



memorandum

date July 8, 2018, Revised December 17, 2018

to Jack Rossi, Alaska Airlines; Barry Brown, Southwest Airlines; and Alina Fortson, United Airlines

copy Cayla Morgan, Federal Aviation; Ryan Zulauf, Paine Field; Andrew Rardin, Paine Field

from Douglas DiCarlo

subject **Airport Activity Forecast Memorandum for Paine Field-Snohomish County Airport**
Initiation of Airline Service by Alaska Airlines and its partners (Horizon Air and SkyWest Airlines) and United Airlines and its partner (SkyWest Airlines operating as United Express)

1.0 Introduction

An Environmental Assessment (EA) for the initiation of commercial passenger service operations at Snohomish County Airport - Paine Field (Paine Field, or PAE) was completed in 2012.¹ The Federal Aviation Administration (FAA) issued a Finding of No Significant Impact and Record of Decision on the Final EA on December 4, 2012. While the forecasts that were accepted by the FAA for use in the 2012 EA included 2013 and 2018 as the future condition years, the commercial passenger service was never initiated.

The County received proposals from three airlines to provide commercial air service at Paine Field. To evaluate these proposals, certain analyses require updated information related to the existing and future airport activity. Under the current proposals, commercial air service would commence in early 2019 with 24 daily roundtrip flights. Therefore, historic operational data through the end of calendar year 2017, as well as activity projections for the future condition years of 2019 (the first full year of service) and 2024, with and without the proposed new commercial air service, are needed for the preparation of the Supplemental EA.

The Draft Supplemental EA, released in September 2018, included forecasts associated with the proposal as submitted by the three airlines – Alaska Airlines, United Airlines, and Southwest Airlines, with forecasts summarized in the Technical Memo dated July 8, 2018. In early November 2018, after publication of the Draft Supplemental EA in September 2018 and the subsequent Public Information Workshop/Public Hearing in October 2018, the FAA was informed that Southwest Airlines had withdrawn its proposal to operate commercial air service at Paine Field. The gate allocations (five flights per day) proposed by Southwest Airlines were acquired by Alaska Airlines in early November 2018.

¹ Barnard Dunkelberg Company. *Final Environmental Assessment for Amendment to the Operations Specifications for Air Carrier Operations, Amendment to the FAR Part 139 Certificate, and Modification of a Terminal Building: Snohomish County Airport – Paine Field*. September 2012.

Alaska Airlines' current proposal includes different aircraft types than those originally proposed by Southwest Airlines as well as different destinations and fewer nighttime flights. Accordingly, the number of aircraft operations has not changed since the publication of the Draft Supplemental EA; however, the number of passenger enplanements has decreased, as Southwest Airlines' 143-passenger 737-700 aircraft is replaced with Alaska Airlines' smaller 76-passenger Embraer 175 aircraft in the Final Supplemental EA as the current Proposed Action. The information and analyses presented in this revised (December 2018) Technical Memo reflect the current Proposed Action.

The No Action forecast for the Supplemental EA (existing conditions and future study year) is based on the FAA's Terminal Area Forecasts (TAF).² The use of the TAF for the No Action forecast is consistent with the approach taken for the preparation of the 2012 Final EA. As was necessary in the 2012 Final EA, the development of the No Action forecast for the Supplemental EA also includes adjustments to the TAF to account for nighttime flights at PAE that are not fully accounted for in the FAA's traffic counts. The use of the aviation forecast provided in the 2002 PAE Master Plan Update was considered, but is outdated.

The current Proposed Action forecast was developed using service projections provided by Alaska Airlines and United Airlines (and their partners) for 2019 and 2024. These included the number of daily flights, types of aircraft, and passenger load factors. This information was used to calculate the number of annual aircraft operations³ and passenger enplanements that would be generated by the introduction of scheduled passenger service at PAE. The number of aircraft operations and enplaned passengers was then added to the No Action forecast to establish the current Proposed Action forecast.

2.0 Aircraft Operations – Existing Conditions (2017)

Historic annual aircraft operations through the end of 2017 were obtained from the FAA's Operations Network (OPSNET) database, the official source for airport traffic control tower (ATCT) reports. Four different aircraft categories are used by the FAA to document aircraft operations in the OPSNET database as well as other FAA data sets and projections. These four categories include Air Carrier (AC), Air Taxi (AT), General Aviation (GA), and Military (MIL). By FAA definition, the AC and AT categories represent those operations conducted for hire or compensation (commercial flights); the difference being the aircraft in the AC category have 60 seats or more. So while Paine Field has no regularly scheduled commercial service, there are operations included in the AC category related to the delivery, testing, and/or maintenance of aircraft with 60 or more seats at the airport.⁴ Historic OPSNET figures for the past ten calendar years, including the most recent counts for 2017, are summarized in **Table 1**.

² The FAA Terminal Area Forecast (TAF) is the agency's official FAA forecast of aviation activity for U.S. airports. The forecasts are prepared to meet the budget and planning needs of the FAA and provide information for use by state and local authorities, the aviation industry, and the public.

³ The FAA defines an aircraft operation as either a single aircraft landing or takeoff. Further, a touch and go operation is counted as two operations, since the aircraft technically lands and immediately takes off.

⁴ Operations presently generated at PAE by AC category aircraft are almost entirely by wide-body aircraft associated with assembly and maintenance facilities located at the airport. The proposed commercial service at PAE would be conducted by smaller regional jets and narrow-body aircraft.

**TABLE 1
HISTORIC ANNUAL AIRCRAFT OPERATIONS (OPSNET)
SNOHOMISH COUNTY AIRPORT – PAINE FIELD**

Calendar Year ¹	Itinerant Operations					Local Operations			Total Operations
	Air Carrier	Air Taxi	General Aviation	Military	Total	Civil	Military	Total	
2008	2,492	2,683	64,429	538	70,142	67,010	159	67,169	137,311
2009	3,186	2,511	55,015	535	61,247	52,044	226	52,270	113,517
2010	3,916	2,319	52,823	623	59,681	50,930	183	51,113	110,794
2011	4,776	2,235	53,115	847	60,973	51,693	404	52,097	113,070
2012	4,312	1,444	47,541	847	54,144	51,008	294	51,302	105,446
2013	4,028	1,437	50,455	585	56,505	54,605	372	54,977	111,482
2014	4,663	1,357	48,701	594	55,315	57,643	502	58,145	113,460
2015	4,142	1,364	52,017	685	58,208	54,325	255	54,580	112,788
2016	3,891	1,403	50,386	542	56,222	50,328	419	50,747	106,969
2017	3,684	1,191	48,647	342	53,864	54,223	263	54,486	108,350

Notes: 1. Data shown are based on a calendar year (January 1 through December 31).
Source: FAA OPSNET, April 2018.

3.0 2017 FAA Terminal Area Forecast

The TAF system is the official forecast of aviation activity used by the FAA for airports in the National Plan of Integrated Airport Systems (NPIAS). TAF forecasts are prepared for both towered and non-towered facilities to meet the budget and planning needs of FAA. As a towered airport, the source data used in the TAF for Paine Field come from the ATCT reports. The projected annual aircraft operations for Paine Field, as published in the 2017 TAF, are presented in **Table 2**. These data were issued by the FAA in January 2018 and as noted are based on the FAA’s fiscal year (October 1 through September 30), hence the difference with the OPSNET figure documented for calendar year 2017 in Table 1. As noted previously, the TAF data and forecast for PAE does not fully reflect the number of aircraft flights that occurs at the airport after the tower is closed. The TAF also does not take into account recently announced aircraft production schedules at PAE. Adjustments to the TAF for the purpose of establishing the Supplemental EA’s No Action forecast are discussed and made in Section 4.0 of this memorandum.

**TABLE 2
2017 TERMINAL AREA FORECAST (TAF) – PROJECTED AIRCRAFT OPERATIONS
SNOHOMISH COUNTY AIRPORT – PAINE FIELD**

Fiscal Year ¹	Aircraft Operations								Total Operations
	Itinerant Operations					Local Operations			
	Air Carrier	Air Taxi & Commuter	GA	Military	Total	Civil	Military	Total	
2017	3,722	1,158	46,919	344	52,143	50,554	270	50,824	102,967
2018	3,722	1,158	45,260	344	50,484	51,674	270	51,944	102,428
2019	3,722	1,158	45,358	344	50,582	51,775	270	52,045	102,627
2020	3,722	1,158	45,456	344	50,680	51,877	270	52,147	102,827
2021	3,722	1,158	45,554	344	50,778	51,979	270	52,249	103,027
2022	3,722	1,158	45,652	344	50,876	52,081	270	52,351	103,227
2023	3,722	1,158	45,751	344	50,975	52,183	270	52,453	103,428
2024	3,722	1,158	45,850	344	51,074	52,285	270	52,555	103,629

Notes: 1. The TAF reports data based on the FAA's fiscal year (October 1 through September 30) - not calendar year.
Source: FAA 2017 TAF, issued January 2018.

4.0 Recommended Baseline (No Action) Activity for Aircraft Operations

As the official FAA forecast, the 2017 TAF has been utilized as the basis on which the new proposal to provide commercial service at Paine Field will be evaluated. However, to more accurately evaluate aircraft activity for existing conditions (2017) and the 2019 and 2024 future study years, adjustments to the 2017 OPSNET data and the TAF were made to account for the number of aircraft operations that occur at PAE after the tower is closed.⁵ Further, the TAF was adjusted to reflect the recently announced aircraft production schedules at PAE.

4.1 Planned Aircraft Production Increases at PAE

An adjustment to the TAF was made to account for the commercial aircraft production increases at PAE planned by the Boeing Company. Based on information published by Boeing (<http://investors.boeing.com/investors/factsheets/default.aspx>), both the 737, which is manufactured in Renton but occasionally flight tested at PAE, and the 767/KC46 assembly lines at Paine Field will increase production in 2018 and the years that follow. Applying the historic number of flight tests generated by each of the different models during production, it was estimated that an additional 282 AC category operations would occur in 2019 and 339 in 2024. Final delivery of the KC46 aircraft by military flight crews would also increase the MIL category by 16 operations in each future year. As reflected in **Table 4**, these additional operations have been included before adjustments were made to estimate the activity that occurs when the local ATCT is closed.

⁵ Paine Field ATCT hours of operation: 7:00 a.m. to 9:00 p.m. every day, year-round.

4.2 Nighttime Activity at PAE

FlightAware data for the 2017 calendar year⁶ were used to estimate the percent of activity that occurs when the Paine Field ATCT is closed. Since the FlightAware data are primarily based on those operations that were filed under an Instrument Flight Rules (IFR) flight plan, they only capture a portion of the total operations conducted each year. However, FlightAware data are the most dependable source of information to estimate the portion of activity that occurs when the local ATCT is closed.

Of the 21,697 records included in the 2017 FlightAware dataset, there were 20,203 records (93.1 percent) which provided enough detail to be used for this analysis. These records included 1,112 operations that occurred during those hours when the ATCT was closed; however, as shown in **Table 3** approximately half of this activity was conducted by the larger aircraft with 60 seats or more (AC category). Also, while the AT and GA categories are shown individually in Table 3, there is no way to differentiate the two types of operations from the FlightAware dataset. As such, the operations that remained after the AC and MIL categories were removed, were split equally. This is not considered an issue since the AT and GA categories include the same types and size of aircraft.

TABLE 3
ANALYSIS OF CALENDAR YEAR 2017 FLIGHTAWARE AIRCRAFT OPERATIONS
SNOHOMISH COUNTY AIRPORT – PAINE FIELD

Aircraft Category	Operations			Percent when ATCT Closed
	ATCT Open	ATCT Closed	Total	
Air Carrier (AC)	3,236	552	3,788	14.6%
Air Taxi (AT)	7,922	280	8,202	3.4%
General Aviation (GA)	7,922	280	8,202	3.4%
Military (MIL)	11	0	11	0.0%
Totals	19,091	1,112	20,203	5.5%

Source: FlightAware, Inc. dataset for Paine Field (January 1 through December 31, 2017) and ESA analysis, 2018.

The analysis of the FlightAware data was applied to the existing 2017 OPSNET counts to calculate the additional activity that should be considered in the baseline (No Action) scenario. The results shown in Table 4 reflect an overall annual increase of 3.8 percent for the existing year data (compared to a 3.6 percent annual increase in the 2012 EA). The same adjustment was made to the 2019 and 2024 forecast years, after the 2017 TAF figures were increased with the additional operations from an increase in Boeing’s local production rate (**Table 4**). This resulted in an overall annual increase of 4.1 percent and 4.2 percent respectively (compare to the 3.6 percent annual increase in the 2012 EA) for the adjusted baseline operations.

⁶ Flight data for Snohomish County Airport - Paine Field (January 1 through December 31, 2017), FlightAware, Inc.

TABLE 4
RECOMMENDED BASELINE (NO ACTION) ACTIVITY FOR AIRCRAFT OPERATIONS
SNOHOMISH COUNTY AIRPORT – PAINE FIELD

Aircraft Category	Aircraft Operations			
	Source Data	Additional from Boeing Co. Production Schedule	Additional Conducted when ATCT is Closed	Adjusted Baseline
<u>2017 (Existing)</u>		<u>OPSNET Data</u>		
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	0	605
Totals	108,350	0	4,076	112,426
<u>2019 (Future)</u>		<u>2017 TAF Data</u>		
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	0	630
Totals	102,627	298	3,927	106,852
<u>2024 (Future)</u>		<u>2017 TAF Data</u>		
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	0	630
Totals	103,629	355	3,969	107,953

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

5.0 Aircraft Operations Generated by the Current Proposed Action

The current proposals to provide commercial air service commencing in early 2019 have come from Alaska Airlines and United Airlines (and their partners). As noted above, in early November 2018, after publication of the Draft Supplemental EA in September 2018 and the subsequent Public Information Workshop/Public Hearing in October 2018, the FAA was informed that Southwest Airlines had withdrawn its proposal to operate commercial air service at Paine Field. The current proposal would include 24 daily roundtrip flights utilizing Horizon Air and SkyWest Airlines Embraer 175 aircraft in 2019. The current Proposed Action anticipates operating the same number of daily roundtrips at Paine Field in 2024. **Table 5** and **Table 6** summarize the proposed service for 2019 as provided in the Draft Supplemental EA as well as the current Proposed Action, respectively. Likewise, summaries of the proposed service for 2024 as provided in the Draft Supplemental EA and the current Proposed Action are provided in **Table 7** and **Table 8**, respectively.

The Alaska Airlines and United Airlines (and their partners) proposals and request for Operations Specifications reflect the anticipated need by both Alaska Airlines and United Airlines to up-gauge⁷ their aircraft on one or more flights during the Supplemental EA study period to meet anticipated future customer demand. Based on the current proposal from Alaska Airlines, the one 76-seat SkyWest Airlines Embraer 175 would be substituted in the 2024 study year with a 159-seat Alaska Airlines B737-800. The current proposal from United Airlines shows that two 76-seat SkyWest Airlines Embraer 175s would be substituted in the 2024 study year with 166-seat United Airlines B737-800 aircraft. This is unchanged from the Draft Supplemental EA analysis.

When extrapolated over a calendar year, the 24 daily roundtrip flights would translate into 17,520 annual operations in the AC category for both 2019 and 2024, since all of the operations would be conducted by commercial aircraft with more than 60 seats. The 2012 EA had proposed 4,588 annual operations in the initial year (2013) and 8,340 annual operations in the fifth year (2018).

6.0 Passenger Enplanements Generated by Proposed Action

Enplanements, or the number of passengers departing the airport, are the most common measure used in the aviation industry to gauge passenger activity. Therefore, a projection of the expected annual passenger enplanements was prepared using the two proposals to initiate commercial air service at Paine Field. The estimate was calculated using information provided by the airlines, which in addition to the number of daily round trips, types of aircraft, and aircraft seating configurations, also included the load factors expected for their operations out of Paine Field. While actual load factors at PAE may vary, especially in the first year of service, the average load factors provided by each airline were considered reasonable for use in this forecast. The resulting projection of annual passenger enplanements is included in **Table 9** through **Table 12**, as provided in the Draft Supplemental EA and the current Proposed Action for 2019 and 2024.

The Proposed Action presented in the Draft Supplemental EA would result in 656,235 annual enplanements in 2019 and 736,316 annual enplanements in 2024. The current Proposed Action, using the smaller Embraer 175 aircraft instead of the Boeing 737, would result in 540,930 annual enplanements in 2019 and 621,011 annual enplanements in 2024. The 2012 EA had proposed 112,000 annual enplanements for the initial year (2013) and 238,200 annual enplanements for the fifth year (2018).

⁷ Up-gauge of aircraft refers to a common practice of assigning an aircraft with more seats to a particular market or route to increase passenger capacity. This allows an airline to accommodate most changes passenger demand and/or seasonal peaks without the need to increase the number of flights at an airport.

**TABLE 5
PROPOSED COMMERCIAL AIRLINE PASSENGER SERVICE (2019)
TO/FROM SNOHOMISH COUNTY AIRPORT – PAINE FIELD
PROPOSED ACTION EVALUATED IN THE DRAFT SUPPLEMENTAL EA**

Proposed Carrier	Daytime Roundtrip Flights (2019)	Nighttime Roundtrip Flights (2019)	Market Served from Paine Field (<i>Aircraft Type</i>)
<u>Alaska Airlines and its partners (Horizon Air and SkyWest Airlines)</u>			
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	
<u>United Airlines and its partner (SkyWest Airlines operating as United Express)</u>			
SkyWest Airlines	1.5	0.5	DEN (Embraer 175)
SkyWest Airlines	3.0	1.0	SFO (Embraer 175)
Subtotal	4.5	1.5	
<u>Southwest Airlines</u>			
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), 2018.
 United Airlines and its partner (SkyWest Airlines operating as United Express), 2018.

TABLE 6
PROPOSED COMMERCIAL AIRLINE PASSENGER SERVICE (2019)
TO/FROM SNOHOMISH COUNTY AIRPORT – PAINE FIELD
CURRENT PROPOSED ACTION EVALUATED IN THE FINAL SUPPLEMENTAL EA

Proposed Carrier	Daytime Roundtrip Flights (2019)	Nighttime Roundtrip Flights (2019)	Market Served from Paine Field (Aircraft Type)
<u>Alaska Airlines and its partners (Horizon Air and SkyWest Airlines)</u>			
Horizon Air	1.5	0.5	LAS (Embraer 175)
Horizon Air	3.5	0.5	LAX (Embraer 175)
Horizon Air	3.0	1.0	PDX (Embraer 175)
Horizon Air	1.0	0.0	PHX (Embraer 175)
Horizon Air	2.0	0.0	SAN (Embraer 175)
Horizon Air	2.0	0.0	SFO (Embraer 175)
Horizon Air	2.0	0.0	SJC (Embraer 175)
Horizon Air	1.0	0.0	SNA (Embraer 175)
Subtotal	16.0	2.0	
<u>United Airlines and its partner (SkyWest Airlines operating as United Express)</u>			
SkyWest Airlines (United Express)	1.5	0.5	DEN (Embraer 175)
SkyWest Airlines (United Express)	3.0	1.0	SFO (Embraer 175)
Subtotal	4.5	1.5	
Total Roundtrip Flights	20.5	3.5	
DEN = Denver International Airport		SAN = San Diego International Airport	
LAS = Las Vegas McCarran International Airport		SFO = San Francisco International Airport	
LAX = Los Angeles International Airport		SJC = San Jose International Airport	
PDX = Portland International Airport		SNA = John Wayne – Orange County Airport	
PHX = Phoenix Sky Harbor 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), 2018. United Airlines and its partner (SkyWest Airlines operating as United Express), 2018.			

TABLE 7
PROPOSED COMMERCIAL AIRLINE PASSENGER SERVICE (2024)
TO/FROM SNOHOMISH COUNTY AIRPORT – PAINE FIELD
PROPOSED ACTION EVALUATED IN THE DRAFT SUPPLEMENTAL EA

Proposed Carrier	Daytime Roundtrip Flights (2024)	Nighttime Roundtrip Flights (2024)	Market Served from Paine Field (<i>Aircraft Type</i>)
<u>Alaska Airlines and its partners (Horizon Air and SkyWest Airlines)</u>			
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	
<u>United Airlines and its partner (SkyWest Airlines operating as United Express)</u>			
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	
<u>Southwest Airlines</u>			
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), 2018.
United Airlines and its partner (SkyWest Airlines operating as United Express), 2018.

TABLE 8
PROPOSED COMMERCIAL AIRLINE PASSENGER SERVICE (2024)
TO/FROM SNOHOMISH COUNTY AIRPORT – PAINE FIELD
CURRENT PROPOSED ACTION EVALUATED IN THE FINAL SUPPLEMENTAL EA

Proposed Carrier	Daytime Roundtrip Flights (2024)	Nighttime Roundtrip Flights (2024)	Market Served from Paine Field (Aircraft Type)
<u>Alaska Airlines and its partners (Horizon Air and SkyWest Airlines)</u>			
Horizon Air	1.5	0.5	LAS (Embraer 175)
Horizon Air	2.5	0.5	LAX (Embraer 175)
Alaska Airlines	1.0	0.0	LAX (Boeing 737-800)
Horizon Air	3.0	1.0	PDX (Embraer 175)
Horizon Air	1.0	0.0	PHX (Embraer 175)
Horizon Air	2.0	0.0	SAN (Embraer 175)
Horizon Air	2.0	0.0	SFO (Embraer 175)
Horizon Air	2.0	0.0	SJC (Embraer 175)
Horizon Air	1.0	0.0	SNA (Embraer 175)
Subtotal	16.0	2.0	
<u>United Airlines and its partner (SkyWest Airlines operating as United Express)</u>			
United Airlines	0.5	0.5	DEN (Boeing 737-800)
SkyWest Airlines (United Express)	1.0	0.0	DEN (Embraer 175)
United Airlines	1.0	0.0	SFO (Boeing 737-800)
SkyWest Airlines (United Express)	2.0	1.0	SFO (Embraer 175)
Subtotal	4.5	1.5	
Total Roundtrip Flights	20.5	3.5	
DEN = Denver International Airport		SAN = San Diego International Airport	
LAS = Las Vegas McCarran International Airport		SFO = San Francisco International Airport	
LAX = Los Angeles International Airport		SJC = San Jose International Airport	
PDX = Portland International Airport		SNA = John Wayne – Orange County Airport	
PHX = Phoenix Sky Harbor 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), 2018.			
United Airlines and its partner (SkyWest Airlines operating as United Express), 2018.			

TABLE 9
PROJECTED ANNUAL PASSENGER ENPLANEMENTS (2019)
SNOHOMISH COUNTY AIRPORT – PAINE FIELD
PROPOSED ACTION EVALUATED IN THE DRAFT SUPPLEMENTAL EA

Aircraft	New Annual Aircraft Operations	Annual Roundtrip Flights¹	Number of Seats	Average Airline Load Factor	Annual Enplanements
<u>Alaska Airlines and its partners (Horizon Air and SkyWest Airlines)</u>					
Embraer 175	9,490	4,745	76	80.0%	288,496
<u>United Airlines and its partner (SkyWest Airlines operating as United Express)</u>					
Embraer 175	4,380	2,190	76	85.0%	141,474
<u>Southwest Airlines</u>					
Boeing 737-700	3,650	1,825	143	86.7%	226,265
Totals	17,520	8,760			656,235

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.

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.
 ESA analysis, 2018.

TABLE 10
PROJECTED ANNUAL PASSENGER ENPLANEMENTS (2019)
SNOHOMISH COUNTY AIRPORT – PAINE FIELD
CURRENT PROPOSED ACTION EVALUATED IN THE FINAL SUPPLEMENTAL EA

Aircraft	New Annual Aircraft Operations	Annual Roundtrip Flights¹	Number of Seats	Average Airline Load Factor	Annual Enplanements
<u>Alaska Airlines and its partners (Horizon Air and SkyWest Airlines)</u>					
Embraer 175	13,140	6,570	76	80.0%	399,456
<u>United Airlines and its partner (SkyWest Airlines operating as United Express)</u>					
Embraer 175	4,380	2,190	76	85.0%	141,474
Totals	17,520	8,760			540,930

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.

Sources: Alaska Airlines and its partners (Horizon Air and SkyWest Airlines), 2018.

United Airlines and its partner (SkyWest Airlines operating as United Express), 2018.
 ESA analysis, 2018.

TABLE 11
PROJECTED ANNUAL PASSENGER ENPLANEMENTS (2024)
SNOHOMISH COUNTY AIRPORT – PAINE FIELD
PROPOSED ACTION EVALUATED IN THE DRAFT SUPPLEMENTAL EA

Aircraft	New Annual Aircraft Operations	Annual Roundtrip Flights¹	Number of Seats	Average Airline Load Factor	Annual Enplanements
<u>Alaska Airlines and its partners (Horizon Air and SkyWest Airlines)</u>					
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
<u>United Airlines and its partner (SkyWest Airlines operating as United Express)</u>					
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
<u>Southwest Airlines</u>					
Boeing 737-700	3,650	1,825	143	86.7%	226,265
Totals	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.

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.
 ESA analysis, 2018.

TABLE 12
PROJECTED ANNUAL PASSENGER ENPLANEMENTS (2024)
SNOHOMISH COUNTY AIRPORT – PAINE FIELD
CURRENT PROPOSED ACTION EVALUATED IN THE FINAL SUPPLEMENTAL EA

Aircraft	New Annual Aircraft Operations	Annual Roundtrip Flights¹	Number of Seats	Average Airline Load Factor	Annual Enplanements
<u>Alaska Airlines and its partners (Horizon Air and SkyWest Airlines)</u>					
Embraer 175	12,410	6,205	76	80.0%	377,264
Boeing 737-800	730	365	159	80.0%	46,428
Subtotal	13,140	6,570			423,692
<u>United Airlines and its partner (SkyWest Airlines operating as United Express)</u>					
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
Totals	17,520	8,760			621,011

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.

Sources: Alaska Airlines and its partners (Horizon Air and SkyWest Airlines), 2018.

United Airlines and its partner (SkyWest Airlines operating as United Express), 2018.
 ESA analysis, 2018.

7.0 Recommended Activity Levels: No Action and Proposed Alternatives

Table 13 presents annual aircraft operations and passenger enplanement data for 2017, 2019, and 2024 under the No Action Alternative, the current proposal, the Proposed Action as presented in the Draft Supplemental EA, and the current Proposed Action in the Final Supplemental EA. The annual operations in Table 13 for the Proposed Action were developed by taking the recommended baseline (No Action) number of aircraft operations in Table 4 and adding in the aircraft operations associated with the proposed service to/from Paine Field by the airlines.

TABLE 13
RECOMMENDED AIRPORT ACTIVITY FOR USE IN SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
SNOHOMISH COUNTY AIRPORT – PAINE FIELD

		Baseline (No Action) Total ¹	New Activity (Current Proposal)	Draft Supplemental EA Proposed Action ²	Final Supplemental EA Proposed Action ³
Annual Aircraft Operations					
	2017	112,426	n/a	n/a	n/a
	2019	106,852	17,520	124,372 (16.4% change)	124,372 (16.4% change)
	2024	107,953	17,520	125,473 (16.2% change)	125,473
Annual Passenger Enplanements					
	2017	0	n/a	n/a	n/a
	2019	0	540,930	656,235	540,930
	2024	0	621,011	736,316	621,011

Notes: 1. FAA OPSNET (2017) and 2017 TAF (2019 and 2024) adjusted for operations when ATCT is closed.
 2. Includes three airline proposals (Alaska Airlines, United, Airlines, and Southwest Airlines [and their partners]) to initiate commercial passenger service at Paine Field in 2019.
 3. Includes two airline proposals (Alaska Airlines and United Airlines [and their partners]) to initiate commercial passenger service at Paine Field in 2019

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

8.0 Comparison to 2012 Final Environmental Assessment

Tables 14 and 15 provide a comparison of the annual aircraft operations and passenger enplanement data from the proposed service to/from Paine Field summarized in Table 9 through Table 12, with the corresponding operations and enplanement projections in the 2012 Final EA, as presented in the Draft Supplemental EA and the current Proposed Action.

**TABLE 14
COMPARISON OF PROPOSED SERVICE WITH 2012 FINAL EA
SNOHOMISH COUNTY AIRPORT – PAINE FIELD
PROPOSED ACTION EVALUATED IN THE DRAFT SUPPLEMENTAL EA**

	Current Proposed Action	2012 EA Proposed Action ¹	Difference
Annual Aircraft Operations			
Inaugural Year	124,372 (2019)	117,321 (2013)	7,051
Future Condition	125,473 (2024)	122,127 (2018)	3,346
Annual Passenger Enplanements			
Inaugural Year	656,235 (2019)	112,000 (2013)	544,235
Future Condition	736,316 (2024)	238,200 (2018)	498,116

Notes: 1. In 2012 EA, Horizon Air proposed operating the 76-seat Bombardier Q400 to/from Paine Field while Allegiant Air proposed operating the 150-seat Boeing MD-83 to/from Paine Field.

Source: ESA analysis, 2018.

**TABLE 15
COMPARISON OF CURRENT PROPOSED SERVICE WITH 2012 FINAL EA
SNOHOMISH COUNTY AIRPORT – PAINE FIELD**

	Current Proposed Action	2012 EA Proposed Action ¹	Difference
Annual Aircraft Operations			
Inaugural Year	124,372 (2019)	117,321 (2013)	7,051
Future Condition	125,473 (2024)	122,127 (2018)	3,346
Annual Passenger Enplanements			
Inaugural Year	540,930 (2019)	112,000 (2013)	428,930
Future Condition	621,011 (2024)	238,200 (2018)	382,811

Notes: 1. In 2012 EA, Horizon Air proposed operating the 76-seat Bombardier Q400 to/from Paine Field while Allegiant Air proposed operating the 150-seat Boeing MD-83 to/from Paine Field.

Source: ESA analysis, 2018.