

APPENDIX C

Aviation Activity Forecast Technical Memorandum



memorandum

date July 8, 2018

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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),
United Airlines and its partner (SkyWest Airlines operating as United Express), and Southwest Airlines

1.0 Introduction

An Environmental Assessment (EA) for the initiation of commercial passenger service operations at Snohomish County Airport - Paine Field (Paine Field) 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.

Recently the County has 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 late 2018 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 No-Action forecast for the Supplemental EA (existing conditions and future study year) will be 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 The use of the aviation forecast provided in the 2002 PAE Master Plan Update was considered, but is outdated.

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.

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.

The Proposed Action forecast will be developed using service projections provided by Alaska Airlines, United Airlines, and Southwest Airlines for 2019 and 2024. This 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 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**.

**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 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.

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.

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

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/fact-sheets/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.

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

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

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.

**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 Proposed Action

The three proposals to provide commercial air service commencing in late 2018 have come 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. For the first full calendar year of activity (2019) this would include 24 daily roundtrip flights utilizing Horizon Air and SkyWest Airlines Embraer 175 aircraft and Southwest Airline’s Boeing 737-700 aircraft. The three proposals anticipate operating the same number of daily roundtrips at Paine Field in 2024. Summaries of the proposed service for 2019 and 2024 are provided in **Table 5** and **Table 6**, respectively.

To meet anticipated customer demands, both Alaska Airlines and United Airlines have anticipated the need to up-gauge⁷ their aircraft on one or more flights during the Supplemental EA study period. This will likely include the long-term substitution of aircraft on a single route or seasonal aircraft substitutions on different routes. Based on the current proposal from Alaska Airlines, the one 76-seat SkyWest Airlines Embraer 175 will be substituted in the 2024 study year with a 159-seat Alaska Airlines B737-800. 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 B737-800 aircraft. Southwest Airlines' proposal has their 143-seat Boeing 737-700 aircraft being utilized at Paine Field from 2019 through 2024 (see Table 6).

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, using the three proposals to initiate commercial air service at Paine Field, a projection of the expected annual passenger enplanements has been prepared. 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 7** and **Table 8**.

The cumulative proposal results in 656,235 annual enplanements in 2019 and 736,316 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 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 | 1.0 | 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 (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 | |
| <u>Southwest Airlines</u> | | | |
| Southwest Airlines | 2.0 | 1.0 | (Boeing 737-700) ⁸ |
| Southwest Airlines | 1.0 | 0.0 | (Boeing 737-700) |
| Southwest Airlines | 1.0 | 0.0 | (Boeing 737-700) |
| Subtotal | 4.0 | 1.0 | |
| Total Roundtrip Flights | 19.5 | 4.5 | |
| 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), 2017. United Airlines and its partner (SkyWest Airlines operating as United Express) and Southwest Airlines, 2018. | | | |

⁸ City pair information for Southwest Airlines is not available at this time. However, appropriate stage-lengths will be confirmed for the preparation of the FAA’s Aviation Environmental Design Tool (AEDT) model.

**TABLE 6
PROPOSED COMMERCIAL 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) |
|---|--|---|---|
| <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 (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 | |
| <u>Southwest Airlines</u> | | | |
| Southwest Airlines | 2.0 | 1.0 | (Boeing 737-700) ⁹ |
| Southwest Airlines | 1.0 | 0.0 | (Boeing 737-700) |
| Southwest Airlines | 1.0 | 0.0 | (Boeing 737-700) |
| Subtotal | 4.0 | 1.0 | |
| Total Roundtrip Flights | 19.5 | 4.5 | |
| 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), 2017. United Airlines and its partner (SkyWest Airlines operating as United Express) and Southwest Airlines, 2018. | | | |

⁹ City pair information for Southwest Airlines is not available at this time. However, appropriate stage-lengths will be confirmed for the preparation of the FAA’s Aviation Environmental Design Tool (AEDT) model.

**TABLE 7
PROJECTED ANNUAL PASSENGER ENPLANEMENTS (2019)
SNOHOMISH COUNTY AIRPORT – PAINE FIELD**

| 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 8
PROJECTED ANNUAL PASSENGER ENPLANEMENTS (2024)
SNOHOMISH COUNTY AIRPORT – PAINE FIELD**

| 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.

7.0 Recommended Activity Levels: No-Action and Proposed Alternatives

Table 9 presents annual aircraft operations and passenger enplanement data for 2017, 2019, and 2024 under the No-Action and Proposed Action Alternatives. The annual operations in Table 9 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 Alaska Airlines and its partners (Horizon Air and SkyWest Airlines), United Airlines and its partner (SkyWest Airlines operating as United Express), and Southwest Airlines.

TABLE 9
RECOMMENDED AIRPORT ACTIVITY FOR USE IN SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
SNOHOMISH COUNTY AIRPORT – PAINE FIELD

| | | Baseline (No-Action) Total ¹ | New Activity | Total for Proposed Action ² |
|--------------------------------------|------|--|-----------------|---|
| Annual Aircraft Operations | | | | |
| | 2017 | 112,426 | n/a | n/a |
| | 2019 | 106,852 | 17,520 | 124,372 (16.4% change) |
| | 2024 | 107,953 | 17,520 | 125,473 (16.2% change) |
| Annual Passenger Enplanements | | | | |
| | 2017 | 0 | n/a | n/a |
| | 2019 | 0 | 656,235 | 656,235 |
| | 2024 | 0 | 736,316 | 736,316 |

Notes: 1. FAA OPSNET (2017) and 2017 TAF (2019 and 2024) adjusted for operations when ATCT is closed.
2. Includes three airline proposals to initiate commercial passenger service at Paine Field in 2019.

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.

8.0 Comparison to 2012 Final Environmental Assessment

Table 10 provides a comparison of the annual aircraft operations and passenger enplanement data from the current proposed service to/from Paine Field summarized in Table 9, with the corresponding operations and enplanement projections in the 2012 Final EA.

**TABLE 10
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 | 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.

Sources: ESA analysis, 2018.