In order to capture resources east and west of Paine Field, and maintain consistency with the 2012 EA, the study area reviewed for Section 4(f) and 6(f) Resources was based on a 10,000' radius from the center of the Airport.

TABLE 5.6-1
SECTION 4(f) RESOURCES

Facility	Location	Owner	Amenities	Resource Type
Paine Field Community Park	11928 Beverly Park Road, Everett, WA	Snohomish County	Athletic fields (soccer, baseball, softball), picnic shelters and tables, and playground.	4(f)
Kasch Park and Athletic Complex	8811 Airport Road, Everett, WA	City of Everett	Athletic fields (soccer, baseball), picnic shelter and tables, playground, and trails.	4(f) and 6(f)
Loganberry Lane Park[21]	18th Avenue West, Everett, WA	City of Everett	Trails, off-leash pet areas.	4(f)
Walter E. Hall Park and Golf Course	1226 W. Casino Road, Everett, WA	City of Everett	Athletic fields (baseball, soccer, softball), golf course, playground, and skate park.	4(f) and 6(f)
Big Gulch Trail Park[22]	Access via 4800 92nd Street SW, Mukilteo, WA	City of Mukilteo	Multiple trails and boardwalks throughout the gulch.	4(f)
92nd Street Park	4800 92nd Street SW, Mukilteo, WA	City of Mukilteo	Playground, grassed field, picnic tables, and trails. Offers access to the Big Gulch Park's trail system.	4(f)
Japanese Gulch Park[23]	4407 76th St SW, Mukilteo, WA 98275	City of Mukilteo	Trails, park, and off-leash pet areas.	4(f)

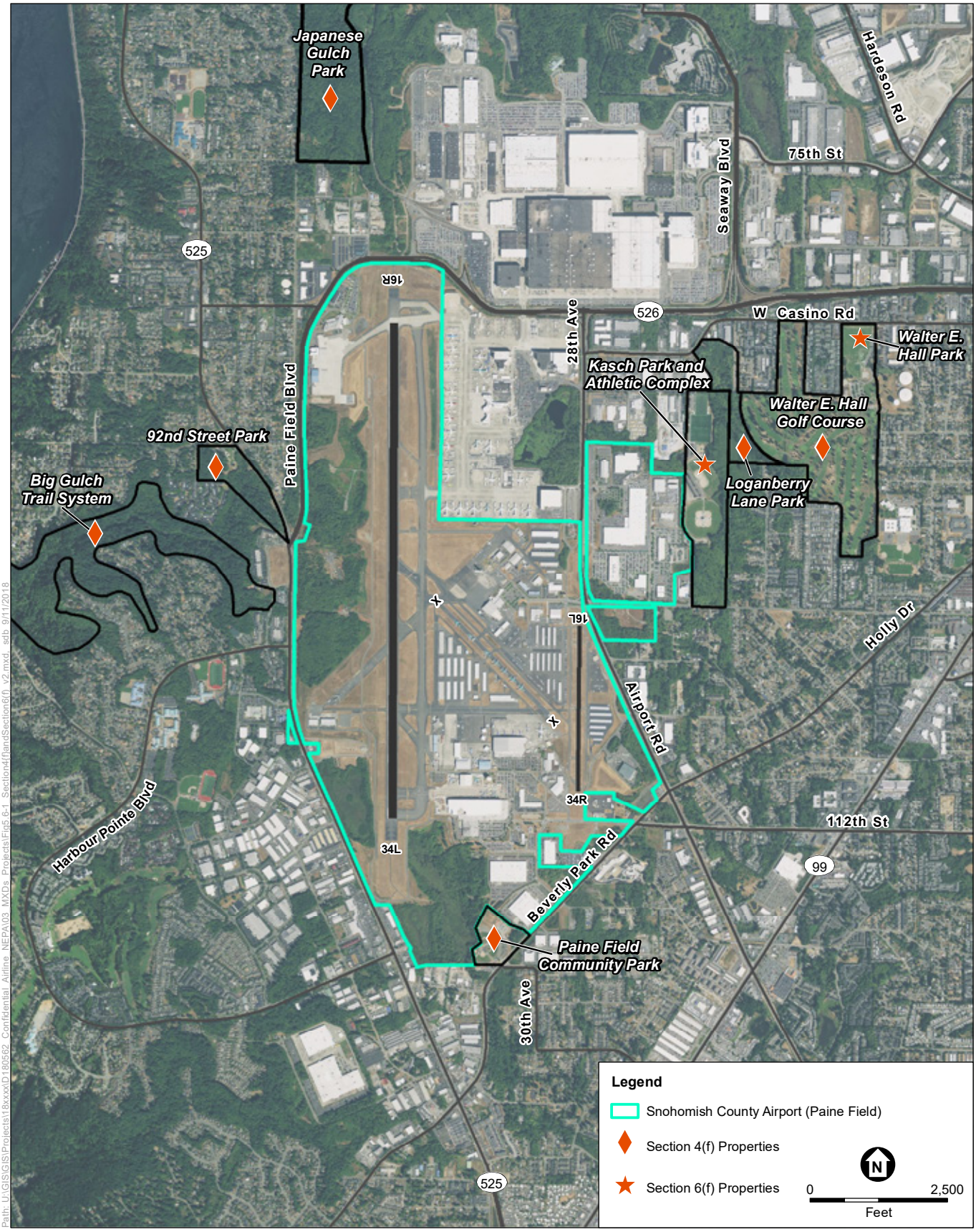
Source: Snohomish County, City of Everett, and City of Mukilteo, 2018. Environmental Science Associates, 2018.

[21] Ibid.

[22] At the time of the 2012 EA, this area was designated as Open Space, but it is now a park and trail system located near the 92nd Street Park and is outside of the DNL 65 dB.

[23] At the time of the 2012 EA, this area was designated as Open Space, but it is now a park and trail system located north of Paine Field and is outside of the DNL 65 dB.

This Page Left Intentionally Blank



SOURCE: USDA NAIP (Aerial Imagery); Adapted by ESA, 2018
NOTE: Runway 11-29 closed indefinitely.

Figure 5.6-1
Section 4(f) and 6(f) Properties in Airport Environs
Snohomish County Airport (Paine Field)

ESA

This Page Left Intentionally Blank

5.7 Hazardous Materials, Solid Waste, and Pollution Prevention

5.7.1 Introduction

As noted in the 2012 EA, there are a number of sites located on airport property that are permitted as either small quantity generators of hazardous wastes, large quantity generators of hazardous waste, water dischargers, or multiple-activities. The scope of this study is to characterize any known areas of environmental concern, areas with known contamination, and areas subject to past or present remediation that may be affected by the Proposed Action being evaluated in this Supplemental EA. This area that is the focus of the Affected Environment analysis is the Detailed Study Area, and is focused on the aircraft parking apron and within the areas of airfield pavement that would be converted for automobile parking.

5.7.2 Regulatory Context

5.7.2.1 Hazardous Materials

Federal, state and local laws regulate hazardous materials use, storage, transport, or disposal. Major laws and issue areas include:

- *Resources Conservation and Recovery Act*—hazardous waste management
- *Hazardous and Solid Waste Amendments Act*—hazardous waste management
- *Comprehensive Environmental Response, Compensation, and Liability Act*—cleanup of contamination
- *Superfund Amendments and Reauthorization Act* (SARA)—cleanup of contamination
- *Emergency Planning and Community Right-to-Know Act* (SARA Title III)—business inventories and emergency response planning.

Specific requirements for implementation of these statutes are codified in Title 40 CFR, *Protection of the Environment*. Additional regulations that apply to workplace safety and transportation of hazardous materials are contained in CFR Titles 29 and 49, respectively.

Hazardous materials management laws in Washington include:

- Washington Administrative Code (WAC), Chapter 173-303, *Dangerous Wates Regulations*
- WAC, Chapter 173-350, *Solid Waste Handling Standards*
- WAC, Chapter 173-180 through 173-186, *Facility Oil Handling Standards, Oil Spills, and Remediation*
- WAC, Chapter 173-360, *Underground Storage Tank Regulation*

5.7.2.2 Solid Waste and Recycling

The State of Washington Department of Ecology's Solid Waste Management program provides standards and issues permits for solid waste facilities. Solid waste regulations and management

plans are developed by local jurisdictional health departments. The Snohomish County Public Works, Solid Waste Administration oversees waste collection, recycling, and disposal operation in the County. The solid waste recycling program includes curbside collection of household wastes for recycling and drop-off locations for a variety of wastes, including appliances, batteries, used oil, fluorescent lights, glass, scrap metal, wood, and yard debris.

5.7.2.3 Pollution Prevention

The *Pollution Prevention Act of 1990* requires prevention and reduction of pollution at the source, when possible, so that waste has a reduced impact on the environment. Source reduction includes practices that reduce hazardous substances from being released into the environment prior to recycling, treatment, or disposal.

5.7.3 Hazardous Materials

5.7.3.1 Federal Environmental Database Review

Resource Conservation and Recovery Act (RCRA) Sites - The USEPA on-line database lists RCRA facilities that store, generate, transport, treat, and dispose of hazardous wastes. This database identifies regulated facilities that generate large or small quantities of hazardous wastes or are conditionally exempt generators. It should be noted that the identification of a site or facility in the RCRA database does not necessarily mean that a discharge of hazardous materials or other regulated substances has occurred and caused environmental contamination. Rather, these sites and facilities are identified here because they are either known, or have the potential, to contain these materials and substances. In some cases, individual and more detailed investigations may be needed to fully ascertain the actual, and extent of, involvement with hazardous materials or environmental contamination, should it exist.

A review of the USEPA's databases was conducted and the facilities listed with geographical locations on or adjacent to the DSA (aircraft parking apron and taxilanes that would be used by airlines and/or would be converted to provide additional aircraft parking) was evaluated using the USEPA's Enforcement and Compliance History Online (ECHO) online database. Three RCRA facilities were identified (see **Table 5.7-1**), only one is listed as an active site. None are physically located within the DSA.[24] A review of the ECHO database showed no recent compliance or enforcement issues (within previous 5-year period) for the facilities.

[24] In some cases, the geographical location point depicted on the USEPA's online database maps may not exactly match the facilities physical address. The database review cross-referenced each facility's listed physical address.

TABLE 5.7-1
RCRA SITES

Handler ID	Name	Generator List	Compliance/ Enforcement Issues	On Proposed Action Site?
WAH000020784	Regal Air	Other (Inactive)	None	No
WAD000491159	Precision Engines Corporation	CESQG	None	No
WAD009274234	Edmonds CC dba Washington Aerospace Training &	Other (Inactive)	None	No

Note: Compliance and enforcement information available in the EPA ECHO report is only available for the previous 5-year period.
Source: EPA, 2018. https://echo.epa.gov/

National Priorities List – NPL sites (also referred to as "Superfund" sites) are considered by USEPA to have the most significant public health and environmental risks to neighboring areas. A review of USEPA on-line databases did not reveal any NPL sites or facilities on or within one mile of Paine Field.

Toxic Release Inventory (TRI) Facilities – The USEPA maintains a database of facilities that release(d) toxic substances into the environment. Two facilities listed in the USEPA's database have geographical location points near the aircraft parking apron and taxilanes that would be used by airlines and/or would be converted to provide additional aircraft parking (see **Table 5.7-2**). Neither of these sites are located within the project site and do not have reported compliance/enforcement issues.

TABLE 5.7-2
TOXIC RELEASE INVENTORY SITES

Facility ID	Name	Status	Compliance/ Enforcement Issues	On Proposed Action Site?
98204CMCPRBLDG	CEMCO	Last Reported for 1989	None	No
98204TYRCR30081	Tyee Aircraft	Last Reported for 1994	None	No

Note: Compliance and enforcement information available in the EPA ECHO report is only available for the previous 5-year period.
Source: USEPA, 2018. https://echo.epa.gov/

5.7.3.2 Fuel Storage

The predominant types and overall largest quantities of materials and substances used at Paine Field that are classifiable as hazardous, are regulated, or have the potential to cause environmental contamination include aircraft and motor vehicle fuels. The aircraft fuel types stored and used at Paine Field include Jet-A fuel and aviation gasoline (Avgas). Aircraft fuel storage is regulated under state petroleum storage and handling regulations and are discussed here as potential environmental contaminants.

A review of the Washington Department of Ecology's Leaking Underground Storage Tank (LUST) database shows one location near the aircraft parking apron areas that would be used by airlines and/or would be converted to provide additional aircraft parking.[25] The site, located at 3220 100th Street SW, is located on the airport and is approximately 700 feet west-southwest of the closest airfield pavement that would be converted for automobile parking. **Table 5.7-3** lists the status of the site.

TABLE 5.7-3
LEAKING UNDERGROUND STORAGE TANK SITES

Facility ID	Name / Address	Status	On or Adjacent to Proposed Action Site?
18692335	Everett Jet Center 3220 100th St SW No B, Everett, WA 98204	Cleanup Started 8/18/2004 Historic Release ID: 591872	No

Source: Washington Department of Ecology. https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Underground-storage-tanks

5.7.3.3 Solid Waste

There are no landfills on Paine Field or adjacent to the DSA. Snohomish County operates the Airport Road Recycling & Transfer Station at 10700 Minuteman Drive, approximately 0.7 miles southeast of the DSA. This facility accepts municipal solid wastes, yard and clean wood debris, and recyclable materials.

5.8 Historic, Architectural, Archaeological, and Cultural Resources

5.8.1 Regulatory Context

NEPA requires federal agencies to consider the potential effect of their actions on "quality of the human environment," which includes cultural as well as natural aspects of the environment. NEPA regulations at 40 CFR 1502.25 encourage integration of the NEPA review process with other environmental laws. Several laws and regulations require that possible effects on historic, archaeological, and cultural resources be considered during the planning and execution of federal undertakings. The primary law that pertains to the treatment of historic, architectural, archaeological, and cultural resources during environmental analyses is the *National Historic Preservation Act* (NHPA).

Section 106 of the NHPA requires the lead federal agency to take into account the effects of the undertaking on historic properties. The term "historic properties" refers to "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register [of Historic Places]" (36 CFR 800.16(*l*)(1)). The proposed federal actions evaluated in this EA are a federal undertaking subject to the requirements of Section 106 of the NHPA. This EA was prepared in compliance with both NEPA and Section 106 and its implementing regulations and fulfills any documentation requirements of both statutes.

[25] The database report lists several other LUST records for the Snohomish County Airport. A majority of these sites are located on the north side of the airfield and are associated with The Boeing Company's facilities.

The steps of the Section 106 process are accomplished through consultation with the State Department of Archaeology and Historic Preservation Office (DAHP), federally-recognized Indian tribes, local governments, and other interested parties. The goal of consultation is to identify potentially affected historic properties, assess effects to such properties, and seek ways to avoid, minimize, or mitigate any adverse effects on such properties. The agency also must provide an opportunity for public involvement (36 CFR 800.1(a)). Consultation with Indian tribes regarding issues related to Section 106 must recognize the government-to-government relationship between the Federal government and Indian tribes, as set forth in Executive Order 13175, "Consultation and Coordination with Indian Tribal Governments" and the Presidential Memorandum on Tribal Consultation, dated November 5, 2009.

5.8.2 Area of Potential Effects

Areas of Potential Effect (APEs) are specialized study areas developed for the consideration of potential impacts to historic, historic architectural and archaeological resources. The FAA defined the APE for the Proposed Action. An APE typically includes areas subject to direct physical disturbance (e.g., construction) and areas that would be subject to indirect impacts, such as those resulting from increased noise and air emissions.

The Direct Effects APE for the proposed undertaking is the footprint of the existing airfield pavements that would be converted to provide additional automobile parking spaces. As described in Section 1.3 of this Supplemental EA, the additional parking spaces would be provided on existing airfield pavement areas in proximity to the new terminal building. Converting the existing aircraft parking apron pavement to vehicle parking use would involve the installation of curbing, access gates, lighting, fencing, and related improvements. The excavation of soils under or adjacent to existing pavements are not anticipated. Therefore, no direct effects are expected.

The Indirect Effects APE consists of those areas encompassed by the Proposed Action's future study years (2019 and 2024) DNL 65 dB exposure contour. The Indirect Effects APE is depicted on **Figure 5.8-1 and 5.8-2** for 2019 and 2024, respectively.

5.8.3 Preliminary Review of Historic, Archaeological and Cultural Resources

A review of available information and databases was conducted in June 2018 to identify the location of recorded historic, archaeological, and cultural resources on or in the proximity to Paine Field. A review of database information maintained by the Washington State Department of Archaeology and Historic Preservation shows no properties listed in the National Register of Historic Places (NRHP) within or near Paine Field. The nearest NRHP properties, are the Point Elliott Treaty Monument and Mukilteo Lighthouse northwest of Paine Field and Keeler's Corner south of Paine Field. There is one recorded archaeological site, 45-SN-595, the remains of a demolished Naval housing complex, within the GSA.

5.8.4 Section 106 and Government to Government Consultation

The FAA initiated consultation on July 24, 2018 with the DAHP and the Stillaguamish Tribe of Indians, Sauk-Suiattle Indian Tribe, and Tulalip Tribes. The consultation letters provided a project description and a graphic depiction of the Indirect Effects APE for all future study scenarios (2019 and 2024, with and without the Proposed Action). Copies of correspondence from each of the consulting parties is provided in **Appendix B.**

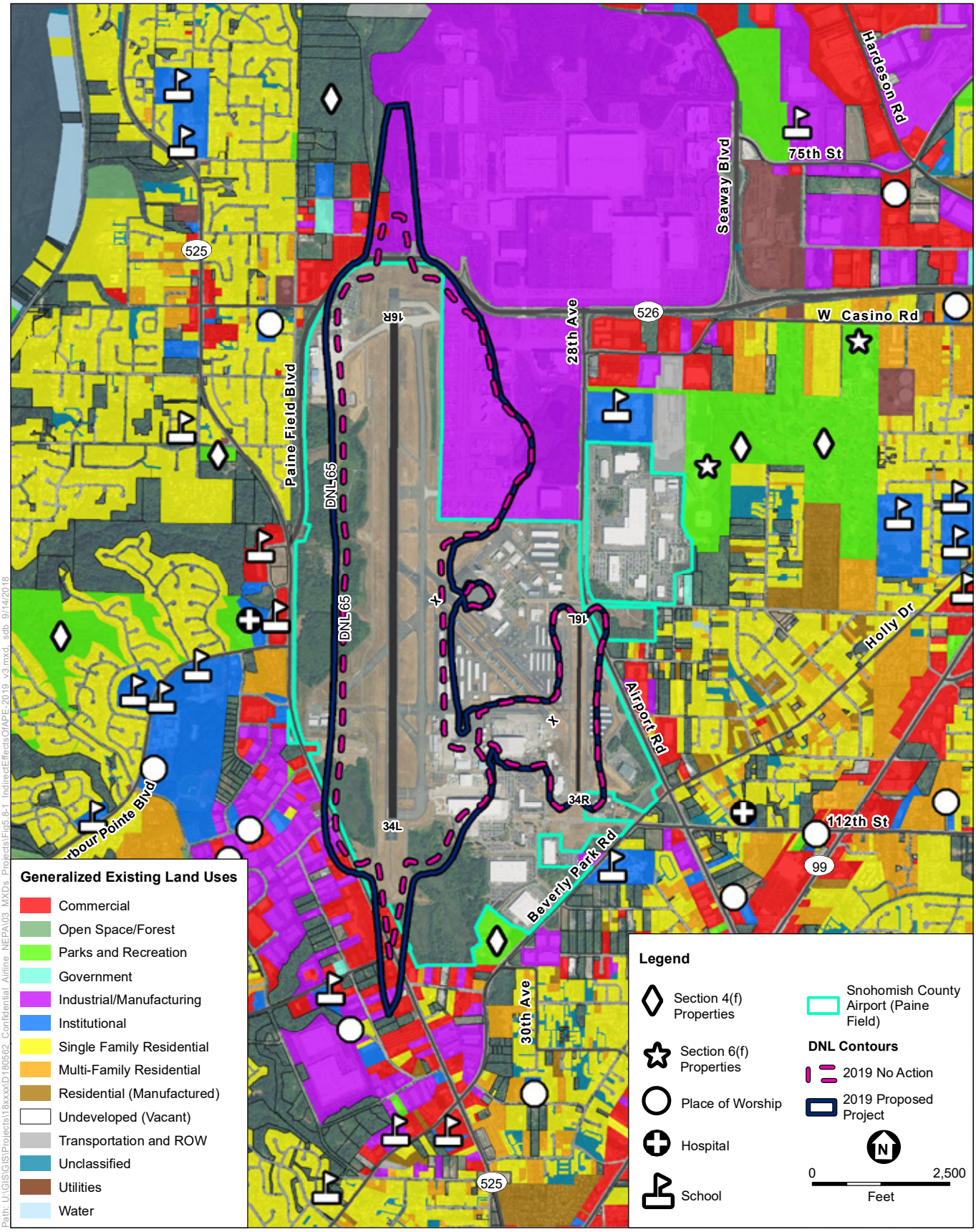
5.9 Land Use and Zoning

Paine field is located in Snohomish County, and is adjacent to the Cities of Everett and Mukilteo. The 2012 EA discussed Snohomish County's *2025 Comprehensive Plan* and future land use plan. Snohomish County has since updated their Plan and the Snohomish County *2035 Comprehensive Plan* was reviewed for this Supplemental EA. The 2035 Plan classifies the future land use of Paine Field as Manufacturing Industrial Overlay. This updated plan also retains the designation of an Airport Influence Area (AIA), defined as the area within a specified distance of a public use airport that may experience impacts from airport operations (Snohomish County Code 30.91A.132), for public use airports in the County. Land Use Policies were established in the Comprehensive Plan to encourage compatible uses in the vicinity of the airport, notify surrounding properties of the proximity to public use airports, and discourage development adjacent to public use airports that may negatively impact airport operations.

As shown on **Figure 5.9-1**, the airport is predominantly surrounded by industrial/manufacturing and commercial land uses, particularly to the north and south/southwest of Paine Field. East and west of Paine Field there is commercial and industrial/manufacturing, as well as open space, with single and multi-family residential beyond those areas. The area generally northwest of the airport is primarily single family residential.

5.10 Natural Resources, Energy Supply, and Sustainable Design

This section provides an overview of natural and mineral resources in the vicinity of Paine Field, as well as the types and sources of utilities and energy supplied to the Airport. Review of information and maps published by the Washington State Department of Natural Resources indicate there are no existing natural resource extractive activities occurring on the Airport.

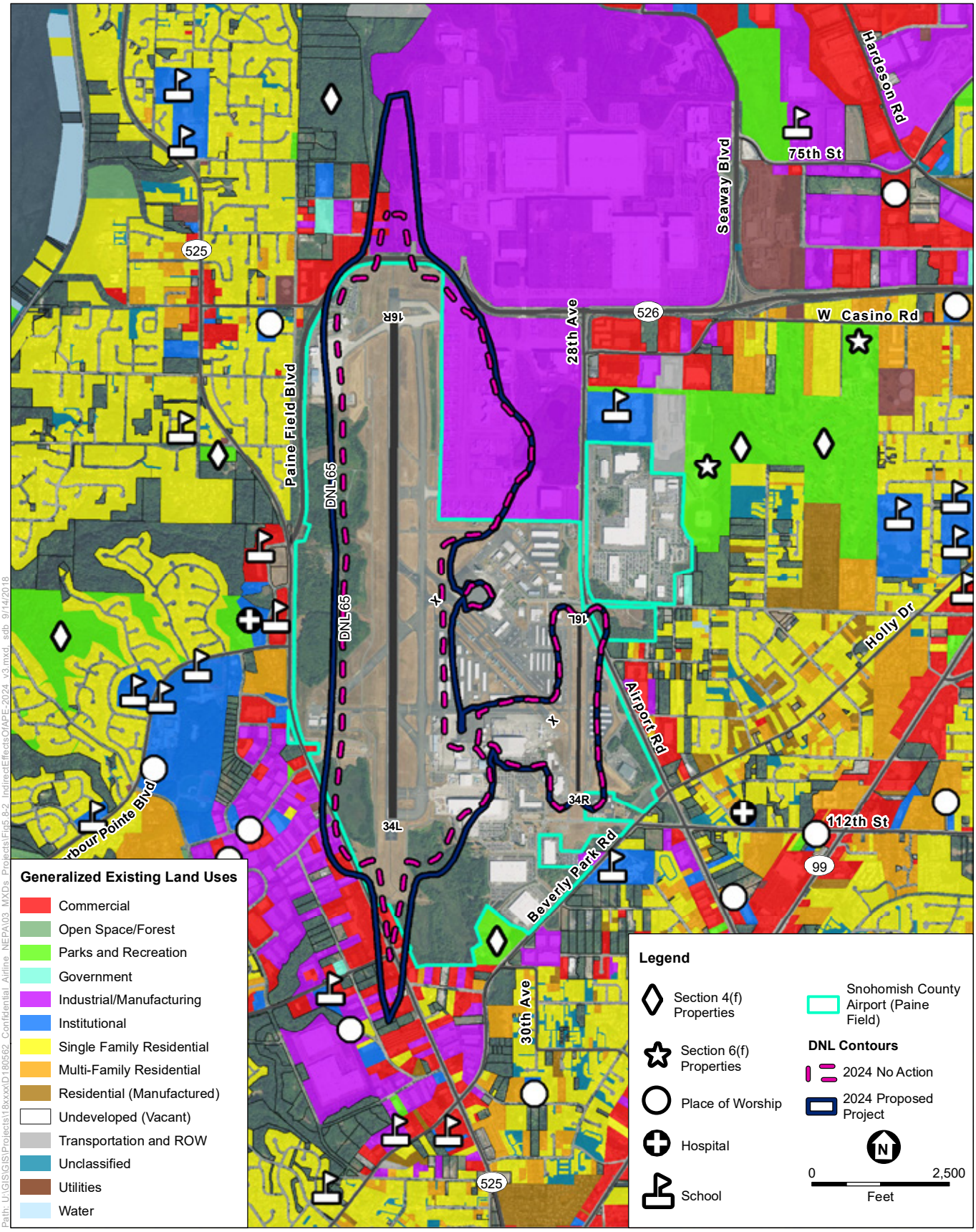


SOURCE: AEDT 2d; Snohomish County (June, 2018); ESRI;
USDA NAIP (Aerial Imagery); Adapted by ESA, 2018
NOTE: Runway 11-29 closed indefinitely.

Figure 5.8-1
Indirect Effects of the Area of Potential Effect - 2019 DNL 65 Contours
Snohomish County Airport (Paine Field)

ESA

This Page Left Intentionally Blank

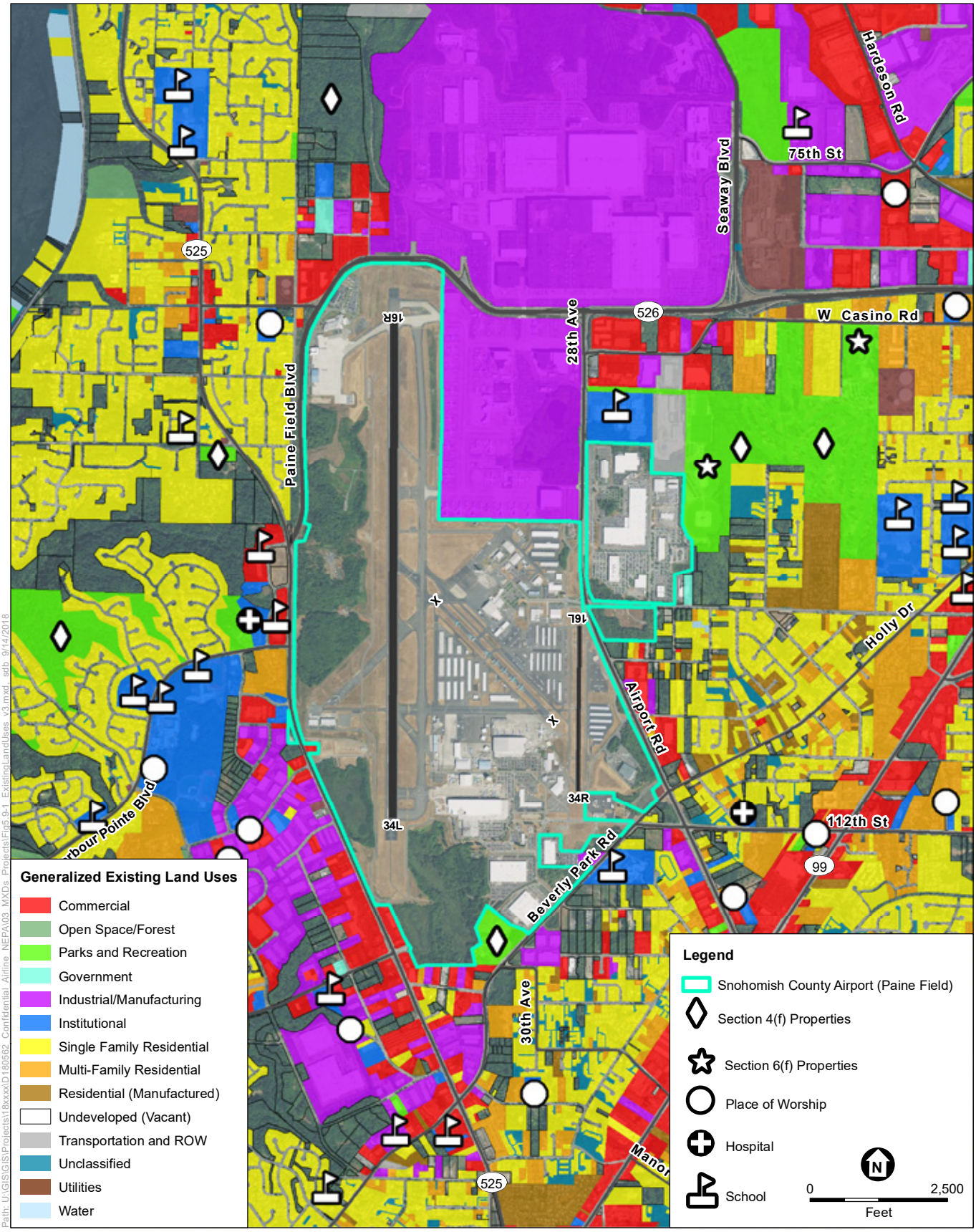


SOURCE: AEDT 2d; Snohomish County (June, 2018); ESRI;
USDA NAIP (Aerial Imagery); Adapted by ESA, 2018
NOTE: Runway 11-29 closed indefinitely.

Figure 5.8-2
Indirect Effects of the Area of Potential Effect - 2024 DNL 65 Contours
Snohomish County Airport (Paine Field)

ESA

This Page Left Intentionally Blank



SOURCE: Snohomish County (June, 2018); ESRI; USDA NAIP (Aerial Imagery); Adapted by ESA, 2018
NOTE: Runway 11-29 closed indefinitely.

Figure 5.9-1
Existing Land Uses in Airport Environs
Snohomish County Airport (Paine Field)

ESA

This Page Left Intentionally Blank

5.10.1 Energy and Utility Suppliers

The energy and utility providers that service Paine Field and surrounding area are listed below.

- Electricity: Snohomish County Public Utility District (PUD) #1
- Natural Gas: Puget Sound Energy
- Telephone/Internet: Verizon
- Water and Sewer: Mukilteo Water and Wastewater District

5.10.2 Aviation Fuel

Fuel storage at Paine Field is above ground; the fuel tanks are summarized below.

- Six 60,000-gallon tanks containing Jet-A fuel,
- One 20,000-gallon tank containing aviation gasoline (AvGas), and
- One 4,000-gallon tank containing unleaded and diesel fuel.

5.11 Noise and Noise-Compatible Land Use

5.11.1 Introduction

The 2012 EA included DNL 65 and 70 dB contours that were generated using the FAA's Integrated Noise Model (INM), which was the FAA-approved noise model at that time.[26] The 2012 EA contours extended beyond the airport property; however, there were no homes or residences within the DNL 65 dB contour.

In 2010, Boeing started a month-to-month lease with the Airport to use Runway 11/29 for aircraft parking. At the time of the 2012 EA, it was anticipated that Runway 11/29 would be a short-term lease and runway could reopen with limited use. Boeing signed a four-year lease in 2016, for the use of Runway 11/29 until March 2021. As a result, there are no aircraft operations on Runway 11/29 in this Supplemental EA evaluation.

5.11.2 Regulatory Background

FAA Order 1050.1F, FAA Order 5050.4B, and 14 CFR Part 150 specify the methods required for evaluation of the airport noise environment. The FAA defines DNL 65 dBA as the threshold of noise compatibility for residential and other noise-sensitive land uses, such as schools, libraries, and religious facilities. FAA requires an analysis of noise exposure when development actions may change the cumulative noise exposure of individuals to aircraft noise in areas surrounding the airport. Common development actions that may change the cumulative noise environment include: runway reconfiguration, changes in aircraft operations and/or movements, introduction of new aircraft types using the airport, or changes in aircraft tracks and profiles.

FAA Order 1050.1F requires that detailed noise analyses be performed through noise modeling using the FAA's AEDT. AEDT Version 2d was used for the aircraft noise exposure analysis

[26] AEDT has replaced FAA's legacy models, including INM.

documented in this Supplemental EA. AEDT incorporates the number of annual average daily daytime, evening, and nighttime aircraft operations, flight paths, and flight profiles of aircraft, along with its extensive internal database of aircraft noise and performance information, to calculate the DNL at points on the ground around an airport. From a grid of points, the AEDT contouring program draws contours of equal DNL that can be superimposed onto land use maps. For this Supplemental EA, three standard ranges of DNL contours are presented: DNL 65, 70, and 75+ dB.

5.11.3 Existing (2017) Noise Contours

The existing noise environment in the area surrounding Paine Field was evaluated based on the number of aircraft operations at the airport in 2017 and associated airport operational characteristics (e.g., runway use, flight track locations, etc.). Additional modeling information is provided in **Appendix F.**

As shown on **Figure 5.11-1**, and as discussed in **Section 5.9,** *Land Use*, the airport is predominantly surrounded by industrial/manufacturing and commercial land uses, particularly to the north and south/southwest. Land within the DNL 65 dB and higher contour primarily includes airport, industrial/manufacturing, and commercial land uses. Land uses exposed to aircraft noise levels of DNL 65 dB or greater are listed in **Table 5.11-1**. There are no incompatible land uses located within the DNL 65 dB contour. There is no residential land use within the DNL 65+ dB contours in 2017. Therefore, there were no people or dwelling units exposed to aircraft noise of DNL 65 dB or greater.

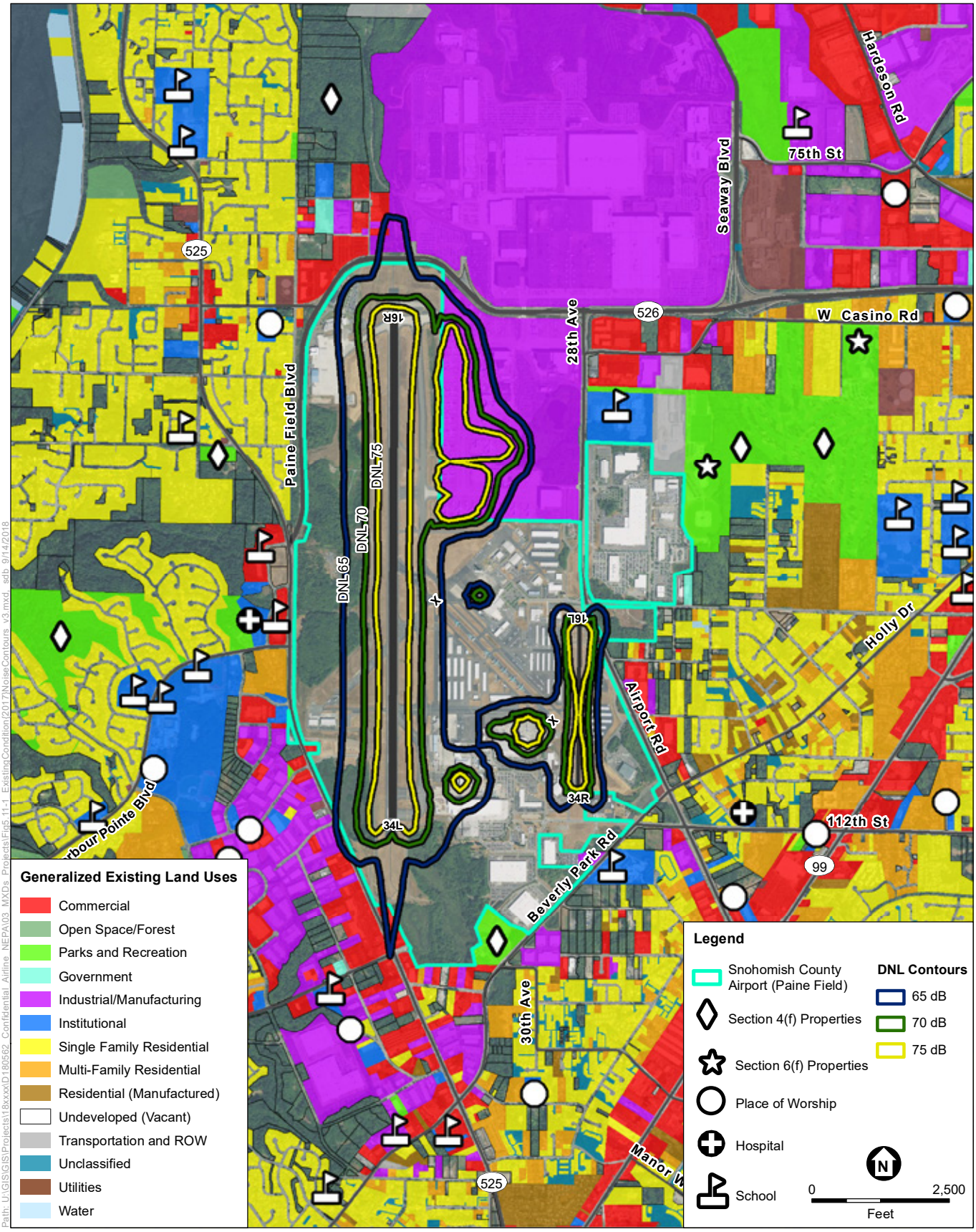
The 2017 Existing Condition DNL 65, 70, and 75 dB contours encompass a total of 706 acres of land, including off-airport property. The Existing Condition DNL 65 and 70 dB contours in the 2012 EA encompassed approximately 656 acres of land, including off-airport property.[27]

TABLE 5.11-1
LAND USE ACREAGE WITHIN EXISTING (2017) DNL CONTOURS

Land Use		DNL 65-70	DNL 70-75	DNL 75+	Total
On-Airport Property		250.3	168.2	163.6	**582.0**
	On-Airport Property Total (Acres)	**250.3**	**168.2**	**163.6**	**582.0**
Off-Airport Property	Airports	2.1	0.1	-	**2.1**
	Commercial	2.7	-	-	**2.7**
	Industrial / Manufacturing	35.6	24.0	49.4	**109.0**
	Transportation and Right of Way (ROW)[1]	6.4	0.8	0.1	**7.2**
	Undeveloped (Vacant)	0.1	-	-	**0.1**
	Off-Airport Property Total (Acres)	**46.8**	**24.9**	**49.5**	**121.2**
	Total Acres	**297.1**	**193.0**	**213.0**	**703.2**

NOTE: Numbers may not add, due to rounding.
[1] Snohomish County parcel land use data doesn't include streets; acreages manually calculated and included.
SOURCE: Snohomish County Land Use, June 29, 2018. Environmental Science Associates, 2018.

[27] The 2012 EA modeled aircraft noise using FAA's INM, which was the FAA-approved noise model at that time. This model has since been replaced with AEDT, which was used for this Supplemental EA.



SOURCE: AEDT 2d; Snohomish County (June, 2018); ESRI; USDA NAIP (Aerial Imagery); Adapted by ESA, 2018
NOTE: Runway 11-29 closed indefinitely.

Figure 5.11-1
Existing Conditions (2017) DNL Contours
Snohomish County Airport (Paine Field)

ESA

This Page Left Intentionally Blank

5.12 Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks

5.12.1 Regulatory Context

5.12.1.1 Executive Order 12898

Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, was issued in 1994. This EO focused attention on the environmental and human health effects of federal actions on minority and low-income populations with the goal of achieving environmental protection for all communities. The EO directs federal agencies to identify and address the disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations, to the greatest extent practicable and permitted by law.

5.12.1.2 Executive Order 13045

EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks* (April 1997), applies to health or safety risks that may disproportionately affect children. Environmental health risks or safety risks refer to risks to health or to safety that are attributable to products or substances that the child is likely to come in contact with or ingest (such as air, food, water (potable or recreation), soil, and products children use or are exposed to.

5.12.2 Existing Conditions

5.12.2.1 Economic Activity and Income

As noted in the 2012 EA, the Boeing Company is the largest private employer in Snohomish County, with approximately 34,500 employees in 2017. The Boeing facilities are adjacent to the project site. The largest public employer in the County is the Tulalip Tribe, with approximately 3,200 employees.[28]

Data from the 2012 EA has been updated to reflect current demographic conditions in the County. According to census data, the current estimated population in Snohomish County is 787,620 people (July 2016). The 2012 EA reported an unemployment rate of 10.2 percent (October 2009). The most current unemployment rate in Snohomish County is 3.3 percent (April 2018).[29] This decrease in unemployment from 2009 to 2016 can be partially attributed to the economic conditions in the country. From December 2007 through July 2009, the country experienced what is now referred to as the Great Recession, which was marked, in part, by high unemployment rates.[30]

---

[28] Snohomish County Economic Alliance. https://www.economicalliancesc.org/industry-and-major-employers/. Accessed June 2018.

[29] U.S. Department of Labor, Bureau of Labor Statistics. https://data.bls.gov/map/MapToolServlet. Accessed June 2018.

[30] U.S. Department of Labor, Bureau of Labor Statistics. https://www.bls.gov/spotlight/2012/recession/pdf/recession_bls_spotlight.pdf. Accessed June 2018.

According to U.S. Census data, the median household income in Snohomish County reported in the 2012 EA was $65,324 in 2007 and increased to $73,528 in 2016. In 2007, approximately eight percent of the County was living below the poverty level, which is the same as 2016.[31]

5.12.2.2 Population

Population counts and estimates for Snohomish County, City of Everett, and the City of Mukilteo are summarized in **Table 5.12-1.**

TABLE 5.12-1
POPULATION

Area	2010	2012	2017
Snohomish County	713,318	731,997	801,633
City of Everett	103,019	104,516	110,079
City of Mukilteo	20,254	20,551	21,469

Source: U.S. Census Bureau Census (April 1, 2010) and U.S. Census Bureau 2017 ACS Data, Population Estimates.

5.12.2.3 Race and Ethnicity

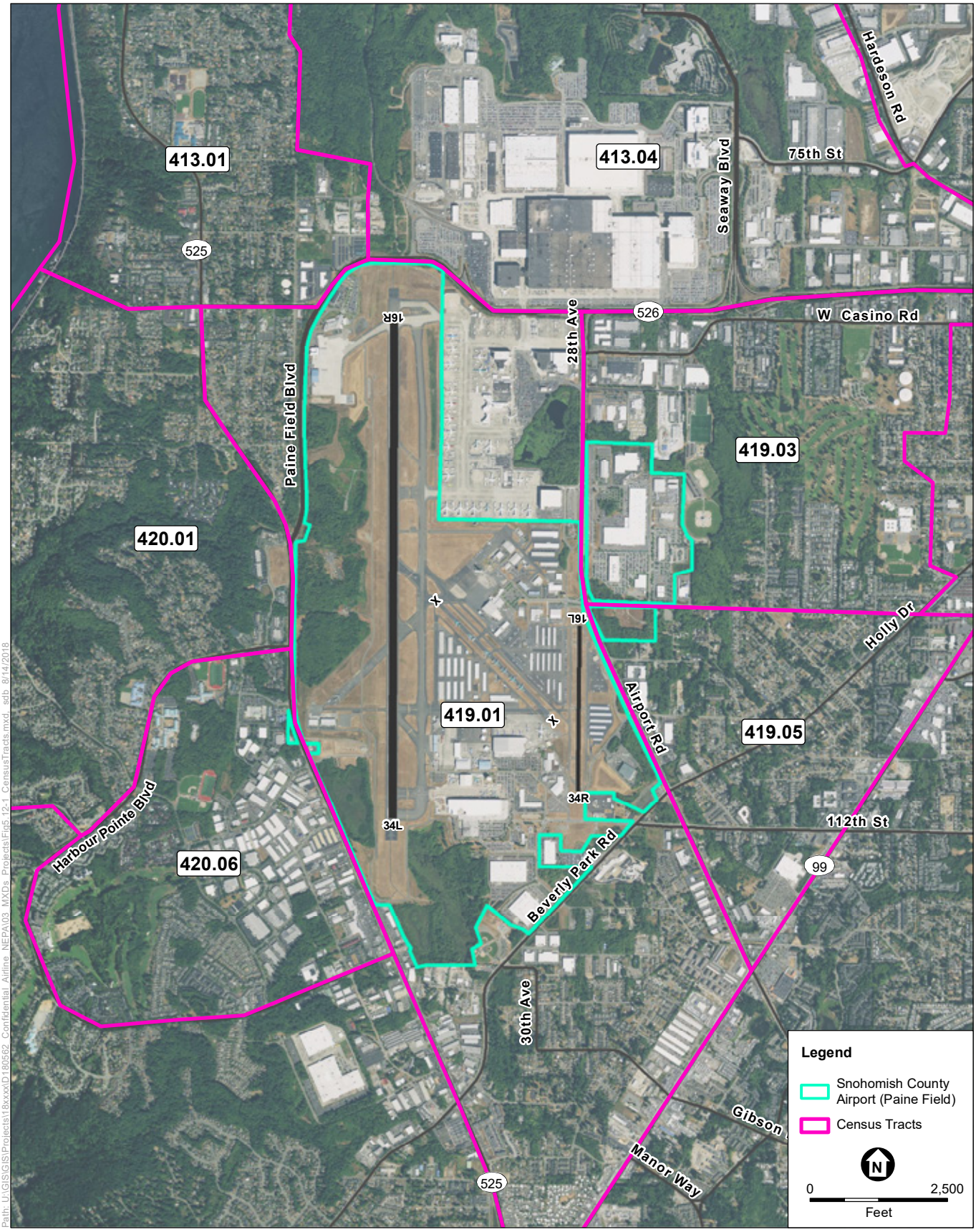
Race and ethnicity information for the populations in Snohomish County, City of Everett, and City of Mukilteo are provided in **Table 5.12-2**. As shown in this table, these areas have a majority white, non-Hispanic population. However, the census tract that contains Paine Field (419.01) has a total minority (i.e., other than non-Hispanic white) population of 41.9 percent, compared to 28 percent for the County as a whole. Census tracts directly to the east of Paine Field (419.03 and 419.05) each have minority populations of 46 percent or greater.[32] These census tracts represent areas with meaningfully greater minority populations than the County or cities as a whole. Census tracts referenced above are depicted on **Figure 5.12-1.**

TABLE 5.12-2
RACE AND ETHNICITY – 2010 CENSUS SUMMARY

	Snohomish County		City of Everett		City of Mukilteo	
Total Population (2010 Census)	**713,335**		**103,019**		**20,254**	
Race						
White	559,011	78.4%	76,844	74.6%	15,172	74.9%
Black or African American	18,168	2.5%	4,198	4.1%	346	1.7%
American Indian and Alaska Native	9,793	1.4%	1,108	1.4%	115	0.6%
Asian	63,385	8.9%	8,056	7.8%	3,457	17.1%
Native Hawaiian and Other Pacific Islander	3,135	0.4%	735	0.7%	34	0.2%
Some Other Race	27,121	3.8%	6,313	6.1%	227	1.1%
Two or More Races	37,722	4.6%	5,465	5.3%	903	4.5%
Ethnicity						
Hispanic or Latino (of any race)	64,249	9.0%	14,595	14.2%	882	4.4%

SOURCE: U.S. Census Bureau, American FactFinder, 2018.

[31] U.S. Census Bureau. *2012-2016 American Community Survey 5-Year Estimates*.
[32] Ibid.



SOURCE: U.S. Census Bureau, 2012-2016 Community Survey 5-Year Estimates; USDA NAIP (Aerial Imagery); Adapted by ESA, 2018
NOTE: Runway 11-29 closed indefinitely.

Figure 5.12-1
Census Tracts in the Airport Vicinity
Snohomish County Airport (Paine Field)

ESA

This Page Left Intentionally Blank

5.12.2.4 Low-Income Populations

The percent of families and percent of people living below poverty level in Snohomish County, City of Everett, and City of Mukilteo are summarized in **Table 5.12-3**. The City of Everett has a substantially higher percentage of families and people with family incomes below the federal poverty level than Snohomish County as a whole, while the City of Mukilteo has only one-third the percentage. For purposes of this analysis, the City of Everett is considered a low-income population in comparison to the County and City of Mukilteo.

TABLE 5.12-3
POVERTY STATUS ESTIMATES (2016)

Area	Median Household Income	Families with Incomes below the Poverty Level	People in Families with Incomes below the Poverty Level
Snohomish County	$73,528	6.2%	9.3%
City of Everett	$50,933	13.5%	17.6%
City of Mukilteo	$98,823	2.2%	3.4%

SOURCE: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates, 2018.

5.12.2.5 Presence of Children

No substantial changes to the locations of residences or schools within the GSA have occurred since the 2012 EA. As described in the 2012 EA, the closest schools to Paine Field continue to be the Sno-Isle Technical High School on Airport Road in Everett, and the Harbour Pointe Montessori School on Harbour Place in Mukilteo. Each school is located less than one mile from the terminal building.

5.13 Surface Transportation

The 2012 EA Affected Environment section described the roadway network in the vicinity of Paine Field; the analysis of impacts to the traffic patterns, as a result of passenger activity, was described in the Environmental Consequences chapter and is reevaluated in Chapter 6 of this Supplemental EA.

Major roads in the vicinity of Paine Field include Interstate Highway 5 (I-5), State Road (SR) 526 (Boeing Freeway), Paine Field Boulevard, SR 525 (Mukilteo Speedway), and SR 99. The Airport Road/128th Street SW corridor provides the most direct access to the terminal entrance. Direct landside access to Paine Field is via a series of streets with access to the terminal area provided by 100th Street SW. **Figure 1-1**, Airport Location Map, depicts major roadways in the project vicinity.

Tables 5.13-1 and **5.13-2** provide an overview of the existing traffic conditions along the major roadways within close proximity to the project site. A more comprehensive inventory of the road network, including arterial Level of Service (LOS) summaries, is included in the traffic impact analyses included in **Appendix E.** The Project Team coordinated with Snohomish County to

review critical arterial units and traffic study scoping; and the County-approved traffic study scoping sheet is also included in **Appendix E**.

TABLE 5.13-1
AM PEAK-HOUR EXISTING CONDITIONS – ARTERIALS WITHIN CLOSE PROXIMITY TO THE PROJECT SITE

Analysis Scenario	Direction	Total Intersection Delay	Segment Travel Time	Arterial Flow Speed	Arterial LOS
Beverly Park Road SR-525 to Airport Road	Northbound	55 sec	189 sec	25.1 mph	C
	Southbound	82 sec	215 sec	22.0 mph	C
128th Street SW/Airport Road SR-99 to I-5 Southbound Ramps	Eastbound	189 sec	329 sec	14.8 mph	D
	Westbound	167 sec	295 sec	16.6 mph	D
4th Avenue W 128th Street SW to 112th Street SW	Northbound	63 sec	181 sec	20.0 mph	D
	Southbound	63 sec	181 sec	20.0 mph	D
112th Street SW 115th Street SW to Meridian Place W	Eastbound	32 sec	102 sec	24.4 mph	C
	Westbound	39 sec	110 sec	22.8 mph	C
Airport Road Kasch Park Road to 106th Street SW	Northbound	33 sec	134 sec	31.3 mph	B
	Southbound	11 sec	108 sec	38.9 mph	A
4th Avenue W 112th Street SW to 104th Street SW	Northbound	2 sec	58 sec	31.6 mph	B
	Southbound	42 sec	97 sec	18.9 mph	D

SOURCE: Gibson Traffic Consultants, Inc., 2018.

TABLE 5.13-2
PM PEAK-HOUR EXISTING CONDITIONS – ARTERIALS WITHIN CLOSE PROXIMITY TO THE PROJECT SITE

Analysis Scenario	Direction	Total Intersection Delay	Segment Travel Time	Arterial Flow Speed	Arterial LOS
Beverly Park Road SR-525 to Airport Road	Northbound	81 sec	217 sec	22.1 mph	C
	Southbound	198 sec	334 sec	14.2 mph	E
128th Street SW/Airport Road SR-99 to I-5 Southbound Ramps	Eastbound	276 sec	445 sec	11.0 mph	E
	Westbound	178 sec	313 sec	15.6 mph	D
4th Avenue W 128th Street SW to 112th Street SW	Northbound	76 sec	197 sec	18.4 mph	D
	Southbound	74 sec	200 sec	18.2 mph	D
112th Street SW 115th Street SW to Meridian Place W	Eastbound	69 sec	143 sec	17.5 mph	D
	Westbound	27 sec	100 sec	25.1 mph	C
Airport Road Kasch Park Road to 106th Street SW	Northbound	84 sec	194 sec	21.5 mph	D
	Southbound	44 sec	154 sec	27.2 mph	C
4th Avenue W 112th Street SW to 104th Street SW	Northbound	1 sec	63 sec	28.8 mph	B
	Southbound	47 sec	105 sec	17.3 mph	D

SOURCE: Gibson Traffic Consultants, Inc., 2018.

5.14 Visual Setting

As discussed in the 2012 EA, Paine Field is bordered by the City of Everett, the City of Mukilteo, and unincorporated Snohomish County and is surrounded by both industrial and residential areas. These land uses generate light emissions.

Existing light sources at Paine Field primarily include runway and taxiway lights and lighted airfield directional signage. The airport also has a rotating beacon that emits alternating white and green flashes of light and identifies the location of the Airport from a distance at night. Other light sources include aircraft ramp lighting and lighting to illuminate buildings, parking areas, and roads.

5.15 Water Resources

5.15.1 Wetlands

Federal policy recognizes wetlands provide important functions and habitats. The directives protecting wetlands are set forth in *Executive Order 11990*, with goals to avoid wetland impacts, minimize loss or destruction of wetlands and preserve and enhance the natural and beneficial values served by wetlands. The US Army Corps of Engineers regulates fill or dredge in wetlands through Section 404 of the *Clean Water Act*. Washington State Department of Ecology protects wetlands and potential impacts to water quality through the Section 401 Water Quality Certification. According to the earlier 2012 EA, the Airport has completed a Critical Areas Study of Paine Field and has determined the presence of wetlands on airport property. The National Wetlands Inventory (NWI) on-line data base shows two wetland systems at the southern portion of Paine Field (US Fish and Wildlife Service, 2018). One wetland system is mapped as a palustrine forested/scrub-shrub/emergent (PFO/PSS/PEM) wetland approximately 17 acres in size. The second wetland system is mapped as a palustrine aquatic bed/forested/scrub-shrub/emergent wetland (PAB/PFO/PSS/PEM) approximately 19 acres in size. Snohomish County wetland inventory maps also show these two wetlands on the Airport, as well as a number of scattered, small wetlands along the western portion of the Airport (Snohomish County, 2016a).

According to the 2012 EA, two large wetlands areas, two wetland mitigation banks, and several small wetlands are located on or near the airport property. The Swanson Wetland Mitigation Bank (13 acres) is located at the south end of the airport field and the Narbeck Wetland Sanctuary (50 acres) is located northeast of the Airport (Paine Field Airport, 2018). In addition, one of the large wetland areas, Wetland 25, serves as a permitted stormwater detention facility. There are no wetlands located within or adjacent to the passenger terminal, the aircraft parking apron, or the paved areas that would be converted to provide additional parking spaces.

5.15.2 Floodplains

According to Executive Order 11988, Federal agencies are required to reduce the risk of flood loss, minimize flood impacts on human health, safety and welfare, as well as preserve and restore the natural values that floodplains serve. A review of Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) shows that that the majority of the Airport is located

within Zone X, or areas determined to be outside of the 500-year floodplain; therefore, Paine Field is not located within a regulatory (100-year) floodplain. The closest 100-year floodplains are the floodplain associated with Possession Sound approximately two miles northwest and the floodplains associated with Stickney Lake located slightly more than two miles southeast of the DSA.

5.15.3 Surface Waters

The Airport lies within several local watersheds, including: Japanese Gulch, Smugglers Gulch, and Big Gulch, which drain directly to Puget Sound through the cities of Mukilteo and Everett; as well as Swamp Creek which drains to the south to Lake Washington. Japanese Gulch Creek and Big Gulch Creek are both in the vicinity of Paine Field (WDNR, 2018a). For both Japanese and Big Gulch Creeks, Snohomish County designates the upper stream sections closest to the field as Type Ns (non-fish bearing stream, seasonal flow), while their lower reaches are designated as Type F (fish-bearing stream) (2016c and 2016d).

5.15.4 Stormwater and Drainage

In a broad sense, airport development and operation may include water quality issues such as increased surface runoff, downstream erosion, and pollution from fuel, oil, solvents and deicing fluids and potential impacts from decreased water quality on fish, wildlife, plants, and humans. Potential pollution could come from oil, gasoline or other petroleum-based products spilled on the surface and carried through stormwater off the airport.

Paine Field operates under a Master Drainage Plan (2008) which includes stormwater detention and water quality requirements. The 2008 plan also included an inventory of existing facilities, determines conveyance and detention capacities, identifies existing deficiencies, forecasts changes in land cover (i.e., impervious areas) based airport development plans, identifies future stormwater facility needs to meet planned growth, and identifies capital improvement plan stormwater projects to address near-term and long-term needs. The Airport also operates under Permit #WAR000428 issued to Snohomish County under the State of Washington's Industrial Stormwater General Permit.

Stormwater drainage information for Paine Field was obtained from the 2008 Master Drainage Plan and the *Stormwater Pollution Prevention Plan for Paine Field, Snohomish County, Washington* (Landau Associates 2015) (SWPPP). The majority of the approximately 1,252 acre Paine Field site is covered in buildings and pavement. Surface water and stormwater runoff is captured and conveyed in a series of constructed bioswales, storm drain pipes, catch basins, detention facilities and constructed stormwater ponds through the area. Based upon information provided in the 2015 SWPPP, the following portions of Paine Field drain to each of the four basins as shown in **Table 5.15-1**.

TABLE 5.14-1
DRAINAGE BASIN AREAS FOR PAINE FIELD

Basin Name	Basin Area (acres)	Percentage (%)
Japanese Gulch	357	29
Smuggler's Gulch	26	2
Big Gulch	637	51
Swamp Creek	226	18
Total	**1,246**	**100**

Source: *Stormwater Pollution Prevention Plan for Paine Field, Snohomish County, Washington,* Landau Associates, 2015,

5.15.5 Water Quality

The USEPA requires water quality assessments of each state's waterbodies. The current water quality assessment for Washington was approved by the USEPA in July 2016. According to the Water Quality Atlas provided by Washington State Department of Ecology (WDOE 2016), several waterbodies in the vicinity of Paine Field appear on the Clean Water Act Section 303d list as impaired waters. Waters designated as Category 5 on the 303d list are those waters with data indicating the water quality violates the USEPA standards for water quality for a particular parameter. Powder Mill Creek to the north of Boeing is a Category 5 listed waterbody for copper and zinc. Unnamed tributaries to Swamp Creek to the south are Category 5 listed for dissolved oxygen. Japanese Gulch Creek, Big Gulch Creek and Smuggler's Gulch Creek are not shown on the state's 303d list at this time.

The 2015 SWPPP outlines the requirements for stormwater management and water quality protection. The best management practices (BMPs) contained in this SWPPP are fully consistent with the BMPs required in the Washington State Department of Ecology *2012 Stormwater Management Manual for Western Washington*, as amended in December 2014 (WDOE 2014).

5.15.6 Groundwater

Groundwater is regulated by Washington State Department of Ecology. Areas with a critical recharging effect on aquifers used for potable water are called Critical Aquifer Recharge Areas (CARAs). These are protected as critical areas within the Snohomish County code. No mapped CARAs are shown in the County's on-line mapping tool for the Airport vicinity. The closest known aquifer is located approximately 220-feet below the Airport and infiltration or other impacts to this aquifer are considered unlikely. Due to the underlying geology of the area, there are no significant groundwater resources.

This Page

Intentionally Left Blank

CHAPTER 6
Environmental Consequences

6.1 Introduction

The 2012 EA addressed all of the environmental resource categories identified in FAA Orders 1050.1E and 5050.4B. As discussed in Chapter 2, this Supplemental EA is being prepared to assess the potential environmental effects associated with the new and revised proposals for the introduction of scheduled commercial air service at Paine Field by Alaska Airlines, United Airlines, and Southwest Airlines in accordance with FAA's updated order 1050.1F.

This Supplemental EA evaluates the environmental impacts and consequences associated with the Proposed Action in two future study years – 2019 and 2024. Study year 2019 would evaluate impacts during the first year of operation. The second study year (2024) evaluates impacts five years after the first full year of operation. No land acquisition, construction, or other airport development projects are proposed or required to implement the Proposed Action. Differences between the findings and conclusions made in the 2012 EA and this Supplemental EA are noted and discussed, where applicable.

6.2 Air Quality

6.2.1 2012 Environmental Assessment

The 2012 EA includes a criteria air pollutant emissions inventory for the existing conditions (2008) and three future conditions – 2013, 2016,[33] and 2018 (however, only opening year [2019] and five years after opening [2024] were analyzed in this Supplemental EA). Emissions inventories were developed for the Proposed Action (referred to as the Preferred Alternative in the 2012 EA) and the No Action Alternative for each study year. The 2012 EA evaluated operational sources of emissions including aircraft and ground support equipment and included an estimate of construction period emissions for the proposed terminal. The 2012 EA concludes that project-related emissions (i.e., the difference in criteria air pollutant emissions between the Proposed Action and No Action alternative) would not exceed applicable general conformity *de minimis* thresholds and would not cause or contribute to a violation of the NAAQS.

6.2.2 2018 Supplemental Environmental Assessment

Operational emissions of criteria air pollutants were estimated for the Proposed Action and No Action alternative for two future conditions: 2019 and 2024. Additionally, construction

[33] 2016 was evaluated in the 2012 EA because it was considered the current end of the horizon period considered in the Maintenance Plan at that time.

activities under the Proposed Action were estimated based on emissions related to installation of pavement markings, curbing, access gates, lighting, fencing, and signage necessary to use existing pavement to provide additional vehicle parking spaces for passengers and meeters and greeters. Construction emissions for the Proposed Action is shown in **Table 6.2-1**.

TABLE 6.2-1
CRITERIA POLLUTANT EMISSIONS – CONSTRUCTION (2018)

Emissions Source	Criteria Pollutant Emissions (Tons per year)					
	CO	VOC	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Offroad Construction Equipment	0.07	0.02	0.20	<0.01	0.01	0.01
Onroad Vehicles	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Paving VOC Off-Gassing	<0.01	0.07	<0.01	<0.01	<0.01	<0.01
Total Emissions	**0.08**	**0.08**	**0.20**	**<0.01**	**0.01**	**0.01**

SOURCE: Environmental Science Associates, 2018.

ESA conducted the air quality evaluations for the Proposed Action and No Action Alternative using the FAA's Aviation Environmental Design Tool (AEDT), Version 2d. Changes in motor vehicle traffic emissions associated with travel on area roadways were assessed with the latest version of the U.S. EPA's MOVES2014 model using passenger enplanement and employee estimates provided by the Airlines and the number of annual vehicle miles travelled estimated by Gibson Traffic Consultants, Inc. The aviation forecast developed for this EA is provided in **Appendix C** and the traffic estimates are provided in **Appendix E.** The following stationary sources emissions were also calculated for the No Action and the Proposed Action scenarios:

- Emergency generators,
- Fire pumps,
- Fire rescue equipment (mobile sources), and
- Natural gas combustion (in buildings).

Consistent with guidance provided in FAA Order 1050.1F and the FAA's *Aviation Emissions and Air Quality Handbook* (Version 3, Update 1), the following criteria air pollutants were evaluated to produce an emissions inventory for future aircraft operations at Paine Field: carbon monoxide, ozone precursors (volatile organic compounds (VOC) and oxides of nitrogen (NO_x)), oxides of sulfur (SO_x), coarse particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$).

Tables 6.2-2 and **6.2-4** present similar air emissions information for the No Action Alternative in 2019 and 2024, respectively.[34] **Tables 6.2-3** and **6.2-5** present the operational emissions inventory for the Proposed Action for 2019 and 2024, respectively. The number of daily flights and markets served in 2019 and 2024 are the same for the Proposed Action. However, the minor

[34] Ground Support Equipment (GSE) emissions for the Proposed Action scenarios are associated with Boeing facilities and the proposed commercial service operations, while GSE emissions for the No Action scenarios are associated with Boeing facilities. No other GSE operational data was available. Auxiliary Power Unit (APU) emissions are zero for the No Action scenarios because APU operational data was unavailable.

change in air emissions from 2019 to 2024 results primarily from the substitution of an Embraer 175 aircraft with a Boeing 737 on three daily flights (see **Chapter 1** for more information).

TABLE 6.2-2
CRITERIA POLLUTANT EMISSIONS – NO ACTION (2019)

Emissions Source	Criteria Pollutant Emissions (Tons per year)					
	CO	VOC	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Aircraft	565.04	24.82	79.14	7.52	1.00	1.00
Auxiliary Power Units*	0.00	0.00	0.00	0.00	0.00	0.00
Ground Support Equipment	1.46	0.31	2.08	0.01	0.20	0.20
Surface Traffic	7,654.97	1,177.43	560.04	0.55	19.92	17.62
Stationary Sources	1.72	0.18	1.70	<0.01	0.07	0.07
Total Emissions	**8,223.20**	**1,202.74**	**642.96**	**8.09**	**21.19**	**18.88**

SOURCE: Environmental Science Associates, 2018.
*APU emissions are zero for the No Action scenarios because APU operational data was unavailable.

TABLE 6.2-3
CRITERIA POLLUTANT EMISSIONS – PROPOSED ACTION (2019)

Emissions Source	Criteria Pollutant Emissions (Tons per year)					
	CO	VOC	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Aircraft	613.10	29.64	119.13	12.66	1.25	1.25
Auxiliary Power Units	0.15	0.01	0.21	0.03	0.02	0.02
Ground Support Equipment	5.44	0.69	4.30	0.04	0.34	0.33
Surface Traffic	7,672.57	1,177.91	561.59	0.57	19.98	17.67
Stationary Sources	1.72	0.18	1.70	<0.01	0.07	0.07
Total Emissions	**8,292.99**	**1,208.44**	**686.92**	**13.30**	**21.66**	**19.34**

SOURCE: Environmental Science Associates, 2018.

TABLE 6.2-4
CRITERIA POLLUTANT EMISSIONS – NO ACTION (2024)

Emissions Source	Criteria Pollutant Emissions (Tons per year)					
	CO	VOC	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Aircraft	573.79	25.35	80.17	7.63	1.01	1.01
Auxiliary Power Units*	0.00	0.00	0.00	0.00	0.00	0.00
Ground Support Equipment	1.47	0.31	2.09	0.01	0.20	0.20
Surface Traffic	5,851.03	863.17	385.84	0.52	14.14	12.50
Stationary Sources	1.72	0.18	1.70	<0.01	0.07	0.07
Total Emissions	**6,428.02**	**889.02**	**469.79**	**8.16**	**15.42**	**13.78**

SOURCE: Environmental Science Associates, 2018.
*APU emissions are zero for the No Action scenarios because APU operational data was unavailable.

TABLE 6.2-5
CRITERIA POLLUTANT EMISSIONS – PROPOSED ACTION (2024)

Emissions Source	Criteria Pollutant Emissions (Tons per year)					
	CO	VOC	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Aircraft	625.77	31.26	128.48	13.32	1.31	1.31
Auxiliary Power Units	0.65	0.06	0.88	0.13	0.11	0.11
Ground Support Equipment	7.14	0.75	4.51	0.05	0.35	0.34
Surface Traffic	5,865.24	863.48	386.62	0.53	14.18	12.54
Stationary Sources	1.72	0.18	1.70	<0.01	0.07	0.07
Total Emissions	**6,500.52**	**895.73**	**522.18**	**14.03**	**16.01**	**14.36**

SOURCE: Environmental Science Associates, 2018.

Table 6.2-6 shows the difference (net change) between the Proposed Action and the No Action Alternative in 2019. Similarly, **Table 6.2-7** shows the difference in emissions (net change) when the Proposed Action is compared to the No Action Alternative in 2024. In addition to the net change in aircraft operational emissions, both tables include the additional vehicle emissions that would be generated if the Proposed Action was implemented.

Significant air quality impacts would be demonstrated if the Proposed Action exceeded one or more of the NAAQS for any of the time periods analyzed or increasing the frequency or severity of any such existing violations. Emissions of criteria pollutants in 2019 and 2024 associated with implementation of the Proposed Action would not be significant because the difference in emissions between the Proposed Action and No Action Alternative in 2019 and 2024 would not cause or contribute to an exceedance of the NAAQS or increase the frequency or severity of any air quality violations in the Puget Sound region. The finding of no significant project construction or operational impacts on NAAQS is consistent with the findings of the previously completed air emissions analyses in the 2012 EA for Paine Field.

TABLE 6.2-6
CRITERIA AIR POLLUTANT EMISSIONS - 2019
CHANGE IN EMISSIONS UNDER THE PROPOSED ACTION

Emissions Source	Criteria Pollutant Emissions (Tons per year)					
	CO	VOC	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Aircraft	48.06	4.83	39.99	5.13	0.25	0.25
Auxiliary Power Unit	0.15	0.01	0.21	0.03	0.02	0.02
Ground Support Equipment	3.98	0.38	2.22	0.03	0.14	0.13
Surface Traffic	17.60	0.48	1.55	0.01	0.06	0.06
Stationary Source	0.00	0.00	0.00	0.00	0.00	0.00
Total Emissions	**69.79**	**5.70**	**43.96**	**5.21**	**0.47**	**0.46**

SOURCE: Environmental Science Associates, 2018.

TABLE 6.2-7
CRITERIA AIR POLLUTANT EMISSIONS - 2024
CHANGE IN EMISSIONS UNDER THE PROPOSED ACTION

Emissions Source	Criteria Pollutant Emissions (Tons per year)					
	CO	VOC	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Aircraft	51.98	5.91	48.31	5.69	0.29	0.29
Auxiliary Power Unit	0.65	0.06	0.88	0.13	0.11	0.11
Ground Support Equipment	5.67	0.44	2.42	0.04	0.15	0.14
Surface Traffic	14.21	0.31	0.78	0.01	0.04	0.04
Stationary Source	0.00	0.00	0.00	0.00	0.00	0.00
Total Emissions	**72.51**	**6.71**	**52.39**	**5.87**	**0.59**	**0.58**

SOURCE: Environmental Science Associates, 2018.

6.3 Biological Resources

6.3.1 2012 Environmental Assessment

An assessment of biological resources including federally-listed species was conducted in the 2012 EA for the Proposed Action and the No Action Alternative. The 2012 EA evaluated plant and animal species listed under the Endangered Species Act at the time and concluded that no impacts to biological resources would occur as a result of the proposed activity at Paine Field. Both the No Action and the Proposed Action were expected to have no effect on protected species since no federally-listed species are known to be permanent residents on the Airport and no designated Critical Habitat or state-listed priority habitats (other than wetlands) occur on Paine Field. The 2012 EA concluded that neither the No Action nor the Proposed Action Alternative would result in significant adverse environment impacts to fish, wildlife, and plants.

6.3.2 2018 Supplemental Environmental Assessment

Neither the No Action nor the Proposed Action Alternative is expected to affect federally-listed endangered species and/or their designated Critical Habitat. There are no known federally-listed species documented on the airport and no designated Critical Habitats within one mile. Approximately one mile to the west of Paine Field, Puget Sound contains Critical Habitat for federally-listed Chinook salmon, bull trout and Puget Sound Southern Resident killer whale. None of these aquatic habitats would be affected by the project. While streaked horned lark have the potential to occur at the Airport, no impacts to grassy areas where they may have suitable habitat are proposed by the project. Only restriping of existing paved surfaces would occur.

As stated in Chapter 5, the Endangered Species Act (ESA) requires federal agencies to ensure that the Proposed Action is not likely to jeopardize the continued existence of a federally listed species or significantly alter or destroy key habitat for these species. Upon request, USFWS provided p a list of species available through the ECOS database and iPAC on-line mapping tool (2018) in determining environmental consequences. As in 2012, the Proposed Action would have no effect on federally-listed species or their designated Critical Habitat based on the best available scientific evidence.

In addition, the Washington Department of Fish and Wildlife (WDFW) Priority Habitat and Species (PHS) Program was used to determine the likely presence of habitats and species. Bald eagle nests and territories are no longer shown on the PHS on-line maps as WDFW is no longer reviewing management plans because these species have been de-listed.

Migratory birds fly over the airport including raptors such as bald eagles. Daily flights to and from Paine Field could increase the potential for bird strike by aircraft. Certain birds determined to be an airport hazard are discouraged from landing, nesting and foraging as provided by the FAA-approved Wildlife Hazard Management Plan (WHMP). Paine Field reviews the WHMP on an annual basis; the WHMP would be reviewed and updated as necessary during the next review cycle and seek approval of the revised plan, if applicable, by FAA.

The WDFW Priority Habitat and Species (PHS) on-line mapping shows that there are several priority habitats located on or within one-mile of the Airport. The Paine Field Open Space located on the airport is designated as urban natural open space, or an area that contains habitat that is valuable to fish or wildlife and is mostly comprised of native vegetation. The PHS map also shows freshwater wetlands on the southern portion of Paine Field. There are mapped Biodiversity Areas and freshwater wetlands to the north of the airport. For example, Japanese Gulch to the northwest is considered a Biodiversity Area and habitat corridor. These priority habitats contain general avian species, waterfowl, raptors, and wildlife species that could be affected by additional noise at Paine Field.

The DNL 65 dB contours encompass areas mostly within the developed airport where little habitat exists. However, the 2019 and 2024 No Action Alternative DNL 65 dB contours extend slightly off the airport property onto adjacent lands to the north and south of Runway 16R/34L; the 2019 and 2024 Proposed Action Alternative DNL 65 dB contours extend farther north and south, when compared to the No Action Alternative contours (see **Section 6.11** for additional information). Increased air traffic would increase noise exposure around the Airport. To the north, there is a land area designated as the Japanese Gulch Biodiversity Area, a portion of which falls within the DNL 65 dB contour and would experience increased noise. Upon review of the ownership and uses within the affected area it was determined that the potentially affected area within the 2019 and 2024 Proposed Action DNL 65 dB contour is outside the publicly accessible parcel and is owned by BNSF Railway. Because of this, the DNL 65 dB contour would only impact the industrial rail property which is considered a compatible land use. The City of Mukilteo owned lands along the west side of Japanese Gulch, which includes a park, trails, and wildlife habitat is located outside of the 2019 and 2024 Proposed Action DNL 65 dB contour.

Designation of the additional parking spaces near the new Propeller Terminal would not affect biological resources since this area is already paved and currently used for aircraft parking. The project would simply require re-striping of the existing pavement to accommodate new vehicle parking stalls. The Proposed Action would result in no new grading or increase in impervious surface at the Airport. Stormwater runoff from the new vehicle parking areas would be retained and treated by the Airport's existing regional detention system. The use of the existing impervious surface for vehicle parking would be covered under Propeller's future Stormwater Pollution Prevention Plan (SWPPP) and Industrial stormwater discharge permit.

The Proposed Action provides additional parking in areas already paved, without removal of any trees or other vegetation and without directly affecting any suitable habitats for fish and wildlife. Based upon no effects on federally-listed species and their Critical Habitats, as well as the lack of State priority species within the Airport, the Proposed Action would not result in significant adverse environmental impacts to biological resources.

6.4 Climate

6.4.1 2012 Environmental Assessment

The 2012 EA included a qualitative analysis of greenhouse gases associated with aviation for the Proposed Action or the No Action Alternative. The 2012 EA concluded that greenhouse gas emissions associated with existing and future aviation activity at Paine Field would be expected to represent less than 0.03 percent of U.S. greenhouse gases; therefore, GHG emissions associated with existing and future activity at Paine Field would not be significant.

6.4.2 2018 Supplemental Environmental Assessment

Although there are no federal standards for aviation related GHG emissions, it is well-established that GHG emissions can affect climate (GAO, 2009). Existing judicial authority suggests that federal agencies consider the potential effects of a proposed action on climate change as indicated by its GHG emissions and the implications of climate change for the environmental effects of a proposed action. This analysis was prepared in accordance with updated FAA guidance (1050.1F desk reference) for addressing climate in NEPA documents. FAA guidance suggests that GHG emissions be quantified if air quality emissions are quantified for air quality purposes.

As noted in Section 5.4, fossil fuel combustion is the primary source of GHG emissions at an airport. The GHG emissions associated with the Proposed Action and No Action Alternative would result from fuel burn associated with aircraft operations and motor vehicles. **Table 6.4-1** presents estimated levels of GHG emissions at Paine Field in 2019 for both the No Action Alternative and Proposed Action. **Table 6.4-2** presents estimated levels of GHG emissions at Paine Field in 2024 for both the No Action Alternative and Proposed Action. Each table also shows the net change in GHG emissions that would occur if the Proposed Action was implemented. The GHG evaluations for the Proposed Action and No Action Alternative were performed primarily using the FAA's AEDT 2d model and the U.S. EPA's MOVES2014 model. Unlike the 2012 EA, the Proposed Action does not include terminal construction or other ground disturbance activities.

TABLE 6.4-1
ESTIMATED GREENHOUSE GAS EMISSIONS (2019)

Source	Carbon Dioxide (CO_2) (metric tons)
No Action Alternative	119,761
Proposed Action	140,370
Net Change	**20,610**

SOURCE: Environmental Science Associates, 2018.

TABLE 6.4-2
ESTIMATED GREENHOUSE GAS EMISSIONS (2024)

Source	Carbon Dioxide (CO_2) (metric tons)
No Action Alternative	132,871
Proposed Action	134,806
Net Change	**1,934**

SOURCE: Environmental Science Associates, 2018.

Local Plans that Address Climate Change

In 2008, the Washington State legislature set a series of economy-wide GHG emission reduction targets, using the baseline year of 1990 to measure reductions. The reduction targets are intended to establish a return to 1990 levels by 2020, 25 percent below 1990 levels by 2035, and 50 percent below 1990 levels by 2050. In 2011, the City of Everett released its Climate Action Plan for Municipal Operations, which set target reductions of 25 to 40 percent by 2030 for all City operations. The City of Everett's *2035 Comprehensive Plan* outlines goals and policies the City can take to plan for climate change, reduce GHG emissions, and adapt to the impacts of climate change. Snohomish County's *Sustainable Operations Action Plan* (SOAP) provides a strategic approach to integrating environmentally sustainable practices into County government operations (Snohomish County, 2013). One of the SOAP's purposes is improving air quality and reducing GHG emissions generated through County operations.

As shown in **Tables 6.4-1 and 6.4-2**, there would be an increase in GHG emissions at Paine Field in 2019 and 2024 if the Proposed Action was implemented. However, there are no significance thresholds established for aviation GHG emissions, and the FAA has not identified specific factors to consider in making a significance determination for GHG emissions, especially as it may be applied to a particular project. Due to the negligible change the Proposed Action would have on Paine Field's existing operational footprint, there would be little, if any, increase in vulnerability to future climate impacts on the Airport from the implementation of the Proposed Action.

6.5 Coastal Resources

6.5.1 2012 Environmental Assessment

The Airport is not located within a shoreline of the state, and therefore, development on the Airport is not subject to the requirements for a shoreline substantial development permit. The 2012 EA concluded that although Snohomish County is included in the Washington State Coastal Zone Management (CZM) Program, both the No Action and the Proposed Action Alternatives would not affect coastal resources.

6.5.2 2018 Supplemental Environmental Assessment

The No Action Alternative would not affect coastal resources. The Airport is not located within a shoreline of the state; therefore, development on the Airport is not subject to the Shoreline Management Act. However, once the NEPA process is complete, the County would request a

Certification of Consistency through the Washington State Coastal Zone Management (CZM) Program as administered by Washington Department of Ecology (WDOE). Since the Proposed Action would not affect coastal resources, it should be considered consistent with the CZM Program.

6.6 Department of Transportation Act, Section 4(f)

6.6.1 2012 Environmental Assessment

The 2012 EA included information about the existing Section 4(f) or Section 6(f) properties in the vicinity of the Airport. The 2012 EA concluded that none of the properties protected under Section 4(f) or Section 6(f) would be impacted by the No Action Alternative or the Proposed Action.

6.6.2 2018 Supplemental Environmental Assessment

The Proposed Action does not include any ground disturbance or land acquisition; therefore, there is no physical use impact to Section 4(f) or 6(f) resources.

The 2019 and 2024 No Action Alternative and Proposed Action Alternative DNL 65 dB contours do not encompass any Section 4(f) or Section 6(f) resources (see **Section 6.11**), including those designated since 2012; therefore, there would be no indirect effects or constructive use on Section 4(f) or Section 6(f) resources.

The traffic analysis, as discussed in **Section 6.13** indicates that traffic levels would not result in diminished pedestrian, bicycle, or vehicular access to any of the Section 4(f) or 6(f) resources.

Based on the above information, there would be no direct or indirect impacts to any 4(f) or 6(f) resources as a result of the Proposed Action.

6.7 Hazardous Materials, Solid Waste, and Pollution Prevention

6.7.1 2012 Environmental Assessment

The 2012 EA considered the potential for significant impacts to hazardous waste, pollution prevention, or solid waste. There would be increases in solid waste; however, there would not be any major changes to the use or disposal of hazardous materials or changes to pollution prevention practices. Accordingly, the Proposed Action and the No Action Alternative would not have significant impacts to hazardous materials, solid waste, and pollution prevention.

6.7.2 2018 Supplemental Environmental Assessment

6.7.2.1 Hazardous Materials

As discussed in **Section 5.7.3**, there are no National Priority List (NPL) properties within one-mile of Paine Field that are included on the USEPA's NPL. Three Resource Conservation and Recovery Act (RCRA) sites, two Toxic Release Inventory facilities, and one Leaking

Underground Storage Tank site were identified near the aircraft parking apron; however, none were physically located within the areas of airfield pavement that would be converted for automobile parking. No other sites with environmental concerns would be affected by the No Action Alternative or the Proposed Action.

There are no anticipated changes in handling, use, or disposal of hazardous materials as a result of the Proposed Action. As a result of the increased commercial operations, there would be an increase in aircraft fueling as a result of the Proposed Action. Ground crews would apply aircraft fueling best practices. The Airport has a SWPPP in place, and fuel suppliers and Propeller would obtain their own SWPPPs; additionally, Castle & Cooke, the airport fuel supplier, has a Spill Prevention, Control, and Countermeasure plan. These plans help to reduce the likelihood of a spill. Propeller will have a fuel response spill plan. In addition, the Airport also has plans for responding to fuel spills.

6.7.2.2 Solid Waste

An increase in solid waste can be expected as a result of the Proposed Action, due to the presence of arriving and departing airline passengers and airline employees as compared to the 2012 EA. The Proposed Action does not include any construction activities, aside from converting existing pavement to vehicle parking, which only involves striping the stalls. The increase in solid waste is expected to be minimal and is not anticipated to exceed the capacity of the Airport Road Recycling & Transfer Station.

6.7.2.3 Pollution Prevention

There would be no major changes to existing pollution prevention activities which would result from implementation of the Proposed Action. Additionally, the airlines, fuel suppliers, and Propeller would have their own SWPPPs.

Based on the above information, the Proposed Action and the No Action Alternative would not have significant impacts to hazardous materials, solid waste, or pollution prevention.

6.8 Historic, Architectural, Archaeological, and Cultural Resources

6.8.1 2012 Environmental Assessment

An assessment of historic, architectural, archaeological, and cultural resources was conducted in the 2012 EA for the Proposed Action and the No Action Alternative. The 2012 EA determined there were no sites within the Area of Potential Effects (APE) designated or eligible for listing on the National Register of Historic Places (NRHP). Therefore, the FAA made a determination of "no effect" on historical, architectural, archaeological, or cultural resources as a result of either the No Action or Proposed Action Alternatives. FAA consulted with Washington Department of Archaeology and Historic Preservation (DAHP) on the area of potential effect and received concurrence on FAA's findings of no effect. Additionally, FAA conducted government-to-government consultation with the Stillaguamish Tribe, Sauk-Suiattle Tribe, and Tulalip Tribes.

6.8.2 2018 Supplemental Environmental Assessment

Neither the No Action nor the Proposed Action Alternatives are expected to affect historic, architectural, archaeological, or cultural resources. There are no recorded cultural resources within the APE. The nearest NRHP listed or eligible historic resources are over 1.5 miles from the APE. The nearest recorded archaeological site is 45-KI-595; which is historic residential ruins and has been recommended Not Eligible for the NRHP.

Designation of the vehicle parking spaces near the passenger terminal would not affect historic, architectural, archaeological, or cultural resources since this area is already paved and currently used for aircraft parking. The Proposed Action would result in no new ground disturbing activities or indirect impacts to historic buildings or structures in the vicinity of Paine Field. Consistent with the 2012 EA, FAA conducted government-to-government consultation with the Stillaguamish Tribe, Sauk-Suiattle Tribe, and Tulalip Tribes. At the time of publication of the Draft Supplemental EA, FAA had not received responses from any of the Tribes.

Based on the review of the Supplemental EA APE, the Proposed Action would result in "No Historic Properties Affected" (36 CFR 800.4 (d)(1)).

6.9 Land Use

6.9.1 2012 Environmental Assessment

The 2012 EA assessed compatible land use and referenced the noise analysis, which did not include any noise sensitive land uses within the DNL 65 dB contour. There were no land acquisition or changes to land use as a result of the No Action Alternative or Proposed Action; therefore, there were no impacts.

6.9.2 2018 Supplemental Environmental Assessment

The No Action Alternative and Proposed Action would not result in any land acquisition or changes to local land use. Section 6.11, Noise and Noise-Compatible Land Use, documents the land uses within the 2019 and 2024 No Action Alternative and Proposed Action DNL 65 dB contours. There are no non-compatible land uses within either the No Action or Proposed Action Alternatives. Since the Proposed Action would not result in any land acquisition or changes to local land use, and the existing land use would remain compatible with aircraft noise exposure levels from the Proposed Action, there are no impacts as a result of implementation of the Proposed Action.

6.10 Natural Resources, Energy Supply, and Sustainable Design

6.10.1 2012 Environmental Assessment

The natural resource and energy consumption by the Proposed Action in the 2012 EA would primarily result from the use of construction materials and water; however, it would not change or

alter overall energy use at the Airport. No significant impacts were found for any natural resources or energy supply as a result of either the No Action Alternative or the Proposed Action.

6.10.2 2018 Supplemental Environmental Assessment

The No Action Alternative would have no impact because it would not change or otherwise alter energy use at the Airport. The primary energy demands associated with commercial air service are fuel consumption related to the operation of ground support equipment vehicles (maintenance, supplying aircraft) and aircraft. The Proposed Action would lead to a minor increase in fuel consumption related to initiation of scheduled commercial passenger service. In addition to increased ground support and aircraft fuel consumption, an increase in vehicular traffic to the project site would increase as a result of passenger arrivals and departures via automobile. However, it is anticipated that increased energy consumption would be minimal, and would have no significant impact to the energy supply.

No known natural gas, geothermal, or other energy resources would be impacted by the No Action or Proposed Action Alternatives.

6.11 Noise and Noise-Compatible Land Use

6.11.1 2012 Environmental Assessment

The 2012 EA included aircraft noise contours for two future conditions (2013 and 2018) for the Proposed Action and No Action Alternative. As stated in Section 5.11, Boeing leases Runway 11/29 for aircraft parking. At the time of the 2012 EA, Runway 11/29 had very limited use.

As documented in the 2012 EA, no homes or residences would be located within the DNL 65 dB or higher contours in 2013 or 2018 under either alternative or subject to an increase in noise of DNL 1.5 dB or greater under the Proposed Action when compared to the No Action alternative. The 2012 EA concluded that there would be no significant noise impact on noise-sensitive land uses in the vicinity of Paine Field.

6.11.2 2018 Supplemental Environmental Assessment

Annual average day DNL contours were developed using FAA's AEDT version 2d. For future years 2019 and 2024, DNL contours were developed for two operational scenarios: No Action Alternative and Proposed Action. **Figures 6.11-1** and **6.11-2** illustrate the 2019 No Action and 2019 Proposed Action DNL contours, respectively. The 2024 No Action DNL contours are provided on **Figure 6.11-3**, and the 2024 Proposed Action DNL contours are shown on **Figure 6.11-4**.

Data input into AEDT regarding the number of aircraft operations and the aircraft fleet mix at Paine Field in 2019 and 2024 were based on the aviation activity forecast (see **Appendix C**), the 2012 EA, and information obtained from FlightAware, Inc. The 2012 EA runway use was reviewed and, with the exception of Runway 11/29, was considered consistent with current runway use patterns. Runway 11/29 is closed indefinitely due to Boeing's lease of the runway for

aircraft parking. Therefore, aircraft operations on Runway 11/29 were not modeled in the AEDT for the 2017, 2019, and 2024 scenarios.

Flight tracks used in the noise analysis for the 2012 EA were updated using a sample of radar flight tracks provided by the FAA. Additional details regarding the noise modeling assumptions are provided in **Appendix F.**

Table 6.11-1 presents a summary of land use impacts for the 2019 and 2024 aircraft DNL contours for both the No Action Alternative and Proposed Action. **Table 6.11-2** provides additional details regarding the types of land uses that would be exposed to aircraft noise levels of DNL 65 dB and higher in 2019 and 2024. As shown in **Tables 6.11-1 and 6.11-2**, no homes, residences, or other noise sensitive land uses would be within the DNL 65 dB or higher contours in 2019 or 2024 under the No Action Alternative or the Proposed Action.

FAA Order 1050.1F states that a significant noise impact would occur if analysis shows that the Proposed Action would increase noise by DNL 1.5 dB or more over a noise sensitive area that is exposed to DNL 65 dB or above, or that would be exposed to DNL 65 dB due to a DNL 1.5 dB or greater increase, when compared to the No Action alternative for the same timeframe. The increased number of annual aircraft operations associated with the Proposed Action in 2019 and 2024 would not expose noise sensitive areas to noise levels of DNL 65 dB or greater. Accordingly, there would be no noise sensitive areas that would experience an increase in aircraft noise of DNL 1.5 dB or more in areas exposed to DNL 65 dB or greater as a result of the Proposed Action. Therefore, no significant noise impacts would occur if the Proposed Action was implemented.

TABLE 6.11-1
NOISE CONTOUR COMPARISON

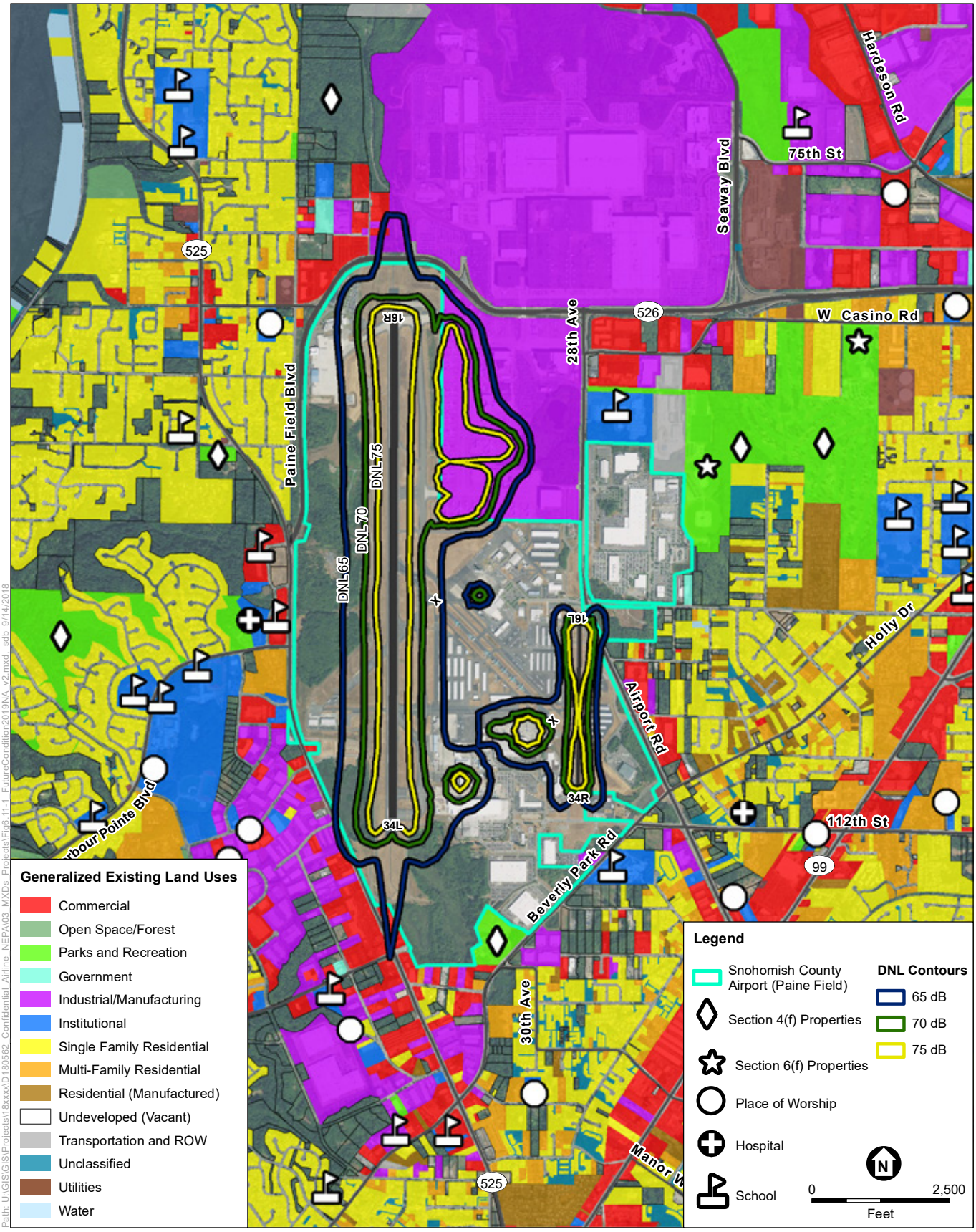
Alternative/Scenario	Area (Acres)	People	Residences	Religious Facilities	Schools	Hospitals / Nursing Homes
2019 No Action Alternative						
DNL 65+	704.1	0	0	0	0	0
2019 Proposed Action						
DNL 65+	861.6	0	0	0	0	0
2024 No Action Alternative						
DNL 65+	707.1	0	0	0	0	0
2024 Proposed Action						
DNL 65+	885.5	0	0	0	0	0

SOURCE: Environmental Science Associates, 2018.

TABLE 6.11-2
LAND USE ACREAGE WITHIN FUTURE (2019 AND 2024) DNL CONTOURS

Land Use		DNL 65-70	DNL 70-75	DNL 75+	Total
2019 No Action Alternative					
On-Airport Property		250.2	168.6	163.4	**582.1**
On-Airport Property Total (Acres)		**250.2**	**168.6**	**163.4**	**582.1**
Off-Airport Property	Agriculture	-	-	-	**-**
	Airports	2.0	-	-	**2.0**
	Commercial	2.9	-	-	**2.9**
	Industrial / Manufacturing	36.3	24.1	49.4	**109.8**
	Transportation/ROW	6.5	0.7	0.1	**7.3**
	Undeveloped (Vacant)	0.1	-	-	**0.1**
Off-Airport Property Total (Acres)		**47.7**	**24.8**	**49.5**	**122.0**
	TOTAL ACRES	**297.9**	**193.4**	**212.9**	**704.1**
2019 Proposed Action					
On-Airport Property		296.9	190.5	187.6	**674.9**
On-Airport Property Total (Acres)		**296.9**	**190.5**	**187.6**	**674.9**
Off-Airport Property	Agriculture	0.2	-	-	**0.2**
	Airports	2.2	-	-	**2.3**
	Commercial	16.3	-	-	**16.3**
	Industrial / Manufacturing	73.3	24.5	50.5	**148.3**
	Transportation/ROW	16.7	0.7	0.1	**17.5**
	Undeveloped (Vacant)	2.1	-	-	**2.1**
Off-Airport Property Total (Acres)		**110.9**	**25.2**	**50.5**	**186.7**
	TOTAL ACRES	**407.8**	**215.7**	**238.1**	**861.6**
2024 No Action Alternative					
On-Airport Property		251.4	169.0	164.0	**584.4**
On-Airport Property Total (Acres)		**251.4**	**169.0**	**164.0**	**584.4**
Off-Airport Property	Agriculture	-	-	-	**-**
	Airports	2.0	-	-	**2.0**
	Commercial	3.0	-	-	**3.0**
	Industrial / Manufacturing	36.6	24.1	49.4	**110.1**
	Transportation/ROW	6.7	0.7	0.1	**7.4**
	Undeveloped (Vacant)	0.1	-	-	**0.1**
	Utilities	-	-	-	**-**
Off-Airport Property Total (Acres)		**48.4**	**24.8**	**49.5**	**122.7**
	TOTAL ACRES	**299.8**	**193.8**	**213.5**	**707.1**
2024 Proposed Action					
On-Airport Property		301.6	193.3	191.1	**685.9**
On-Airport Property Total (Acres)		**301.6**	**193.3**	**191.1**	**685.9**
Off-Airport Property	Agriculture	0.3	-	-	**0.3**
	Airports	2.3	-	-	**2.3**
	Commercial	18.6	-	-	**18.6**
	Industrial / Manufacturing	79.0	24.6	50.6	**154.2**
	Transportation/ROW	19.9	0.7	0.1	**20.7**
	Undeveloped (Vacant)	3.3	-	-	**3.3**
	Utilities	0.1	-	-	**0.1**
Off-Airport Property Total (Acres)		**123.6**	**25.3**	**50.7**	**199.6**
	TOTAL ACRES	**425.1**	**218.6**	**241.8**	**885.5**

SOURCE: Environmental Science Associates, 2018.
NOTE: Numbers may not add, due to rounding.

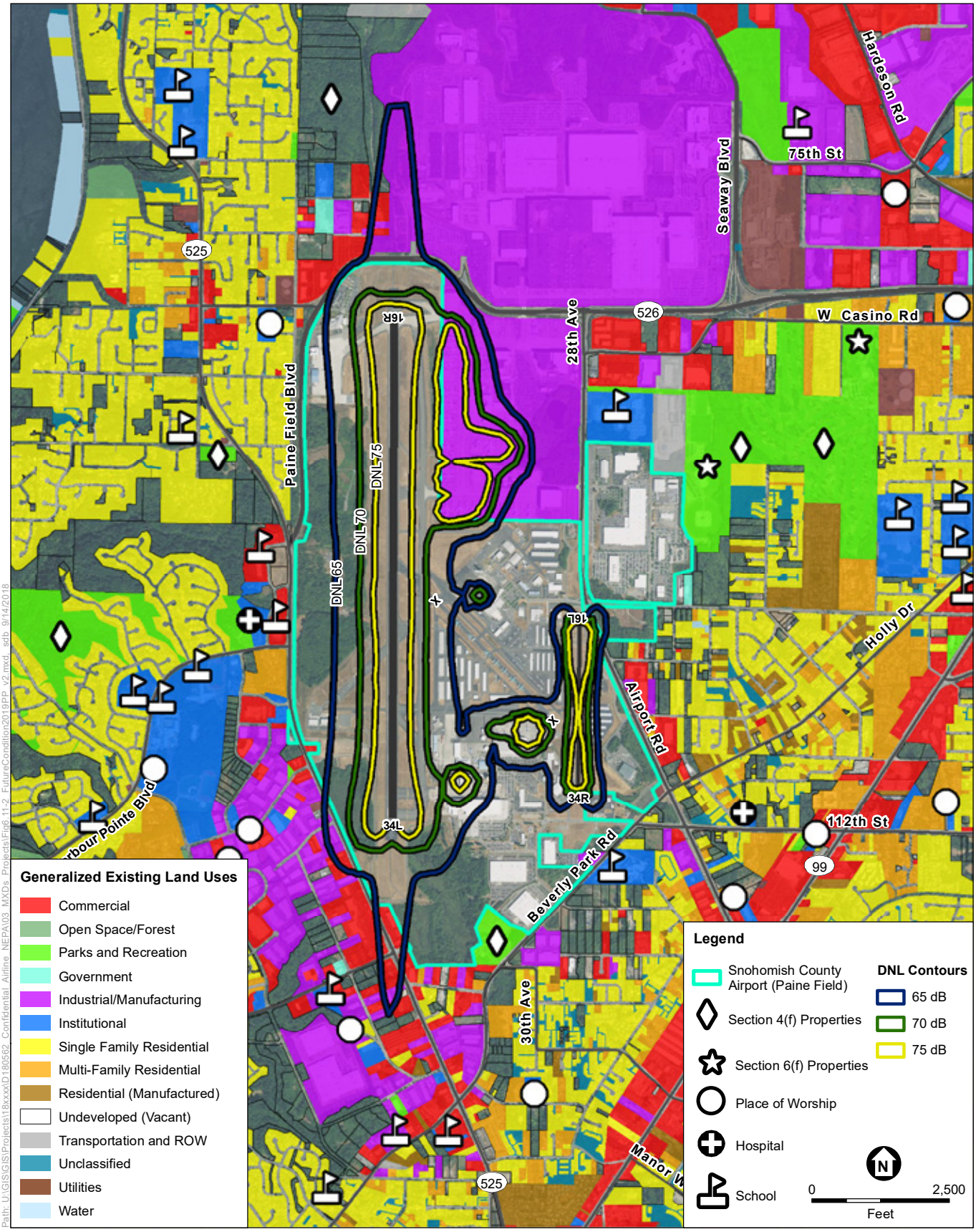


SOURCE: AEDT 2d; Snohomish County (June, 2018); ESRI; USDA NAIP (Aerial Imagery); Adapted by ESA, 2018
NOTE: Runway 11-29 closed indefinitely.

Figure 6.11-1
Future Conditions 2019 No Action DNL Contours
Snohomish County Airport (Paine Field)

ESA

This page left intentionally blank.

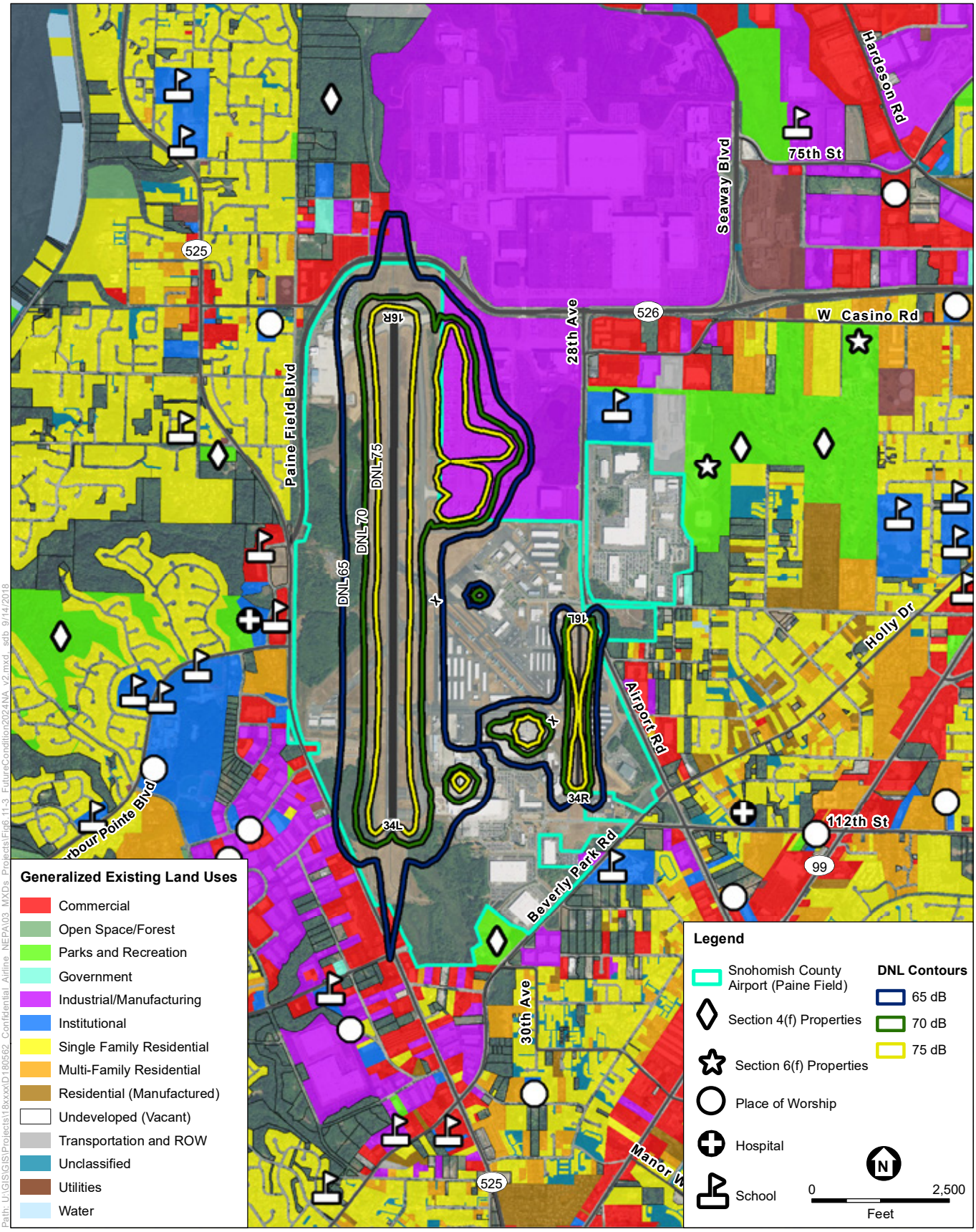


SOURCE: AEDT 2d; Snohomish County (June, 2018); ESRI; USDA NAIP (Aerial Imagery); Adapted by ESA, 2018
NOTE: Runway 11-29 closed indefinitely.

Figure 6.11-2
Future Conditions 2019 Proposed Action DNL Contours
Snohomish County Airport (Paine Field)

ESA

This page left intentionally blank.

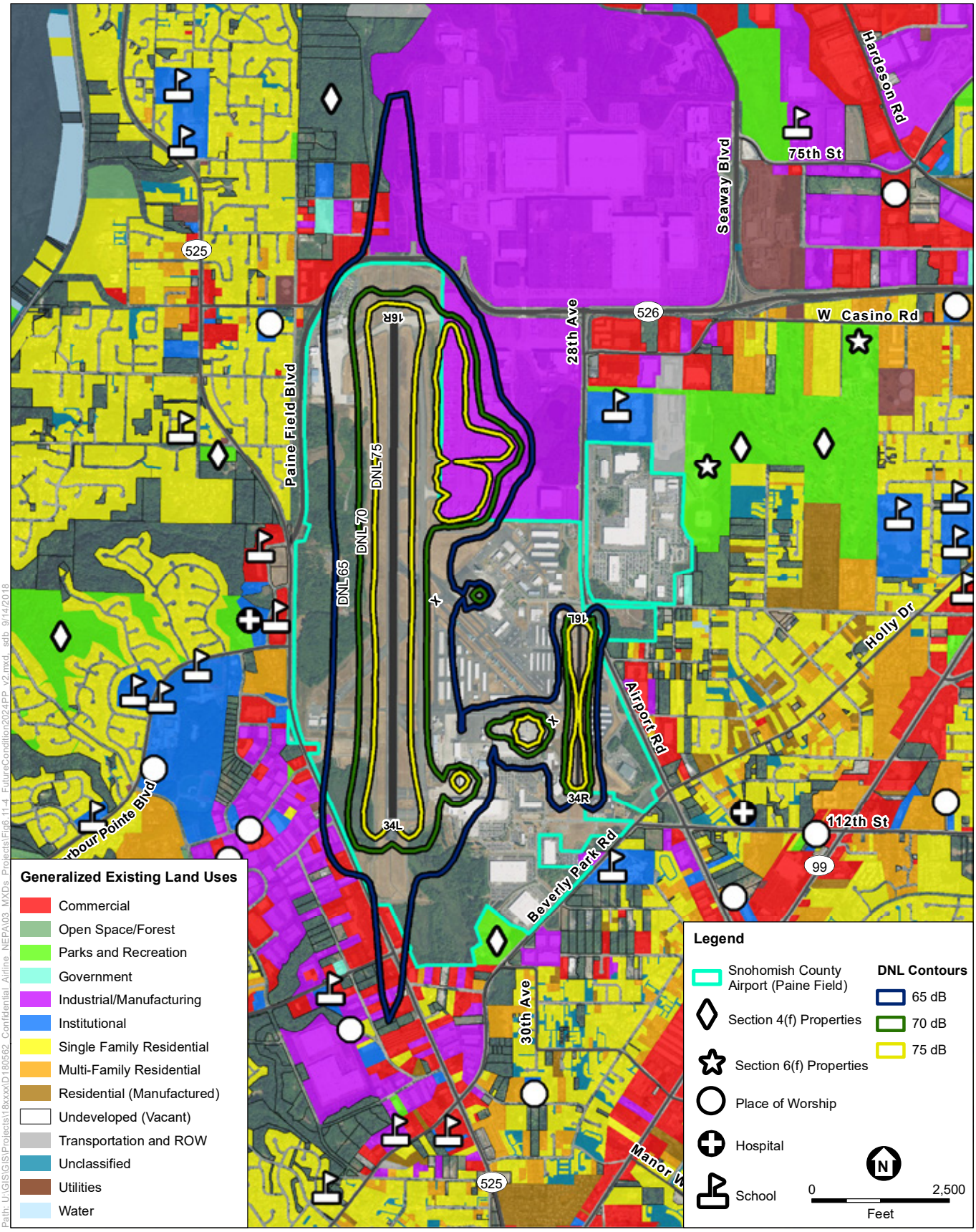


SOURCE: AEDT 2d; Snohomish County (June, 2018); ESRI; USDA NAIP (Aerial Imagery); Adapted by ESA, 2018
NOTE: Runway 11-29 closed indefinitely.

Figure 6.11-3
Future Conditions 2024 No Action DNL Contours
Snohomish County Airport (Paine Field)

ESA

This page left intentionally blank.



SOURCE: AEDT 2d; Snohomish County (June, 2018); ESRI; USDA NAIP (Aerial Imagery); Adapted by ESA, 2018
NOTE: Runway 11-29 closed indefinitely.

Figure 6.11-4
Future Conditions 2024 Proposed Action DNL Contours
Snohomish County Airport (Paine Field)

ESA

This page left intentionally blank.

6.12 Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks

6.12.1 2012 Environmental Assessment

The 2012 EA concluded that neither the Proposed Action nor the No Action Alternative would result in significant changes to socioeconomic conditions, significant disproportionate impacts on minority or low-income populations, or environmental health or safety risks for children, because they would not substantially change traffic patterns or noise levels that would affect residences, businesses, or schools in the vicinity of the Airport.

6.12.2 2018 Supplemental Environmental Assessment

The Proposed Action would add approximately 30-50 employees at Paine Field. This would represent a negligible increase in employment in the General Study Area (GSA) and would not measurably affect regional unemployment rates, incomes, or population. Because no population changes would result, the Proposed Action would not affect demand for housing or public utilities and services. No residential or business locations would be required to accommodate the Proposed Action as a result of noise or other types of nuisance or hazard impacts, as no substantial impacts would occur in proximity to existing residences or businesses.

As described in Section 6.2, the Proposed Action would not emit criteria air pollutants that would adversely affect health of local populations. As described in Section 6.11, the DNL contours for the Proposed Action show that it would not expose people, residences, religious facilities, schools, or hospitals and nursing homes to significant increases in aircraft noise levels. Thus, no adverse air quality or noise impacts would occur that could disproportionately affect the minority or low-income populations identified in Section 5.12. No other resource areas addressed in this Supplemental EA, including land use, surface transportation, and water resources, would have adverse effects that could disproportionately affect minority or low-income populations.

Additionally, because the Proposed Action would not emit substantial amounts of air pollutants or substantially increase noise at nearby residences or schools, it would not expose children to increased hazardous air pollutant emissions or significant increases in aircraft noise levels. Further, the Proposed Action would not adversely affect drinking water, recreational waters, or soil, nor would it introduce new sources of hazards or hazardous materials that could adversely affect children's health and safety.

6.13 Surface Transportation

6.13.1 2012 Environmental Assessment

The 2012 EA includes a Traffic Impact Analysis (TIA) report and a Vehicle Miles Travelled report which contain information about both motor vehicle traffic and potential effects to arterial roadways and intersections in the vicinity of Paine Field associated with the implementation of the Proposed Action. The 2012 EA concludes that the Proposed Action would not cause any Snohomish County arterials or any Washington State Department of Transportation (WSDOT),

City of Mukilteo, or City of Everett intersections to change from an acceptable Level of Service to a deficient Level of Service. All of the Snohomish County arterials analyzed in the TIA would operate at acceptable levels of service in the opening year (2013) and five years later (2018) under the Proposed Action. The Proposed Action would add trips to four intersections that are anticipated to operate at deficient levels of service in the future even if the Proposed Action is not implemented – State Route (SR) 525 at Beverly Park Road, SR 99 at Airport Road, the I-5 northbound ramps at 128th Street SW/SR 96, and SR 525 at 84th Street SW. The Proposed Action's impacts to these intersections could be mitigated through payment of mitigation fees to Snohomish County, the City of Mukilteo, and WSDOT. The No Action Alternative would have no effect on surface transportation. The 2012 EA found that the study arterials and intersections would operate at acceptable levels with commercial air service operations at Paine Field.

6.13.2 2018 Supplemental Environmental Assessment

A supplemental traffic study was prepared for the Proposed Action for the purpose of assessing traffic impacts in 2019 and 2024 (see **Appendix F**). The study updated trip generation data contained in the traffic study prepared for the 2012 EA to reflect the Proposed Action evaluated in this Supplemental EA.

There are a total of six Snohomish County arterial units that meet the threshold for analysis and eighteen WSDOT, City of Mukilteo, and City of Everett intersections that were subjects of requests for analysis or meet the threshold for analysis. The results of the analysis are in **Appendix F**.

The following Snohomish County arterials units have been analyzed in both directions during the AM and PM peak-hours:

- Beverly Park Road, SR-525 to Airport Road
- Airport Road/128th Street SW, SR-99 to I-5 Southbound Ramps
- 4th Avenue W, 128th Street SW to 112th Street SW
- 112th Street SW, Everett C/L (115th St SW) to Everett C/L (Meridian Ave)
- Airport Road, Everett C/L (106th St SW) to 400' N/O 103rd St SW (Kasch Park Rd)

The following WSDOT intersections were analyzed as part of this Supplemental EA:

- SR-525 at Beverly Park Road
- I-5 Southbound Ramps at 128th Street SW
- I-5 Northbound Ramps at SR-96/128th Street SW
- 3rd Avenue SE at SR-96/132nd Street SE
- Dumas Road at SR-96/132nd Street SE
- Airport Road at SR-526 Westbound Ramps
- SR-526 at SR-99/SE Everett Mall Way

The following City of Mukilteo intersections were analyzed as part of this Supplemental EA:

- SR-526/Paine Field Boulevard at 84th Street SW
- 44th Avenue W at 84th Street SW
- SR-525 at 84th Street SW
- SR-525 at 76th Street SW
- SR-525 at Goat Trail Road
- SR-525 at 5th Street

The following City of Everett intersections were analyzed as part of this Supplemental EA:

- Airport Road at Beverly Park Road
- SR-99 at Airport Road
- Airport Road at 112th Street SW
- Airport Road at Casino Road
- Evergreen Way at SR-526 Westbound Ramps

Seven intersections are anticipated to operate at deficient levels of service in the 2019 and 2024 No Action Alternative. These intersections are:

- SR-525 at Beverly Park Road (WSDOT intersection)
- SR-99 at Airport Road (City of Everett intersection)
- I-5 Southbound Ramps at 128th Street SW (WSDOT intersection)
- I-5 Northbound Ramps at SR-96/128th Street SW (WSDOT intersection)
- 3rd Avenue SE at SR-96/132nd Street SE (WSDOT intersection)
- SR-525 at Goat Trail Road (City of Mukilteo intersection)
- SR-526 at SR-99/SE Everett Mall Way (WSDOT intersection)

The updated traffic study estimated that the Proposed Action would generate approximately 2,185 daily vehicle trips, including 278 peak-hour trips, in 2019 (1,229 more than projected in the 2012 EA, including 66 additional peak-hour trips). In 2024, the Proposed Action would generate 2,212 daily trips, including 278 peak-hour trips, (1,256 more than that projected in the 2012 EA, including 66 additional peak-hour trips). The peak-hour trip generation is conservatively high since it was assumed that two arrivals and two departures of the Embraer 175 and one arrival and one departure of the Boeing 737 (total of 6 operations) would occur in one hour and all passengers would arrive and depart Paine Field in that hour.

The Proposed Action would not cause any Snohomish County arterials or any WSDOT, City of Mukilteo, or City of Everett intersections to change from an acceptable to a deficient level of service. All of the Snohomish County arterials analyzed are anticipated to operate at acceptable levels of service with implementation of the Proposed Action for both 2019 and 2024 (see

Appendix F). However, the Proposed Action would add trips to seven intersections that are anticipated to operate at deficient levels of service, regardless of whether the Proposed Action is implemented. These seven intersections were identified above, in the No Action Alternative discussion.

As described above and in **Appendix F**, these conservatively projected effects would not be significant, particularly in the context of overall area surface transportation. The Proposed Action would be subject to local traffic mitigation fees, which is detailed in **Section 6.17**.

6.14 Visual Effects

6.14.1 2012 Environmental Assessment

The 2012 EA described the visual setting of Paine Field, which is bordered by the City of Everett, the City of Mukilteo, and unincorporated Snohomish County. The Airport is surrounded by both industrial and residential areas which generate light emissions. There was a slight change in the visual environment due to construction of the Proposed Action. The 2012 EA concluded that neither the No Action Alternative nor the Proposed Action Alternative would result in significant impacts to the lighting and visual environment of Paine Field.

6.14.2 2018 Supplemental Environmental Assessment

As discussed in Section 5.14, the existing light sources at Paine Field primarily include runway and taxiway lights and lighted airfield directional signage. Other light sources include aircraft ramp lighting and lighting to illuminate buildings, parking areas, and roads. Paine Field is primarily surrounded by industrial and commercial areas with limited residential development adjacent to the Airport.

The No Action Alternative would not alter existing light sources or the visual environment. The aircraft that would operate at Paine Field as a result of the Proposed Action would be difficult to distinguish from similar aircraft that currently operate at the Airport. There would be additional lighting and visual changes as a result of converting aircraft apron areas to vehicle parking areas; however, these changes would be minimal and similar to the existing visual setting of Paine Field. Neither the No Action Alternative nor the Proposed Action Alternative would result in significant impacts to the visual environment of Paine Field.

6.15 Water Resources

6.15.1 2012 Environmental Assessment

The 2012 EA determined that the Proposed Action and No Action Alternative would have no significant impacts to water quality, stormwater runoff, groundwater, floodplains and wetlands. The Proposed Action included only a very small increase in impervious surface (approximately 1,000 square feet) at the Airport with most of the actual development (i.e., new terminal, parking, roads) occurring on existing paved surfaces. No impacts to groundwater, floodplains, or wetlands would occur.

6.15.2 2018 Supplemental Environmental Assessment

This section describes effects to water resources including wetlands; floodplains; surface waters, including stormwater runoff and drainage; water quality; and groundwater. Neither the No Action Alternative nor the Proposed Action Alternative would result in significant environmental impacts to water resources since the development would not involve ground disturbance, including any creation of new impervious surface or filling of wetlands.

6.15.2.1 Wetlands

No impacts to existing wetlands or wetland mitigation bank areas are anticipated with implementation of the Proposed Action.

According to the Master Drainage Plan, 2015 SWPPP and PHS mapping, there are several freshwater wetlands located on the airport property along with a wetland mitigation bank. Wetlands on Paine Field were inventoried and delineated in 2007 as part of a critical areas study completed by the airport. One of the large wetland areas in the southern portion of the property, Wetland 25, is a permitted stormwater detention facility. The Proposed Action does not alter or adversely affect the existing wetlands and wetland habitats on the Airport.

6.15.2.2 Floodplains

Neither the No Action Alternative nor the Proposed Action would have an effect on floodplains. The closest floodplains with a one percent chance or greater of flooding in each given year (i.e., 100-year) are associated with Puget Sound approximately one mile to the west of the Airport and Stickney Lake approximately two miles to the southeast. The airport is located on a plateau and is fully outside of floodplain areas. As stated in Chapter 5, the majority of the Airport is located within Zone X, or areas determined to be outside of the 500-year floodplain; therefore, Paine Field is not located within a regulatory (100-year) floodplain.

6.15.2.3 Surface Waters

As discussed in Section 5.15.3, the Airport lies within several local watersheds, which drain directly to Puget Sound and Lake Washington. There are no anticipated effects to surface waters as a result of the Proposed Action Alternative because the re-striping of existing paved areas for additional vehicle parking would not result in any changes that would impact surface waters or the local watersheds.

6.15.2.4 Stormwater and Drainage

Paine Field operates under a Master Drainage Plan (2008) which includes stormwater detention and water quality requirements. The 2008 Plan also included an inventory of existing facilities, determines conveyance and detention capacities, identifies existing deficiencies, forecasts changes in land cover (i.e., impervious areas) based airport development plans, identifies future stormwater facility needs to meet planned growth, and identifies improvement projects. The Airport also operates under Permit WAR000428 issued to Snohomish County under the State of Washington's Industrial Stormwater General Permit (ISGP).

Stormwater drainage information for Paine Field was obtained from the 2008 Master Drainage Plan and the Stormwater Pollution Prevention Plan for Paine Field, Snohomish County, Washington (Landau Associates, 2015). The majority of the approximately 1,252 acre Paine Field site is covered in buildings and pavement. Surface water and stormwater runoff is captured and conveyed in a series of constructed bioswales, storm drain pipes, catch basins, detention facilities and constructed stormwater ponds through the area.

6.15.2.5

The passenger terminal was constructed in an area where stormwater drains to Japanese Gulch, specifically Basins J-7 and J-9. Runoff from this area of Paine Field discharges to the Alpha Regional Detention Facility (Alpha Pond). The stormwater requirements for the passenger terminal and associated parking were addressed through the 2012 EA and permit process. The approximately 424 additional vehicle parking stalls are located within previously paved areas with existing stormwater facilities; the area selected for additional parking also drains to Japanese Gulch and Swamp Creek sub basin SC-5. Since no additional impervious surfaces or grading would occur for the Proposed Action, no significant environmental impacts to stormwater runoff, detention, or drainage are anticipated. Water Quality

According to the Washington Department of Ecology (WDOE) Water Quality Atlas, tributaries to Swamp Creek to the south are considered 303d-listed Category 5 waters for exceeding dissolved oxygen standards. However, Japanese Gulch Creek, Big Gulch Creek and Smuggler's Gulch Creek are not shown on the State's Clean Water Action Section 303d list for water quality impairment. These freshwater tributaries to the Puget Sound provide important spawning, rearing and migration habitat for salmon species. All streams in this vicinity should be protected from future degradation of water quality. The 2015 *Stormwater Pollution Prevention Plan for Paine Field* (Landau Associates) outlines the Airport's requirements for stormwater management and water quality protection measures. The best management practices (BMPs) contained in this SWPPP are fully consistent with the BMPs required in the Washington State Department of Ecology (WDOE) 2012 *Stormwater Management Manual for Western Washington*, as Amended in December 2014. The No Action Alternative would not affect water quality. The Proposed Action would not cause significant adverse environmental impacts to water quality since the additional parking spaces do not involve increases in impervious surfaces, new grading or earthwork, or storage/transport of fuels. The Proposed Action merely converts existing airplane parking areas to vehicle parking lots.

6.15.2.6 Groundwater

No mapped Critical Aquifer Recharge Areas (CARAs) are shown in the County's online mapping tool for the Airport vicinity. Due to the underlying geology of the area, there does not appear to be any significant groundwater resources. However, groundwater near airports can be affected in a variety of pathways through fuel storage, stormwater systems, fuel transport and refueling, winter operations using deicing solutions, and storage of chemical products, among others. The Proposed Action does not involve new impervious surfaces, construction of new fueling areas or new stormwater systems, or deicing facilities. All commercial aircraft requiring deicing would use the approved deicing pad located at Taxiway "A1" or at the gate, and Propeller would obtain

a NPDES Industrial Stormwater Permit for the deicing activities at the gates. These deicing locations drain to the sanitary sewer system flowing through the Boeing Everett Factory and is treated at the City of Everett wastewater treatment plant, which has sufficient capacity to accommodate additional deicing runoff.

6.16 Cumulative Impacts

6.16.1 2012 Environmental Assessment

The cumulative impacts evaluation in the 2012 EA included information on past, present, and reasonably foreseeable projects at Paine Field and in the airport environs. The 2012 EA concludes that the anticipated effects of the Proposed Action when added to the impacts of past, present, and reasonably foreseeable actions would not result in significant cumulative effects.

6.16.2 Past, Present and Reasonably Foreseeable Future Projects

Information available from Paine Field management, the City of Everett, and the City of Mukilteo, and other available sources was reviewed to identify past, present, and reasonably foreseeable development actions considered in this Supplemental EA. These projects considered in this Supplemental EA have been, or could be, undertaken with or without implementation of the Proposed Action. Most of the recent development activity is on-airport, as the area around Paine Field is well established urbanized area and has had limited new development in recent years. The past, present, and reasonably foreseeable projects are identified and analyzed in this section.

6.16.2.1 On-Airport Actions

Most of the projects undertaken in the past five years at Paine Field, as well as the upcoming project were related to the need to keep this critical existing infrastructure in a state of good repair, including airfield pavement maintenance, repair, and rehabilitation. The airport's general aviation runway (Runway 18L/36R) and taxiway pavements were rehabilitated in recent years. These projects typically included milling the old surface pavements, repairing or replacing base materials, re-paving, and application of new pavement markings. In some cases, the projects included electrical and drainage repairs and improvements. Additional examples of past and present on-airport projects include:

- Tenant Hangar/Building Rehabilitation, Construction, and Reconstruction.
- Relocation and reconstruction of Taxiway Bravo.
- Construct Boeing Dreamlifter Operations Center.
- Reconstruct East Perimeter Road.
- Construct New Commercial Passenger Terminal Building (approved in the 2012 EA).

A review of Paine Field's Capital Improvement Plan (CIP) was completed to identify reasonably foreseeable future projects. Rehabilitation of Runway 16R/34L is underway for 2018-2019.

Rehabilitation of the Central Ramp Apron and Taxiways C, D and L is planned for 2020-2021. In general, work related to pavement rehabilitation projects is generally limited to the extent of the paved areas and grassed areas immediate adjoining the pavements and involves the use of milling machines, paving machines, and large delivery trucks. Other equipment, as needed, may include backhoes and graders.

6.16.2.2 Off-Airport Projects

A review of information available from local government Planning Departments shows past, present, and planned development typical for an urbanized area. The area surrounding Paine Field is urbanized; further infill development is expected in the areas surrounding the airport. This includes single and multi-family residential development as well as commercial, institutional, and industrial development and transportation improvement projects. Notably, redevelopment projects in former industrial waterfront areas in Everett (through 2020) and the development of a Town Center in Mukilteo (through 2020) have created new mixed-use residential and commercial centers. Additional examples of past and present off-airport projects include:

- City of Everett Riverfront Development (redevelopment of industrial land for commercial and residential land uses).
- Mukilteo Multimodal Terminal replacement at the Mukilteo Ferry Terminal.
- Development of the Swift Green Line stations and commencement of service in Everett.

Off-airport infill development is expected to continue in response to future growth in the vicinity of Paine Field. Residential, commercial, and industrial development as well as transportation improvement projects are reasonably foreseeable. Additional examples of reasonably foreseeable off-airport projects include:

- Residential, Commercial, and Industrial Development in the Cities of Everett and Mukilteo.
- Planned improvements for the intersection of SR-525 at Beverly Park Road, also known as the Harbour Reach Corridor Project, in Mukilteo.
- Addition of adaptive signals along the 128th Street SW corridor in Snohomish County.

6.16.3 2018 Supplemental Environmental Assessment

As noted in Section 6.1, this Supplemental EA is focused on evaluating the updated aircraft operations, passenger enplanement forecast, and additional vehicle parking spaces for Paine Field and how the new proposal for initiating commercial passenger service at Paine Field might differ from the analysis and conclusions documented in the 2012 EA. Based on the above analysis of potential effects of the Proposed Action in 2019 and 2024, and the 2012 EA cumulative impacts analysis, this assessment of cumulative impacts is on the following environmental resource categories that have the potential to be impacted by cumulative effects: air quality, climate, noise and noise compatible land use, socioeconomics, and surface transportation.

6.16.3.1 Air Quality

The Proposed Action would increase aircraft operations and result in the introduction commercial passengers at Paine Field. The Air Quality analysis in Section 6.2 shows the Proposed Action would not cause or contribute to an exceedance of the NAAQS.

Off-airport, the continued private development/redevelopment of land for residential, commercial, and industrial uses are expected to continue to increase, or to some extent redistribute, vehicle traffic in the area, especially in vicinity of the new and proposed mixed-use developments. No recent or planned large-scale developments or stationary air emissions sources were identified in the vicinity of Paine Field.

Construction of the cumulative projects could result in a temporary increase in air emissions. Any projects, on-airport or off-airport, would have to comply with the Clean Air Act and be subject to the Puget Sound Clean Air Agency regulations and guidance.

Snohomish County is in attainment for all federal air pollutant standards as defined by the NAAQS. In addition, the cumulative projects are required to comply with applicable sections of the SIP. Based on the current status of cumulative projects identified, and the fact that Snohomish County is currently designated as being attainment for all NAAQS criteria pollutants, it was concluded that the implementation of the Proposed Action, in addition to other on- and off-airport projects, would not result in significant cumulative air quality impacts.

6.16.3.2 Climate

FAA Order 1050.1F does not identify any significance thresholds for climate impacts. The Proposed Action's estimated annual GHG emissions, when compared to the No Action Alternative, are negligible and well below guidance levels historically utilized in GHG registry and compliance programs throughout the U.S. It is assumed that individually and cumulatively, future projects, both public and private, would comply with state and local plans to reduce GHG emissions. Therefore, the Proposed Action, when considered in addition to the cumulative projects, is not anticipated to have a significant cumulative impact on climate change.

6.16.3.3 Noise and Noise-Compatible Land Use

The Proposed Action would increase operational noise at Paine Field, but would not affect any noise sensitive sites or land uses. The analysis of noise impacts in Section 6.11 shows that the Proposed Action would not result in a significant noise impact.

Construction of the cumulative projects could result in temporary, but minor noise impacts from equipment involved in land clearing, grading, hauling, paving, and general construction operations. In regard to airport construction projects, the distance to sensitive areas indicates impacts added by the Proposed Action would be negligible.

The operation of cumulative projects, notably those that would increase aircraft operations at Paine Field, could increase aircraft noise in the vicinity of Paine Field. The analysis of noise impacts in this Supplemental EA includes the FAA's projected growth in activity at Paine Field

for each study year. The projected growth in aviation activity at the airport – with the additional aircraft operations associated with the Proposed Action – were found to not have a significant noise impact. The minor noise impacts associated with the Proposed Action, when considered in addition to noise impacts of the cumulative projects, may have a minor increase in the overall ambient noise environment, but is not expected to lead to significant cumulative noise impacts.

6.16.3.4 Socioeconomic Environment

The Proposed Action would result in a small, temporary increase in construction-related jobs in order to convert the existing aircraft parking apron pavement to vehicle parking, for the installation of curbing, access gates, lighting, fencing, and related improvements. Additionally, the Proposed Action would result in approximately 30-50 new, permanent positions for airline services. This minor increase in employment is not significant for the area; therefore, there is no anticipated increase in demand to local planned development.

Planned development is expected to improve the socioeconomic conditions in the area. The minor impacts associated with the Proposed Action, when considered in addition to the cumulative projects, may have a minor increase in the socioeconomic environment; however, changes in socioeconomic conditions in the area wouldn't be sufficient to attract large population or traffic growth in the area and should not result in significant impacts to socioeconomic conditions.

6.16.3.5 Surface Transportation

As noted in the August 2018 traffic study prepared for this Supplemental EA (see **Section 6.13** and **Appendix F**), the Proposed Action would not cause any intersections to change from an acceptable to a deficient level of service. Cumulative impacts were included in the analysis documented in **Section 6.13**. Planned surface transportation improvements and regional growth were included in the assumptions for the future scenario. Snohomish County provides a database with growth rates for future analyses; when unavailable, standard growth rates were applied. Reasonably foreseeable projects that were included in the future scenario modeling include the Harbour Reach Corridor Project, 128th Street SW adaptive signal improvements, and implementation of the Swifts Bus Rapid Transit.

All of the Snohomish County arterials analyzed are anticipated to operate at acceptable levels of service with implementation of the Proposed Action for both 2019 and 2024 (see **Appendix F**). However, the Proposed Action would add trips to seven intersections that are anticipated to operate at deficient levels of service, regardless of whether the Proposed Action is implemented.

The traffic study also notes that mitigation fees would be assessed by local governments to accommodate the anticipated increase in traffic. The Proposed Action, as well as each traffic-generating cumulative project, are subject to traffic impact reviews through local planning and permitting processes. These processes identify traffic impacts and necessary mitigation measures (or fees) to ensure that traffic changes do not result in unacceptable Levels of Service on area roads. Therefore, the Proposed Action, when considered in addition to the cumulative projects, is not anticipated to have significant cumulative traffic impacts.

6.16.4 Summary of Cumulative Impacts

Based upon this analysis of cumulative impacts, it is appropriate to conclude that the Proposed Action, together with past, present, and reasonably foreseeable projects in the study area would not result in significant cumulative impacts. The No Action Alternative would not contribute to any cumulative impacts.

6.17 Mitigation

As defined by FAA Order 1050.1F, mitigation is only required for significant impacts that cannot be avoided. There are no significant impacts based on federal thresholds of significance as a result of the Proposed Action. The mitigation considered within this section is a result of non-federal thresholds related to County-required traffic mitigation (see **Section 6.13** for additional information).

The Washington Growth Management Act and Revised Code of Washington 82.02.050(2) authorize local jurisdictions to establish proportionate share traffic mitigation fees in order to fund capital facilities, such as roads and intersections. Snohomish County Code (SCC) 30.66B applies that authority to developments in order to fund road improvements that would accommodate development. Additionally, through SCC 30.66B and the State Environmental Policy Act, Snohomish County has established reciprocal traffic mitigation fee interlocal agreements with WSDOT and the City of Mukilteo that are within the influence area of the Proposed Action.

The 2012 EA and Snohomish County Mitigated Determination of Nonsignificance identified total traffic mitigation fees for payment to Snohomish County, WSDOT, and the City of Mukilteo of $333,262.85. Snohomish County has already been paid $206,161.40, the WSDOT has been paid $32,695.20, and the City of Mukilteo has been paid $94,406.25 for mitigation fees.

The total traffic mitigation fees, based on the trip generation and applicable codes and agreements, identified for payment to Snohomish County, WSDOT, and the City of Mukilteo for the Proposed Action evaluated in this Supplemental EA total an estimated $676,465.08. The Snohomish County estimated mitigation fees are $477,017.80, the WSDOT estimated mitigation fees are $75,650.40, and the City of Mukilteo estimated mitigation fees are $123,796.88 (see **Appendix F** for additional information). These fees are based on the total Proposed Action impact, and the fees paid as a result of the 2012 EA need to be credited to these estimated totals. Accordingly, the remaining mitigation fee balance is an estimated $343,202.23. The remaining balance is an estimated $270,856.40 mitigation fees for Snohomish County, $42,955.20 for WSDOT, and $29,390.63 for the City of Mukilteo.

This Page

Intentionally Left Blank

CHAPTER 7
Agency Coordination and Public Involvement

7.1 Availability of the Draft Supplemental EA for Review

7.1.1 Notice of Availability of Draft Supplemental EA

A Notice of Availability of the Draft Supplemental EA and Notice of a Public Information Workshop/Public Hearing was published in the Everett Herald newspaper on September 29, 2018. The Notice was also placed on Paine Field's website the same day at: https://www.painefield.com/219/2018-Air-Service-Environmental-Assessmen

Copies of the Draft Supplemental EA are available for public review during regular business hours at the locations listed below. The Draft Supplemental EA is also available electronically (in PDF format) for download on the Airport's website at the link provided above.

- Paine Field Administrative Office - 3220 100th St. SW, Suite A, Everett, WA 98204
- Mukilteo Library - 4675 Harbour Pointe Blvd, Mukilteo, WA 98275
- Everett Public Library - 2702 Hoyt Ave, Everett, WA 98201
- Lynwood Library - 19200 44th Ave W, Lynnwood, WA 98036

The Draft Supplemental EA will be available for review by the public, government agencies, and interested parties through November 2, 2018. A list of agencies and officials that received a copy of the Draft Supplemental EA is contained in **Appendix A**.

7.1.2 Commenting on the Draft Supplemental EA

The comment period for the Draft Supplemental EA will begin on September 29, 2018 and extend through November 2, 2018. Anyone wishing to comment on the information and conclusions in this Draft Supplemental EA may do so at any time during the review and comment period. The FAA will review and consider comments received during the public comment period.

All written comments must be submitted at the Public Information Workshop/Public Hearing or to the following address:

Environmental Science Associates
Paine Field Supplemental EA
5309 Shilshole Ave NW
Ste. 200
Seattle, WA 98107

Comments must be submitted through **November 2**, **2018.** All public and federal, state, and local agency comments received during the comment period will be considered and responded to in the Final Supplemental EA.

7.1.3 Public Information Workshop / Public Hearing

A combined Public Information Workshop/Public Hearing will be held from 5:30 p.m. to 8:30 p.m. on October 29, 2018 at the Lynnwood Convention Center. The Public Workshop will occur from 5:30 to 6:30 p.m. and include a series of informational displays that provide information about the Proposed Action and its environmental impacts. Representatives of the Airport and Study Team will participate in the workshop and interact with the public to discuss the Proposed Action and its environmental impacts. During the workshop, an area will be available to provide written comments and court reporters will be available to record verbal comments.

At 6:30 p.m., the Public Information Workshop will close and the Public Hearing will be initiated. A brief announcement will be made at the start of the Public Hearing to explain the purpose of the hearing and procedures and rules for conducting the hearing. The Public Hearing format will allow the public to enter their comments orally into the record for subsequent consideration by FAA.

The public may submit comments during the Public Information Workshop/Public Hearing. Written comments may also be submitted prior to, or after, the Public Information Workshop/Public Hearing through **November 2**, **2018**.

7.1.4 Final Supplemental EA

The FAA will review the Final Supplemental EA to determine its adequacy under the *National Environmental Policy Act* (NEPA), Council on Environmental Quality's regulations implementing NEPA (40 CFR Part 1500), and FAA Orders 1050.1F and 5050.4B. Based on the analysis in the Final Supplemental EA, the FAA will decide whether to either issue a Finding of No Significant Impact (FONSI) or prepare an Environmental Impact Statement (EIS).

CHAPTER 8
List of Preparers

The following individuals were involved in the preparation of this Supplemental EA. Information provided includes the organization for which each individual works, a brief synopsis of their experience and qualifications, and their responsibilities in preparing the Supplemental EA document.

8.1 Environmental Science Associates

Steven Alverson, Project Director. B.S. Aeronautics. More than 35 years of airport and environmental planning experience, with expertise in aircraft noise analyses and airport/community land use compatibility planning. Responsible for project management, technical approach, and quality assurance/quality control (QA/QC).

Autumn Ward, Project Manager. M.S. Aeronautics and B.S. Aviation Business Administration. 14 years of experience in airport environmental planning, with expertise in aircraft noise modeling and preparation of NEPA documents. Responsible for project management, project approach, technical writing, and QA/QC.

Linda Amato, Senior Planner, M.U.R.P. Community Planning and Design and B.A. Art History. More than 30 years of experience managing and preparing NEPA and SEPA documents for all modes of transportation projects. Technical expertise includes built environment resources and Section 4(f) and 6(f) documentation.

Stan Armstrong, Air Quality Analyst. B.S. Civil Engineering. More than seven years of experience in quantifying and analyzing air emissions. Responsible for the stationary source emissions modeling.

Sean Burlingame, Senior Noise Analyst. B.S. Aviation Management. More than 10 years of experience in aircraft noise modeling, airport land use compatibility, and Geographic Information System (GIS) and AutoCAD applications for the aviation environment. Responsible for noise analysis support and preparation of graphics.

Doug DiCarlo, Aviation Planner. M.B.A and B.S. Airway Science Management. More than 23 years of experience in aviation consulting and aviation planning. Responsible for the development of the Supplemental EA's aviation activity forecast.

Chris Easter, Director of Air Quality. B.A. Environmental Sciences. More than 25 years of experience in air emissions modeling, monitoring, risk assessment and air permitting. He has successfully completed over 200 air quality projects including numerous emissions modeling and

management projects with airports and other transportation installations. Air quality analyses Task Leader for the Supplemental EA.

Peter Green, AICP, NEPA Technical Advisor. M.P.A. Public Administration / Coastal Zone Studies and B.S. Environmental Resource Management & Planning. 30 years of experience preparing airport-related NEPA documents, environmental planning, and airport planning. Provided assistance on project approach, impact evaluations, technical writing, and QA/QC.

Joseph Halisky, Aviation Planner. B.S. Aviation Management. Provided assistance on Development of the Supplemental EA's forecast and assistance in quality assurance reviewing.

Christina Hersum, Associate Biologist. B.S. Environmental Science. Six years of experience related to road, trail, energy transmission, and airport development. Responsible for the biological and water resources analyses.

Paula Johnson, Registered Professional Archaeologist #10515. M.A. Museology (Archaeology focus) and B.A. Anthropology. More than 26 years of experience in cultural resources management. Responsible for preparing historic, cultural, and archaeological analysis.

Michael Mulbarger, Senior Transportation Noise and Air Quality Analyst. B.S. Environmental Science. More than 16 years of experience. Provided documentation support and QA/QC.

Brian Schuster, Air Quality and Climate Change Specialist. B.S. Atmospheric, Oceanic, and Environmental Science. Over 10 years of experience in air quality / GHG consulting and project management. Technical lead for the air quality and GHG analyses.

Chris Sequeira, Senior Noise and Air Quality Analyst. M.S. and B.S. Aeronautics and Astronautics, M.S. Technology and Policy. Eight years of experience in aviation environmental policy, including six years as an FAA Headquarters employee. Responsible for the analysis of aviation-related air quality impacts.

Susumu Shirayama, Senior Noise Analyst. B.S. Aerospace Studies. More than 16 years of airport and environmental planning experience, with expertise in noise control, aircraft noise modeling, and airport/community land use compatibility planning. Responsible for the aircraft noise modeling using AEDT.

Alexandra Thompson, Environmental Planner. M.A. Urban Planning and B.A. Peace and Conflict Studies. Ten years of experience in environmental compliance consulting. Responsible for socioeconomics, environmental justice, and health and safety risks to children analyses.

Teresa Vanderburg, Senior Ecologist. M.S. Environmental Science and Policy, B.S. Biology, and Professional Wetland Scientist. 28 years of consulting experience related to road, trail, energy transmission and airport development. Responsible for the biological and water resources analyses.

8.2 Gibson Traffic Consultants, Inc.

Bradley Lincoln, P.E., Transportation Engineer. M.B.A. Seattle University and B.S.E. Arizona State University. Responsible for re-evaluation of vehicular traffic impact analyses.

CHAPTER 9

References, Acronyms, and Abbreviations

The following is a list of abbreviations and acronyms used throughout the document.

A

AC	Advisory Circular
ACS	American Community Survey (U.S. Census Bureau)
AEDT	Aviation Environmental Design Tool
APE	Area of Potential Effect
APU	Auxiliary Power Unit
AST	Above-ground Storage Tank
ATCT	Airport Traffic Control Tower

B

BMPs	Best Management Practices

C

CAA	Clean Air Act
CARA	Critical Aquifer Recharge Area
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CH_4	Methane
CO	Carbon monoxide
CO_2	Carbon dioxide
CWA	Clean Water Act
CZM	Coastal Zone Management

D

DAHP	Department of Archaeology and Historic Preservation
dB	Decibel
dBA	A-weighted Decibel

DOT	U.S. Department of Transportation
DNL	Day-Night Average Sound Level
DSA	Detailed Study Area

E

EA	Environmental Assessment
EO	Executive Order
ESA	Endangered Species Act
ESA	Environmental Science Associates

F

FAA	Federal Aviation Administration
FBO	Fixed Base Operator
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Maps
FR	Federal Register
FONSI	Finding of No Significant Impact

G

GA	General Aviation
GHG	Greenhouse Gases
GSA	Generalized Study Area
GSE	Ground Support Equipment

H

H_2O	Water
HFCs	Hydrofluorocarbons

I

I-5	Interstate 5
ISGP	Industrial Stormwater General Permit
INM	Integrated Noise Model
IPCC	United Nations Intergovernmental Panel on Climate Change

J

K

kHz	Kilo-Hertz

L

LWCF	Land and Water Conservation Fund Act

M

MBTA	Migratory Bird Treaty Act
NO_2	Nitrogen dioxide

N

NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
N_2O	Nitrous oxide
NOAA	National Oceanic and Atmospheric Administration
NO_X	Oxides of Nitrogen
NO_2	Nitrogen dioxide
NPDES	National Pollutant Discharge Elimination System
NPL	National Priority List
NRHP	National Register of Historic Places

O

O_3	Ozone

P

PAB	palustrine aquatic bed
PAE	Snohomish County Airport/ Paine Field
PEM	Palustrine Emergent Wetland
PFO	Palustrine Forested
Pb	Lead
PCBs	Polychlorinated Biphenyls
PFCs	Perfluorocarbons
PHI	Points of Historical Interest
PHS	Priority Habitat Species
PM_{10}	Particulate Matter ≤ 10 microns in diameter (Coarse Particulates)
$PM_{2.5}$	Particulate Matter ≤ 2.5 microns in diameter
ppm	Parts Per Million

PSS	Palustrine Scrub-shrub
PUD	Public Utility District

Q

R

RCRA	Resource Conservation and Recovery Act
ROW	Right of Way
RWQCB	Regional Water Quality Control Board

S

SCC	Snohomish County Code
SDWA	Safe Drinking Water Act
SIP	State Implementation Plan
SF_6	Sulfur hexafluoride
SOAP	Sustainable Operations Action Plan
SO_2	Sulfur dioxide
SOx	Oxides of Sulfur
SR 525	State Road 525
SR 526	State Road 526
SWPPP	Stormwater Pollution Prevention Plan

T

TAF	Terminal Area Forecast

U

USACE	United States Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USC	United States Code
USFWS	U.S. Fish and Wildlife Service

V

VOC	Volatile Organic Compound

W

WDFW	Washington Department of Fish and Wildlife
WDOE	Washington Department of Ecology
WDNR	Washington Department of Natural Resources

WHMP	Wildlife Hazard Management Plan
WSDOT	Washington State Department of Transportation

X

Y

Z

References

Archaeological and Historic Preservation Act, as amended. U.S.C. 1966. Vol. 16 §469 et. seq.

Barnard Dunkelberg Company (BDC). 2012. Snohomish County Airport Paine Field Final Environmental Assessment: Environmental Assessment for Amendment to the Operations Specifications for Air Carrier Operations, Amendment to a FAR Part 139 Certificate, and Modification of the Terminal Building. September 2012.

BLM. 1988. *Wild and Scenic Rivers Act, as amended. U.S. Code*. Vol. 16 §1271 et seq. Bureau of Land Management. 1988.

Clean Air Act, as amended. U.S.C. 1990. Vol. 42 §7401 et seq.

Department of Transportation Act, as amended. U.S. Code. Vol. 49 § 303(c) et seq.

Endangered Species Act, as amended. *U.S.C.* Vol. 16 § 1531 et seq. (1973).

Everett, City of. 2017. *City of Everett 2035 Comprehensive Plan*. Updated April 2017.

EPA. 2016. *The Green Book Nonattainment Areas for Criteria Pollutants*. Retrieved from: https://www.epa.gov/green-book

EPA. 2016. *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2016*. Retrieved from: https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks

FAA. 2006. *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*. FAA Order 5050.4B. Federal Aviation Administration. April 28, 2006.

FAA. 2015a. *Aviation Emissions and Air Quality Handbook Version 3*. Federal Aviation Administration, Office of Environment and Energy. January 2015.

FAA. 2015b. *Environmental Impacts: Policies and Procedures*. FAA Order 1050.1F. Federal Aviation Administration. July 16, 2015.

GAO. 2009. *Aviation and Climate Change, GAO Report to Congressional Committees.* U.S. Government Accountability Office, 2009.

GTC. 2017. Memorandum – *Motor Vehicle Trip Generation at Paine Field*. Gibson Traffic Consultants, Inc., September 14, 2017.

GTC. 2017. *Paine Field Passenger Terminal Vehicle Miles Traveled Analysis.* Gibson Traffic Consultants, Inc., September 2017.

Landau Associates. 2015. Stormwater Pollution Prevention Plan, Paine Field, Snohomish County, Washington. September 9, 2015.

Melrose, 2010. *European ATM and Climate Adaptation: A Scoping Study*. ICAO Environmental Report. Alan Melrose. 2010.

National Environmental Policy Act of 1969 (NEPA), as amended. U.S.C. 1969. Vol. 42 §4321 et seq.

National Marine Fisheries Service (NMFS), 2005. "Endangered and Threatened Species; Designation of Critical Habitat for Seven Evolutionarily Significant Units of Pacific Salmon (*Oncorhynchus* spp.) and Steelhead (O. mykiss) in Washington, Oregon, and Idaho; Final Rule." *Federal Register* vol. 70, no. 170, pag. 52630-52858. September 2, 2005.

NMFS. 2018. Section 7 Species Lists for Pacific Salmon and Marine Mammals for the West Coast Region. Retrieved from: http://www.westcoast.fisheries.noaa.gov/protected_species/species_list/species_lists.html

Paine Field Airport. 2018a. Narbeck Wetland Sanctuary webpage. Retrieved from: https://www.painefield.com/148/Narbeck-Wetland-Sanctuary

Paine Field Airport. 2018b. Wildlife Management. Retrieved from: https://www.painefield.com/205/Wildlife-Management

Snohomish County. 2008. Paine Field Master Drainage Plan.

Snohomish County. 2016a. Snohomish County Critical Areas Regulations Update – Wetland Inventory Map. Planning and Development Services. February 1, 2016.

Snohomish County. 2016b. Snohomish County Critical Areas Regulations Update - Flood Hazard Areas Map. Planning and Development Services. February 1, 2016.

Snohomish County. 2016c. Snohomish County Critical Areas Regulations Update – Chinook Distribution Map. Planning and Development Services. February 1, 2016.

Snohomish County. 2016d. Snohomish County Critical Areas Regulations Update – Bull Trout Distribution Map. Planning and Development Services. February 1, 2016.

Snohomish County. 2018a. PDS Map Portal. Retrieved from: http://gismaps.snoco.org/Html5Viewer/Index.html?viewer=pdsmapportal

Snohomish County. 2018b. PDS iGallery. Retrieved from: http://gismaps.snoco.org/Html5Viewer/Index.html?configBase=http://gismaps.snoco.org/Geocortex/Essentials/REST/sites/MapApp_v3/viewers/MapApp_HTML/virtualdirectory/Resources/Config/Default

Snohomish County. 2013. *Sustainable Operations Action Plan (SOAP) for County Operations*. Snohomish County. August 26, 2013.

Snohomish County Economic Alliance. Retrieved from: https://www.economicalliancesc.org/industry-and-major-employers/

Title 14 CFR Part 119, "*Certification: Air Carriers and Commercial Operators*"

Title 14 CFR Part 150, *Airport Noise Compatibility Planning*. December 18, 1984.

Title 40 CFR Parts 1500-1508, *Council on Environmental Quality*, as amended. Amended July 1, 2011.

Title 43 CFR Part 2640, *Airport and Airway Improvement Act of 1982*, as amended. Amended October 1, 2009.

U.S. President, 1994. Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations". *Federal Register* vol. 59, no. 7629. February 11, 1994.

U.S. President, 1997. Executive Order 13045, "Protection of Children from Environmental Health Risks and Safety Risks." *Federal Register* vol. 62, no. 19885. April 23, 1997.

World Map of the Köppen-Geiger Climate Classification Updated. Meteorol. Z. 15 (3): 259–263. doi:10.1127/0941-2948/2006/0130. Retrieved February 15, 2007.

U.S. Department of Labor, Bureau of Labor Statistics, 2012. BLS Spotlight on Statistics: *The Recession of 2007-2009.* Retrieved from: https://www.bls.gov/spotlight/2012/recession/pdf/recession_bls_spotlight.pdf

U.S. Department of Labor, Bureau of Labor Statistics. Retrieved from: https://data.bls.gov/map/MapToolServlet

U.S. Fish and Wildlife Service (USFWS). 2010. "Endangered and Threatened Wildlife and Plants; Revised Designation of Critical Habitat for Bull Trout in the Coterminous United States; Final Rule." *Federal Register* vol. 75, no. 200, pag. 63898-64070. October 8, 2010.

USFWS. 2018a. Information for Planning and Consultation (iPaC) online tool. Retrieved from: https://ecos.fws.gov/ipac/location/index

USFWS. 2018b. ECOS (Environmental Conservation Online System) database; Listed Species by County. Retrieved from: https://ecos.fws.gov/ecp0/reports/species-by-current-range-county?fips=53061

USFWS. 2018c. National Wetlands Inventory Wetland Mapper. Retrieved from: http://www.fws.gov/wetlands/Data/Mapper.html

Washington Department of Fish and Wildlife (WDFW).2018a. Priority Habitats and Species (PHS) on the Web database. Olympia, Washington. Retrieved from: http://apps.wdfw.wa.gov/phsontheweb/

WDFW. 2018b. State Species of Concern On-line Search Tool. Retrieved from: https://wdfw.wa.gov/conservation/endangered/

WDFW. 2018c. Salmonscape database. Olympia, Washington. Retrieved from: http://apps.wdfw.wa.gov/salmonscape/map.html.

Washington State Department of Ecology (WDOE). 2014. *2012 Stormwater Management Manual for Western Washington as Amended in December2014*. Publication No. 14-10-055. Washington State Department of Ecology.

WDOE. 2016. Washington State Water Quality Atlas. Olympia, Washington. Retrieved from: https://fortress.wa.gov/ecy/waterqualityatlas/StartPage.aspx

Washington Department of Natural Resources (WDNR). 2018a. Forest Practices Application Mapping Tool. Retrieved from: https://fpamt.dnr.wa.gov/default.aspx

WDNR. 2018b. WA Wetlands of High Conservation Value online database. Retrieved from: http://wadnr.maps.arcgis.com/apps/webappviewer/index.html?id=5cf9e5b22f584ad7a4e2aebc63c47bda

This Page

Intentionally Left Blank