Air Traffic Initial Environmental Review

Facility/Office:	**Western Service Center (WSC) Operations Support Group (OSG)**	Date:	Click here to enter text.
Reviewed by:	**Elizabeth Healy**	Phone:	Click here to enter text.

This initial environmental review should provide some basic information about the proposed project to better assist in preparing for the environmental analysis phase. Although it requests information in several categories, not all the data may be available initially; however, it does represent information, in accordance with FAA Order 1050.1, Environmental Impacts: Policies and Procedures, which ultimately will be needed for preparation of the environmental document. If the IFP Environmental Pre−Screening Filter is used for initiating the environmental review process, then the data must be entered into the filter, making this form unnecessary.

Project Description

A. Attach copy of the most recent Project Status Report.

SEA Air Traffic Control Tower(ATCT) and the Seattle Terminal Radar Approach Control (S46) verbally coordinate the turning of south bound turboprops departing from runways (RWYs) 34 L/R/C (north flow). This coordination consists of SEA ATCT phoning S46, requesting approval to turn south bound turboprops to the west. Once approved, SEA may then turn these turboprops, at the verbally agreed heading. This turning allows Air Traffic Controllers (ATC) to safely distance these turboprops from the departing stream of north flow jets, as well as the Boeing Field Airport (BFI) traffic to the north. Furthermore, by removing these smaller, slower moving aircraft out of the way of the faster jet traffic, ATC is able to increase the rate at which aircraft may depart SEA, reducing ground delays. SEA ATCT and S46 are proposing to enter into a Letter of Agreement (LOA) in order to automate the approval of a westerly turn departure heading for these south bound north flow turboprops. With this automatic westerly turn, the need to regularly coordinate these turns will not be necessary. In particular it is proposed that all south bound north flow turboprops be turned at a 250° heading, within 1 NM of the runway end. Having such a prescribed departure heading would provide further safety and efficiency gains:

1. **Safety: North flow turboprop departures, which turn to a 250° heading prior to 1 NM of the departure end of the runway, are automatically de-conflicted from the 290 heading for missed approaches. They are also de-conflicted from BFI aircraft, both right off the departure end, and further north where SEA and BFI aircraft conflict as they are trying to climb higher and make their way on course. Without a prescribed heading, turboprops were being turned on a variety of headings, at different points in time after their departures. This leads to uncertainty**

regarding where the turboprops would end up. This, in turn, increases ATC workload through increased oversight of turboprops operations to ensure separation with BFI traffic. SEA had previously tried to automate this turn as a 290° heading, but this automatic westerly turn was removed shortly after implementation as it placed SEA turboprops in conflict with BFI traffic and SEA missed approach course.

2. **Efficiency: Efficiency is always of importance since it is directly tied to safety – greater efficiencies reflect having a smaller number of aircraft in the same portion of the National Air Space (NAS) at the same time. Greater efficiencies also reflect a reduction in ground delays at the servicing airports. This importance is emphasized at SEA, since SEA is currently experiencing rapid growth[1,2,3]. As a consequence of this, SEA is constantly looking for ways to safely increase efficiency. Providing an automatic method of getting turboprops out of the SEA ATCT airspace provides such an efficiency gain.**

[1]Sea-Tac Airport projected to land among 10 busiest airports in the U.S , http://www.bizjournals.com/seattle/news/2016/11/10/sea-tac-airport-projected-to-land-among-10-busiest.html
[2]North American Airports Register Strong Passenger Growth in 2015, Airports Council International https://www.airportrevenuenews.com/north-american-airports-register-strong-passenger-growth-in-2015/
[3]Major US Airports that are Growing, those that aren't and why, January 13 2016 http://viewfromthewing.boardingarea.com/2016/01/13/43790/

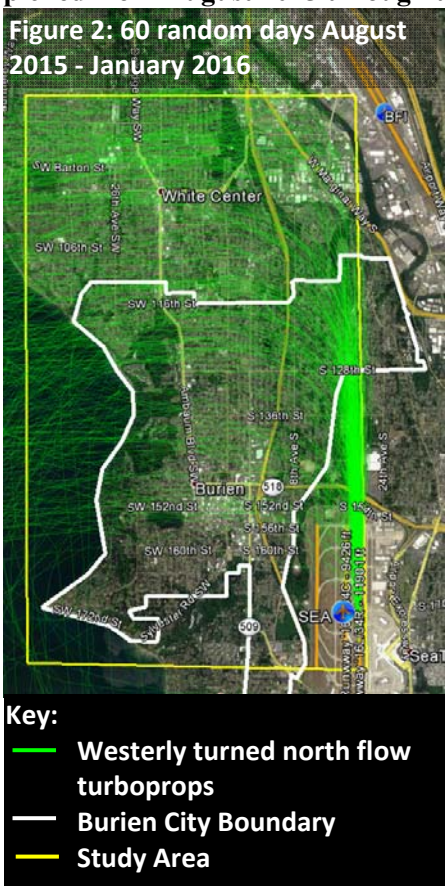
B. Has airspace modeling been conducted using Sector Design Analysis Tool (SDAT), Total Airspace and Airport Modeler (TAAM), Terminal Area Route Generation, Evaluation, and Traffic Simulation (TARGETS), or other airspace/air traffic design tool?

☐Yes ☒No **N/A** If Yes, Model: Click here to enter text.

If yes, provide a summary of the output from the modeling.
Click here to enter text.

C. Describe the present (no action alternative) procedure in full detail. Provide the necessary chart(s) depicting the current procedure. Describe the typical fleet mix, quantifying (if possible) the number of aircraft on the route and depict their altitude(s) along the route.

When SEA is in north flow, SEA ATCT provides south bound departing turboprops a westerly heading through a coordination process with S46. This coordination results in multiple headings being utilized, with this heading being provided to the pilots at different points immediately after takeoff. Figure 1 illustrates turboprop SEA departures in north flow from 60 days randomly picked from August 2015 through to January 2016.



Over the 60 days period, this represents about 480 flights – or 8 per day.

D. Describe the proposed project, providing the necessary chart(s) depicting changes. Describe changes to the fleet mix, numbers of aircraft on the new route, and their altitude(s), if any.

The proposed project ("Proposed Action") would amend the SEA ATCT S46 LOA to include a paragraph prescribing a heading for south bound turboprops when in north flow, as well as when that heading should be provided. This paragraph, which would be added within the section describing the process for all north flow departures, is:

"E, F, Q, Y, I, U, Z and L Gate, a heading of 250° and ensure the aircraft is established on that heading within 1 NM of runway departure end. If unable to

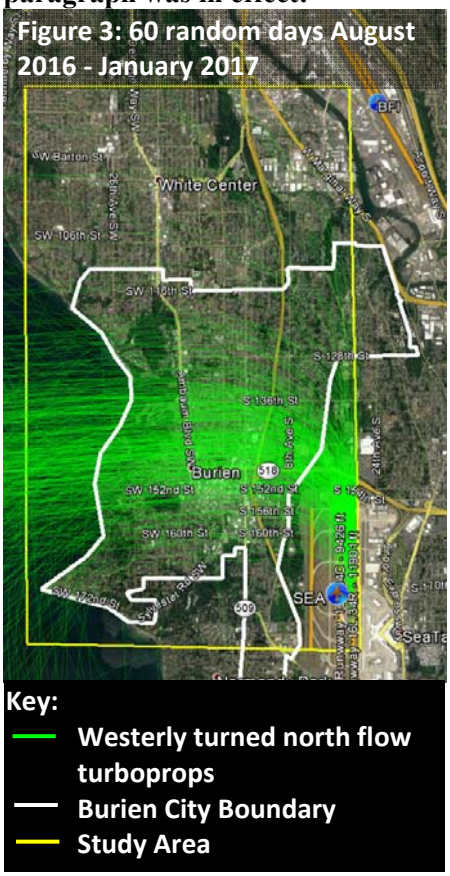
assign heading 250°, assign runway heading to 9,000 and coordinate with the appropriate departure controller."

The "E, F, Q, Y, I, U, Z and L Gates" refer to all turboprop aircraft whose final destination is south, west or east of SEA.

No changes in fleet mix or numbers of aircraft are expected as a result of the implementation of the Proposed Action.

On July 26th 2016, the LOA between the SEA ATCT and S46 was amended to include this paragraph which directed south bound turboprops in north flow to establish a heading of 250° within 1 Nautical Mile (NM) of the runway departure end. This paragraph was effectively removed from the SEA ATCT-S46 LOA in March 2017.

Figure 3 illustrates turboprop SEA departures in north flow from 60 days randomly picked from August 2016 through to January 2017, when this paragraph was in effect:



Over the 60 randomly picked days, this represents about 780 flights – an average of 13 per day.

Air Traffic Initial Environmental Review

1. Will there be actions affecting changes in aircraft flights between the hours of 10 p.m. – 7 a.m. local?
☐Yes ☒No

2. Is a preferential runway use program presently in effect for the affected airport(s), formal or informal?
☒Yes ☐No

Based upon wind direction, SEA assigns runway 34 for departures (north flow). This occurs primarily in good weather conditions. Based upon runway usage data for the whole of 2015, north flow occurs 35% of the time. Based upon runway usage data for the whole of 2016, north flow occurs 27% of the time.

3. Will airport preferential runway configuration use change as a result of the proposed project?
☐ Yes ☒ No

4. Is the proposed project primarily designed for Visual Flight Rules (VFR), Instrument Flight Rules (IFR) operations, or both?
☐VFR ☐IFR ☒Both

If this specifically involves a charted visual approach (CVA) procedure, provide a detailed local map indicating the route of the CVA, along with a discussion of the rationale for how the route was chosen.

N/A

5. Will there be a change in takeoff power requirements?
☐Yes ☒No
If so, what types of aircraft are involved, i.e., general aviation propeller-driven versus large air carrier jets?

N/A

6. Will all changes occur above 3,000 feet above ground level (AGL)?
☐Yes ☒No
What is the lowest altitude change on newly proposed routes or on existing routes that will receive an increase in operations?

Approximately 500 feet. The Proposed Action results in a heading being provided to aircraft within 1 NM of the end of the runway. In effect, the change is felt as soon as the aircraft is off the runway and started its turn.

7. Will there be actions involving civil jet aircraft (heavier than 75,000 pounds gross weight) arrival procedures between 3,000-7,000 feet AGL or departures between 3,000-10,000 feet AGL? Attach a copy of the results of the noise screening analysis using the AEST, TARGETS Environmental Plug-In, or other FAA-approved noise screening methodology.
☐Yes ☒No

The Proposed Action affects turboprops only.

Air Traffic Initial Environmental Review

8. If noise analysis was already performed using the FAA's Aviation Environmental Design Tool (AEDT), Aviation Environmental Screening Tool (AEST), TARGETS Environmental Plug-In, Integrated Noise Model (INM), or Noise Integrated Routing System (NIRS), provide a summary of the results (and/or attach a copy of the noise screening analysis results).

The FAA uses an established metric and criteria to determine the noise impacts of a Proposed Action. The noise metric and noise impact criteria were developed by a Federal Interagency Committee. This inter-agency committee was comprised of the Environmental Protection Agency (EPA), the FAA, the Federal Highway Administration (FHWA), the Departments of Defense (DOD), Housing and Urban Development (HUD), and Veterans Affairs (VA). The result was that a cumulative noise metric, such as the Day-Night Average Sound Level (DNL) metric was identified as the most appropriate means of evaluating airport noise. The DNL does not measure sound as it occurs in real time, but represents noise as it occurs over an averaged 24-hour period, with one important exception: DNL treats noise occurring at night differently from daytime noise. In determining DNL, the metric assumes that the A-weighted noise levels occurring at night (defined as 10 p.m. to 7 a.m.) are 10 dB louder than they actually are. This 10 dB increase is applied to account for the fact that there is a greater sensitivity to nighttime noise, and the fact that events at night are often perceived to be more intrusive because nighttime ambient noise is less than daytime ambient noise. Research has confirmed that a community's aggregate response is generally predictable and relates reasonably well to measures of cumulative noise exposure such as DNL[1]. Based upon the recommendations of the interagency committee, a number of Federal Agencies, including the FAA have adopted the criteria that significant noise impacts occur if there is a ≥ 1.5 dBA increase within the 65 DNL noise exposure or greater.

The noise exposure of the Proposed Action Alternative was based upon flight tracks data obtained for 60 random days during the implementation of the July 26th 2016 LOA. The noise exposure of the No Action Alternative was based upon flight track data obtained for the same days in the previous year. The noise exposure of the Proposed and No Action Alternative was modelled using the Aviation Environmental Design Tool (AEDT) plug-in tool for the Terminal Area Routes Generation and Traffic Simulation (TARGETs) software. In accordance with FAA Order 1050.1F Desk Guide, Section 11.1.3. This methodology is one of the FAA approved noise screening tools for the determination of significant noise impacts. Through the use of this TARGETS AEDT plug-in tool, the FAA was able to evaluate the effect of the observed increase of concentration of the turboprops associated with the Proposed Action.
The tool is designed to identify the following noise level changes:

- **For DNL 65 dB and higher: +1.5 dB**
- **For DNL 60 dB to <65 dB: +3 dB**
- **For DNL 45 dB to <60 dB: +5 dB**

The FAA and most other Federal Agencies have formally adopted the DNL metric when evaluating effects from aircraft operations in or near to an airport.

There is no noise impact criteria for noise levels lower than 45 dBA. Given this, many of the FAA's noise screening applications do not detail noise levels below 45 dBA.

Through the use of the DNL metric, in the NEPA analysis, the FAA is able to evaluate the effect of the observed decrease flight track spread within the flight corridor.

[1] Federal Agency Review of Selected Airport Noise Analysis Issues, Report by the Federal Interagency Committee on Noise (FICON), August 21, 1992

Air Traffic Initial Environmental Review

The noise analysis was undertaken with the Terminal Area Route Generation Evaluation, and Traffic Simulation (TARGETS) Environmental Plug-in tool, which was based upon Aviation Environmental Design Tool (AEDT) version 2c to calculate the noise exposures.
The results, in the DNL metric, are shown below. In summary, these results indicate that there is no reportable or significant noise increase as a result of the implementation of the additional paragraph in the LOA.

Baseline Exposure					
%65+dB	%65-60dB	%60-55dB	%55-50db	%50-45dB	%<45dB
0	0	0	0.1	0.5	99.4

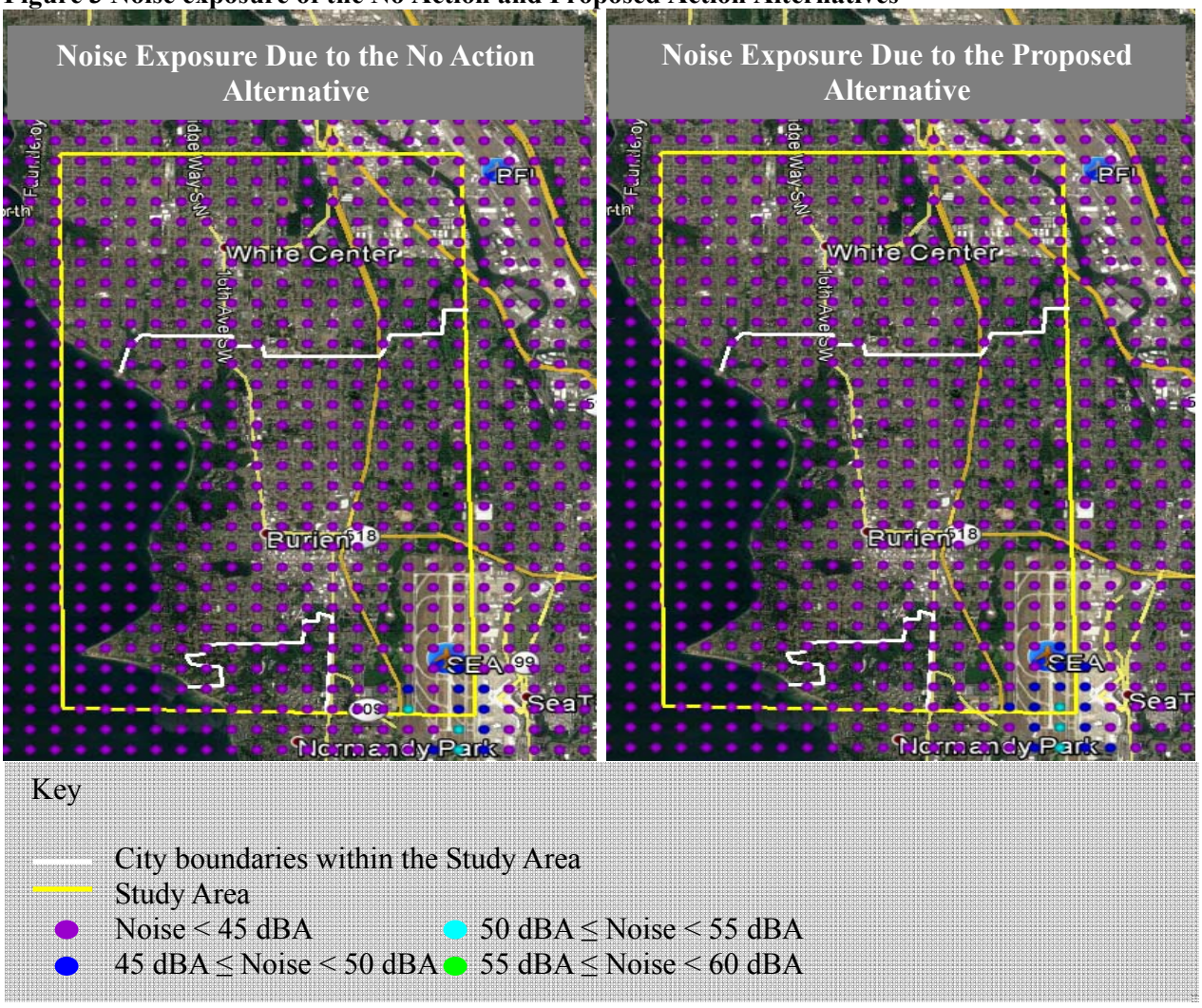
Alternative Exposure					
% 65+dB	% 65-60dB	% 60-55dB	% 55-50db	% 50-45dB	% <45dB
0	0	0	0.2	0.7	99.1

IMPACT						
% Red	% Orange	% Yellow	% No Change	% Green	% Blue	% Purple
0	0	0	100	0	0	0

Furthermore, as illustrated in Figure 3 below, except in the immediate vicinity of SEA, both the No Action and Proposed Action have less than 45 dBA DNL[2] noise exposure within the Study Area.

[2] DNL = Day-night average sound level (DNL) means the 24-hour average sound level, in A-weighted decibels, obtained after the addition of ten decibels to sound levels for the periods between 10 pm and 7 a.m.

Figure 3 Noise exposure of the No Action and Proposed Action Alternatives



4. Purpose and Need

A. Describe the purpose and need for the proposed project. If detailed background information is available, summarize here and provide a copy as an attachment to this review.

The purpose of the project is to automate the westerly turning of south bound turboprops while SEA is in north flow. These turboprops have always been manually turned – but this ensures a more consistent path for these turboprops as they leave SEA. The need of the project stems from the

increasing operations at SEA. In order for ATC to keep up with the demand at SEA without increasing ground delays, or decreasing safety, tools such as this automatic westerly turn are needed to more efficiently manage the traffic. In particular, this automatic westerly turn ensures separation with BFI traffic, SEA's arrival missed approach course (set at 290 heading) as well as allowing more aircraft to depart SEA within a given window of time.

Based on SEA departures in 2016, there are approximately 3500 south bound turboprops in north flow. This represents approximately 2% of all SEA departures. North flow conditions may occur for a fraction of a day. Based upon runway usage data for 2016, north flow occurs 27% of the time.

Missed approaches occur for a number of reasons, one of which is caused by taxiway congestion. Aircraft waiting to depart SEA may congest taxiways too much, resulting in an unsafe environment to land aircraft. It may be that the implementation of the Proposed Action could reduce the number of jet aircraft going missed approach.

B. What operational/economic/environmental benefits will result if this project is implemented?

There would be operational benefits through the reliable separation from BFI traffic and SEA's missed approach, as well as being able to more consistently getting turboprops out of the stream of straight out jet departures, allowing greater safety and efficiency of departures. This may also reduce ground delays and congestion on the ground at SEA and may also reduce the number of missed approaches.

1. If a delay reduction is anticipated, can the reduction be quantified?
☐Yes ☒No ☐ N/A

2. Can reduced fuel costs/natural energy consumption be quantified?
☐ Yes ☒ No ☐N/A
If not quantifiable, describe the approximate anticipated benefits in lay terms.

Click here to enter text.

C. Is the proposed project the result of a user or community request or regulatory mandate?
☒ Community Request ☒ Regulatory Mandate

SEA ATCT and S46 have requested this change in order to increase safety and efficiency in the NAS.

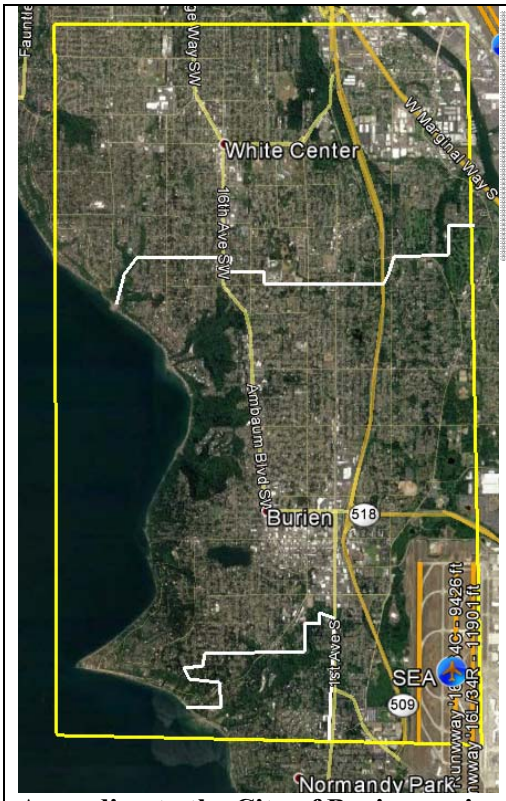
5. Describe the Affected Environment

A. Provide a description of the existing land use in the vicinity of the proposed project.

As illustrated in Figure 4, the study area consists of the region to the immediate west and northwest of SEA, covering portions of the City of Burien, Normandy Park, West Seattle and White Center, which is a census designated place in West Seattle.

Figure 4: Illustration of the Study Area

Air Traffic Initial Environmental Review



According to the City of Burien zoning map, effective January 5th 2016 (see Appendix B), the portion of the City of Burien within the Study area consist of residential, neighborhood centers, office, commercial, community commercial, industrial, including airport industrial as well as professional/residential land use. Other than residential homes, this area includes multiple public parks, schools and places of worship.

According to the City of Seattle zoning map, dated Aug 2014 (see Appendix B) the areas within the study area are either zoned for industrial, residential or commercial purposes.

According to the City of Normandy Park's 2016 future land use map (see Appendix B), as google earth's the area of Normandy Park encompassed b the Study Are includes residential area and parks.

B. Will the proposed project introduce air traffic over noise sensitive areas not now affected?
☒ Yes ☐No
If yes, will they be affected to a ☐greater or ☐ lesser extent? ☒Neither
Note: An area is noise sensitive if aircraft noise may interfere with the normal activities associated with the use of the land. See FAA Order 1050.1 [Paragraph 11-5.b.(1)] for full definition of noise sensitive areas

There are 35 public parks within the Study Area, as well as places of worship, schools and residences. While the track data from August 2016 – Jan 2017 shows that there will be more air traffic over these noise sensitive resources, the noise results show that, except in the immediate vicinity of SEA, both the No Action and the Proposed Action alternatives produce noise environments that fall below 45 dBA DNL. The noise analysis further shows that there will be no significant or reportable noise changes as a result of the implementation of the Proposed Action.

Air Traffic Initial Environmental Review

C. Are wildlife and/or water fowl refuge/management areas within the affected area of the proposed project?
☐ Yes ☒No

Click here to enter text.

If so, has there been any communication with the appropriate wildlife management regulatory (federal or state) agencies to determine if endangered or protected species inhabit the area?
☐ Yes ☐ No

N/A

1. At what altitude would aircraft overfly these habitats?

Click here to enter text.

2. During what times of the day would operations be more/less frequent?

Click here to enter text.

D. Are there cultural or scenic resources, of national, state, or local significance, such as national parks, publicly owned parks, recreational areas, and public and private historic sites in the affected area?
☒ Yes ☐No

As listed below in Table 1, there are 34 public parks within the Study Area. These parks have multiple uses from containing play structures, to walking trails. Some of these parks are described as being located in a quiet setting within urban areas. Figure 5 illustrates the location of these parks. There are also two golf courses, both located in between SEA and BFI and one lake, which is potentially used as a recreation area within the Study Area. These are also illustrated in Figure 5 below. The noise results show that, except in the immediate vicinity of SEA, both the No Action and the Proposed Action alternatives produce noise environments that fall below 45 dBA DNL. Furthermore, that there are no significant or reportable noises changes as a result of the implementation of the Proposed Action. Therefore, the FAA has determined that there would be no use of these 4(f) properties as a result of the implementation of the Proposed Action.

Figure 5: Public parks, golf courses and lakes within the Study Area

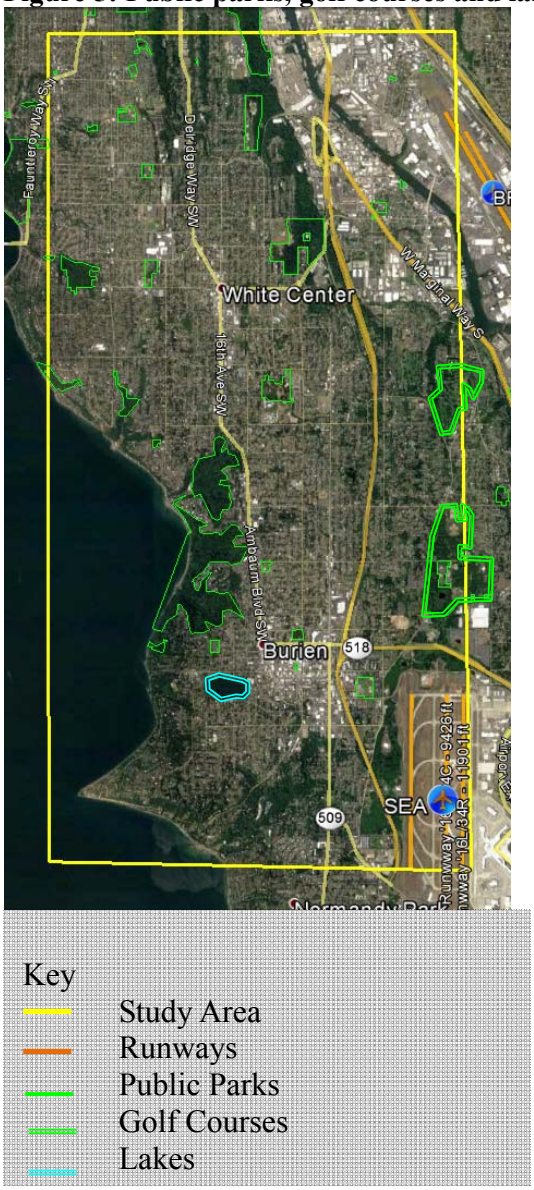


Table 1: Public Parks within the Study Area			
	Public Park		**Public Park**
1	Moshier Memorial Park	18	Oxbow Park
2	Burien Town Square Park	19	West Duwamish Greenbelt Puget Park
3	Eagle Landing Park	20	Riverview Playfield
4	Lake Burien School Memorial Park	21	Pudget Ridge Playground
5	Dottie Harper Park	22	High Point Community Center
6	Sunset Park	23	High Point Commons Park
7	North SeaTac Park	24	Morgan Junction Park
8	Chelsea Park	25	Orchard Street Ravine
9	Ed Munro Seahurst Park	26	Solstice Park
10	Salmon Creek Ravine Park	27	South Park
11	Lakewood Park	28	Cesar Chavez Park
12	Steve Cox Memorial Park	29	Dumaish Waterway Park
13	Park Lake Day Camp	30	Watercrest Park
14	Shorewood Park	31	Highland Park Playground
15	Seola Park	32	E.C Hughes Playground
16	Arroyos Natural Area	33	Kilbourne Park
17	Ruby Chow Park	34	Fauntleroy Park

For the purpose of Section 106 of the National Historic Preservation Act (NHPA) of 1966, the area in which effects are analyzed is the Area of Potential Effects (APE). The APE was defined to be the same as the Study Area, shown in Figure 4.

As listed in Table 2, there are two properties listed on the National Register of Historic Places (NRHP) and six properties eligible for listing on the NRHP within the Study Area.

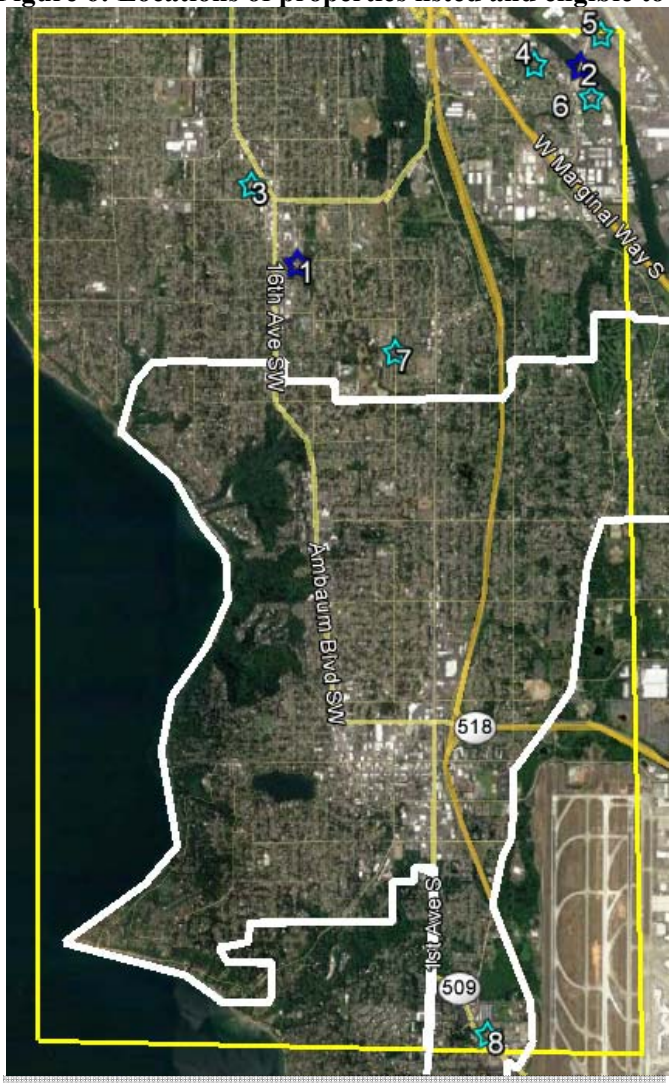
Table 2: Places on the NRHP, and places eligible[4] for listing on the NRHP within the APE

		Register Name	Address	Resource ID
National Register; Washington Heritage Register	1	White Center Fieldhouse and Caretaker Cottage	1321 SW 102nd Street, Seattle, WA	674769
	2	14th Avenue South Bridge - Seattle	Spans Duwamish River, Seattle, WA	675190
Eligible	3	St. James Lutheran Church	9403 18th Ave SW, Seattle, WA 98106	41529
	4	South Park Firehouse	8201 10th Ave S, (South Park), Seattle, WA	35527
	5	Boeing Primary Building	7775 E Marginal Way S, Tukwila, WA 98108	46715
	6	14th Avenue South Brick Road	14th Ave S, Seattle, WA 98108	46718
	7	Beverly Park Tank	11044 4th Ave SW, White Center, WA	622399
	8	YMCA – Burien	17874 Des Moines Memorial Dr S, Burien, WA	618817

[4] https://fortress.wa.gov/dahp/wisaardp3/

Figure 6 shows the locations and Table 2 provides the National Register of Historic Properties (NRHP) properties listed and eligible to be listed on the within the Study Area.

Figure 6: Locations of properties listed and eligible to be listed on the NRHP



If so, during what time(s) of the day would operations occur that may impact these areas?

N/A

E. Has there been communication with air quality regulatory agencies to determine if the affected area is a non-attainment area (an area which exceeds the Clean Air Act [CAA] National Ambient Air Quality Standards [NAAQS] for the following criteria air pollutants: ozone, carbon monoxide, lead, particulate matter, sulfur dioxide, or nitrogen dioxide) or

maintenance area (an area which was in non-attainment but subsequently upgraded to an attainment area) concerning air quality?
☐ Yes ☒No
If yes, please explain

There will be no change to the number or type of operations occurring with the same air basin.

During the comment period, Ms. Kubo of the Environmental Protection Agency (EPA) provided comments on the provisional analysis, including the FAA's determination that there would be no effect on air quality as a result of the implementation of the Proposed Action. While the introduction to the EPA's comments stated that the EPA's comments were in accordance with the EPAs responsibilities under Section 309 of the Clean Air Act (CAA), it is of note that no comments were offered on the FAA's air quality analysis.

F. Are there reservoirs or other public water supply systems in the affected area?
☐Yes ☒No

6. Community Involvement

Formal community involvement or public meetings/hearings may be required for the proposed project. Make a determination if the proposed project has the potential to become highly controversial. The effects of an action are considered highly controversial when reasonable disagreement exists over the project's risks of causing environmental harm. Opposition on environmental grounds by a Federal, State or local government agency or by a Tribe, or by a substantial number of the persons affected by the action should be considered in determining whether reasonable disagreement regarding the effects of a proposed action exists [see FAA Order 1050.1, paragraph 5-2.b.(10)].

A. Have persons/officials who might have some need to know about the proposed project due to their location or by their function in the community been notified, consulted, or otherwise informed of this project?
☒ Yes ☐ No

1. Are local citizens and community leaders aware of the proposed project?
☒Yes ☐ No

2. Are any ☒opposed to or ☐ supporting it?
If so, identify the parties and indicate the level of opposition and/or support.

Quiet Skies Coalition (QSC) is a local community group that strongly opposed the initial implementation of the Proposed Action through the 26th July 2016 LOA.

After the initial implementation of the Proposed Action, the City of Burien filed a petition in the US Court of Appeals for the Ninth Circuit to review the final decisions by the FAA related to flight departures using the "New Route" at Seattle-Tacoma International Airport.

After the paragraph within the July 26th 2016 LOA had been rescinded, the FAA published the environmental analysis presented within this document on a publically available website[3], notifying of the document's availability through a press release on June 8th 2017. The intent of making this analysis available as well as a subsequent comment period was to allow the public to provide input on the best place to have aircraft fly from a community stand point. The comment period was initially stated to be for two weeks, until June 21st 2017, but was extended by an additional two

[3] https://www.faa.gov/nextgen/communityengagement/sea/

weeks until July 5th 2017 in response to a request made by Congresswoman Jayapal. During this comment period, the FAA received 716 comments from the public as well as local and Federal Agencies. Of these comments, 205 were not associated with the Proposed Action. All alternatives suggested by the public during the comment period are included in the Section 4, Alternatives. Sections 2 through 5 also reflects the request for clarification on a number of the discussions present in the preliminary environmental analysis.

The FAA had a meeting with the City of Burien, after the close of the comments on July 25th 2017. The intent of the meeting was to discuss possible alternatives for the 250 heading for southbound turboprops in North Flow. Those alternatives are included in the alternatives section of this document.

a. If they are opposed, what is the basis of their opposition?

QSC and the City of Burien felt that the noise increase imposed by the change in where turboprop aircraft flew was unannounced and that it created a large noise impact to residents. QSC stated that they believed extraordinary circumstances apply.

The 511 of the 716 comments received by the FAA during the four week comment period voiced concerns regarding the environmental impacts to residents resulting from the Proposed Action. Some alternative paths were suggested, which have been incorporated into the Section 4, Alternatives. These comments, along with responses to these comments are contained in Appendix D.

b. Has the FAA received one or more comments objecting to the proposed project on environmental grounds from local citizens or elected officials?

☒Yes ☐No

If so, state the nature of the comment and how the FAA was notified (e.g. resolution, Congressional, Public meeting/workshop, etc.).

Prior to the petition being filed, the FAA met with QSC and the City of Burien. During that meeting, the City of Burien and QSC made it clear that they wished for paragraph defining the 250° heading and the distance from the end of the runway to be removed from the LOA. The City of Burien restated this intent as part of the petition. In a presentation provided to the FAA by the QSC during that meeting, it was stated that QSC's objective is to "restore equitable departure tracks" and that the QSC proposed to do this "through citizen initiatives taking our request directly to sympathetic responsible parties".

As seen in Appendix D, many of the members of the public who commented on the provisional environmental analysis did not agree with the determinations of the analysis. All of the responses to these comments are contained within Appendix D.

3. Are the airport proprietor and users providing general support for the proposed project?

☐ Yes ☐ No

N/A While the airport proprietor understands the need for the Proposed Action; it has not taken

an official stance. The Proposed Action primarily results in increased efficiency and safety of the NAS. The FAA cannot assume/guess whether efficiency gains may also be appreciated by SEA and its users.

4. Is the proposed project consistent with local plans and development efforts?

☒ Yes ☐ No

The noise results of the No Action and the Proposed Action alternatives show that, except in the immediate vicinity of SEA, both alternatives produce noise environments that fall below 45 dBA DNL. The noise analysis further shows that there will be no significant or reportable noise changes as a result of the implementation of the Proposed Action. Given these noise levels, the FAA has determined that the Proposed Action would be consistent with all local plans and development efforts. The City of Burien's, City of Settle (including White City) and the City of Normandy Parks plans are accessed through the below links:

City of Burien Strategic Plan 2017-2020: http://burienwa.gov/DocumentCenter/View/6332
Seattle's Comprehensive Pan 2035:
http://www.seattle.gov/dpd/cityplanning/completeprojectslist/comprehensiveplan/whatwhy/default.htm
City of Normandy Park:
http://www.ci.normandy-park.wa.us/vertical/sites/%7BD313ED69-120E-439F-83D7-8BBE7447C948%7D/uploads/NormandyPark_CompPlan_Adopted_2016.01.26.pdf

5. Has there been any previous aircraft-related environmental or noise analysis, including

a. FAR Part 150 Studies, conducted at this location?

☒ Yes ☐ No

b. If so, was the study reviewed as a part of this initial review?

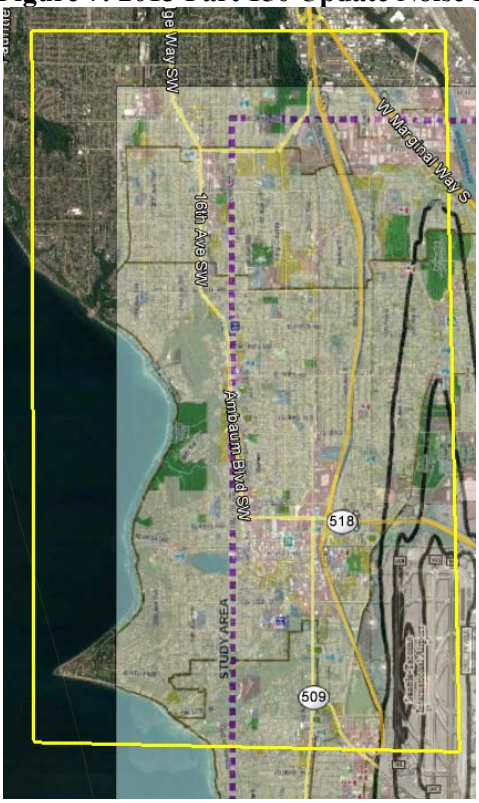
☒Yes ☐No ☐N/A

The Part 150 Noise Compatibility Update for SEA, dated October 2013 was reviewed as part of this environmental review. This Noise Compatibility Update includes the 2013 noise contours for noise including and greater than 65 dBA DNL, as well as the projected noise contours for 2018.

According to the Part 150 Noise Compatibility Study[1], the number of stated operations for 2016 was 308,400. Of this, 65,900 were turboprops/props. Given the estimate that the south bound westerly turning props in north flow approximately no more than approximately 3,000 annual operations, this represents ~5% of the turboprops estimated to be operation at SEA in 2013, and 1% of its total operational activity. Given the logarithmic nature of noise, as well as the noise results for the current day level of operations, the FAA believes that it is reasonably foreseeable that the Proposed Action would not change the projected 2018 65 dBA DNL contours and therefore would not affect the Part 150 Noise Compatibility Update for SEA.

[1] http://www.airportsites.net/sea-part150/final.htm See page 2-19, Table 2-12

Figure 7: 2013 Part 150 Update Noise Exposure Map superimposed on the Study Area



Key:

- **Study Area**
- **Study Area for the Part 150 Update**
- **Noise Contours from the Part 150 Update**

Extraordinary Circumstances

The determination of whether a proposed action may have a significant environmental effect is made by considering any requirements applicable to the specific resource [see FAA Order 1050.1, paragraph 4-3. and Exhibit 4-1.].

A. As stated in FAA Order 1050.1, paragraph 5-2.b., extraordinary circumstances exist when a proposed action involves any of the following circumstances AND may have a significant effect has the potential for a significant effect [40 CFR 1508.4).Will implementation of the proposed project result in any of the following?

1. An adverse effect on cultural resources protected under the National Historic Preservation Act of 1966, as amended [see FAA Order 1050.1, paragraph 5-2.b.(1)].

☐Yes ☒No ☐Possibly

Comment:

As stated above, the APE is defined as the area within which an effect may occur. The noise results of the No Action and the Proposed Action alternatives show that, except in the immediate

vicinity of SEA, both alternatives produce noise environments that fall below 45 dBA DNL. The noise analysis further shows that there will be no significant or reportable noise changes as a result of the implementation of the Proposed Action. Based on these results, the FAA made a determination of "No Effect" on properties listed or eligible to be listed on the NRHP. On May 4th 2017, the FAA wrote to the Washington State Historic Preservation Officer (SHPO), requesting concurrence with its No Effect determination. On May 10th 2017, the SHPO responded, concurring with the FAA's determination. All correspondence with the Washington SHPO is included in Appendix C.

2. An impact on properties protected under section 4(f) of the Department of Transportation Act [see FAA Order 1050.1, paragraph 5-2.b.(2)].

☐Yes ☒ No ☐ Possibly

Comment:

As stated above, there are multiple parks, golf courses and a lake within the Study Area. Noise modelling of the No Action and Proposed Action shows that there are no reportable or significant noise impacts as a result of the implementation of the Proposed Action. Further, this noise modelling showed that these properties are all subjected to noise levels of < 45 dBA DNL under both the No Action and the Proposed Action. Given these noise results, the FAA has determined that there would be no constructive use under 4(f) of any of these properties and that no further coordination is necessary.

3. An impact on natural, ecological or scenic resources of Federal, Tribal, State, or local significance (for example, Federally listed or proposed endangered, threatened, or candidate species or proposed or designated critical habitat under the Endangered Species Act); [see FAA Order 1050.1, paragraph 5-2.(3)].

☐Yes ☒ No ☐ Possibly

Comment:

N/A

4. An impact on the following resources: resources protected by the Fish and Wildlife Coordination Act; wetlands; floodplains; coastal zones; national marine sanctuaries; wilderness areas; National Resources Conservation designated prime and unique farmlands or, State, or locally important farmlands; energy supply and natural resources; resources protected under the Wild and Scenic Rivers Act, including study or eligible river segments; rivers or river segments listed on the Nationwide Rivers Inventory (NRI); and solid waste management [see FAA Order 1050.1, paragraph 5-2(4)]

☐Yes ☒ No ☐ Possibly Comment:

Given the nature of the Proposed Action, there would be no impacts to coastal zones, floodplains, wetlands, conservation designated prime and unique farmland or State or locally important farmlands, energy supply and natural resources, resources protected under the Wild and Scenic Rivers Act. There are no resources protected by the Fish and wildlife Coordination Act, National Marine Sanctuaries or Wilderness area within the Study Area.

5. A division or disruption of an established community; a disruption of orderly, planned development; or an inconsistency with plans or goals that have been adopted by the community in which the project is located [see FAA Order 1050.1, paragraph 5-2.(5)].

☐ Yes ☒ No ☐Possibly

Comment:

Per the noise analysis results, the land use is compatible with any use in the current and accessible future zoning plans of the City of Burien, South Seattle and Normandy Park. See Appendix B.

6. An increase in congestion from surface transportation, by causing a decrease in the Level of Service below the acceptable level determined by the appropriate transportation agency (i.e., a highway agency) [see FAA Order 1050.1, paragraph 5-2.(6)].

☐Yes ☒No ☐ Possibly

Comment:

There would be no change in surface transportation as a result of the implementation of the Proposed Action.

7. An impact on noise levels of noise-sensitive areas [see FAA Order 1050.1, paragraph 5-2.(7)].

☐Yes ☒ No ☐Possibly

Comment:

Noise modelling of the No Action and Proposed Action alternatives was undertaken using the FAA approved TARGETs plugin which used the AEDT 2c. The modelling of the No Action alternative was based upon westerly turned turboprops within 60 randomly selected days from August 2015 – January 2016. The modelling of the Proposed Action alternative was based upon westerly turning turboprops within the same listing of days, but from August 2016 – January 2017. This noise modelling that there are no reportable or significant noise impacts as a result of implementation of the Proposed Action. The results are showed below. Further, as illustrated in Figure 3 above, this noise modelling showed that the Study Area is primary subjected to noise levels of < 45 dBA DNL as a result of the No Action and Proposed Action Alternatives.

Baseline Exposure					
%65+dB	%65-60dB	%60-55dB	%55-50db	%50-45dB	%<45dB
0	0	0	0.1	0.5	99.4

Alternative Exposure					
% 65+dB	% 65-60dB	% 60-55dB	% 55-50db	% 50-45dB	% <45dB
0	0	0	0.2	0.7	99.1

IMPACT						
% Red	% Orange	% Yellow	% No Change	% Green	% Blue	% Purple
0	0	0	100	0	0	0

8. An impact on air quality or a violation of local, State, Tribal, or Federal air quality standards under the Clean Air Act amendments of 1990 [see FAA Order 1050.1, paragraph 5-2.(8)].

☐ Yes ☒No ☐ Possibly

Comment:

There is no change in the number of turboprops within the same air basin as a result of the implementation of the Proposed Action.

Air Traffic Initial Environmental Review

During the comment period, Ms. Kubo of the Environmental Protection Agency (EPA) provided comments on the provisional analysis, including the FAA's determination that there would be no effect on air quality as a result of the implementation of the Proposed Action. While the introduction to the EPA's comments stated that the EPA's comments were in accordance with the EPAs responsibilities under Section 309 of the Clean Air Act (CAA), it is of note that no comments were offered on the FAA's air quality analysis.

9. An impact on water quality, sole source aquifers, a public water supply system, or State or Tribal water quality standards established under the Clean Water Act and the Safe Drinking Water Act [see FAA Order 1050.1, paragraph 5-2.(9)].

☐Yes ☒ No ☐ Possibly

Comment:

There would be no impact to the ground water as a result of the implementation of the Proposed Action.

10. Effects on the quality of the human environment that are likely to be highly controversial on environmental grounds. The term "highly controversial on environmental grounds" means there is a substantial dispute involving reasonable disagreement over the degree, extent, or nature of a proposed action's environmental impacts or over the action's risks of causing environmental harm. Mere opposition is not sufficient for a proposed action or its impacts to be considered highly controversial on environmental grounds. Opposition on environmental grounds by a Federal, state, or local government agency or by a tribe or a substantial number of the persons affected by the action should be considered in determining whether or not reasonable disagreement regarding the impacts of a proposed action exists. If in doubt about whether a proposed action is highly controversial on environmental grounds, consult the LOB/SO's headquarters environmental division, AEE, Regional Counsel, or AGC for assistance [see FAA Order 1050.1, paragraph 5-2.(10)].

☐ Yes ☒ No ☐ Possibly

Comment:

While there has been a high level of controversy regarding the previous iteration of the Proposed Action, as well as 733 comments received during the comment period associated with the Proposed Action – this is not "highly controversial on environmental grounds" given that there are no reportable or significant noise impacts and given that the noise environments created by the No Action and Proposed Action Alternatives are less than 45 dBA.

11. Likelihood of an inconsistency with any Federal, State, Tribal, or local law relating to the environmental aspects of the proposed action [see FAA Order 1050.1, paragraph 5-2.(11)].

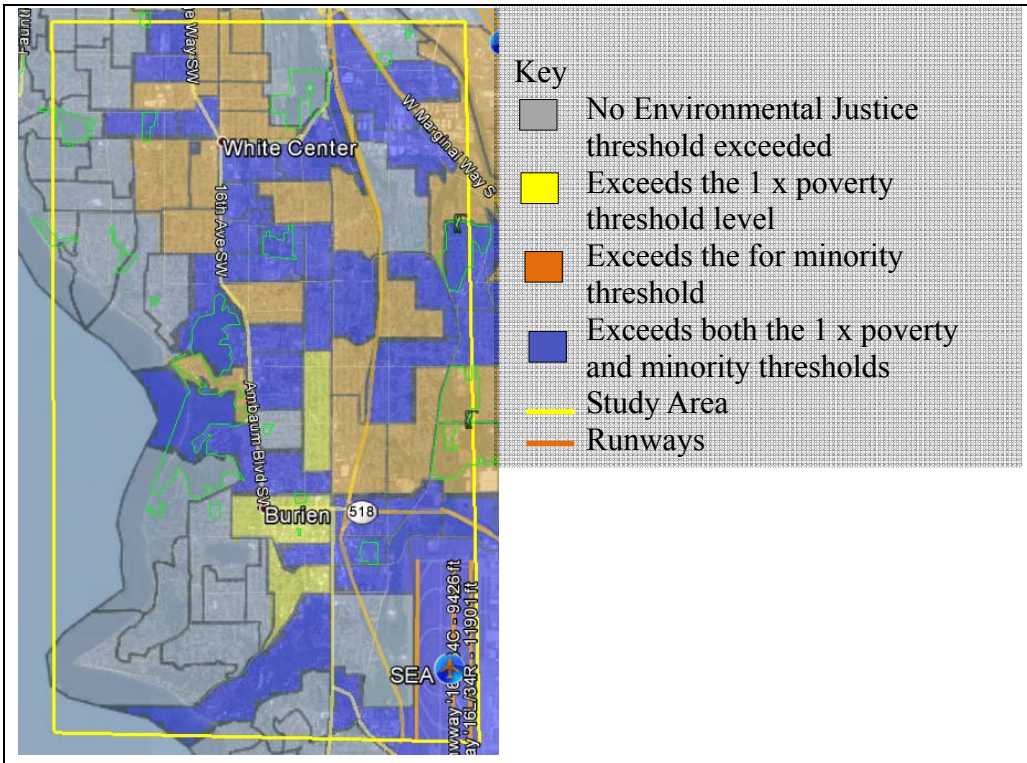
☐Yes ☒ No ☐ Possibly

Comment:

Figure 8 shows the areas in which Environmental Justice may be a concern within the Study Area. This data was pulled using the U.S Consensus 2015 data, through the Environmental Justice tool in AEDT.

Figure 8: Environmental Justice areas within the Study Area

Air Traffic Initial Environmental Review



There are multiple areas of which exceed environmental justice thresholds within the Study Area. However, there are no reportable or significant noise impacts and the noise level of the No Action and Proposed Action are less than 45 dBA DNL. Furthermore, there is no change to air quality. Therefore, there are no high and disproportionate impacts to environmental justice communities.

12. Likelihood of directly, indirectly, or cumulatively, creating a significant impact on the human environment, including, but not limited to, actions likely to cause a significant lighting impact on residential areas or commercial use of business properties, likely to cause a significant impact on the visual nature of surrounding land uses, likely to cause environmental contamination by hazardous materials, or likely to disturb an existing hazardous material contamination site such that new environmental contamination risks are created [see FAA Order 1050.1, paragraph 5-2.(12)].

☐ Yes ☒ No ☐ Possibly

Comment:

Since there are no reportable or significant noise impacts and further since the noise level of the No Action and Proposed Action are < 45 dBA DNL, it is unlikely that there would be a direct or indirect or cumulatively significant impact as a result of the implementation of the Proposed Action.

7. Alternatives

A. Are there alternatives to the proposed project? ☒ Yes ☐ No

If yes, describe any alternatives to the proposed action.

Other than the No Action Alternative, the following other alternatives were under consideration:

1. **A 320° heading for south bound north flow turboprops. This was suggested during the comment period by members of the public.**

2. **Fly to an altitude of 3,000 feet and then use a 320 heading. This was suggested during the comment period by members of the public as well as by the City of Burien during the July 25th 2017 meeting.**
3. **A 340° heading for south bound north flow turboprops. This was suggested during the comment period by members of the public.**
4. **A 270° heading. This was discussed during the July 25th 2017 meeting with the City of Burien.**
5. **Delay the initiation of the westerly turn. This was suggested during the comment period by a member of the public.**
6. **Fly at higher altitudes/have a steeper climb gradient. This was suggested during the comment period by members of the public as well as by the City of Burien during the July 25th 2017 meeting.**
7. **Not use the automatic westerly turn during nighttime when operationally feasible. This was suggested by the City of Burien during the July 25th 2017 meeting.**
8. **Alternate between different headings. This was offered as a suggestion during the comment period.**
9. **Turn the south bound north flow turboprops to the east. This was also suggested during the comment period by members of the public.**

B. Please provide a summary description of alternatives eliminated and why.

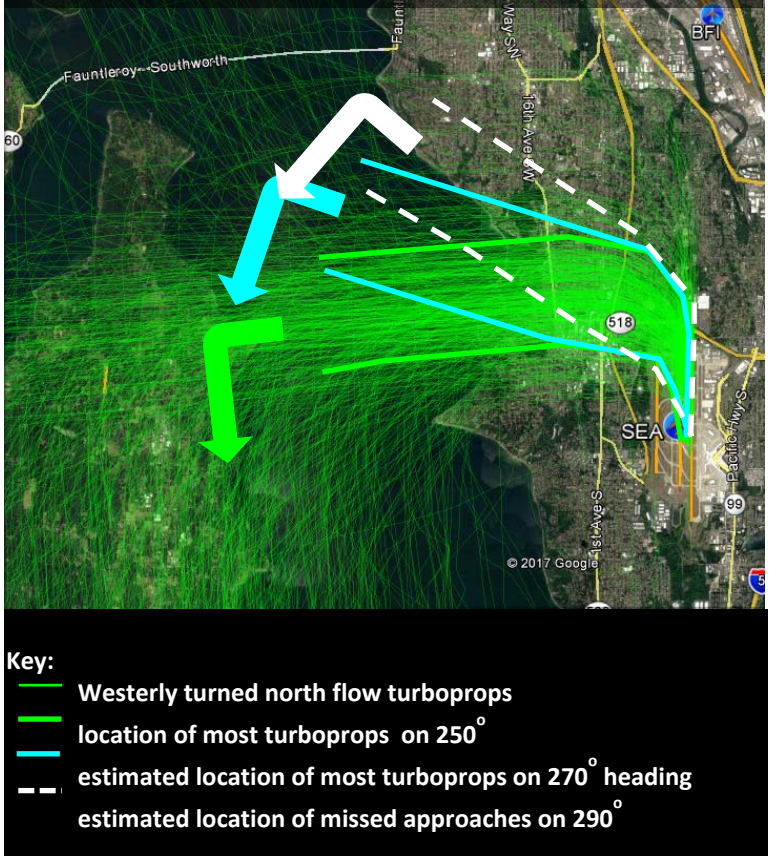
1. **Utilize a 320° heading: This would place the south bound turboprops in conflict with any of SEA's missed approaches as well as with BFI traffic. Given these safety concerns, this alternative was also eliminated from further analysis.**

2. **Fly to an altitude of 3,000 feet and then use a 320° heading: Not only would the 320° heading place the turboprops in conflict with the SEA missed approaches as well as BFI traffic, but leaving the turn until 3,000 feet would also place the these turboprops in conflict with BFI and SEA departures prior to the turn.**

3. **Utilize a 340° heading: Given that turning the south bound north flow turboprops to a 340° heading would also place them in conflict with the BFI traffic, this alternative was also eliminated from further analysis.**

4. **Utilize a 270° heading: Figure 9 below shows the 250º heading associated with the Proposed Action, (green), the estimated area of the south bound turboprops with a 270º heading (blue) and the 290º heading (white) of missed approaches. ATC initially suggested that the 270º heading was possible during discussion with the City of Burien, based upon FAA criteria that there be at least 15º between headings. The FAA closely examined the possibility of having an automatic 270º heading. Upon further consideration, ATC cannot predict when a missed approach goes around on the 290º heading. Furthermore, because the automatic 250 heading is not a NEXT-GEN procedure, there is a spread as aircraft turn onto the 250º heading. Given this ~~and since a go-around is unpredictable~~, any extra separation between any missed approach aircraft and a south bound turboprop is beneficial. Any extra separation increases the volume of airspace in which ATC can resolve any potential incident and thus reduces the risk of having an incident. The fact that a diverging path between a turboprop on a 250º heading and missed approach aircraft is established closer to the airport provides a greater volume of airspace than if the turboprop was on a 270º heading. Given the increased risk involved in utilizing the 270º heading, ~~The FAA means that ATC is more easily able to remedy any potential situation downstream at the tower, which lowers the risk of an incident. Given this decreased ability to remedy conflicts downstream inherent in the 270º heading –~~ this alternative was not pursued for further analysis.**

Figure 9: Illustration of the difference between the 250°, 270° and how this relates to the 290° missed approach airspace.



Key:
- Westerly turned north flow turboprops
- location of most turboprops on 250°
- estimated location of most turboprops on 270° heading
- estimated location of missed approaches on 290°

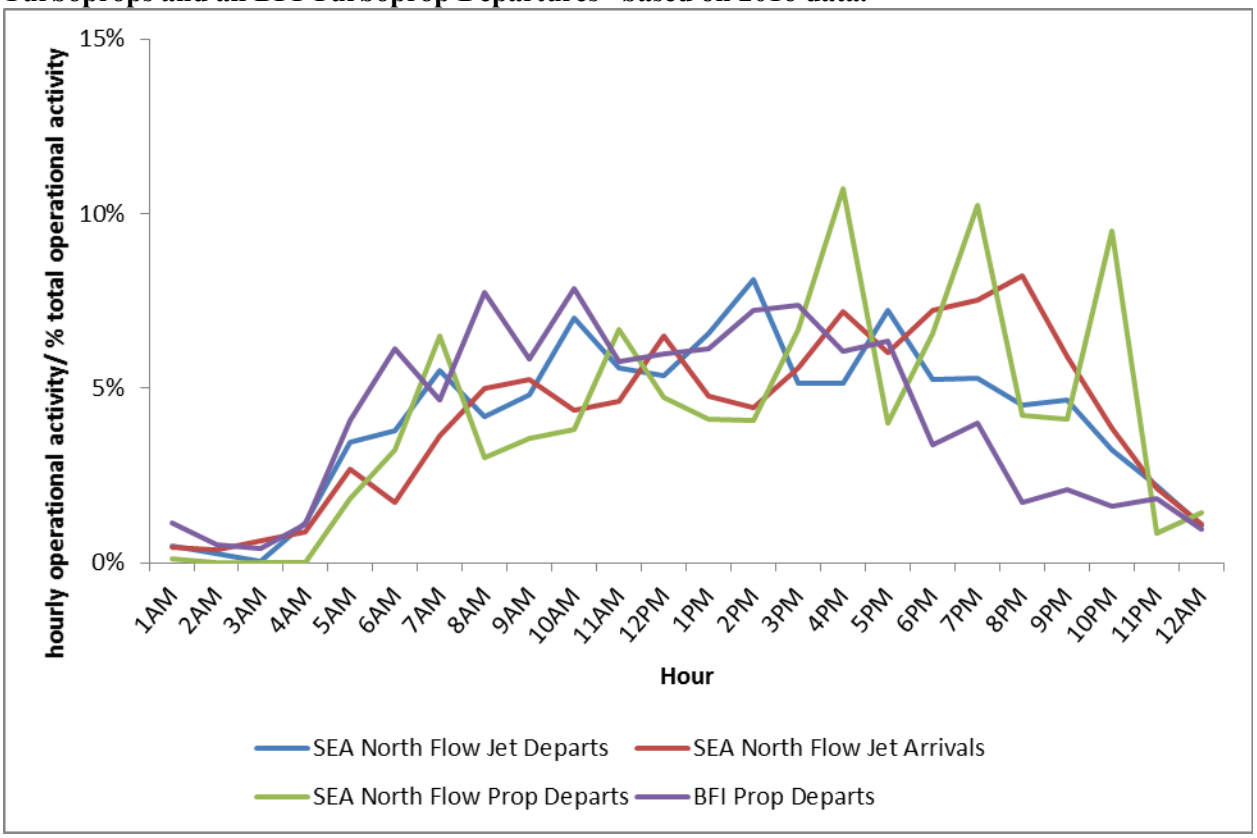
5. **Delay the initiation of the westerly turn: The Proposed Action includes the direction that the westerly turn should be established prior to 1NM from the departure end of the runway. This specification provides sufficient separation between turboprops departing SEA and those departing BFI. To allow the SEA turboprops to turn later may not provide sufficient separation. For safety considerations, this alternative was eliminated from further analysis.**

6. **Fly at higher altitudes/have a steeper climb gradient: There is no altitude restriction associated with the Proposed Action. As such the pilots have the ability to climb as much as they feel is within the safe operation of the aircraft. It is the FAA's concern that instituting an altitude restriction may interfere with how the pilots would most safely fly their aircraft. Therefore, this alternative was eliminated from further analysis.**

7. **Not use the automatic turns to the west during nighttime, when operationally feasible: Figure 10 shows the hourly operational activity for 2016 for SEA North Flow jet departures , all SEA north flow arrivals , SEA North Flow south bound turboprops as well as All BFI activity. This is displayed as an hourly percentage for each operational group to better understand during which time frames each operational group would not impact the management of the south bound turboprops. This graph shows peak activity for south bound turboprops in north flow at around 7 am , 4pm, 7pm and 10pm. The purpose and need for the Proposed Action is based upon protection of the missed approach – which is linked to SEA north flow arrivals, de-conflicting with BFI prop departures, and separation between turboprops and jet departures. These factors are all minimized during the hours of 1am – 4am. However, this is also the time period when there are very few south bound turboprops in north flow. Adding any complexity into ATC directions adds risk of**

confusion. Given the lack of obvious benefit from allowing the Proposed Action only when "operationally feasible", this alternative was not pursed further as the benefits did not outweigh the additional risk.

Figure 10: Annualized Activity By the Hour for SEA North Flow Jet Arrivals, Jet Departures, South Bound Turboprops and all BFI Turboprop Departures– based on 2016 data.



8. **Alternative between different headings: The primary goal of ATC is to ensure the safety of the NAS and to make it as efficient as possible. Having different headings for the these south bound turboprops in north flow creates an unnecessary complexity which makes the job of an ATC harder and as such, creates risks. The FAA did not pursue this alternative further given that it represents a riskier mode of operation than having a single heading for this group of aircraft.**

9. **Another suggested alternative was to turn the south bound turboprops to the east instead of the west. Since these turboprops would need to cross the oncoming SEA RWY 34L arrivals, this has been determined to be unsafe and has been eliminated from further analysis.**

8. Mitigation

Are there measures, which can be implemented that might mitigate any of the potential impacts, i.e., Global Positioning System (GPS)/Flight Management System (FMS) plans, Navigation Aids (NAVAID), etc.? ☐Yes ☒ No ☐ N/A

Click here to enter text.

9. Cumulative Impacts

What other projects (FAA, non-FAA, or non-aviation) are known to be planned, have been previously implemented, or are ongoing in the affected area that would contribute to the proposed project's environmental impact?

Given the low level of dBA DNL resulting from the Proposed Action, there are no projects that are known to be planned that have previously been implemented or are on-going in the affected area that would contribute to the Proposed Action's environmental impact to such an extent that would shift any of the aforementioned

environmental impact determinations.

10. References/Correspondence

Attach written correspondence, summarized phone contacts using Memorandums for the File, etc.

Click here to enter text.

11. Document Preparers

The person(s) listed below, are responsible for the preparation of all or part of the information and representations contained herein. The environmental specialist indicated on page 1, is responsible for reviewing this information and representations :

Name	**Caroline Poyurs**
Title	**Analysis Lead**
Facility/Agency/Company:	**WSC OSG, FAA**

Air Traffic Initial Environmental Review

12. Facility/Service Area Conclusions

☐ This initial review and analysis indicates that no extraordinary circumstances or other reasons exist that would cause the responsible federal official to believe that the proposed project might have the potential for causing significant environmental impacts. The undersigned have determined that the proposed project qualifies as a categorically excluded action in accordance with Order 1050.1, and on this basis, recommend that further environmental review need not be conducted before the proposed project is implemented.

☐ The undersigned have determined that the proposed project may not qualify as a categorically excluded action in accordance with FAA Order 1050.1, and on this basis, recommend that further environmental review be conducted before the proposed project is implemented.
The undersigned recommend that the proposed project be submitted for environmental funding for preparation of an ☐EA ☐ EIS ☐Not sure – more analysis is needed.

13. Facility Manager Review/Concurrence

Signature:		Date:	Click here to enter text.
Name:	**Michael Coulter**		
Title:	**Air Traffic Manager, S46**		

Signature:		Date:	Click here to enter text.
Name:	**Steve Vale**		
Title:	**Air Traffic Manager, SCT ATCT**		

Service Area Environmental Specialist Review/Concurrence

Signature:		Date:	Click here to enter text.
Name:	**Elizabeth Healy**		
Title:	**Environmental Protection Specialist**		

Service Area Director Review/Concurrence, if necessary

Signature:		Date:	Click here to enter text.
Name:	Click here to enter text.		
Title:	Click here to enter text.		