Selected docket entries for case 18−71705

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Filed	Document Description	Page	Docket Text
06/11/2018	1		FILED PETITION FOR REVIEW. DOCKETED CAUSE AND ENTERED APPEARANCES OF COUNSEL. NOTIFIED RESPONDENTS OF FILING. SEND MQ: Yes. Mediation Questionnaire due on 06/19/2018. Petitioner brief due 08/30/2018 for City of Burien. Respondent brief due 10/01/2018 for Daniel K. Elwell and Federal Aviation Administration. Petitioner's optional reply brief is due 21 days after service of the answering brief. [10905333] (WL)
	1 Docketing Letter	6	
	1 Petition For Review	9	
	1 Mediation Letter	15	
	1 Mediation Questionnaire	16	
	1 Case Opening Packet	18	
06/11/2018	2 Main Document	27	Filed Petitioner City of Burien Corporate Disclosure Statement. Served on 06/11/2018. [10905343] (WL)
06/12/2018	3 Main Document	28	Filed (ECF) notice of appearance of Erika B. Kranz for Respondents Daniel K. Elwell and FAA. Date of service: 06/12/2018. [10905797] [18−71705] (Kranz, Erika)
06/19/2018	5 Main Document	30	Filed (ECF) Petitioner City of Burien Mediation Questionnaire. Date of service: 06/19/2018. [10914422] [18−71705] (Adams, Matthew)
06/28/2018	6 Order − Assessment Conference Schedule	33	MEDIATION CONFERENCE SCHEDULED − Assessment Conference, 08/08/2018, 11:00 a.m. PACIFIC Time. See order for instructions and details. [10925263] (VS)
06/28/2018	7 Main Document	38	Filed order MEDIATION (RGA): The briefing schedule previously set by the court is amended as follows:petitioner shall file an opening brief on or before October 1, 2018; respondentsshall file an answering brief on or before October 31, 2018; petitioner may file anoptional reply brief within twenty one (21) days from the service date of theanswering brief. [10925714] (AF)
07/11/2018	8 Main Document	39	Filed (ECF) Respondents Daniel K. Elwell and FAA Unopposed Motion to extend time to file the agency record until 08/20/2018. Date of service: 07/11/2018. [10937926] [18−71705] (Kranz, Erika)
07/18/2018	9 Main Document	42	Filed clerk order (Deputy Clerk: SM): Respondent’s unopposed motion (Docket Entry No. [8]) for a 30−day extension of time to file the Certified Administrative Record is granted. The Certified Administrative Record is due August 20, 2018. The opening brief remains due October 1, 2018. The answering brief is due October 31, 2018. The optional reply brief is due within 21 days after service of the answering brief. [10946361] (AF)
08/08/2018	10 Order − Release	43	MEDIATION ORDER FILED: This case is RELEASED from the Mediation Program. All further inquiries regarding this appeal, including request for extensions of time, should be directed to the Clerk's Office. Counsel are requested to contact the Circuit Mediator should

			circumstances develop that warrant further settlement discussions. [10970754] (VS)
08/20/2018	11		Filed (ECF) Respondents Daniel K. Elwell and FAA agency certified list. Date of service: 08/20/2018 [10981933] [18−71705] (Kranz, Erika)
	11 Main Document	44	
	11 Certification	47	
	11 AR Index	48	
10/23/2018	14 UNOPPOSED MOTION FOR A 28−DAY EXTENSION TO FILE PETITIONERS OPENING BRIEF	52	Filed (ECF) Petitioner City of Burien Unopposed Motion to extend time to file Opening brief until 11/29/2018. Date of service: 10/23/2018. [11057128] [18−71705] (Adams, Matthew)
10/23/2018	15 Brief Extension Order	57	Filed clerk order (Deputy Clerk: SM): Granting Unopposed Motion [14] to extend time to file brief filed by Petitioner City of Burien Petitioner opening brief due 11/29/2018 for City of Burien. Respondent brief due 12/31/2018 for Daniel K. Elwell and Federal Aviation Administration. The optional reply brief is due 21 days after service of the answering brief. [11057806] (SAM)
11/01/2018	16		Filed (ECF) Respondents FAA and Daniel K. Elwell agency certified list. Date of service: 11/01/2018 [11068801] [18−71705] (Kranz, Erika)
	16 Main Document	58	
	16 Additional Document	59	
11/30/2018	18		Submitted (ECF) excerpts of record. Submitted by Petitioner City of Burien. Date of service: 11/29/2018. [11104168] [18−71705]−−[COURT UPDATE: Attached Volume 2. 11/30/2018 by LA] (Adams, Matthew)
	18 ER Vol 1	63	
	18 ER Vol 2	218	
11/30/2018	19 Main Document	364	Filed (ECF) Petitioner City of Burien Motion to supplement record on appeal. Date of service: 11/29/2018. [11104169] [18−71705] (Adams, Matthew)
11/30/2018	20		Submitted (ECF) Opening Brief for review. Submitted by Petitioner City of Burien. Date of service: 11/29/2018. [11104170] [18−71705]−−[COURT UPDATE: Attached corrected brief (extracted from [21]). 12/03/2018 by LA] (Adams, Matthew)
	20 Main Document	623	
	20 Addendum	660	
	20 Standing Declaration	677	
11/30/2018	23 Corrected Petitioner's Motion to Correct Record, or in the alternative, to Consi	682	Filed (ECF) Petitioner City of Burien Corrected Motion to supplement record on appeal. Date of service: 11/30/2018. [11105774] [18−71705] (Adams, Matthew)
12/03/2018	24 Main Document	942	Filed (ECF) Petitioner City of Burien Motion to file substitute or corrected brief. Date of service: 12/03/2018. [11107957] [18−71705] (Adams, Matthew)
12/07/2018	25 Main Document	946	Filed clerk order (Deputy Clerk: SM): Petitioner’s motion (Docket Entry No. [23]) to supplement the record, the attached proposed supplemental exhibits, and any related responses are referred for resolution to the panel assigned to consider the merits of this case. Any discussion of the proposed supplemental exhibits in the parties’ briefs may be stricken or disregarded if the merits panel denies petitioner’s motion to supplement the record. Petitioner’s unopposed motion (Docket Entry No. [24]) to file a corrected opening brief is granted. The Clerk will strike the opening brief submitted at Docket Entry No. [17]. The

			Clerk will file the excerpts of record and opening brief submitted at Docket Entry Nos. [18] and [20]. The answering brief is due 30 days after the date of this order. The optional reply brief is due within 21 days after service of the answering brief. Petitioner's motion (Docket Entry No. [19]) is denied as moot. [11114557] (OC)
12/07/2018	26 ECF Brief and Excerpts Filed Order	948	Filed clerk order: The opening brief [20] submitted by City of Burien is filed. The standing declaration attached to the brief is lodged for such consideration as the merits panel deems appropriate. Within 7 days of the filing of this order, filer is ordered to file 7 copies of the brief in paper format, accompanied by certification (attached to the end of each copy of the brief) that the brief is identical to the version submitted electronically. Cover color: blue. The Court has reviewed the excerpts of record [18] submitted by City of Burien. Within 7 days of this order, filer is ordered to file 4 copies of the excerpts in paper format securely bound on the left side, with white covers. The paper copies shall be submitted to the principal office of the Clerk. [11114626] (LA)
12/10/2018	27 Main Document	950	Filed (ECF) Respondents FAA and Daniel K. Elwell response opposing motion ([23] Motion (ECF Filing), [23] Motion (ECF Filing)). Date of service: 12/10/2018. [11115194] [18−71705] (Kranz, Erika)
12/12/2018	28		Filed (ECF) Respondent FAA agency certified list. Date of service: 12/12/2018 [11118501] [18−71705] (Kranz, Erika)
	28 Additional Document	963	
	28 Additional Document	966	
	28 Additional Document	967	
12/17/2018	31 Main Document	971	Filed (ECF) Petitioner City of Burien reply to response (motion to supplement record on appeal,). Date of service: 12/17/2018. [11123476] [18−71705] (Adams, Matthew)
01/17/2019	34 Main Document	982	Filed (ECF) Respondents FAA and Daniel K. Elwell Unopposed Motion to stay appellate proceedings. Date of service: 01/17/2019. [11156606] [18−71705] (Kranz, Erika)
01/28/2019	35 Main Document	987	Filed (ECF) Respondent FAA Correspondence: Notice Regarding Unopposed Motion for a Stay of Briefing in Light of Lapse of Appropriations. Date of service: 01/28/2019 [11168627] [18−71705] (Kranz, Erika)
01/31/2019	36 Main Document	990	Filed clerk order (Deputy Clerk: SM): Respondent's request (Docket Entry No. [35]) to reset the briefing schedule is granted. The answering brief is now due March 12, 2019. The optional reply brief is due within 21 days after service of the answering brief.Respondent's unopposed motion (Docket Entry No. [34]) to stay appellate proceedings is denied as moot. [11174127] (AF)
03/12/2019	37 Main Document	991	Submitted (ECF) Answering Brief for review. Submitted by Respondents Daniel K. Elwell and FAA. Date of service: 03/12/2019. [11225024] [18−71705] (Kranz, Erika)

03/12/2019	38 ER Vol 1	1060	Submitted (ECF) supplemental excerpts of record. Submitted by Respondents Daniel K. Elwell and FAA. Date of service: 03/12/2019. [11225038] [18−71705] (Kranz, Erika)
03/13/2019	39 ECF Brief and Excerpts Filed Order	1085	Filed clerk order: The answering brief [37] submitted by Daniel K. Elwell and FAA is filed. Within 7 days of the filing of this order, filer is ordered to file 7 copies of the brief in paper format, accompanied by certification (attached to the end of each copy of the brief) that the brief is identical to the version submitted electronically. Cover color: red. The Court has reviewed the supplemental excerpts of record [38] submitted by Daniel K. Elwell and FAA. Within 7 days of this order, filer is ordered to file 4 copies of the excerpts in paper format securely bound on the left side, with white covers. The paper copies shall be submitted to the principal office of the Clerk. [11226213] (LA)
03/26/2019	42 Main Document	1087	Filed (ECF) Petitioner City of Burien Unopposed Motion for miscellaneous relief [Unopposed Motion for a 21−Day Extension to File Petitioner's Reply Brief]. Date of service: 03/26/2019. [11242850] [18−71705] (Adams, Matthew)
03/26/2019	43 Reply Brief Extension Order	1097	Filed clerk order (Deputy Clerk: SM): Granting Unopposed Motion [42] filed by Petitioner City of Burien to extend time to file reply brief. The optional reply brief is due April 23, 2019. [11243142] (SAM)
04/23/2019	44 Main Document	1098	Submitted (ECF) Reply Brief for review. Submitted by Petitioner City of Burien. Date of service: 04/23/2019. [11274623] [18−71705] (Adams, Matthew)
04/24/2019	45 ER Vol 1	1134	Submitted (ECF) further excerpts of record. Submitted by Petitioner City of Burien. Date of service: 04/23/2019. [11274627] [18−71705] (Adams, Matthew)
04/24/2019	46 ECF Brief and Excerpts Filed Order	1200	Filed clerk order: The reply brief [44] submitted by City of Burien is filed. Within 7 days of the filing of this order, filer is ordered to file 7 copies of the brief in paper format, accompanied by certification (attached to the end of each copy of the brief) that the brief is identical to the version submitted electronically. Cover color: gray. The Court has reviewed the further excerpts of record [45] submitted by City of Burien. Within 7 days of this order, filer is ordered to file 4 copies of the excerpts in paper format securely bound on the left side, with white covers. The paper copies shall be submitted to the principal office of the Clerk. [11274823] (KWG)
07/18/2019	50 Main Document	1202	Filed (ECF) Petitioner City of Burien citation of supplemental authorities. Date of service: 07/18/2019. [11368932] [18−71705] (Adams, Matthew)
08/07/2019	51 Main Document	1284	Filed (ECF) Respondents FAA and Daniel K. Elwell citation of supplemental authorities. Date of service: 08/07/2019. [11389992] [18−71705] (Kranz, Erika)

10/23/2019	56 Main Document	1287	Filed Audio recording of oral argument. **Note:** Video recordings of public argument calendars are available on the Court's website, at http://www.ca9.uscourts.gov/media/ [11475981] (SB)
11/27/2019	57		FILED MEMORANDUM DISPOSITION WITH DISSENT (SANDRA S. IKUTA, MARK J. BENNETT and JED S. RAKOFF) We also GRANT the Petitioner's motion to correct the record as to Exhibit1 and motion for consideration of extra−record evidence as to Exhibit 5. We DENYthe motion for consideration of extra−record evidence as to Exhibits 2, 3, 4, 6, and7. DENIED IN PART, GRANTED AND REMANDED IN PART. FILED AND ENTERED JUDGMENT. [11514516] (MM)
	57 Memorandum	1288	
	57 Post Judgment Form	1306	
11/27/2019	58 Costs Award Order	1310	Filed clerk order (Deputy Clerk: MM): At the direction of the Court, the parties shall bear their own costs. [11515210] (MM)
01/21/2020	59 Mandate Order	1311	MANDATE ISSUED.(SSI, MJB and JSR) [11567272] (CW)
01/27/2020	60 Request for Publication	1312	Filed (ECF) Petitioner City of Burien Correspondence: Request for Publication. Date of service: 01/27/2020 [11575841] [18−71705] (Adams, Matthew)
01/27/2020	61 Motion to Recall Mandate	1314	Filed (ECF) Petitioner City of Burien Motion to recall the mandate. Date of service: 01/27/2020. [11575843] [18−71705] (Adams, Matthew)
01/28/2020	62 Main Document	1318	Filed order (SANDRA S. IKUTA, MARK J. BENNETT and JED S. RAKOFF): Petitioner's motion to recall the mandate (Dkt. [61]) and request forpublication (Dkt. [60]) are DENIED. [11576726] (AF)

Office of the Clerk
United States Court of Appeals for the Ninth Circuit
Post Office Box 193939
San Francisco, California 94119-3939
415-355-8000

Molly C. Dwyer
Clerk of Court

June 11, 2018

No.: 18-71705
Short Title: City of Burien v. FAA, et al

Dear Petitioner/Counsel

Your Petition for Review has been received in the Clerk's office of the United States Court of Appeals for the Ninth Circuit. The U.S. Court of Appeals docket number shown above has been assigned to this case. You must indicate this Court of Appeals docket number whenever you communicate with this court regarding this case.

The due dates for filing the parties' briefs and otherwise perfecting the petition have been set by the enclosed "Time Schedule Order," pursuant to applicable FRAP rules. These dates can be extended only by court order. Failure of the petitioner to comply with the time schedule order will result in automatic dismissal of the petition. 9th Cir. R. 42-1.

UNITED STATES COURT OF APPEALS

FOR THE NINTH CIRCUIT

FILED

JUN 11 2018

MOLLY C. DWYER, CLERK
U.S. COURT OF APPEALS

CITY OF BURIEN,

Petitioner,

v.

DANIEL K. ELWELL, Acting Administrator; FEDERAL AVIATION ADMINISTRATION,

Respondents.

No. 18-71705

FAA No.
Federal Aviation Administration

TIME SCHEDULE ORDER

The parties shall meet the following time schedule.

Tue., June 19, 2018	Mediation Questionnaire due. If your registration for Appellate ECF is confirmed after this date, the Mediation Questionnaire is due within one day of receiving the email from PACER confirming your registration.
Thu., August 30, 2018	Petitioner's opening brief and excerpts of record shall be served and filed pursuant to FRAP 31 and 9th Cir. R. 31-2.1.
Mon., October 1, 2018	Respondents' answering brief and excerpts of record shall be served and filed pursuant to FRAP 31 and 9th Cir. R. 31-2.1.

The optional petitioner's reply brief shall be filed and served within 21 days of service of the respondents' brief, pursuant to FRAP 31 and 9th Cir. R. 31-2.1.

Failure of the petitioner to comply with the Time Schedule Order will result in automatic dismissal of the appeal. See 9th Cir. R. 42-1.

FOR THE COURT:

MOLLY C. DWYER
CLERK OF COURT

By: Wendy Lam
Deputy Clerk
Ninth Circuit Rule 27-7

Case No. _____

IN THE UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

CITY OF BURIEN, WASHINGTON

Petitioner,

v.

FEDERAL AVIATION ADMINISTRATION;
DANIEL K. ELWELL, Acting Administrator,
Federal Aviation Administration

Respondents.

PETITION FOR REVIEW

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Attorneys for Petitioner CITY OF BURIEN.

Pursuant to 49 U.S.C. § 46110 and Rule 15 of the Federal Rules of Appellate Procedure, the City of Burien, Washington ("City"), an environmental justice community within the meaning of Executive Order 12898, hereby petitions the United States Court of Appeals for the Ninth Circuit for review of a final decision by the Federal Aviation Administration ("FAA") to implement certain flight departure procedures (the "New Route") at Seattle-Tacoma International Airport without conducting required environmental review or reasonably considering alternatives that would have fewer significant adverse impacts on the City and its residents.

In 2016, without notice to the City or its residents, the FAA began implementing the New Route, resulting in significant impacts to parks, schools, residential neighborhoods, and other noise-sensitive areas. On February 14, 2017, the City filed a Petition for Review in this Court, alleging that the FAA had not addressed the environmental consequences of the New Route (Case No. 17-70438). The FAA then withdrew the New Route.

Over the next twelve months, the FAA purported to review the environmental consequences of the New Route and alternatives thereto. The City sought to play a constructive role during this environmental review process, and, to that end, it identified the significant environmental consequences of the New Route and proposed several less-harmful alternatives. The FAA responded that the City's

proposals were inconsistent with unpublished agency technical criteria. The City requested that the FAA identify all relevant criteria, so that its proposals could be refined. The FAA identified several criteria, and the City amended its proposals to comply with each of them. The City also offered to further revise its proposals if and as necessary.

The City was not alone in disputing the FAA's environmental analysis. More than 700 commenters—including federal elected officials, non-governmental organizations, and community members—identified methodological and analytical flaws in the FAA's environmental analysis, presented evidence that a thorough environmental review was necessary, and urged the agency to consider less-harmful alternatives to the New Route.

The FAA nonetheless (i) refused to conduct an Environmental Assessment or Environmental Impact Statement; (ii) approved the New Route; and (iii) arbitrarily and capriciously concluded that the City's proposed alternatives were infeasible even though they met each of the technical criteria identified by the agency. The FAA published its decision on April 16, 2018.

Before filing this Petition for Review, counsel for the City conferred with counsel for the FAA to discuss the most efficient way to proceed with judicial review. During those discussions, counsel for the FAA took the position that (i) the April 16, 2018, New Route approval was "entirely new"; (ii) amendment of the

City's Petition for Review in Case No. 17-70438 would therefore be inappropriate; and (iii) in the agency's view, the City must file a new Petition for Review.

Dated: June 11, 2018

Respectfully submitted,

DENTONS US LLP

By /s/ *Matthew G. Adams*
Matthew G. Adams
Jessica L. Duggan
Attorneys for Petitioners

RULE 26.1 DISCLOSURE STATEMENT

Petitioner, by and through its counsel, hereby discloses that the City of Burien, Washington, is a municipal governmental body under the laws of the State of Washington. The City is not a "nongovernmental corporate party," and therefore is not required to file a corporate disclosure statement pursuant to Federal Rule of Appellate Procedure 26.1(a).

Dated: June 11, 2018

Respectfully submitted,

DENTONS US LLP

By /s/ *Matthew G. Adams*
Matthew G. Adams
Jessica L. Duggan
Attorneys for Petitioners

CERTIFICATE OF SERVICE

I hereby certify, in accordance with Fed. Rule of App. Proc. 15(c)(1), that a true copy of the foregoing *Petition for Review* was served by US mail on this 11th day of June, 2018 on the following:

Daniel Elwell
Acting Administrator
Federal Aviation Administration
Room E1010
800 Independence Avenue, SW
Washington, D.C. 20591
(202) 267-3111

Mary Pat Marcus

107623869\V-2

United States Court of Appeals
for the Ninth Circuit

P.O. Box 31478
Billings, Montana 59107-1478

CHAMBERS OF
SIDNEY R. THOMAS
CHIEF JUDGE

TEL: (406) 373-3200
FAX: (406) 373-3250

Dear Counsel:

I write to introduce you to the court's mediation program. The court offers you and your clients professional mediation services, at no cost, to help resolve disputes quickly and efficiently and to explore the development of more satisfactory results than can be achieved from continued litigation. Each year the mediators facilitate the resolution of hundreds of cases, from the most basic contract and tort actions to the most complex cases involving multiple parties, numerous pieces of litigation and important issues of public policy.

The eight circuit mediators, all of whom work exclusively for the court, are highly experienced attorneys from a variety of practices; all have extensive training and experience in negotiation, appellate mediation, and Ninth Circuit practice and procedure. Although the mediators are court employees, the court has adopted strict confidentiality rules and practices to ensure that what goes on in mediation stays in mediation. See Circuit Rule 33-1.

The first step in the mediation process is case selection. To assist the mediators in the case selection process, appellants/petitioners must file a completed Mediation Questionnaire within 7 days of the docketing of the case. See Circuit Rules 3-4, and 15-2. Appellees may also fill out and file a questionnaire. The questionnaire with filing instructions *accompanies this letter and is also* available at www.ca9.uscourts.gov/mediation/forms.php. All counsel are also invited to submit, by e-mail to ca09_mediation@ca9.uscourts.gov, additional, confidential information that might assist the mediators in the case selection process.

In most cases, the mediator will schedule a settlement assessment conference, with counsel only, to determine whether the case is suitable for mediation. Be assured that participation in the mediation program will not slow down disposition of your appeal. Mediation discussions are not limited to the issues on appeal. The discussions can involve other cases and may include individuals who are not parties to the litigation, if doing so enables the parties to reach a global settlement.

Further information about the mediation program may be found on the court's website: www.ca9.uscourts.gov/mediation/. Please address questions directly to the Mediation Program at 415-355-7900 or ca09mediation@ca9.uscourts.gov.

Sincerely,

Sidney Thomas

UNITED STATES COURT OF APPEALS FOR THE NINTH CIRCUIT

Circuit Mediation Office
Phone (415) 355-7900 Fax (415) 355-8566
http://www.ca9.uscourts.gov/mediation

MEDIATION QUESTIONNAIRE

This form is available in a fillable version at *http://cdn.ca9.uscourts.gov/datastore/uploads/forms/Mediation_Questionnaire.pdf*.

The purpose of this questionnaire is to help the court's mediators provide the best possible mediation service in this case; it serves no other function. Responses to this questionnaire are ***not*** confidential. Appellants/Petitioners must electronically file this document within 7 days of the docketing of the case. 9th Cir. R. 3-4 and 15-2. Appellees/Respondents may file the questionnaire, but are not required to do so.

9th Circuit Case Number(s):

District Court/Agency Case Number(s):

District Court/Agency Location:

Case Name: v.

If District Court, docket entry number(s) of order(s) appealed from:

Name of party/parties submitting this form:

Briefly describe the dispute that gave rise to this lawsuit.

Briefly describe the result below and the main issues on appeal.

(Continue to next page)

Describe any proceedings remaining below or any related proceedings in other tribunals.

Provide any other thoughts you would like to bring to the attention of the mediator.

*Any party may provide additional information **in confidence** directly to the Circuit Mediation Office at ca09_mediation@ca9.uscourts.gov. Provide the case name and Ninth Circuit case number in your message. Additional information might include level of interest in including this case in the mediation program, the case's settlement history, issues beyond the litigation that the parties might address in a settlement context, or future events that might affect the parties' willingness or ability to mediate the case.*

CERTIFICATION OF COUNSEL

I certify that:

☐ a current service list with telephone and fax numbers and email addresses is attached (see 9th Circuit Rule 3-2).

☐ I understand that failure to provide the Court with a completed form and service list may result in sanctions, including dismissal of the appeal.

Signature

("s/" plus attorney name may be used in lieu of a manual signature on electronically-filed documents.)

Counsel for

***How to File*:** Complete the form and then convert the filled-in form to a static PDF (File > Print > PDF Printer or any PDF Creator). To file, log into Appellate ECF and select File Mediation Questionnaire. (*Use of the Appellate ECF system is mandatory for all attorneys filing in this Court, unless they are granted an exemption from using the system.)*

UNITED STATES COURT OF APPEALS for the NINTH CIRCUIT

Office of the Clerk

After Opening a Case – Counseled Non-Immigration Agency Cases

(revised April 2016)

Court Address – San Francisco Headquarters

Mailing Address for U.S. Postal Service	*Mailing Address for Overnight Delivery (FedEx, UPS, etc.)*	*Street Address*
Office of the Clerk James R. Browning Courthouse U.S. Court of Appeals P.O. Box 193939 San Francisco, CA 94119-3939	Office of the Clerk James R. Browning Courthouse U.S. Court of Appeals 95 Seventh Street San Francisco, CA 94103-1526	95 Seventh Street San Francisco, CA 94103

Court Addresses – Divisional Courthouses

Pasadena	*Portland*	*Seattle*
Richard H. Chambers Courthouse 125 South Grand Avenue Pasadena, CA 91105	The Pioneer Courthouse 700 SW 6th Ave, Ste 110 Portland, OR 97204	William K. Nakamura Courthouse 1010 Fifth Avenue Seattle, WA 98104

Court Website – www.ca9.uscourts.gov

The Court's website contains the Court's Rules and General Orders, information about electronic filing of documents, answers to frequently asked questions, directions to the courthouses, forms necessary to gain admission to the bar of the Court, opinions and memoranda, live streaming of oral arguments, links to practice manuals, and an invitation to join our Pro Bono Program.

Court Phone List

Main Phone Number	**(415) 355-8000**
Attorney Admissions	(415) 355-7800
Calendar Unit	(415) 355-8190
Docketing	(415) 355-7840
Death Penalty	(415) 355-8197
Electronic Filing – CM/ECF	Submit form at http://www.ca9.uscourts.gov/cmecf/feedback
Library	(415) 355-8650
Mediation Unit	(415) 355-7900
Motions Attorney Unit	(415) 355-8020
Procedural Motions Unit	(415) 355-7860
Records Unit	(415) 355-7820
Divisional Court Offices:	
Pasadena	(626) 229-7250
Portland	(503) 833-5300
Seattle	(206) 224-2200

Electronic Filing - CM/ECF

The Ninth Circuit's CM/ECF (Case Management/Electronic Case Files) system is mandatory for all attorneys filing in this Court, unless they are granted an exemption. All non-exempted attorneys who appear in an ongoing case are required to register for and to use CM/ECF. Registration and information about CM/ECF is available on the Court's website at www.ca9.uscourts.gov under *Electronic Filing–CM/ECF*. Read the Circuit Rules, especially Ninth Circuit Rule 25-5, for guidance on filing documents electronically via CM/ECF, and see the CM/ECF User Guide for a complete list of the available types of filing events.

Rules of Practice

The Federal Rules of Appellate Procedure (Fed. R. App. P.), the Ninth Circuit Rules (9th Cir. R.) and the General Orders govern practice before this Court. The rules are available on the Court's website at www.ca9.uscourts.gov under *Rules*.

Practice Resources

The Appellate Lawyer Representatives' Guide to Practice in the United States Court of Appeals for the Ninth Circuit is available on the Court's website www.ca9.uscourts.gov at *Guides and Legal Outlines* > *Appellate Practice Guide*. The Court provides other resources in *Guides and Legal Outlines*.

Admission to the Bar of the Ninth Circuit

All attorneys practicing before the Court must be admitted to the Bar of the Ninth Circuit. Fed. R. App. P. 46(a); 9th Cir. R. 46-1.1 & 46-1.2.

For instructions on how to apply for bar admission, go to www.ca9.uscourts.gov and click on the *Attorneys* tab > *Attorney Admissions* > *Instructions*.

Notice of Change of Address

Counsel who are registered for CM/ECF must update their personal information, including street addresses and email addresses, online at: https://pacer.psc.uscourts.gov/pscof/login.jsf 9th Cir. R. 46-3.

Counsel who have been granted an exemption from using CM/ECF must file a written change of address with the Court. 9th Cir. R. 46-3.

Payment of Fees

The $500.00 filing fee or a motion to proceed in forma pauperis shall accompany the petition. 9th Cir. R. 3-1.

A motion to proceed in forma pauperis must be supported by the affidavit of indigency found at Form 4 of the Federal Rules of Appellate Procedure, available at the Court's website, www.ca9.uscourts.gov, under *Forms*.

Failure to satisfy the fee requirement or to apply to proceed without payment of fees will result in the petition's dismissal. 9th Cir. R. 42-1.

Motions Practice

Following are some of the basic points of motion practice, governed by Fed. R. App. P. 27 and 9th Cir. R. 27-1 through 27-14.

- Neither a notice of motion nor a proposed order is required. Fed. R. App. P. 27(a)(2)(C)(ii), (iii).
- Motions may be supported by an affidavit or declaration. 28 U.S.C. § 1746.
- Each motion should provide the position of the opposing party. Circuit Advisory Committee Note to Rule 27-1(5); 9th Cir. R. 31-2.2(b)(6).
- A response to a motion is due 10 days from the service of the motion. Fed. R. App. P. 27(a)(3)(A); Fed. R. App. P. 26(c). The reply is due 7 days from service of the response. Fed. R. App. P. 27(a)(4); Fed. R. App. P. 26(c).
- A response requesting affirmative relief must include that request in the caption. Fed. R. App. P. 27(a)(3)(B).
- A motion filed after a case has been scheduled for oral argument, has been argued, is under submission or has been decided by a panel, must include on the initial page and/or cover the date of argument, submission or decision and, if known, the names of the judges on the panel. 9th Cir. R. 25-4.

Emergency or Urgent Motions

All emergency and urgent motions must conform with the provisions of 9th Cir. R. 27-3. Note that a motion requesting procedural relief (e.g., an extension of time to file a brief) is *not* the type of matter contemplated by 9th Cir. R. 27-3. Circuit Advisory Committee Note to 27-3(3).

Prior to filing an emergency motion, the moving party *must* contact an attorney in the Motions Unit in San Francisco at (415) 355-8020.

When it is absolutely necessary to notify the Court of an emergency outside of standard office hours, the moving party shall call (415) 355-8000. Keep in mind that this line is for true emergencies that cannot wait until the next business day (e.g., an imminent execution or removal from the United States).

Briefing Schedule

The Court sets the briefing schedule at the time the petition is docketed.

Certain motions (e.g., a motion for dismissal) automatically stay the briefing schedule. 9th Cir. R. 27-11.

The opening and answering brief due dates are not subject to the additional time described in Fed. R. App. P. 26(c). 9th Cir. R. 31-2.1. The early filing of petitioner's opening brief does not advance the due date for respondent's answering brief. *Id*.

Extensions of Time to file a Brief

Streamlined Request
Subject to the conditions described at 9th Cir. R. 31-2.2(a), you may request one streamlined extension of up to 30 days from the brief's existing due date. Submit your request via CM/ECF using the "File Streamlined Request to Extend Time to File Brief" event on or before your brief's existing due date. No form or written motion is required.

Written Extension
Requests for subsequent extensions or extensions of more than 30 days will be granted only upon a written motion supported by a showing of diligence and substantial need. This motion shall be filed at least 7 days before the due date for the brief. The motion shall be accompanied by an affidavit or declaration that includes all of the information listed at 9th Cir. R. 31-2.2(b).

The Court will ordinarily adjust the schedule in response to an initial motion. Circuit Advisory Committee Note to Rule 31-2.2. The Court expects that the brief will be filed within the requested period of time. *Id*.

Contents of Briefs and Record

The required components of a brief are set out at Fed. R. App. P. 28 and 32, and 9th Cir. R. 28-2, 32-1 and 32-2.

The content and filing of the record are governed by Fed. R. App. P. 16(a) and 17. If respondent does not file the record or certified list by the specified date, petitioner may move to amend the briefing schedule.

After the electronically submitted brief has been reviewed, the Clerk will request 7 paper copies of the brief that are identical to the electronic version. 9th Cir. R. 31-1. Do not submit paper copies until directed to do so.

Excerpts of Record

The Court requires Excerpts of Record rather than an Appendix. 9th Cir. R. 30-1.1. Please review 9th Cir. R. 17-1.3 through 17-1.6 to see a list of the specific contents and format. For Excerpts that exceed 75 pages, the first volume must comply with 9th Cir. R. 17-1.6 and 30-1.6(a). Excerpts exceeding 300 pages must be filed in multiple volumes. 9th Cir. R. 30-1.6(a).

Respondent may file supplemental Excerpts, and petitioner may file further Excerpts. 9th Cir. R. 17-1.7; 17-1.8; 30-1.7 and 30-1.8. If you are a respondent responding to a pro se brief that did not come with Excerpts, then your Excerpts need only include the contents set out at 9th Cir. R. 30-1.7.

Excerpts must be submitted in PDF format in CM/ECF on the same day the filer submits the brief. The filer shall serve a paper copy of the Excerpts on any party not registered for CM/ECF.

If the Excerpts contain sealed materials, you must submit the sealed documents electronically in a separate volume in a separate transaction from the unsealed volumes, along with a motion to file under seal. 9th Cir. R. 27-13(e). Sealed filings must be served on all parties by mail, or if mutually agreed by email, rather than through CM/ECF noticing.

After electronic submission, the Court will direct the filer to file 4 separately-bound paper copies of the excerpts of record with white covers.

Mediation Program

Mediation Questionnaires are required in all counseled agency cases except those cases seeking review of a Board of Immigration Appeals decision. 9th Cir. R.

15-2.

The Mediation Questionnaire is available on the Court's website at www.ca9.uscourts.gov under *Forms*. The Mediation Questionnaire should be filed within 7 days of the docketing of the petition. The Mediation Questionnaire is used only to assess settlement potential.

If you are interested in requesting a conference with a mediator, you may call the Mediation Unit at (415) 355-7900, email ca09_mediation@ca9.uscourts.gov or make a written request to the Chief Circuit Mediator. You may request conferences confidentially. More information about the Court's mediation program is available at http://www.ca9.uscourts.gov/mediation.

Oral Hearings

Approximately 14 weeks before a case is set for oral hearing, the parties are notified of the hearing dates and locations and are afforded 3 days from the date of those notices to inform the Court of any conflicts. Notices of the actual calendars are then distributed approximately 10 weeks before the hearing date.

The Court will change the date or location of an oral hearing only for good cause, and requests to continue a hearing filed within 14 days of the hearing will be granted only upon a showing of exceptional circumstances. 9th Cir. R. 34-2.

Oral hearing will be conducted in all cases unless all members of the panel agree that the decisional process would not be significantly aided by oral argument. Fed. R. App. P. 34(a)(2).

Oral arguments are live streamed to You Tube and can be accessed on the Court's website.

Ninth Circuit Appellate Lawyer Representatives
APPELLATE MENTORING PROGRAM

1. Purpose

The Appellate Mentoring Program is intended to provide mentoring on a voluntary basis to attorneys who are new to federal appellate practice or would benefit from guidance at the appellate level. In addition to general assistance regarding federal appellate practice, the project will provide special focus on two substantive areas of practice - immigration law and habeas corpus petitions. Mentors will be volunteers who have experience in immigration, habeas corpus, and/or appellate practice in general. The project is limited to counseled cases.

2. Coordination, recruitment of volunteer attorneys, disseminating information about the program, and requests for mentoring

Current or former Appellate Lawyer Representatives (ALRs) will serve as coordinators for the Appellate Mentoring Program. The coordinators will recruit volunteer attorneys with appellate expertise, particularly in the project's areas of focus, and will maintain a list of those volunteers. The coordinators will ask the volunteer attorneys to describe their particular strengths in terms of mentoring experience, substantive expertise, and appellate experience, and will maintain a record of this information as well.

The Court will include information about the Appellate Mentoring Program in the case opening materials sent to counsel and will post information about it on the Court's website. Where appropriate in specific cases, the Court may also suggest that counsel seek mentoring on a voluntary basis.

Counsel who desire mentoring should contact the court at mentoring@ca9.uscourts.gov, and staff will notify the program coordinators. The coordinators will match the counsel seeking mentoring with a mentor, taking into account the mentor's particular strengths.

3. The mentoring process

The extent of the mentor's guidance may vary depending on the nature of the case, the mentee's needs, and the mentor's availability. In general, the mentee should initiate contact with the mentor, and the mentee and mentor should determine together how best to proceed. For example, the areas of guidance may range from

basic questions about the mechanics of perfecting an appeal to more sophisticated matters such as effective research, how to access available resources, identification of issues, strategy, appellate motion practice, and feedback on writing.

4. Responsibility/liability statement

The mentee is solely responsible for handling the appeal and any other aspects of the client's case, including all decisions on whether to present an issue, how to present it in briefing and at oral argument, and how to counsel the client. By participating in the program, the mentee agrees that the mentor shall not be liable for any suggestions made. In all events, the mentee is deemed to waive and is estopped from asserting any claim for legal malpractice against the mentor.

The mentor's role is to provide guidance and feedback to the mentee. The mentor will not enter an appearance in the case and is not responsible for handling the case, including determining which issues to raise and how to present them and ensuring that the client is notified of proceedings in the case and receives appropriate counsel. The mentor accepts no professional liability for any advice given.

5. Confidentiality statement

The mentee alone will have contact with the client, and the mentee must maintain client confidences, as appropriate, with respect to non-public information.

RULE 26.1 DISCLOSURE STATEMENT

Petitioner, by and through its counsel, hereby discloses that the City of Burien, Washington, is a municipal governmental body under the laws of the State of Washington. The City is not a "nongovernmental corporate party," and therefore is not required to file a corporate disclosure statement pursuant to Federal Rule of Appellate Procedure 26.1(a).

Dated: June 11, 2018

Respectfully submitted,

DENTONS US LLP

By /s/ *Matthew G. Adams*
Matthew G. Adams
Jessica L. Duggan
Attorneys for Petitioners

Office of the Clerk
UNITED STATES COURT OF APPEALS FOR THE NINTH CIRCUIT
P.O. Box 193939
San Francisco, California 94119-3939

Molly C. Dwyer
Clerk of Court

(415) 355-8000

NOTICE OF APPEARANCE OF COUNSEL or RE-ASSIGNMENT OF COUNSEL WITHIN THE SAME OFFICE

NOTE: For readability and security, print the filled-in form to PDF *(File > Print > PDF Printer/Creator)*. You may also fill in the form, print it, and then scan the filled-in form to a PDF file.

9th Circuit Case Number*(s)* 18-71705

Case Name: City of Burien v. Federal Aviation Administration

List the name(s) of the party or parties you are representing: Federal Aviation Administration; Daniel K. Elwell

☐ Appellant ☐ Petitioner ☐ Amicus Curiae ☐ Appellant/Cross-Appellee

☐ Appellee ☒ Respondent ☐ Intervenor ☐ Appellee/Cross-Appellant

If this case has been re-assigned to you from another attorney in your office *(i.e., the Federal Public Defenders Office, OIL, or a law firm)*, indicate who you are replacing. Provide the name of counsel only if the attorney is no longer on the case.

I am replacing *(name of counsel)*:

Name: Erika Kranz

Firm/ Office: U.S. Department of Justice, Environment & Natural Resources Division

Address: P.O. Box 7415 Ben Franklin Station

City: Washington State: DC Zip Code: 20044

Email: erika.kranz@usdoj.gov Re-enter Email: erika.kranz@usdoj.gov

Phone Number *(including area code)*: (202) 307-6105

Signature *(use "s/" format)*: s/Erika Kranz Date: 6/12/18

9th Circuit Case Number(s) 18-71705

NOTE: For readability and security, print the filled-in form to PDF *(File > Print > PDF Printer/Creator)*.
You may also fill in the form, print it, and then scan the filled-in form to a PDF file.

****

CERTIFICATE OF SERVICE
When All Case Participants are Registered for the CM/ECF System

I hereby certify that I electronically filed the foregoing with the Clerk of the Court for the United States Court of Appeals for the Ninth Circuit by using the CM/ECF system

on *(date)* June 12, 2018 .

I certify that all participants in the case are registered CM/ECF users and that service will be accomplished by the CM/ECF system.

Signature *(use "s/" format)* s/Erika Kranz

****

CERTIFICATE OF SERVICE
When Not All Case Participants are Registered for the CM/ECF System

I hereby certify that I electronically filed the foregoing with the Clerk of the Court for the United States Court of Appeals for the Ninth Circuit by using the CM/ECF system

on *(date)* .

Participants in the case who are registered CM/ECF users will be served by the CM/ECF system.

I further certify that some of the participants in the case are not registered CM/ECF users. I have mailed the foregoing document by First-Class Mail, postage prepaid, or have dispatched it to a third party commercial carrier for delivery within 3 calendar days to the following non-CM/ECF participants:

Signature *(use "s/" format)*

UNITED STATES COURT OF APPEALS FOR THE NINTH CIRCUIT

Circuit Mediation Office
Phone (415) 355-7900 Fax (415) 355-8566
http://www.ca9.uscourts.gov/mediation

MEDIATION QUESTIONNAIRE

The purpose of this questionnaire is to help the court's mediators provide the best possible mediation service in this case; it serves no other function. Responses to this questionnaire are ***not*** confidential. Appellants/Petitioners must electronically file this document within 7 days of the docketing of the case. 9th Cir. R. 3-4 and 15-2. Appellees/Respondents may file the questionnaire, but are not required to do so.

9th Circuit Case Number(s): 18-71705

District Court/Agency Case Number(s): n/a

District Court/Agency Location: Federal Aviation Administration

Case Name: City of Burien v. Federal Aviation Administration

If District Court, docket entry number(s) of order(s) appealed from: n/a

Name of party/parties submitting this form: City of Burien

Please briefly describe the dispute that gave rise to this lawsuit.

The City of Burien is located adjacent to SeaTac International Airport (SeaTac). In 2016, without notice and without completing an Environmental Assessment (EA), an Environmental Impact Statement (EIS), or any other National Environmental Policy Act (NEPA) analysis, the Federal Aviation Administration (FAA) began experimenting with a new procedure for north flow departures (New Route). The New Route sends certain aircraft at low altitude over the City, resulting in significant noise and air quality impacts. The City filed a Petition for Review in this Court, and the FAA promptly withdrew the New Route. On April 16, 2018, the FAA decided to (re) adopt the New Route.

Briefly describe the result below and the main issues on appeal.

Whether the New Route falls within any of the FAA's previously-promulgated categories of actions determined to have no possibility of a significant impact on the environmental (categorical exclusions); whether the FAA violated NEPA when it failed to prepare an EA or EIS prior to initiating the New Route; and whether the FAA's conclusion that the City's proposed alternatives were infeasible, even though they met each of the technical criteria identified by the agency, was arbitrary and capricious.

Describe any proceedings remaining below or any related proceedings in other tribunals.

On February 14, 2017, the City filed a Petition for Review in this Court alleging that the FAA had not addressed the environmental consequences of the New Route (Case No. 17-70438). The FAA then withdrew the New Route. Over the next twelve months, the FAA purported to review the environmental consequences of the New Route and alternatives thereto. The City (and others) identified the significant environmental consequences of the New Route and proposed several less-harmful alternatives. The FAA nonetheless published the New Route on April 16, 2018.

Provide any other thoughts you would like to bring to the attention of the mediator.

The City and FAA engaged in court-appointed mediation over the course of a year. During that time, the FAA purported to review the environmental consequences of the New Route and the City provided substantive comments to FAA. Although the FAA claimed to be working to incorporate the City's input into a mutually-agreeable outcome, the agency's April, 2018, decision arbitrarily and capriciously failed to do so. Notwithstanding that decision, there remain multiple solutions that would accommodate the stated objectives of all parties. And it would be in the long-term best interests of both parties - neighbors, after all - to resolve their differences by negotiation rather than litigation. If the FAA is serious about finding a negotiated resolution, the City is willing to participate in mediation.

Any party may provide additional information ***in confidence*** directly to the Circuit Mediation Office at ca09_mediation@ca9.uscourts.gov. Please provide the case name and Ninth Circuit case number in your message. Additional information might include interest in including this case in the mediation program, the case's settlement history, issues beyond the litigation that the parties might address in a settlement context, or future events that might affect the parties' willingness or ability to mediate the case.

CERTIFICATION OF COUNSEL

I certify that:

☒ a current service list with telephone and fax numbers and email addresses is attached (see 9th Circuit Rule 3-2).

☒ I understand that failure to provide the Court with a completed form and service list may result in sanctions, including dismissal of the appeal.

Signature /s/ Matthew Adams

("s/" plus attorney name may be used in lieu of a manual signature on electronically-filed documents.)

Counsel for Petitioner, City of Burien

Note: Use of the Appellate ECF system is mandatory for all attorneys filing in this Court, unless they are granted an exemption from using the system. **File this document electronically** in Appellate ECF by choosing Forms/Notices/Disclosure > File a Mediation Questionnaire.

REPRESENTATION STATEMENT

Per Ninth Circuit Rule 3-2, Petitioner hereby provides the Court with a current service list which identifies all current parties to the action along with the names, addresses and telephone numbers of their respective counsel.

Petitioner City of Burien

DENTONS US LLP
MATTHEW G. ADAMS (CA BAR # 229021)
matthew.adams@dentons.com
JESSICA L. DUGGAN (CA BAR # 271703)
jessica.duggan@dentons.com
One Market Street, Spear Tower, 24th Floor
San Francisco, California 94105
(415) 267-4000

LISA M. MARSHALL (WA BAR # 24343)
City Attorney
City of Burien
LisaM@burienwa.gov
400 SW 152nd St. Suite 300
Burien, Washington 98166
(206) 248-5535

Respondents Federal Aviation Administration; Daniel K. Elwell

ERIKA KRANZ
erika.kranz@usdoj.gov
U.S. Department of Justice,
Environment & Natural Resources
Division
Washington, D.C. 20044
(202) 307-6105

UNITED STATES COURT OF APPEALS

FOR THE NINTH CIRCUIT

FILED

JUN 28 2018

MOLLY C. DWYER, CLERK
U.S. COURT OF APPEALS

CITY OF BURIEN,

Petitioner,

v.

DANIEL K. ELWELL, Acting Administrator and FEDERAL AVIATION ADMINISTRATION,

Respondents.

No. 18-71705

FAA No.
Federal Aviation Administration

ORDER SETTING ASSESSMENT CONFERENCE

Date: August 08, 2018
Time: 11:00 a.m. Pacific Time

The Mediation Program of the Ninth Circuit Court of Appeals facilitates settlement while appeals are pending. **See** Fed. R. App. P. 33 and Ninth Circuit Rule 33-1.

The court has scheduled a telephone settlement assessment conference at the date and time listed above with counsel to explore settlement potential. Circuit Mediator Roxane G. Ashe will initiate the conference call by calling counsel shown on the attached list. Please be available for the call at least five minutes before the scheduled time.

Counsel should review the attached list and inform the Mediation Assistant by email (virna_sanchez@ca9.uscourts.gov) at least 72 hours in advance of the scheduled call of any corrections to the list, including the names of any attorneys

who will not be participating in the conference and the direct dial telephone number of any participant if it is not listed. Also, please notify the mediator immediately by email (roxane_ashe@ca9.uscourts.gov) if the dispute is settled, the appeal is dismissed or if counsel has an unavoidable scheduling conflict. Please copy all counsel on any such communications.

All discussions that take place in the context of the assessment conference are strictly confidential. **See** Circuit Rule 33-1.

For more detailed information about the assessment conference, confidentiality, the Mediation Program and its procedures generally, please see the attachment to this order and the Mediation Program web site: www.ca9.uscourts.gov/mediation.

FOR THE COURT:

Virna Sanchez
Deputy Clerk

vs/mediation

LIST OF CONFERENCE PARTICIPANTS

CITY OF BURIEN
Petitioner,

Matthew G. Adams
415-267-4000
matthew.adams@dentons.com
Dentons US LLP

v.

DANIEL K. ELWELL, Acting Administrator;et al.
Respondent,

Erika B. Kranz
erika.kranz@usdoj.gov
DOJ - U.S. Department of Justice

Agnes M. Rodriguez, Esquire
agnes.rodriguez@faa.gov
Federal Aviation Administration

UNITED STATES COURT OF APPEALS FOR THE NINTH CIRCUIT
CIRCUIT MEDIATION OFFICE
Website: **www.ca9.uscourts.gov/mediation**
Email: roxane_ashe@ca9.uscourts.gov
Phone: 415-355-7900

INFORMATION ABOUT ASSESSMENT CONFERENCES

Overview of Purpose and Participants

- The purpose of the assessment conference is to provide an opportunity for counsel and the Circuit Mediator to have a frank discussion about settlement. The mediator will explore the parties' interests in settlement and, if appropriate, work with counsel to design a process to pursue resolution of the dispute.
- The conference will be conducted by one of the eight Circuit Mediators, all of whom are court employees with extensive mediation and litigation experience. The Circuit Mediators are authorized to file orders on most procedural matters, including vacating or moving the briefing schedule.
- Counsel for all parties who intend to file briefs in the case should participate in the assessment conference. The lawyer with the closest relationship to the client should be on the call. Clients are neither expected nor required to participate in the assessment conference.
- In advance of the conference, counsel should have a discussion with their clients about their goals in the litigation, its possible costs and outcomes (good and bad), the potential for further legal proceedings, and what issues beyond the litigation might be explored in mediation. (Go to www.ca9.uscourts.gov/mediation for a list of questions for exploring the suitability of the dispute for settlement.)
- During the conference, counsel and the Circuit Mediator will discuss the factual and legal background of the dispute, the legal issues involved in the litigation and on appeal, any related legal proceedings, and any other considerations that may affect the parties' willingness to engage in settlement discussions. The scope of discussions is not limited to the issues on appeal: it may include related legal proceedings or any other issues between the parties.

Confidentiality

- Settlement-related information disclosed to a Circuit Mediator will be kept confidential and will not be disclosed to the judges deciding the appeal or to any other person outside the Mediation Program participants. Ninth Cir. R. 33-1.
- All participants in the assessment conference are required to abide by the court's confidentiality rules, which are set forth in Rule 33-1 and can be found at www.ca9.uscourts.gov/mediation. With limited exceptions, any communication made by the Circuit Mediator or any participant during the conference may not be used in any pending or future proceeding in this court or any other forum and may not be disclosed to anyone who is not a participant. Ninth Cir. 33-1.

Likely Outcomes of Assessment Conference

- At the conclusion of the assessment conference, the Circuit Mediator may confirm in an order the agreements of the parties regarding the scope, process and timing of any further settlement efforts. Typical settlement processes include in-person mediation sessions, telephone settlement dialogues facilitated by the Circuit Mediator, or direct discussions between counsel.
- The parties may agree to defer briefing in order to focus on settlement efforts or to provide an opportunity for circumstances to develop that might make settlement more likely. In most cases, the deferral of briefing will not delay disposition of the appeal, since the date of the filing of the notice of appeal controls when an appeal is assigned to a three-judge panel for decision.
- At any point that the parties choose not to pursue settlement efforts, the Circuit Mediator will work with the parties to resolve any outstanding procedural issues and will enter orders effectuating any procedural agreements.

More information is available on the Mediation Circuit link on the Ninth Circuit website www.ca9.uscourts.gov/mediation.

FILED

JUN 28 2018

MOLLY C. DWYER, CLERK
U.S. COURT OF APPEALS

UNITED STATES COURT OF APPEALS

FOR THE NINTH CIRCUIT

CITY OF BURIEN, Petitioner, v. DANIEL K. ELWELL, Acting Administrator and FEDERAL AVIATION ADMINISTRATION, Respondents.	No. 18-71705 No. Federal Aviation Admin ORDER

The briefing schedule previously set by the court is amended as follows: petitioner shall file an opening brief on or before October 1, 2018; respondents shall file an answering brief on or before October 31, 2018; petitioner may file an optional reply brief within twenty one (21) days from the service date of the answering brief.

FOR THE COURT

By: Roxane G. Ashe
Circuit Mediator

rga/mediation

IN THE UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

CITY OF BURIEN, *Petitioner*, v. FEDERAL AVIATION ADMINISTRATION, et al., *Respondents.*	**No. 18-71705**

UNOPPOSED MOTION FOR EXTENSION OF TIME TO FILE CERTIFIED LIST OF ADMINISTRATIVE RECORD

Respondents Federal Aviation Administration and Daniel K Elwell, Acting Administrator of the Federal Aviation Administration (collectively, "FAA"), respectfully request an extension of 30 days, up to and including August 20, 2018, for filing the certified index to the administrative record. Absent an extension, the certified index to the administrative record would be due on July 21, 2018. FAA reasonably needs the extension because responsible personnel from FAA's Office of the Chief Counsel and Air Traffic Organization are out of the office for much of July leading up to the current deadline. FAA does not anticipate that the requested extension will also

necessitate extension of briefing deadlines, as the opening brief deadline is currently October 1, 2018.

Undersigned counsel contacted Matthew Adams, counsel for Petitioner City of Burien, regarding FAA's need for an extension of time for filing the certified index to the administrative record. Mr. Adams advised that his client has no objection to the proposed 30-day extension for time.

For the foregoing reasons, Respondent FAA respectfully requests an extension of 30 days, up to and including August 20, 2018, within which to file the certified index of administrative record.

Respectfully Submitted,

s/ *Erika B. Kranz*
Erika B. Kranz
Appellate Section
Environment & Natural Resources Division
United States Department of Justice
Post Office Box 7415
Washington, DC 20044
(202) 307-6105
erika.kranz@usdoj.gov

CERTIFICATE OF COMPLIANCE

This motion complies with the type-volume limitation set forth in Rule 27(d) of the Federal Rules of Appellate Procedure. Excepting the portions of the motion described in Fed. R. App. P. 32(f), the motion contains 396 words.

s/ *Erika B. Kranz*
Erika B. Kranz

CERTIFICATE OF SERVICE

I hereby certify that I electronically filed the foregoing with the Clerk of the Court for the United States Court of Appeals for the District of Columbia Circuit by using the appellate CM/ECF system on July 11, 2018.

I certify that all participants in the case are registered CM/ECF users and that service will be accomplished by the appellate CM/ECF system.

s/ *Erika B. Kranz*
Erika B. Kranz

FILED

JUL 18 2018

MOLLY C. DWYER, CLERK
U.S. COURT OF APPEALS

UNITED STATES COURT OF APPEALS

FOR THE NINTH CIRCUIT

CITY OF BURIEN, Petitioner, v. DANIEL K. ELWELL, Acting Administrator and FEDERAL AVIATION ADMINISTRATION, Respondents.	No. 18-71705 Federal Aviation Admin ORDER

Respondent's unopposed motion (Docket Entry No. 8) for a 30-day extension of time to file the Certified Administrative Record is granted.

The Certified Administrative Record is due August 20, 2018. The opening brief remains due October 1, 2018. The answering brief is due October 31, 2018. The optional reply brief is due within 21 days after service of the answering brief.

FOR THE COURT:

MOLLY C. DWYER
CLERK OF COURT

By: Samantha Miller
Deputy Clerk
Ninth Circuit Rule 27-7

SM/Pro Mo/7/16/2018

UNITED STATES COURT OF APPEALS

FOR THE NINTH CIRCUIT

FILED

AUG 08 2018

MOLLY C. DWYER, CLERK
U.S. COURT OF APPEALS

CITY OF BURIEN,

Petitioner,

v.

DANIEL K. ELWELL, Acting Administrator and FEDERAL AVIATION ADMINISTRATION,

Respondents.

No. 18-71705

FAA No.
Federal Aviation Administration

ORDER

This case is RELEASED from the Mediation Program.

All further inquiries regarding this appeal, including request for extensions of time, should be directed to the Clerk's Office.

Counsel are requested to contact the Circuit Mediator should circumstances develop that warrant further settlement discussions.

FOR THE COURT:

Roxane G. Ashe
Circuit Mediator

vs/mediation

IN THE UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

CITY OF BURIEN, *Petitioner*, v. FEDERAL AVIATION ADMINISTRATION, et al., *Respondents.*	**No. 18-71705**

NOTICE OF FILING OF THE CERTIFIED INDEX TO THE ADMINISTRATIVE RECORD

This filing provides notice that the administrative record for the above-captioned case is available to the parties. Attached to this filing are the following documents:

1. A certification that the Federal Aviation Administration has provided a copy of the Administrative Record for the Letter of Agreement (LOA) Update to Automate a 250 Westerly Turn for Southbound Turboprops when Seattle – Tacoma International Airport is Operating in North-Flow Between the Hours of 6 am and 10 pm; and
2. The certified index to that record.

The Federal Aviation Administration is making the documents in the administrative record available to Petitioner City of Burien by sending a USB thumb drive containing the documents on the attached index, via Federal Express to:

Matthew G. Adams
Dentons US LLP
One Market Plaza
Spear Tower, 24th Floor
San Francisco, CA 94105

Respectfully Submitted,

s/ *Erika B. Kranz*
Erika B. Kranz
Appellate Section
Environment & Natural Resources Division
United States Department of Justice
Post Office Box 7415
Washington, DC 20044
(202) 307-6105
erika.kranz@usdoj.gov

CERTIFICATE OF SERVICE

I hereby certify that I electronically filed the foregoing with the Clerk of the Court for the United States Court of Appeals for the District of Columbia Circuit by using the appellate CM/ECF system on August 20, 2018.

I certify that all participants in the case are registered CM/ECF users and that service will be accomplished by the appellate CM/ECF system.

s/ *Erika B. Kranz*
Erika B. Kranz

IN THE UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

No. 18-71705

CITY OF BURIEN,

Petitioner,

V.
FEDERAL AVIATION ADMINISTRATION, et al.;

Respondents.

ON PETITION FOR REVIEW OF AGENCY ORDER

CERTIFIED INDEX of RECORD

I, Elizabeth Healy, FAA Environmental Project Manager, hereby certify that the attached is the index of the administrative record in support of the FAA Order dated April 11, 2018, directing implementation of the Letter of Agreement (LOA) Update to Automate a 250 Westerly Turn for Southbound Turboprops when Seattle – Tacoma International Airport is Operating in North-Flow Between the Hours of 6 am and 10 pm. The complete administrative record is available for review. In addition to the documents listed in the attached index, the record also includes technical data used to conduct FAA's noise screening analysis. The results of this analysis are included in the record. However, reviewing this raw technical data in a comprehensible form requires a specialized software form called Terminal Area Route Generation, Evaluation and Traffic Simulation (TARGETS). If either Petitioners or the Court wish to review this data from February 15, 2017 and/or March 14, 2018, the FAA can provide the data and a temporary Targets license to Petitioners and/or the Court.

August 17, 2018
Date

Elizabeth Healy
Environmental Specialist,
Federal Aviation Administration,
Western Service Center
Operations Support Group

Certified Index						August 2018
Burien LOA for 250 Westerly Turn Automation CATEX						
Document Number	Document Date	Title	Document Type	Author(s)	Recipient(s)	Comments
		General Guidance / Documents				
1	1/7/1970	40 Code of Federal Regulations (CFR) Parts 1500-1508, Council on Environmental Quality (CEQ) regulations	Code of Federal Regulations	CEQ		
2	12/1/2012	Guidance for Noise Screening of Air Traffic Actions Revision 1.1	Guidance	Mitre		The first page of this document includes the FAA January 4, 2013 Memo authorizing the use of the December 2012 guidance.
3	7/16/2015	FAA Order 1050.1 F - Environmental Impacts: Policies and Procedures	Order	FAA		
4	10/27/2015	FAA JO 7110.65 - Air Traffic Control	Order	FAA		
5	4/6/2016	Order S46 7110.65M Facility Standard Operation Procedures	Order	FAA		
6	July 2016	FAA Office of Environment and Energy 1050.1 F Desk Reference	Guidance	FAA		
7	January 2017	TARGETS 5.2 User Manual January 2017	Guidance	FAA		
8	10/12/2017	Order JO 7210.3AA, Facility Operation and Administration	Order	FAA		This is FAA's Order governing LOAs.
9	10/12/2017	FAA JO 7400.2L Change 1 - Procedures for Handling Airspace Matters	Order	FAA		
		Project Documentation				
10	July 2016	Briefing Guide SEA	Document	FAA	FAA	This is an internal document prepared by workgroup to prepare for their presentation to SEA ATCT and S46 to share their efficiency proposals.
11	7/26/2016	LOA with automated turn paragraph	Document	FAA		
12	9/26/2016	RE: Request for Meeting with FAA to Discuss Flight Patterns over Burien	Email	Burien	FAA	The City of Burien asked FAA to participate in a meeting to discuss Flight Patterns over Burien, along with the Port of Seattle. The email summarized the citizen comments received by the City during the September 19, 2016 City Council meeting.
13	11/4/2016	Quiet Skies Coalition Flight Path Changes, Meeting Between the FAA, Port of Seattle and Quiet Skies Coalition	PowerPoint	QSC	FAA, Burien	QSC's PowerPoint presentation used for 11/4/2016 meeting with Burien and FAA.

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Document Number	Document Date	Title	Document Type	Author(s)	Recipient(s)	Comments
14	12/28/2016	FAA Responded to Quiet Skies Coalition Request for Information	PowerPoint	FAA	Burien, QSC	FAA PowerPoint presentation to QSC and Burien where FAA responded to the QSC questions from the November 4, 2016
15	3/24/2017	Notice removing automatic northflow 250 heading turn	Document	FAA		
16	5/22/2017	Congresswoman Jayapal letter (questions)	Letter	Congresswoman Jayapal	FAA	
17	6/8/2017	Preliminary Environmental Analysis	Document	FAA		The document date used was the date it was posted to FAA's website since the document isn't dated.
18	6/21/2017	Congresswoman Jayapal letter (comment period extension request)	Letter	Congresswoman Jayapal	FAA	
19	6/22/2017	Comment Period Extension press release	Email	FAA	media (Q13, King 5, CMG-Seattle, KOMO-TV 4) and alaskaair	
20	6/22/2017	Comment Period Extension	Email	FAA	Burien (Tony Piasceki)	
21	6/23/2017	Email confirming the mislabeled figures in the PEA were corrected, and the comment period was extended.	Email chain	NETDES (Nancy Pierce)	FAA	The email shows the notice that website has been updated with Preliminary Environmental Analysis Revision to Figure on page 8 (labels updated for Figures 5 and 6) and comment period extension. FAA's website no longer shows this notice.
22	7/25/2017	RE: Pre-Meeting for 7/25 City of Burien Meeting	Email chain	FAA	FAA	Discussion of developing an Agenda for July 25, 2017 meeting with City of Burien
23	8/1/2017	FW: incorporating yesterday's discussion into the environmental review	Email chain	FAA	FAA	Email chain includes information discussing missed approach aircraft on headings including 250, 270 and 290.
24	8/17/2017	City of Burien Letter	Letter	Burien	FAA	
25	8/29/2017	Response to Jayapal's 5/22/17 letter	Letter	FAA	Congresswoman Jayapal	
26	8/30/2017	Re: July 25th 2017 City of Burien-FAA Meeting	Email	FAA	City of Burien	FAA acknowledgement of July 25 City of Burien letter. Full response is in Appendix D of the CATEX.

Case: 18-71705, 08/20/2018, ID: 10981933, DktEntry: 11-3, Page 2 of 4
(49 of 1318)

Document Number	Document Date	Title	Document Type	Author(s)	Recipient(s)	Comments
27	8/30/2017	Fwd: Burien Citizen Concerns - Mrs. Howel	Email chain with two attachments	Burien	FAA	Emails between Burien and FAA, and internal FAA emails. Burien forwarded a citizen's complaint which included two attached documents. The email chain and the attachments were combined into one file.
28	9/1/2017	SEA Missed Approach (Go-Around) data	Excel file(s)	FAA	FAA	Seventeen monthly Excel files with dates ranging from March 2016 through August 2017 were combined into one Adobe pdf file. This is raw data from SEA tower for missed approaches (go-arounds) in the date range for all aircraft types.
29	9/19/2017	RE: Updated Burien documents and draft response to the 270 heading - 12:25 pm	Email chain	FAA	FAA	
30	9/19/2017	RE: Updated Burien documents and draft response to the 270 heading - 1:01 pm	Email chain	FAA	FAA	
31	9/19/2017	RE: Updated Burien documents and draft response to the 270 heading - 2:27 pm	Email chain	FAA	FAA	
32	9/25/2017	RE: Input for responding to City of Burien and clarifying Alternatives in the CATEX documentation for the 250 heading.	Email chain	FAA	FAA	
33	9/27/2017	September 14th Meeting with City of Burien	Email	FAA	FAA	FAA's summary of the September 14, 2017 meeting with the City of Burien.
34	9/29/2017	RE: Would greatly appreciate your review of the airspace boundaries discussion in the CATEX - 8:25 am	Email chain	FAA	FAA	
35	9/29/2017	RE: Would greatly appreciate your review of the airspace boundaries discussion in the CATEX - 7:25 am	Email chain	FAA	FAA	
36	10/11/2017	FAA letter to Mrs. Howell	Letter	FAA	Ms. Howell	
37	4/11/2018	Burien LOA CATEX	Document	FAA		

Case: 18-71705, 08/20/2018, ID: 10981933, DktEntry: 11-3, Page 3 of 4
(50 of 1318)

Document Number	Document Date	Title	Document Type	Author(s)	Recipient(s)	Comments
38	4/16/2018	FAA Statement on Decision of Burien Overflights	Email	FAA	media (Q13, King 5, CMG-Seattle, KOMO-TV 4, Seattletimes, Seattlepi) and alaskaair	
39	5/18/2018	Appendix D: Public Comments, Errata	Document	FAA		This document is posted on FAA's website https://www.faa.gov/nextgen/nextgen_near_you/community_involvement/sea/.
40	6/6/2018	LOA with automated turn paragraph	Document	FAA		The attached LOA's first page says it's effective October 3, 2017. Page 7 of the agreement is amended by revision 3 dated June 6 2018. Order JO 7210.3AA (Document 8 in the AR Index), Paragraph 4-3-6.b allows for revisions to be made without changing the cover page.
41	7/3/2018	Summary of GoAround Percentage - Re-created July 2018	Document	FAA		Raw data on go-arounds (also known as missed approaches) was originally analyzed as part of the development of FAA's CATEX. The original file that analyzed the raw data was lost when a computer crashed, so this Excel spreadsheet was re-created.

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Case No. 18-71705

IN THE UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

CITY OF BURIEN, WASHINGTON

Petitioner,

v.

FEDERAL AVIATION ADMINISTRATION and
MICHAEL HUERTA,

Respondents.

UNOPPOSED MOTION FOR A 28-DAY EXTENSION TO FILE PETITIONER'S OPENING BRIEF

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LisaM@burienwa.gov
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Burien, Washington 98166
(206) 248-5535

Attorneys for Petitioner CITY OF BURIEN.

Petitioner City of Burien hereby moves for a 28-day extension to file its Opening Brief, from November 1, 2018, to November 29, 2018, because, contrary to the parties' initial (shared) expectations, the contents of the Administrative Record are not yet resolved. The relevant factual background is as follows:

1. On April 27, 2018, the City submitted a Freedom Of Information Act ("FOIA") request to Respondent Federal Aviation Administration ("FAA"). The request sought copies of certain documents which the FAA has described as being relevant to this litigation.

2. On August 20, 2018, Respondents filed a certified index of the Administrative Record. (Dkt. 11-1).

3. Counsel for Petitioner diligently reviewed the August 20, 2018, Administrative Record. Counsel for Petitioner then contacted counsel for Respondents and identified several categories of documents the Petitioner believes should be added to the Administrative Record.

4. On October 4, 2018, the FAA responded to the City's April 27, 2018, FOIA request. Some of the documents in the October 4, 2018 FOIA response do not appear in Respondents' August 20, 2018, Administrative Record.

5. Since October 5, 2018, counsel for the Petitioner and counsel for the Respondents have had multiple discussions via e-mail regarding the status of the Administrative Record. Most recently, on October 22, 2018, counsel for the

Respondents indicated that she anticipated the need to supplement the Administrative Record but had not yet reached a determination as to the specific documents that would be included in the supplement.

6. Counsel for the Respondents has informed the undersigned that she does not oppose the relief sought in this motion.

Thus, although both parties initially expected the contents of the Administrative Record to be resolved in time for Petitioner to prepare and file its Opening Brief on November 1, 2018, it now appears that an extension of that deadline is required.

Counsel for the Petitioner will continue to exercise diligence in the handling of this matter.

Dated: October 23, 2018

Respectfully submitted,

DENTONS US LLP

By */s/ Matthew G. Adams*
Matthew G. Adams
Jessica L. Duggan
Attorneys for Petitioners

CERTIFICATE OF SERVICE - CM/ECF

I certify that on October 23, 2018, I electronically filed the **UNOPPOSED MOTION FOR A 28-DAY EXTENSION TO FILE PETITIONER'S OPENING BRIEF** with the Clerk of the Court for the United States Court of Appeals for the Ninth Circuit by using the appellate CM/ECF system. Counsel for all parties are registered to use that system and, to my knowledge, will receive copies of this document upon its filing.

/s/Matthew G. Adams
Matthew G. Adams

UNITED STATES COURT OF APPEALS

FOR THE NINTH CIRCUIT

FILED

OCT 23 2018

MOLLY C. DWYER, CLERK
U.S. COURT OF APPEALS

CITY OF BURIEN,

Petitioner,

v.

DANIEL K. ELWELL, Acting Administrator and FEDERAL AVIATION ADMINISTRATION,

Respondents.

No. 18-71705

FAA No.
Federal Aviation Administration

ORDER

Petitioner's unopposed motion (Docket Entry No. 14) for an extension of time to file the opening brief is granted. The petitioner's opening brief is due November 29, 2018; respondents' answering brief is due December 31, 2018; and the optional reply brief is due within 21 days after service of the answering brief.

FOR THE COURT:

MOLLY C. DWYER
CLERK OF COURT

By: Samantha Allison Miller
Deputy Clerk
Ninth Circuit Rule 27-7

IN THE UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

No. 18-71705

CITY OF BURIEN,

Petitioner,

V.
FEDERAL AVIATION ADMINISTRATION, et al.;

Respondents.

ON PETITION FOR REVIEW OF AGENCY ORDER

CERTIFIED AMENDED INDEX of RECORD

I, Elizabeth Healy, FAA Environmental Project Manager, hereby certify that the attached is the index of the amended administrative record in support of the FAA Order dated April 11, 2018, directing implementation of the Letter of Agreement (LOA) Update to Automate a 250 Westerly Turn for Southbound Turboprops when Seattle – Tacoma International Airport is Operating in North-Flow Between the Hours of 6 am and 10 pm. The complete administrative record is available for review. In addition to the documents listed in the attached amended index, the record also includes technical data used to conduct FAA's noise screening analysis. The results of this analysis are included in the record. However, reviewing this raw technical data in a comprehensible form requires a specialized software form called Terminal Area Route Generation, Evaluation and Traffic Simulation (TARGETS). If either Petitioners or the Court wish to review this data from February 15, 2017 and/or March 14, 2018, the FAA can provide the data and a temporary Targets license to Petitioners and/or the Court.

November 1, 2018
Date

Elizabeth Healy
Environmental Specialist,
Federal Aviation Administration,
Western Service Center
Operations Support Group

Certified Amended Index						November 2018
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Document Number	Document Date	Title	Document Type	Author(s)	Recipient(s)	Comments
		General Guidance / Documents				
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8	10/12/2017	Order JO 7210.3AA, Facility Operation and Administration	Order	FAA		This is FAA's Order governing LOAs.
9	10/12/2017	FAA JO 7400.2L Change 1 - Procedures for Handling Airspace Matters	Order	FAA		
		Project Documentation				
10	July 2016	Briefing Guide SEA	Document	FAA	FAA	This document has been superceded by Document Number 42.
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(59 of 1318)

Document Number	Document Date	Title	Document Type	Author(s)	Recipient(s)	Comments
17	6/8/2017	Preliminary Environmental Analysis	Document	FAA		The document date used was the date it was posted to FAA's website since the document isn't dated.
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Case: 18-71705, 11/01/2018, ID: 11068801, DktEntry: 16-2, Page 2 of 4
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37	4/11/2018	Burien LOA CATEX	Document	FAA		
38	4/16/2018	FAA Statement on Decision of Burien Overflights	Email	FAA	media (Q13, King 5, CMG-Seattle, KOMO-TV 4, Seattletimes, Seattlepi) and alaskaair	
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Document Number	Document Date	Title	Document Type	Author(s)	Recipient(s)	Comments
42	June-2016	Briefing Guide SEA2	Document	FAA	FAA	This document supercedes Document Number 10. It is a more complete version.
43	11/10/2016	Runway Use CWG Lessons Learned	Document	FAA	FAA	This document provides background information about the workgroup referenced in the CATEX.
44	11/10/2016	Runway Use CWG 90 Day Evaluation	Document	FAA	FAA	This document discusses removing the Y gate departures from the automatic turn. Page 12, Figure 10 in the CATEX shows the destination tracks of the gates.
45	5/9/2018	Burien - Summary of call with EPA	Email	FAA	FAA	

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Case No. 18-71705

IN THE UNITED STATES COURT OF APPEALS
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CITY OF BURIEN, WASHINGTON

Petitioner,

v.

FEDERAL AVIATION ADMINISTRATION and
MICHAEL HUERTA,

Respondents.

PETITIONER'S EXCERPTS OF RECORD

Volume 1

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Attorneys for Petitioner CITY OF BURIEN.

INDEX TO EXCERPTS OF RECORD

Volume 1

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40	LOA with automated turn paragraph	06/06/2018	ER00129-ER00150

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25	Response to Jayapal's 5/22/17 letter	08/29/2017	ER00151-ER00153
24	City of Burien Letter	08/17/2017	ER00154-ER00156
20	Comment Period Extension	06/22/2017	ER00157-ER00158
18	Congresswoman Jayapal letter (comment period extension request)	06/21/2017	ER00159-ER00161
17	Preliminary Environmental Analysis	06/08/2017	ER00162-ER00170
16	Congresswoman Jayapal letter (7 questions)	05/22/2017	ER00171-ER00172
15	Notice removing automatic northflow 250 heading turn	03/24/2017	ER00173-ER00174
14	FAA Response to Quiet Skies Coalition Request for Information	12/28/2016	ER00175-ER00176
12	Re: Request for Meeting with FAA to Discuss Flight Patterns over Burien	09/29/2016	ER00177-ER00178
11	LOA with automated turn paragraph	07/26/2016	ER00179-ER00202

AR Document Number	Title	Date	ER Page Number
42	Briefing Guide SEA2	06/2016	ER00203-ER00208
4	FAA JO 7110.65 - Air Traffic Control	12/20/2015	ER00209-ER00214
3	FAA Order 1050.1 F - Environmental Impacts: Policies and Procedures	07/16/2015	ER00215-ER00249
6	FAA Office of Environment and Energy 1050.1 F Desk Reference	07/2015	ER00250-ER00291

Dated: November 29, 2018

Respectfully submitted,

DENTONS US LLP

By */s/ Matthew G. Adams*
Matthew G. Adams
Jessica L. Duggan
Attorneys for Petitioners

Categorical Exclusion

For

Letter of Agreement Update to Automate a 250° Westerly Turn for Southbound Turboprops When Seattle – Tacoma International Airport is Operating in North-Flow Between the Hours of 6 am and 10 pm

April 2018

Prepared by:
United States Department of Transportation
Federal Aviation Administration

Renton, WA

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
WESTERN SERVICE AREA
Categorical Exclusion

Letter of Agreement (LOA) update between Seattle – Tacoma International Airport's (SEA) Air Traffic Control Tower (ATCT) and the Seattle Terminal Radar Approach Control (S46) to automate a 250° westerly turn for southbound turboprops when SEA is operating in north-flow between the hours of 6 am and 10 pm

Description of Action:
The SEA ATCT and S46 propose to update their LOA to include a paragraph that would allow SEA ATCT to issue a westerly turn departure heading for approximately 90 percent of southbound turboprops taking-off in north-flow conditions, in order to enhance safety and efficiency at SEA. Historically, this turn was issued by the departure controller at S46, which caused a slight delay in these aircraft turning west then south to proceed on their filed route. Allowing SEA ATCT to issue the turn is referred to as an "automatic" or "automated" turn because the aircraft is issued the turn prior to or shortly after takeoff by SEA ATCT, therefore leaving the airport environment already in a turn.

The Preferred Alternative would modify the existing LOA to allow SEA ATCT to automatically turn select turboprops to a 250° heading within one NM of the runway end, in lieu of S46 issuing the turn on initial contact or shortly thereafter. This automatic westerly turn would be suspended between the hours of 10 pm and 6 am, when operationally feasible. FAA made this change in response to comments from the City of Burien and other comments.

Declaration of Exclusion:
The FAA has reviewed the above referenced proposed action and it has been determined, by the undersigned, to be categorically excluded from further environmental documentation according to FAA Order 1050.1F, "Environmental Impacts: Policies and Procedures". The implementation of this action will not result in any extraordinary circumstances in accordance with FAA Order 1050.1F.

Basis for this Determination:
This review was conducted in accordance with policies and procedures in Department of Transportation Order 5610.1C, "Procedures for Considering Environmental Impacts" and FAA Order 1050.1F.

The applicable categorical exclusion is:
5-6.5.i. Establishment of new or revised air traffic control procedures conducted at 3,000 feet or more above ground level (AGL); procedures conducted below 3,000 feet AGL that do not cause traffic to be routinely routed over noise sensitive areas; modifications to currently approved procedures conducted below 3,000 feet AGL that do not significantly increase noise over noise sensitive areas; and increases in minimum altitudes and landing minima. For modifications to air

traffic procedures at or above 3,000 feet AGL, the Noise Screening Tool (NST) or other FAA-approved environmental screening methodology should be applied.

Facility Manager Review/Concurrence

Signature: MICHAEL K COULTER Digitally signed by MICHAEL K COULTER Date: 2018.04.06 15:25:29 -07'00' Date: _____

Name: Michael Coulter
Air Traffic Manager
Seattle TRACON

Signature: STEVEN L VALE Digitally signed by STEVEN L VALE Date: 2018.04.06 15:49:10 -07'00' Date: _____

Name: Steven Vale
Air Traffic Manager
Seattle ATCT

Concurrence by:

Western Service Area Environmental Specialist

Signature: Elizabeth Anne Healy Digitally signed by Elizabeth Anne Healy Date: 2018.04.06 15:55:34 -07'00' Date: _____

Name: Elizabeth Healy
Environmental Specialist, Operations Support Group,
Western Service Center, AJV-W25

Approval by:

Western Service Area Director or Designee Approval

Signature: Kim Stover Date: 4/11/18

Name: Kimberly Stover
Director, Air Traffic Operations, WSA, AJTW

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1.0 INTRODUCTION

This document serves as the Federal Aviation Administration's (FAA) document to comply with the National Environmental Policy Act of 1969 (NEPA) (42 United States Code (U.S.C.) Section 4321 et seq.); implementing regulations issued by the Council on Environmental Quality (CEQ) (40 Code of Federal Regulations (CFR), parts 1500-1508); and FAA Order 1050.1F, Environmental Impacts: Policies and Procedures. The FAA has determined that a Categorical Exclusion (CATEX) is the appropriate level of NEPA documentation for the update to the Letter of Agreement (LOA) between Seattle – Tacoma International Airport (SEA) Airport Traffic Control Tower (ATCT) and Seattle Terminal Radar Approach Control (S46) to automate turboprop turns.

2.0 BACKGROUND

In order to enhance safety and efficiency at SEA, the SEA ATCT and S46 propose to update their LOA to include a paragraph that would allow SEA ATCT to issue a westerly turn departure heading for approximately 90 percent of southbound turboprops taking-off in north-flow conditions between the hours of 6 am to 10 pm, when operationally feasible. The remaining 10 percent of the southbound turboprops will follow the existing procedure where SEA ATCT turns them to the east on a heading of 20°, and there will be no changes to non-southbound turboprops.

Historically, the westerly turn was issued by the departure controller at S46, which caused a slight delay in these aircraft turning west then south to proceed on their filed route as communications are transferred from SEA ATCT to the departure controller at S46. Allowing SEA ATCT to issue the turn is referred to as an "automatic" or "automated" turn because the aircraft is issued the turn prior to or shortly after takeoff by SEA ATCT, therefore leaving the airport environment already in a turn.

FAA has analyzed the impacts of any changes that result from the proposal, including exploring existing conditions at SEA.

Increasing Traffic at SEA

SEA is one of the core thirty airports in the United States. Core airports are in major metropolitan areas with the highest volume of traffic. Complex, high-density operations often lead to air traffic congestion and delays. In 2014, SEA was the 14th busiest US airport.[1] As of 2016, SEA is the ninth the busiest airport.[2]

[1] https://www.faa.gov/nextgen/snapshots/airport/?locationId=45
[2] https://www.portseattle.org/About/Publications/Statistics/Airport-Statistics/Pages/default.aspx

Figure 1: Passenger Growth Statistics at SEA[3]

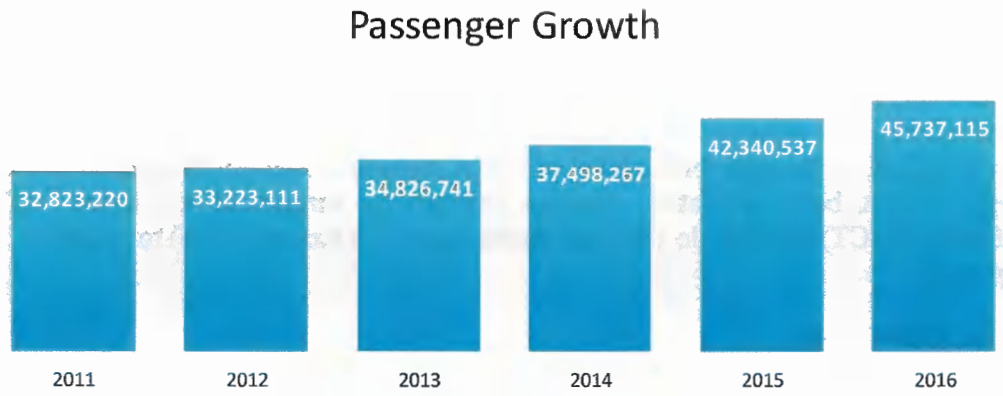
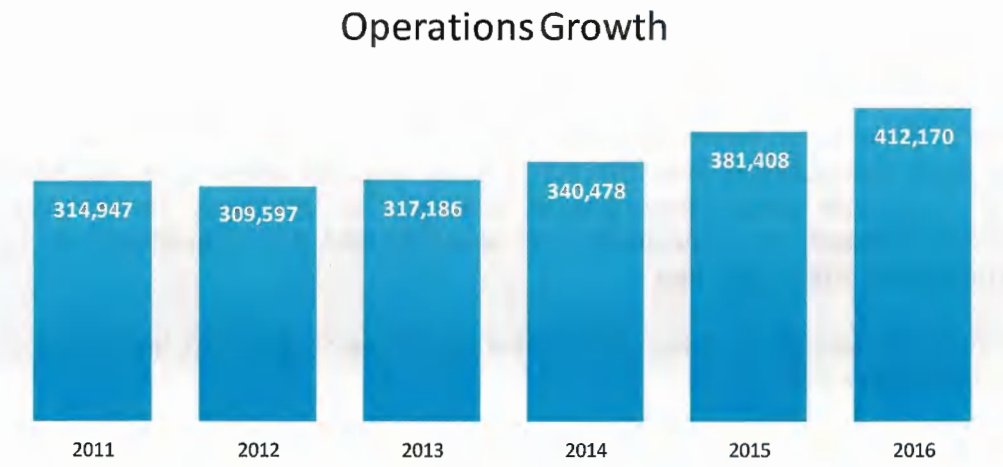


Figure 2: Operations Growth at SEA

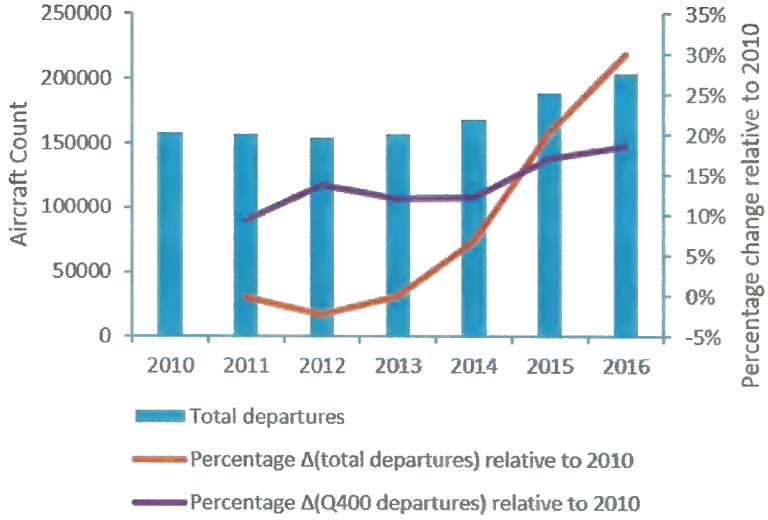


According to the FAA's Traffic Flow Management System Counts data from 2010-2016, and as shown in Figure 3 below, there has been approximately a 33% increase in operations at SEA since 2010, most of which has occurred since 2014. Included in this is a 20% increase in use of Bombardier Q400, the principal propeller aircraft which are turned west in north-flow. Another source of westerly turned overflights in north-flow are missed approaches[4] into SEA. FAA data shows that these missed approaches have remained at an approximate constant percentage of total SEA arrivals since January 2016. In other words, as the number of arrivals go up, the number of missed approaches also have also increased.

[3]To create the Port of Seattle Statistics for Passenger Growth and Operations Growth charts, multiple reports were run using the report generator at https://www.portseattle.org/About/Publications/Statistics/Airport-Statistics/Pages/default.aspx

[4] A missed approach is a maneuver conducted by a pilot when an instrument approach cannot be completed to a landing. The route of flight and altitude are shown on instrument approach procedure charts. April 27, 2017 FAA Pilot/Controller Glossary

Figure 3: Change in Number of Departures at SEA from 2010 to 2016



To accommodate the operations, SEA has three runways that are configured essentially in a north/south configuration. The prevailing wind direction dictates the direction planes take-off and land, since a headwind allows a plane to take-off or land using a shorter amount of runway and reduces groundspeed for both take-off and landing. SEA typically operates in south-flow for the majority of the year, and in north-flow during the summer months, but north-flow conditions may occur at any time, even for a fraction of a day if the wind changes direction. Based upon runway usage data for 2016, SEA operated in north-flow 27% of the year. Based upon runway usage data for the whole of 2015, north-flow occurred 35% of the time. During 2016, there were approximately 3,500 departing southbound turboprops in north-flow, which represented approximately two percent of all SEA 2016 departures.

FAA's Role in Managing Traffic at SEA

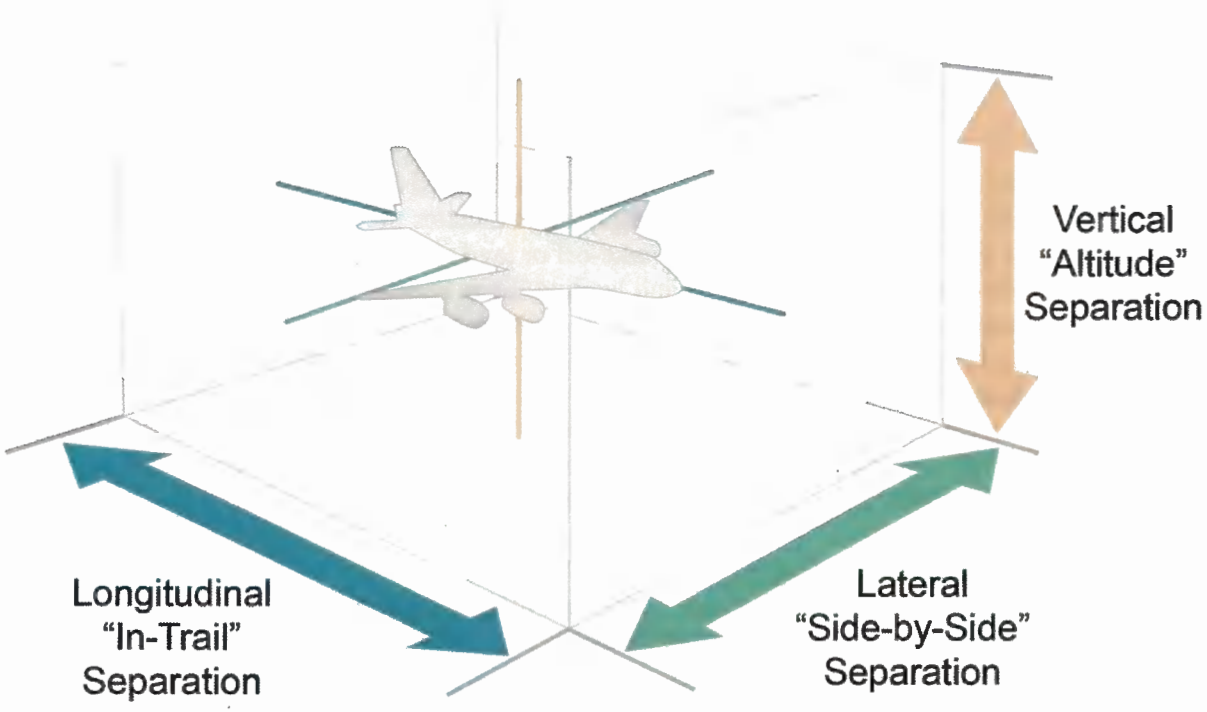
SEA, commercial airlines, and FAA all have different roles with respect to the management and growth of operations at SEA. SEA is owned by the Port of Seattle, which is responsible for maintaining and improving airport property. Commercial airlines schedule flights to meet the travel demands of the public. Therefore, SEA and commercial airlines determine the levels of operations that are economically and operationally feasible. The FAA is tasked with ensuring the safe and efficient use of the National Airspace System (NAS), but does not have a role in determining the levels of airport operations.

The FAA views "efficiency" as how quickly aircraft can be moved out of a section of airspace. Due to the increase in operational demand at SEA, having greater efficiency reduces the need for ground delays, which in turn means that there is less taxiway congestion. Furthermore, the more predictable an aircraft routing, the less possibility of a separation issue with another aircraft. In this way, safety and efficiency are closely related.

In order to ensure safe and efficient use of the NAS, FAA's air traffic control (ATC) uses radar to monitor aircraft and provide services that ensure separation for multiple aircraft at all times. Separation applies in three dimensions, as shown below:

- **Vertical or "Altitude" Separation:** separation between aircraft operating at different altitudes,
- **Longitudinal or "In-Trail" Separation:** separation between two aircraft operating along the same flight route, referring to the distance between a lead and a following aircraft; and
- **Lateral or "Side-by-Side" Separation:** separation between aircraft (left or right side) operating along two separate but nearby flight routes.

Figure 4: Three Dimensions Around an Aircraft



Source: ATAC Corporation, December 2012
Prepared by: ATAC Corporation, October 2013

As part of their responsibility in managing flights within the NAS, SEA ATCT and S46 use a variety of methods and coordination techniques to maintain safety within the NAS, including:

- Vectors: Directional headings issued to aircraft to provide navigational guidance and to maintain separation between aircraft and/or obstacles,
- Speed Control: Instructions issued to aircraft to reduce or increase aircraft speed to maintain separation between aircraft,
- Reroute: Controllers may change an aircraft's route for a variety of reasons, such as avoidance of inclement weather, to maintain separation between aircraft, and/or to protect airspace,

- Point-out: Notification issued by one controller when an aircraft might pass through or affects another controller's airspace and radio communications will not be transferred,
- Holding Pattern/Ground Hold: Controllers assign aircraft to a holding pattern in the air or hold aircraft on the ground before departure to maintain separation between aircraft and to manage arrival/departure volume; and/or
- Altitude Assignment/Level-off: Controllers assign altitudes to maintain separation between aircraft and/or to protect airspace. This may result in aircraft "leveling off" during ascent or descent.
- As an aircraft moves from origin to destination, ATC personnel function as a team and transfer control of the aircraft from one controller to the next and from one ATC facility to the next.

ATC Complexity at SEA and Limitations Posed by BFI

The close proximity of SEA and Boeing Field/King County International Airport (BFI) introduces complexity and increases workload for ATC due to both the number of operations at SEA, and the close proximity of multiple nearby airports. Within the immediate vicinity of SEA, ATC manages operations from Renton Municipal Airport (RNT), BFI, SEA, as well as other aircraft transiting the Seattle area for other destinations.

To manage this complexity, ATC has organized the SEA airspace into different sectors, with a single air traffic controller assigned to each sector. This sectorization allows a single air traffic controller to manage aircraft in the same phase of flight, allowing the air traffic controller to easily get into a pattern of managing the aircraft, which enhances safety. The sectors were designed to ensure that each air traffic controller has a reasonable workload. Figures 5 through 9 show a series of pictures to illustrate the airspace sectors in the vicinity of SEA.

Figure 5: SEA ATC Sectors
All SEA ATC North-Flow Sectors

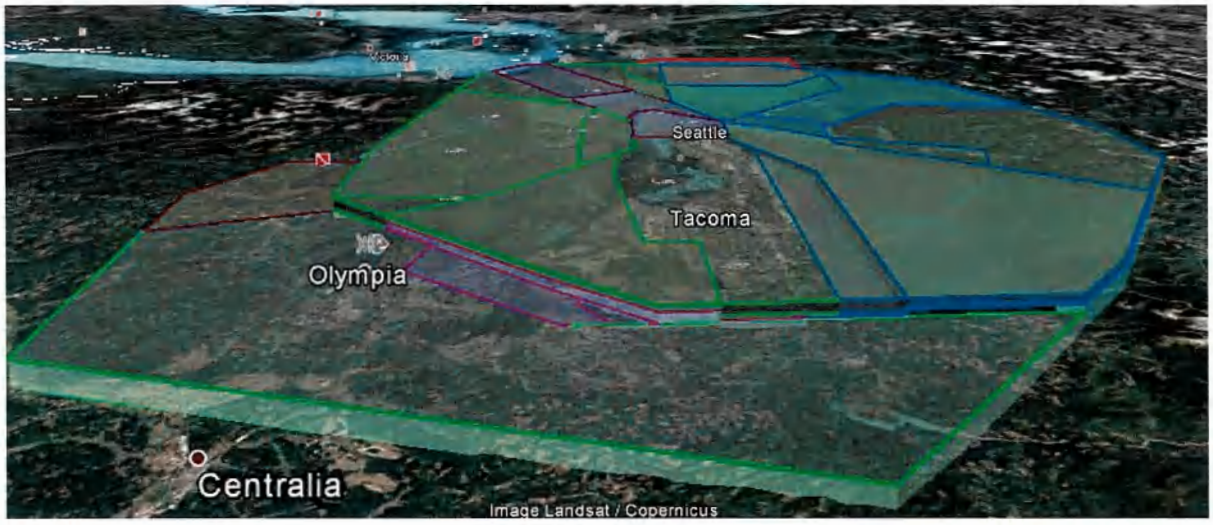


Figure 6: Departure Y Sector SEA north flow departures, west of the airport

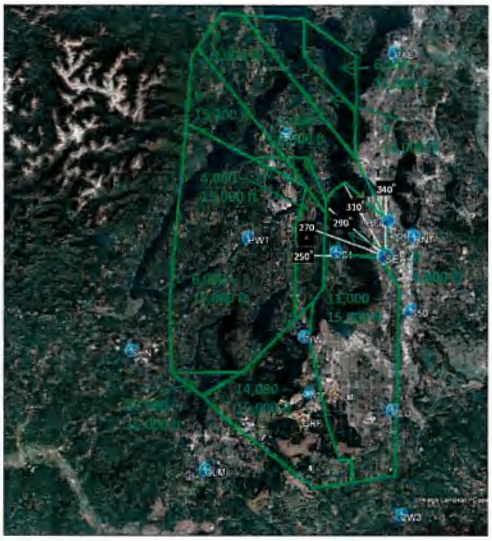


Figure 7: Arrival W Sector SEA north flow arrivals, west of the airport

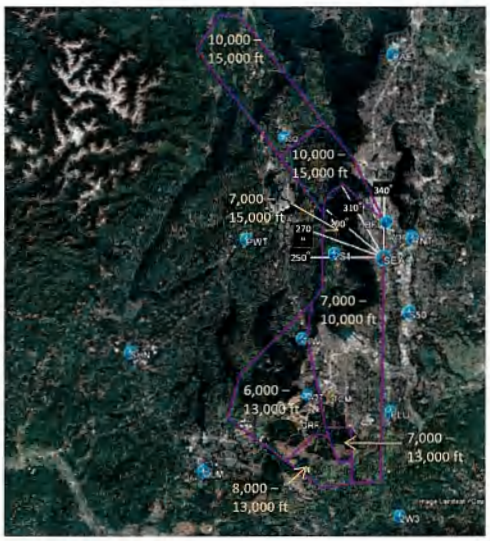


Figure 8: Satellite K & N Sectors Non-SEA arrivals, west of SEA in North-Flow

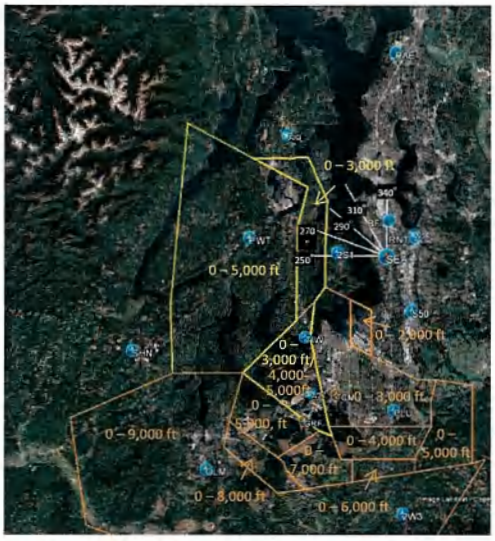


Figure 9: Final Approach Sector SEA arrivals, North-Flow

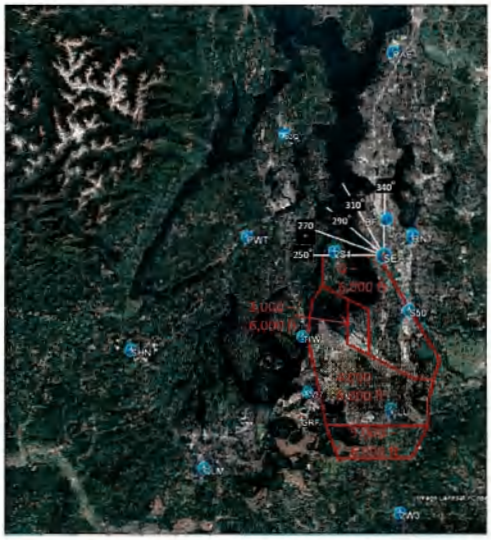
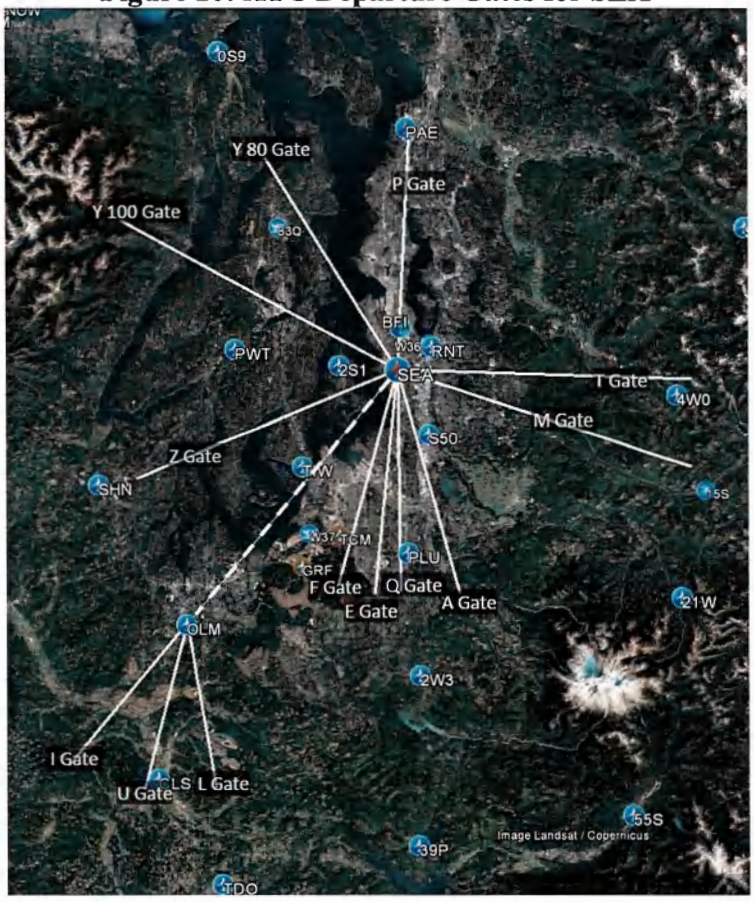


Figure 6 shows the Departure Y sector, where the ATC manages all of SEA westerly departures. Figure 7 shows the Arrival W sector, where the ATC manages all of SEA westerly arrivals. Figure 8 shows the Satellite K and N sectors, which are often combined and service the final approaches to the airports south and west of SEA. Figure 9 shows the Final Approach F Sector, within which an air traffic controller manages SEA final approaches.

The sectors depicted in Figures 6 through 9 overlap each other, with altitude separation, which is shown on Figure 5. The altitude windows of the different regions of the sectors are also shown in Figures 5 through 9 above. For example, within the Departure Y sector, aircraft departing SEA are above the traffic arriving into SEA to the south. To the northwest, these departures stay below the arrivals since these arrivals have further to fly to be sequenced to land. The final approach sectors for SEA, as well as the surrounding airports, are below the arrival and departures sectors to the west and south of SEA. This reflects that in north-flow, the aircraft are sequenced to land south of SEA.

Figure 10: ATC Departure Gates for SEA



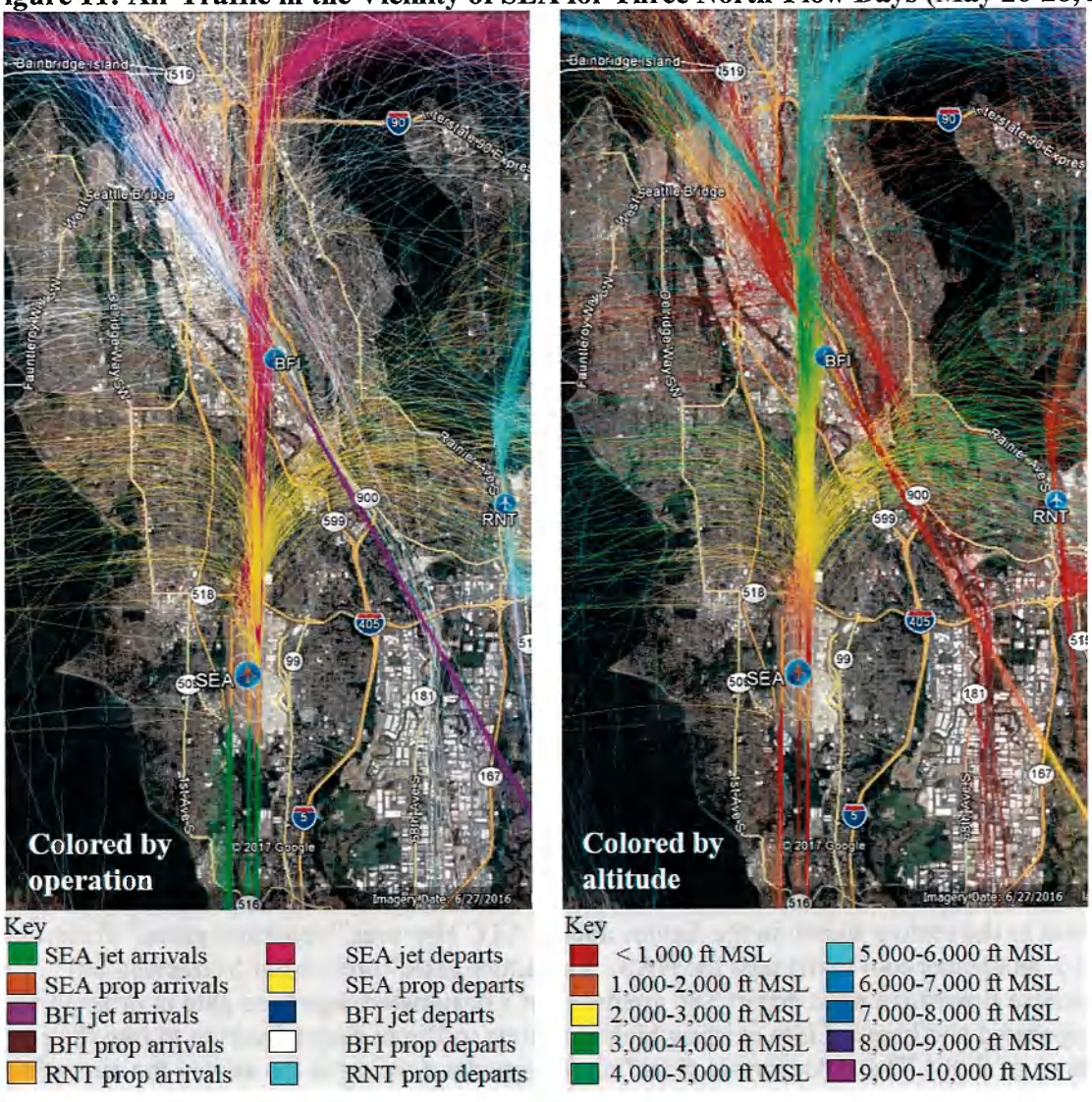
In addition to the sectors shown in the figures above, ATC also uses "departure gates," shown in Figure 10, as another tool to manage the NAS. "Departure gates" are similar to freeway on-ramps, where departures must depart S46 airspace out a designated departure gate in order to be safety separated and blended into existing higher altitude traffic as they transition to into the en-route phase of flight. These "departure gates" are assigned according to the airway the aircraft will use to fly to its destination, once the aircraft has departed the SEA ATCT airspace.

Departure gates E, F, Q, Z, I, U and L are all assigned to southbound destinations that would use the proposed 250° westerly heading. These gates are on the west side of SEA. Approximately 90 percent of the southbound turboprops primarily use the E and Q gates.

The remaining 10 percent of southbound turboprops use gate A and would not use the proposed 250° westerly heading.

ATC management gets more complex with closely spaced intersecting streams of traffic as shown in Figure 11 below. Note how there is little lateral separation between the turboprops departing to the west from BFI (white tracks) and SEA (yellow tracks) in the left figure. Turboprop departures from BFI are also routed to the west, southwest and northwest utilizing the same departure gates as SEA departures depending on their destination and filed routing.

Figure 11: Air Traffic in the Vicinity of SEA for Three North-Flow Days (May 26-28, 2017)



Another factor adding to complexity at SEA is the mix of aircraft with varying performance capabilities operating within the same airspace. Propeller aircraft (turboprops) are not able to safely climb as steeply as jet aircraft, and typically do not move as fast. Therefore, ATC usually separates propeller aircraft from jet traffic to improve safety and efficiency. Figure 11 above,

which only depicts three days of air traffic, shows the complexity of the air traffic in the vicinity of SEA.

ATC's choice on where to route turboprops departing SEA is partially dictated by the operational levels at BFI. During 2016 there were approximately 12,800 north-flow departures from BFI in comparison to 53,000 SEA north-flow departures. Due to the increasing number of operations at SEA, ATC's ability to route SEA turboprops along the defined jet flight path is limited, therefore alternatives had to be sought.

When evaluating alternatives, FAA considers the site-specific circumstances. Specific to SEA, as shown in Figure 10 above, SEA and BFI are in close proximity. While the control towers for SEA and BFI operate independently of one another, several procedures overlap, and waivers to standard procedures are in place to ensure aircraft are able to safely arrive and depart both airports with maximum efficiency and limited coordination. This introduces constraints that limit changes to procedure designs that can be considered. Any new procedure development must evaluate impacts to both airports' procedures and operations.

SEA Missed Approaches

As part of FAA's evaluation of existing conditions at SEA, FAA determined ATC separation requirements and the SEA ATCT sectorizations dictate the missed approach headings during north-flow due to the proximity of BFI and SEA.

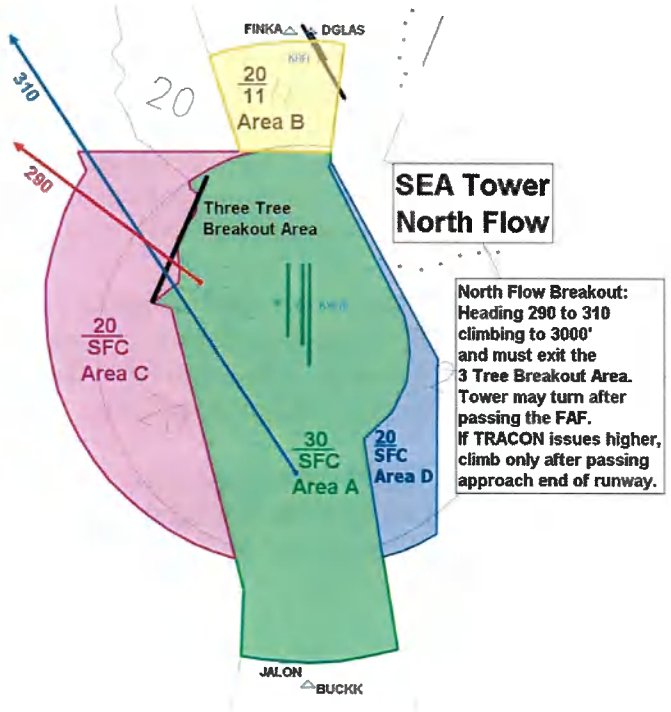


Figure 12: North-Flow Missed Approach

At SEA, aircraft on a missed approach must remain in their designated airspace sector, and must exit the airport vicinity through the Three Tree Breakout Area. In order to ensure that an aircraft on a missed approach crosses through the Three Tree Breakout Area, a 310° heading is issued if the aircraft goes missed approach south of the airport, and is placed on a 290° as the aircraft goes missed approach nearer to SEA. In this way, Air Traffic Control can ensure that an aircraft going missed approach stays within the Tree Three Break out area independent of any drift caused by wind and independent of when during their final approach they go missed approach.

Aircraft using the north-flow missed approach procedure are often given the 290° heading. This heading provides the pilot the time necessary to reconfigure their aircraft and to request flight path adjustments. The aircraft may need to make an emergency landing, divert to another airport, enter a holding pattern, or be re-sequenced to land at SEA. Prior to handing the missed approach aircraft back to a final approach air traffic controller, the departure controller must assess the situation and properly assist the pilot with their request while keeping the aircraft in the departure sector until the aircraft is ready to land.

If a missed approach is initiated south of the runway threshold, as shown by the blue arrow in Figure 12 above, the assigned missed approach heading will be 310° to ensure the aircraft will be able to exit through the Three Tree Breakout Area. The more northerly heading is necessary to ensure that the aircraft remains within the airspace with sufficient separation. The 310° heading parallels the BFI departure path, thus establishing sufficient separation.

Having the missed approach airspace to the north west, below the Arrival W Sector, shown in Figure 7 above, avoids conflicts with both the arrivals and final approaches while allowing the aircraft on missed approach time to figure out how best to land. Missed approaches into SEA are not cleared to climb, but often maintain an altitude coming off SEA while the pilot reconfigures their aircraft and communicates if the aircraft need to divert to another airport, if they have an emergency or if the pilot would prefer to be sequenced again for SEA.

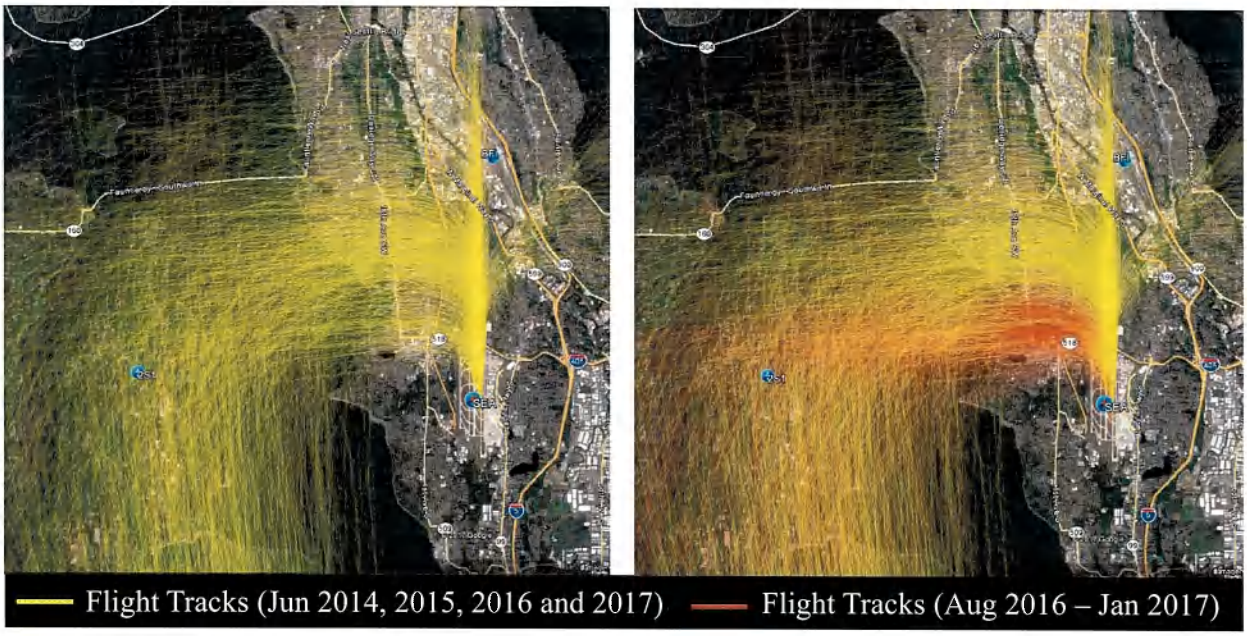
Proposal Improve ATC Management of Turboprop Westerly Turns in North-Flow Conditions

Another part of FAA's evaluation of conditions at SEA was creating an internal workgroup to determine how to best manage southbound turboprops departing SEA in north-flow to help improve efficiency in the context of increased operations. The outcome of the workgroup resulted in FAA deciding to modify the existing LOA. This modification would allow SEA ATCT to automatically turn select turboprops that already turn southwest, whereas before this change, S46 would issue the turn on initial contact or shortly thereafter. With the automation of this procedure, the turn must be made within one nautical mile (NM) of the runway end in order to avoid conflicts with BFI, thereby enhancing the safety and efficiency of the NAS.

This automatic turn would affect approximately 90 percent of the southbound turboprops departing SEA in north-flow, which amounts to approximately 2 percent of SEA total departures. Henceforth, turboprops discussed throughout the rest of the document will only refer to the approximately 90 percent of southbound turboprops taking-off in north-flow conditions.

As shown in Figure 13, FAA determined this automatic turn would not change where aircraft historically fly. Therefore, community outreach was not undertaken prior to originally implementing the automatic westerly turn for southbound turboprops on July 26, 2016.

Figure 13: Southbound Turboprops in North-Flow



After the initial implementation of the LOA paragraph that automated the turn for the southbound north-flow turboprops to a 250° heading within one NM of the runway end, the FAA met with two members of the Quiet Skies Coalition (QSC) and the City of Burien on November 4, 2016. During that meeting, the City of Burien and QSC made it clear that they wished for the paragraph defining the 250° heading and the distance from the end of the runway to be removed from the LOA. 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". The City of Burien ultimately 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 SEA.

The FAA removed the paragraph authorizing the automatic heading from the LOA on March 24, 2017. Since then, southbound turboprops in north-flow have been assigned a heading through direct coordination between SEA ATCT and S46. In the same timeframe as the LOA paragraph rescission, the FAA initiated an environmental review under NEPA to investigate the impacts of the automatic heading for these southbound turboprops in north-flow.

3.0 PURPOSE AND NEED

The purpose of the proposal is to enhance NAS safety and efficiency at SEA during north-flow operations. Efficiency is always of importance since it is directly tied to safety. Efficiency improvements can lead to a smaller number of aircraft in the same portion of the NAS at the same time, which reduces ATC workload. Greater efficiencies can also reduce ground delays at airports. Due to SEA's growth, discussed above, ATC is constantly looking for ways to safely increase efficiency.

The need for the project is to accommodate the increasing operations at SEA while maintaining / enhancing the safety in the NAS. Due to the increase in operations and how the variety of aircraft and their varying flight characteristics impact departure rates, ATC has investigated ways to improve efficiency at SEA during north-flow operations. SEA ATCT and S46 convened a workgroup to generate ideas on how to improve efficiency and safety during north-flow operations.

In south-flow, automatic east and west turns are allowed for turboprops, where ATC turns aircraft westerly to a 230° heading and easterly to a 140° heading. North-flow operations currently do not have a similar splitting of workload and are less efficient than south-flow operations due to conflictions with BFI and the lack of an automatic westerly turn for turboprops.

During north-flow, SEA departing flights take off at a 340° heading. The departing aircraft have different climb rates and different acceleration rates. Due to the differences in these flight characteristics, the amount of time between departing flights varies to ensure that differing aircraft flight characteristics do not create safety issues in the NAS.

One of the ways ATC has to effectively manage SEA traffic and minimize potential safety issues is to put jets and turboprops on different headings using vectoring rules. Doing so minimizes/resolves the potential separation safety issues between these aircraft. ATC has been manually turning southbound turboprops to the 250° heading for many years. Under the manual turn procedures, some turboprops end up in the BFI conflict area and some end up being turned right away by the departure controller if there is no conflicting traffic. The departure controller is controlling departures off BFI and SEA, so they know what aircraft are released to depart BFI. The tower controller does not control aircraft at BFI and has no knowledge of the traffic situation that the departure controller has created. Delaying the turn would not ensure separation with the BFI departure path.

Automating this turn would reduce ATC workload and would ensure a more predictable path for turboprops as they leave SEA. In particular, this automatic westerly turn ensures separation with BFI traffic and SEA's arrival missed approach procedure, as well as allowing more aircraft to depart SEA within a given window of time. The reason the SEA ATCT has to ensure the turn is made within one NM is that they are not working the airplanes off BFI, so separation from that path must be ensured. This proposal is part of an effort to have north-flow efficiency match those of south-flow by giving SEA ATCT the same tools to get aircraft departed as quickly as possible.

4.0 ALTERNATIVES

4.1 Proposed Action

The Proposed Action would modify the existing LOA to allow SEA ATCT to automatically turn select turboprops. This action applies to turboprops that are currently turned southwest through direct coordination between SEA ATCT and S46 on initial contact or shortly thereafter. With the automation of this procedure, the turboprops must make the turn to the 250° heading within one NM of the runway end, thereby enhancing the safety and efficiency of the NAS. This was the alternative presented during the community involvement outreach, which is described below in Section 6.0 Public/Community Involvement.

4.2 Preferred Alternative

The Preferred Alternative is the same as the Proposed Action, except that automatic westerly turns would be suspended and ATC would revert to coordinating turns between SEA and S46 between 10 pm and 6 am. FAA made this change in response to comments from the City of Burien and other comments. Suspending the automatic westerly turn is consistent with procedures currently in place to avoid flight noise over sensitive areas after 10 pm during north flow. FAA can accommodate the request to suspend automatic westerly turns after 10 pm because there are fewer departures.

4.3 No Action

During north-flow, SEA ATCT will continue to coordinate with S46 to get clearance to turn southbound turboprops to a westerly heading. This coordination results in multiple westerly headings being utilized, and the planes receiving instructions to turn westerly at different points immediately after takeoff. This coordination commonly results in a 250° heading, but other headings may be issued if conditions warrant to maintain safe aircraft separation.

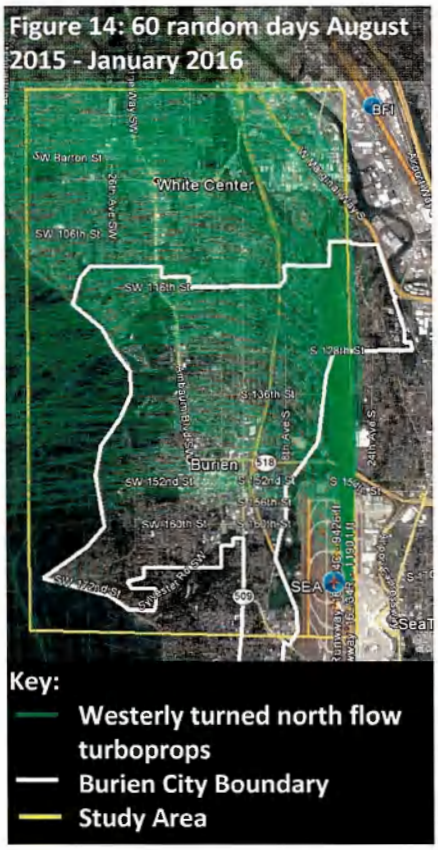


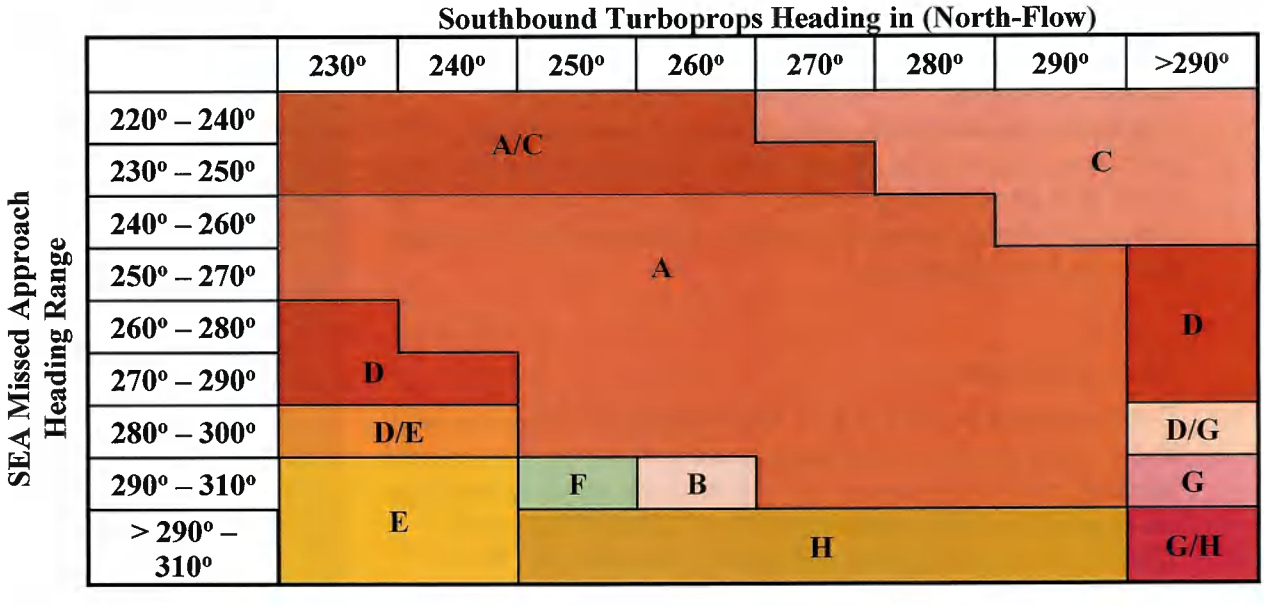
Figure 14 shows the flight tracks of westerly turned southbound turboprops in north-flow from 60 random days between August 2015 and January 2016. Note the variety of locations where the westerly turn was initiated, as well as the variety of headings.

4.4 Alternatives Considered but Eliminated

A number of alternatives were analyzed and the results of the analysis are summarized below:

1. **Change the Heading of the Turboprop Automatic Turn or the Missed Approach Procedure.**
   Multiple potential new turboprop automatic headings were suggested during the comment period by members of the public and by the City of Burien. Since the turboprop departure heading and missed approach procedure each have design criteria that require minimum separation distances and they are in close proximity, they need to be evaluated together. The Missed Approach Heading Range evaluation, as shown in Table 1 below, is based on protecting the entire heading range. This means that when a conflict exists which affects only part of the Missed Approach Heading range, the entirety of the Missed Approach heading range is rendered unusable. Various headings for the southbound turboprops and the missed approach range of headings were evaluated, as listed per letters A through H.

Table 1: Evaluation of Modifying Headings for Southbound Turboprops and/or the Missed Approach Procedure



A: A minimum of 30° separation is required between a departure and a missed approach heading per FAA Order 7110.65W Section 5-8-5. These combinations of southbound turboprop headings and missed approach headings do not provide the minimum 30° divergence. For this reason, the FAA has determined these heading ranges do not meet the Purpose and Need to enhance NAS safety and efficiency at SEA during north-flow operations.

B: The 30° separation required between a departure and a missed approach heading as per FAA Order 7110.65W Section 5-8-5 is the minimum required separation. A greater degree separation may be necessary depending on the situation. Figure 15 illustrates the flight tracks on the 250° heading and the estimated location of turboprops on the 260° heading as well as the protected missed approach airspace.

ATC cannot predict when a missed approach is going to occur. Furthermore, because the automatic 250° heading is not a NEXT Generation Air Transportation System procedure and aircraft are more spread out as they turn onto the 250° heading, additional separation is beneficial beyond the minimum 30° separation requirement between a missed approach aircraft and a southbound turboprop flight path. Therefore, additional angle of separation is strongly desirable to protect the 290° to 310° missed approach heading under this scenario. Figure 15 also illustrates that, prior to reaching the Puget Sound there is minimal difference between the ground track of the flights on a 250° verses a 260° heading. After this point, however, there is less separation between the departures on a 260° heading and the missed approach protected airspace than with the departures on a 250° heading. This decreased separation between the flight tracks on the 260° heading and missed approach corridor correlates to an increased risk. Given this increased risk, pursing utilizing the 260° heading for the southbound turboprops in north-flow was not

pursued for further analysis and the FAA has determined a turboprop heading of 260° with the missed approach heading range of 290° to 310° does not meet the Purpose and Need to enhance NAS safety and efficiency at SEA during north-flow operations.

Figure 15: Illustration of the difference between the 250°, 260° and how this relates to the 290° missed approach airspace.

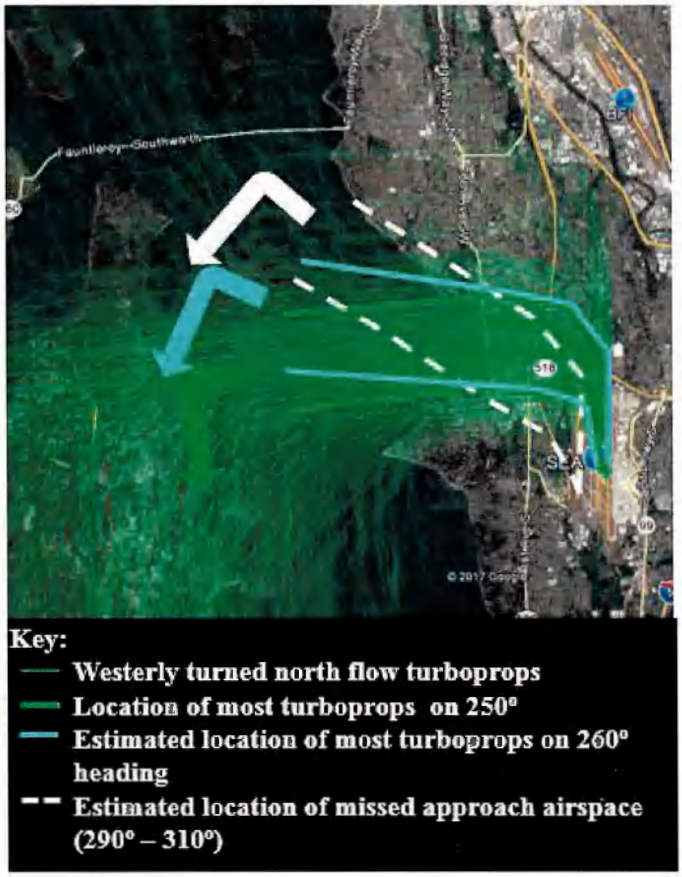
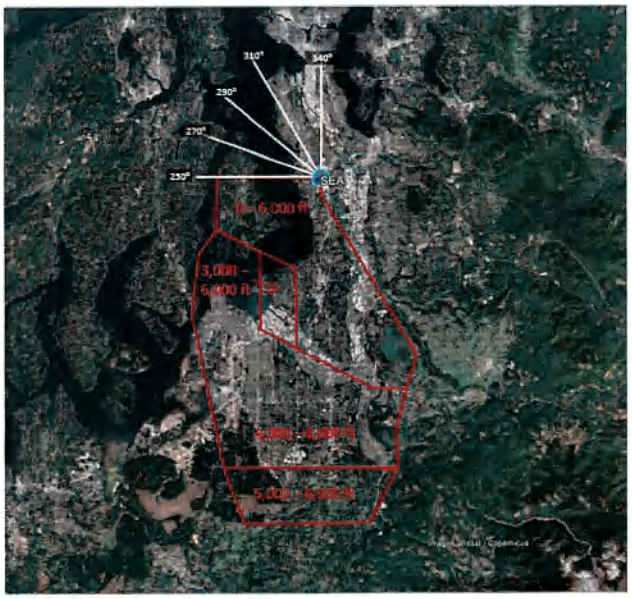


Figure 16: Final Approach W Sector for SEA Arrival in North-Flow



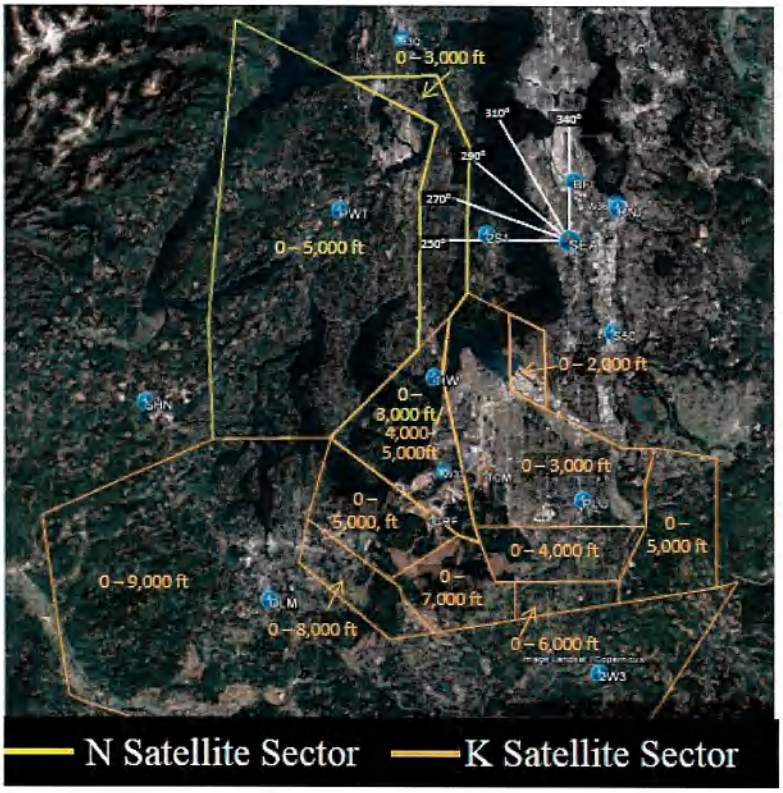
C: Having the missed approach corridor which includes headings of less than 250° directs aircraft into the Final Approach F Sector, as illustrated in Figure 16.

The Final Approach F Sector is the busiest sector at SEA and the air traffic controller managing this sector does not accept aircraft until they are sequenced and all required airport information has been provided to the aircraft by the previous controllers. A missed approach aircraft needs to be given time to set up for a new approach, be issued landing and weather information then get turned to the downwind and sequenced with other arrivals prior to being handed off to the Final sector. Missed approach aircraft often have mechanical issues that they need to resolve, or in the case of a weather related missed approach, they have to decide to attempt the approach again or divert to another airport. Turning the missed approach to less than a 250° heading would place this aircraft into the final controller's airspace without being properly sequenced and coordinated. Having a missed approach aircraft go directly to the final controller in that location adds an unnecessary burden to that sector. Given the increased risk inherent in handling missed approach aircraft at the same altitudes as the aircraft on final approach in the busiest sector, the FAA has determined not to pursue further analyzing missed approach headings at less than 250°. In addition, the FAA has determined it does not meet the Purpose and Need to enhance NAS safety and efficiency at SEA during north-flow operations.

D: Having the missed approach corridor at headings greater than 250°, but less than 290° directs these aircraft into the Satellite N and K Sectors, as illustrated in Figure 17. These sectors are normally managed by a single air traffic controller and service the smaller airports to the west and south of SEA, including final approaches into these airports.

Departures need to climb as quickly as possible. ATC requires 90° course divergence from the arrivals in order to climb a departure as soon as flight paths cross. Arrivals on the downwind are heading 160°–164°. Any heading other than 90° perpendicular to the arrivals would delay the climb of a departure while waiting on three miles separation to exist. This type of delay could cause conflicts in other areas, as departures also have to make it above the arrivals from the south after tunneling under the ones from the northwest.

Figure 17: Satellite K and N Sectors for non-SEA Airports while SEA is in North-Flow



As mentioned in association with sending a missed approach aircraft into the Final Approach Sector, a missed approach aircraft needs to be given time to set up for a new approach, be issued landing and weather information, be turned to the downwind, and be sequenced with other arrivals prior to being handed off to the Final sector. Missed approach aircraft often have mechanical issues that they need to resolve or in the case of weather related missed approach, they have to decide to attempt the approach again or divert to another airport. Turning the missed approach into the Satellite Sectors would place this aircraft into the same geographical space and altitude as aircraft attempting to land to those satellite airports. There are no conflicts with SEA southbound turboprop departures crossing into the same geographical airspace as the Satellite N and K sectors as these turboprop departures are instructed to climb, such that they would be above these sectors. Given the increased risk inherent in handling missed approach aircraft at the same altitudes as the aircraft on final approach to satellite airports, the FAA has determined this proposal does not meet the Purpose and Need to enhance NAS safety and efficiency at SEA during north-flow operations.

E: Having the north-flow southbound turboprop heading at less than 250° directs aircraft into the Final Approach F Sector, as illustrated in Figure 16. This is S46's busiest sector. The air traffic controller managing this sector is primarily concerned with ensuring the safety of all SEA arrivals. This combination of headings would create an airspace complexity for ATC that increases risk by sending departures into an arrival sector. For this reason, the FAA has determined this combination of headings does not meet the Purpose and Need to enhance NAS safety and efficiency at SEA during north-flow operations.

F: There are no conflicts with the south bound turboprop heading or the missed approach corridor with the Final Approach Sectors, either for SEA or associated with the satellite

airports. This combination of headings meets the Purpose and Need to enhance NAS safety and efficiency at SEA during north-flow operations.

G: Southbound turboprops in north-flow need to be placed on a heading with at least a 30° separation from the missed approach corridor to comply with FAA Order 7110.65W Section 5-8-5. This would place the missed approach corridor at a minimum heading of 330°. Given the proximity to the jet departures from SEA, this combination of headings would negate the efficiency gains intended to be captured by turning the southbound turboprops out of the way of the jet departures. For this reason, the FAA has determined this combination of headings does not meet the Purpose and Need to enhance NAS safety and efficiency at SEA during north-flow operations.

H: Missed approach corridor at headings greater than 310° places aircraft using the missed approach procedure at less than the required 3 NM separation aircraft arriving at and departing from BFI. For this reason, the FAA has determined it does not meet the Purpose and Need to enhance NAS safety and efficiency at SEA during north-flow operations.

2. **Southbound Turboprops Fly to an Altitude of 3,000 Feet Prior to Turning.** This was suggested during the comment period by members of the public as well as by the City of Burien during the July 25, 2017 meeting. Leaving the south bound turboprops at runway heading until 3,000 feet would place these turboprops in conflict with BFI departures prior to their turn and SEA jet departures routed over Elliot Bay. Furthermore, having these turboprops on the same pathway as the SEA jet departures until they reach this altitude would negate the efficiency gains intended to be captured by turning the south bound turboprops out of the way of the jet departures. For this reason, the FAA has determined it does not meet the Purpose and Need to enhance NAS safety and efficiency at SEA during north-flow operations.

3. **Delay the Initiation of the Westerly Turn, Up to within Two NM of Runway End.** During the public comment period, a member of the public suggested delaying the westerly turn and the City of Burien requested further clarification on this suggestion.

   Due to close proximity of SEA and BFI airports, a westbound turn must be issued within 1 NM of the runway end to ensure separation from aircraft departing BFI and maximize SEA departure efficiency. As requested, a later turn does not meet separation criteria between SEA and BFI departures per FAA JO 7110.65 Air Traffic Control and would affect the flow of traffic departing BFI. A later turn or flight path through Elliott Bay also reduces SEA departure efficiency, which could result in departure delays during higher demand periods. During overnight hours, traffic is much lighter at SEA and BFI, and maximizing efficiency with the use of automatic turns is not as critical for managing demand.

   The FAA has determined this alternative does not meet the Purpose and Need to enhance NAS safety and efficiency at SEA during north-flow operations.

4. **Fly at Higher Altitudes/Have a Steeper Climb Gradient**.
This alternative was suggested during the comment period by members of the public as well as by the City of Burien during the July 25, 2017 meeting. There is no altitude restriction associated with the Proposed Action, so pilots have the ability to climb as much as they feel is within the safe operation of the aircraft. Instituting an altitude restriction may interfere with how the pilots would safely fly their aircraft. For this reason, the FAA has determined this alternative does not meet the Purpose and Need to enhance NAS safety and efficiency at SEA during north-flow operations.

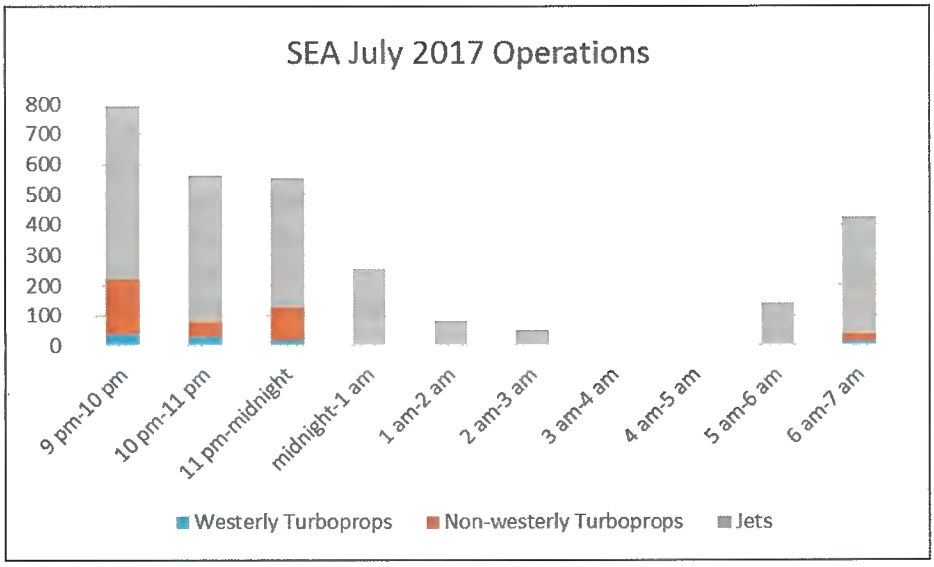
5. **Alternate Turboprop Westerly Turn Between Different Headings.**
This alternative was offered as a suggestion during the comment period. The primary goal of ATC is to ensure the safety of the NAS and to make it as efficient as possible. Having different headings for these southbound turboprops in north-flow creates an unnecessary complexity, which makes the job of ATC harder and creates risks. Given the elimination of other headings described above, there aren't many options to use for alternating headings. The only available headings left are 250° and 260°. And as discussed above, the 260° heading, while technically compliant with the 30° minimum separation from the missed approach heading window, has several downsides that make the 250° heading strongly preferable. It is not safe for ATC to not know what heading an aircraft will depart on. South-flow headings do not alternate; easterly headings do not alternate. Alternating headings is inconsistent, and not a procedure that is commonplace in ATC.

   FAA requires 15° divergence between aircraft, and airspace is protected based on procedures. Controllers rely on consistency of flight tracks to notice when things are off such as winds affecting flight paths, an aircraft has turned to the wrong heading due to a mistake or emergency situation, etc. Often small deviations from the norm is what alerts controllers to developing situations.

   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, so it does not meet the Purpose and Need to enhance NAS safety and efficiency at SEA during north-flow operations.

6. **Turn the Southbound North-Flow Turboprops to the East.**
This alternative was proposed during the comment period by members of the public. The east departure sector manages the aircraft departing to the eastern gates (T, M and A gates as shown in Figure 9). Given the volume of traffic with eastern destinations, this is one of the busiest sectors and consequently there is insufficient capacity to add additional departures into the gates in this sector. This alternative has been determined to be unsafe. Therefore, the FAA has determined this alternative does not meet the Purpose and Need to enhance NAS safety and efficiency at SEA during north-flow operations.

7. **Extend the timeframe where SEA ATCT has to coordinate with S46 be extended from 9 pm to 6 am or 10 pm to 7 am**
The City of Burien requested that this alternative be evaluated. The table below shows the departure information for SEA flights from July 2017.



As depicted, traffic volume from 9 pm to10 pm is high, and during that hour, ATC is approaching a more restrictive noise abatement operation beginning at 10 pm. Changing the start time to 9 pm would negatively impact operational efficiency and increase controller workload due to the need for coordination between SEA ATCT and S46.

Operational growth at SEA is moving to the hours such as 6 am to 7 am since the airport is essentially at capacity during daytime hours. To accommodate the anticipated additional growth, ATC needs tools such as the automatic turn since it is critical for managing demand.

Additionally, suspending the automatic turn from 10 pm to 6 am will keep consistency between the more restrictive noise abatement operations and the suspension of the automatic turn.

Since these hours between 9 pm and 10 pm and between 6 am and 7 am are part of the high demand time for ATC, FAA determined the extension of hours should not be added to the hours when the automated turn is suspended, to help manage ATC workload. FAA has determined this alternative does not meet the Purpose and Need to enhance NAS safety and efficiency at SEA during north-flow operations.

5.0 ENVIRONMENTAL IMPACT ANALYSIS

The determination of whether a proposed action may have a significant environmental effect is made by considering any requirements applicable to the specific environmental impact categories discussed below (see FAA Order 1050.1F).

5.1 Impact Categories Eliminated from Analysis

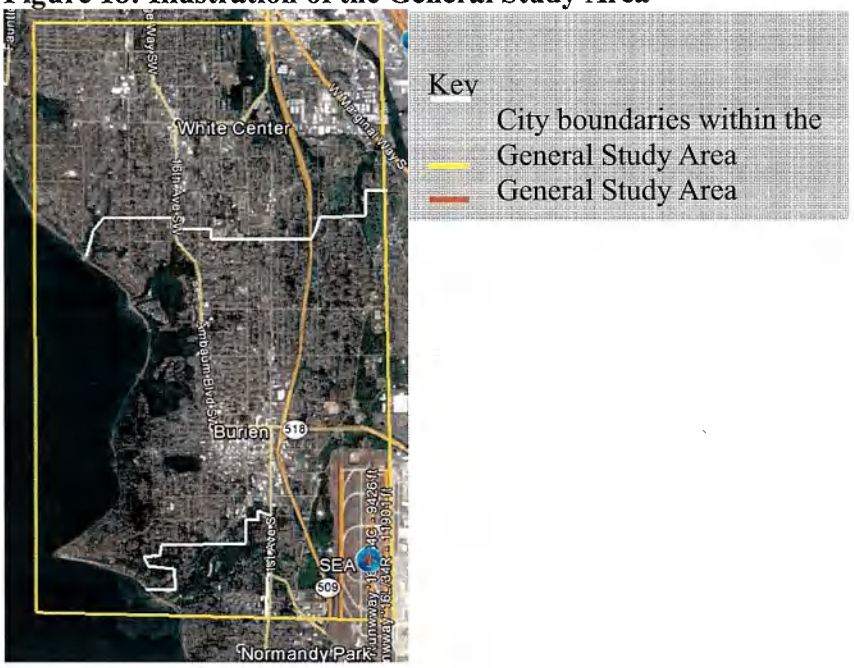
The Preferred Alternative does not involve land acquisition, physical disturbance, or construction activities. The Preferred Alternative would automate daytime vectoring procedure approval, so there would be no increase in the number of airport operations. Given the scope of the Preferred Alternative, the following NEPA impact categories were assessed and were considered either to not be present or to have negligible or non-existent effects, and in accordance with CEQ regulations, did not warrant further analysis in the CATEX:

- Coastal Resources
- Farmlands
- Hazardous Materials, Solid Waste, and Pollution Prevention
- Natural Resources and Energy Supply
- Water Resources (including wetlands, floodplains, surface waters, groundwater, and wild and scenic rivers)

General Study Area

The study area for the Preferred Alternative shown below in Figure 18 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. The lowest altitude change for the turboprops is at approximately 500 feet mean sea level (MSL).

Figure 18: Illustration of the General Study Area



5.2 Resources That Have the Most Potential to be Affected by the Alternatives

5.2.1 Air Quality

This section describes air quality conditions within the General Study Area. In the United States, air quality is generally monitored and managed at the county or regional level. The U.S. EPA, pursuant to mandates of the federal Clean Air Act, (42 U.S.C. § 7401 et seq. (1970)), has established the National Ambient Air Quality Standards (NAAQS) to protect public health, the environment, and quality of life from the detrimental effects of air pollution. Standards have been established for the following criteria pollutants: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM), and sulfur dioxide (SO_2). PM standards have been established for inhalable coarse particles ranging in diameter from 2.5 to 10 micrometers (μm) (PM_{10}) and fine particles less than 2.5 μm ($PM_{2.5}$) in diameter.

Per the Environmental Protection Agency's website[5], the Seattle-Tacoma Area is within a maintenance area. However, no additional operations will result from the Preferred Alternative, and there is no change in the number of turboprops within the air basin. The proposed action may result in turboprops making the turn to the 250° heading sooner than under current procedures except between the hours of 10 pm to 6 am, which may result in equivalent or slightly less emissions since the turboprops may reach their southbound heading sooner. Therefore, the Preferred Alternative is not expected to impact air quality.

5.2.2 Biological Resources

This section describes biological resources within the General Study Area. The Preferred Alternative involves only ATC routing changes for southbound turboprops and does not entail any ground-based development that could destroy or modify critical habitat for any protected

[5] https://www3.epa.gov/airquality/urbanair/sipstatus/reports/wa_areabypoll.html

species. Therefore, the potential impacts to biological resources from the Preferred Alternative are limited to wildlife.

In compliance with Section 7(c) of the Endangered Species Act of 1973 (ESA), as amended, a list of threatened, endangered, candidate and proposed species by county was reviewed using the U.S Fish and Wildlife Service website[6] in November 2017. Per the website, King County has the following threatened and endangered wildlife in the study area: the Oregon spotted frog, the yellow-billed cuckoo, the northern spotted owl, the marbled murrelet, the streaked horned lark, the gray wolf, and the Canada lynx.

The website was also used to review the Current Ranges for the species. The following ESA species do not have current ranges in the General Study Area: the Oregon spotted frog, the northern spotted owl, the gray wolf, and the Canada lynx.

There is no critical habitat for the species with ranges within the General Study Area: the yellow-billed cuckoo, the marbled murrelet, and the streak horned lark.

Yellow-billed Cuckoos[7] forage slowly and methodically in treetops for large, hairy caterpillars—their slow approach can make them hard to find. However, they are vocal birds, and their slow, rolling, guttural calls are distinctive. They fly in a straight path using sharp wingbeats with a slight pause between them. They live mainly among the canopies of deciduous trees; look for them in woodland patches with gaps and clearings. In the West, this species is rare and restricted to the cottonwood-dominated forests that line larger rivers running through arid country. Yellow-billed cuckoos are not likely to live within the General Study Area.

The Marbled Murrelet[8] usually nests in trees greater than 200 years in age. They breed in coniferous forests near coasts, nesting on large horizontal branches high up in trees and they winter at sea. Marbled Murrelets are not likely to live within the General Study Area.

Horned Larks[9] are social birds, sometimes found in huge flocks outside the breeding season. They creep along bare ground searching for small seeds and insects. They often mix with other open-country species in winter flocks, including longspurs and Snow Buntings. For habitat, they prefer bare ground. They are found in open country with very short or no vegetation, including bare agricultural fields. They breed in short grassland, short-stature sage shrubland, desert, and even alpine and arctic tundra. Horned Larks are not likely to live within the General Study Area.

If some of the avian species migrate through the area, they could potentially be impacted by noise. However, the noise results from the All Arrivals and Departures model show that there are no changes to the noise exposure level within the General Study Area. The noise results from the Turboprop-Only model show that there are only very minor changes to noise exposure levels, and none of the changes are high enough to result in a reportable noise impact. Therefore,

[6] https://www.fws.gov/endangered/
[7] https://www.allaboutbirds.org/guide/Yellow-billed_Cuckoo/id
[8] https://www.allaboutbirds.org/guide/Marbled_Murrelet/lifehistory
[9] https://www.allaboutbirds.org/guide/Horned_Lark/id#

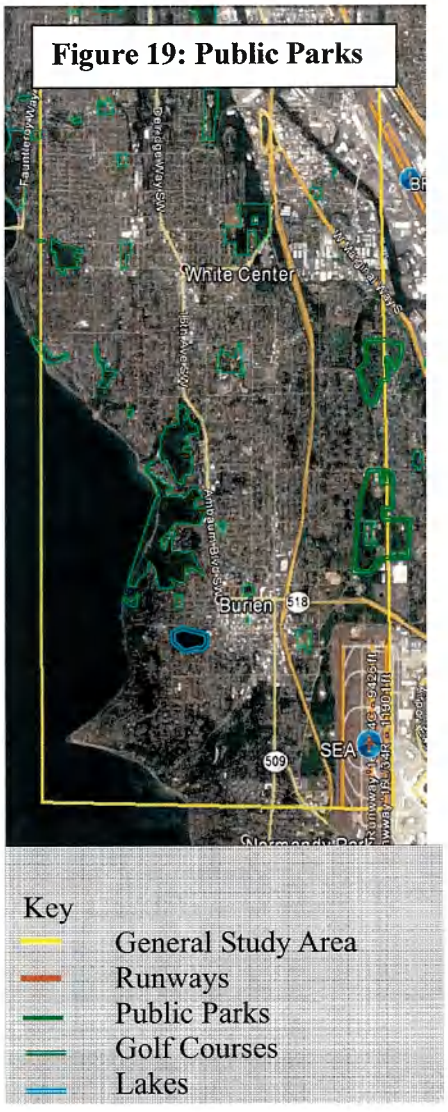
species noise exposure levels should not be different between the No Action and the Preferred Alternative. Therefore, the Preferred Alternative will have no effect on ESA species.

5.2.3 Climate

Greenhouse gases (GHGs) are naturally occurring and man-made gases that trap heat in the earth's atmosphere. These gases include CO_2, methane (CH4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF6). According to the EPA, the General Accounting Office (GAO) in 2009 reported that domestic aviation contributed approximately three percent of total national CO_2 emissions. Similarly, in its 2010 Environmental Report, the International Civil Aviation Organization (ICAO) estimated that aviation accounted for approximately three percent of all global CO_2 emissions resulting from human activity. The FAA considers CO_2 emissions from aircraft to be the primary GHG of concern.

The potential effects of proposed GHG emissions are by nature global and cumulative impacts. An appreciable impact on global climate change would only occur when proposed GHG emissions combine with GHG emissions from other human-made activities on a global scale. As the Preferred Alternative will not change the number of turboprop flights, and there will be only be very minor changes to turboprop flight paths, the potential increase of GHG emissions is not likely measurable, so it will not have an appreciable effect on climate change.

Figure 19: Public Parks



5.2.4 Department of Transportation Act, Section 4(f)

Section 4(f) of the DOT Act (codified at 49 U.S.C. § 303(c)), states that, subject to exceptions for de minimis impacts:

> … [the] Secretary of Transportation will not approve any program or project that requires the use of any publicly owned land from a public park; recreation area; or wildlife and waterfowl refuge of national, state, or local significance as determined by the officials having jurisdiction thereof, unless there is no feasible and prudent alternative to the use of such land…and [unless] the project includes all possible planning to minimize harm resulting from the use.

The term "use" includes both physical and indirect or "constructive" impacts to Section 4(f) properties. Direct use is the physical occupation or alteration of a Section 4(f) property or any portion of a Section 4(f) property. A "constructive" use does not require direct physical impacts or occupation of a Section 4(f) resource. A constructive use would occur when an action would result in substantial impairment of a resource to the degree that the activities, features, or attributes of the resource that contribute to its significance

or enjoyment are substantially diminished. The determination of use must consider the entire property and not simply the portion of the property used for a proposed project.

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 19 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 lakes are also illustrated in Figure19.

The parks within the General Study Area are listed below in Table 2.

Table 2: 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

There is no time of day when operations would impact these areas. The Preferred Alternative will not change the number of operations but some turboprop flight paths may shift to the south as shown in Figure 13.

The implementation of the Preferred Alternative will not result in a use and/or constructive use of properties protected under section 4(f) of the Department of Transportation Act. The noise results from the All Arrivals and Departures model show that there are no changes to the noise exposure level at any of these parks. 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 Preferred Alternative.

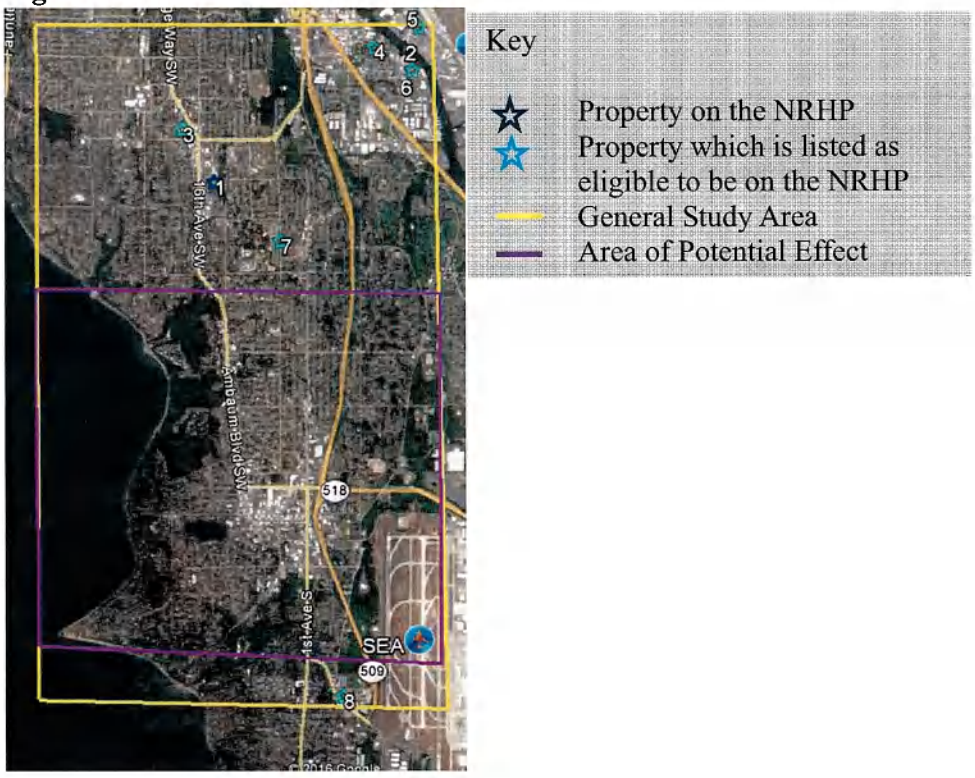
5.2.5 Historical, Architectural, Archaeological and Cultural Resources

The National Historic Preservation Act (NHPA) of 1966 (16 U.S.C. § 470, as amended) requires federal agencies to consider the effects of their undertakings on properties listed or eligible for listing in the National Register of Historic Places (NRHP). Compliance requires consultation with the Advisory Council on Historic Preservation, State Historic Preservation Officers (SHPO), and/or the Tribal Historic Preservation Officers (THPO).

This CATEX defines historic properties as resources that are listed or eligible for listing in the NRHP or relevant SHPO listings, or that have been identified through tribal consultation for values other than their archaeological qualities. It is possible that changes in aircraft flight routes associated with the Preferred Alternative could introduce or increase aircraft routing over historic resources and result in potential adverse noise impacts. However, as noted above, the Preferred Alternative does not involve ground disturbance that could potentially impact archaeological or architectural resources. Thus, the CATEX does not further discuss these resources.

Figure 20 shows the location of Area of Potential Effect and historic resources identified in the General Study Area.

Figure 20: Area of Potential Effect and Identified Historic Resources



Details on the National Register listed and eligible properties are provided in Table 3 below.

Table 3: Places Listed and Eligible for 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

* https://fortress.wa.gov/dahp/wisaardp3/

The FAA Proposed Action is entirely airspace based. Because of the nature of the Preferred Alternative, no land acquisition, construction, or other ground disturbance would occur. Accordingly, there would be no direct effects on historic resources listed on or eligible to be listed on the National Register of Historic Places (NRHP). Therefore, the determination of adverse effects would be limited to identification of indirect effects related to diminishing the integrity of a property. Indirect effects include changes in noise, vehicular traffic, light emissions, or other changes that could interfere substantially with the use or character of the historic building or structure or traditional cultural resource. Due to the scope of the Preferred Action, the most likely indirect effect is from noise.

The FAA made a determination of "No Effect" on properties listed or eligible to be listed on the National Register of Historic Places based on the noise results from the Turboprop-Only model that show that there are only very minor changes to noise exposure levels, and none of the changes are high enough to result in a reportable noise impact. Additionally, the noise results from the Turboprop-Only noise analysis show that, except in the immediate vicinity of SEA, both alternatives produce noise environments that fall below 45 decibel (dB) DNL. On May 4, 2017, the FAA wrote to the Washington State Historic Preservation Officer (SHPO), requesting concurrence with its No Effect determination. On May 10, 2017, the SHPO responded, concurring with the FAA's determination. All correspondence with the Washington SHPO is included in Appendix C.

As described in Section 5.2.7 Noise and Noise-Compatible Land Use below, FAA conducted a second noise analysis after the consultation with the SHPO after discovering the Turboprop-Only noise analysis showed noise exposure levels that were not consistent with the noise contours from the Part 150 Study from October 2013. The noise results from the All Arrivals and Departures model show that there are no changes to the noise exposure level within the General Study Area. Since the modeling results showed no change, FAA determined consultation with the SHPO did not need to be reinitiated.

5.2.6 Land Use

The compatibility of existing and planned land uses with an aviation or aerospace proposal is usually associated with noise impacts. Other potential impacts of FAA action may be to land use compatibility, such as disruption of communities, relocation, induced socioeconomic impacts, and land uses protected under Section 4(f) of the DOT Act.

According to the City of Burien zoning map[10], effective January 5, 2016 (see Appendix B), the portion of the City of Burien within the Study Area consists 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[11], dated Aug 2014 (see Appendix B) the areas within the General Study Area are either zoned for industrial, residential or commercial purposes.

According to the City of Normandy Park's 2016 future land use map[12] (see Appendix B), the areas within the General Study Area are zoned residential area and parks & open space.

The Preferred Alternative will only change ATC operations and a shift to southbound turboprop flight tracks. Therefore, the only potential community disruption or land use impacts from the Preferred Alternative would arise from noise.

The noise results from the Turboprop-Only model show that there are only very minor changes to noise exposure levels, and none of the changes are high enough to result in a reportable noise impact. Additionally, the noise results from the Turboprop-Only noise analysis show that, except in the immediate vicinity of SEA, both alternatives produce noise environments that fall below 45 decibel (dB) Day-Night Average Sound Level (DNL). The noise results from the All Arrivals and Departures model show that there are no changes to the noise exposure level.

Given the noise results described above, the FAA has determined that the Preferred Alternative would be consistent with all local plans and development efforts, and will not affect land use.

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[10] City of Burien Strategic Plan 2017-2020: http://burienwa.gov/DocumentCenter/View/6332
[11] Seattle's Comprehensive Plan 2035: http://www.seattle.gov/dpd/cityplanning/completeprojectslist/comprehensiveplan/whatwhy/default.htm
[12] 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

5.2.7 Noise and Noise-Compatible Land Use

Background

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 decibel[13] (dB) 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[14]. 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 or greater increase within the 65 DNL noise exposure.

The noise exposure levels for the No Action and Proposed Action[15] Alternatives calculated by the noise model using flight tracks data obtained for 60 random days prior to the implementation of the July 26, 2016 LOA. The noise exposure 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. FAA Order 1050.1F, Exhibit

[13] Decibels are measured logarithmically. This means that a change in noise exposure of 10 dB is a doubling of the noise exposure level.
[14] Federal Agency Review of Selected Airport Noise Analysis Issues, Report by the Federal Interagency Committee on Noise (FICON), August 21, 1992
[15] The Proposed Action rather than the Preferred Alternative was used for noise modeling.

4, defines FAA Significance Thresholds. The Noise and Noise-Compatible Land Use Significance Threshold is:

> "The action would increase noise by DNL[16]1.5 dB or more for a noise sensitive area that is exposed to noise at or above the DNL 65 dB noise exposure level, or that will be exposed at or above the DNL 65 dB level due to a DNL 1.5 dB or greater increase, when compared to the no action alternative for the same timeframe. For example, an increase from DNL 65.5 dB to 67 dB is considered a significant impact, as is an increase from DNL 63.5 dB to 65 dB."

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

Noise Evaluation

Two noise analyses were performed using the DNL metric. The first noise analysis only used turboprop fight tracks. This is the analysis that was included as part of the Preliminary Environmental Analysis[17]. The noise results from the Turboprop-Only model showed both the Proposed Action and the No Action alternatives produce noise environments that fall below 45 decibel (dB) DNL, except in the in the immediate vicinity of SEA, which is depicted in Figure 22 below.

As FAA started preparing NEPA documentation for the Preferred Alternative, the first noise analysis results were compared to the noise contours from the SEA Part 150 Study dated October 2013. FAA discovered that the noise exposure levels in the Turboprop-Only Analysis were not consistent with the Part 150 Study noise contours. This resulted in FAA conducting a second noise analysis that used all arriving and departing aircraft to account for the noise from all aircraft operating within the General Study Area.

Both noise analyses used the same 60 random days of aircraft flight tracks. Through the use of the DNL metric, the FAA evaluated the effect of the observed concentration of flight tracks over Burien.

- The Turboprop-Only noise analysis used the turboprop aircraft tracks only, a subset of the All Arrival and Departure aircraft tracks, which exaggerates any potential changes in noise exposure from the concentration of turboprop flight tracks. The Turboprop-Only noise results emphasize any changes in noise exposure, but the results do not reflect the existing cumulative noise environment because only the turboprop flight tracks were modeled.
- The All Arrivals and Departures noise analysis evaluated the cumulative noise environment by using all arrival and departure fight tracks.

[16] Day-Night Average Sound Level (DNL). The 24-hour average sound level, in decibels, for the period from midnight to midnight, obtained after the addition of ten decibels to sound levels for the periods between midnight and 7 a.m., and between 10 p.m., and midnight, local time. The symbol for DNL is Ldn (See 14 CFR § 150.7).
[17] FAA prepared a Preliminary Environmental Analysis, which was a summary of the environmental impact analysis completed to date. This analysis was posted to FAA's website as part of community outreach to ask the community to identify the best place to have aircraft fly

The FAA has determined that it is appropriate to use the results from the two noise analyses to determine potential impacts to specific environmental impact categories.

- The All Arrivals and Departures shows the cumulative noise environment, and the results show there were no changes in noise exposure levels and no noise impacts.
- The Turboprop Only noise results indicate very minor changes in noise exposure levels when comparing the Baseline to the Proposed Action, and no noise impacts. The noise impact shows no change because none of the changes in noise exposure do not exceed FAA's significant or reportable noise impact levels.

Turboprop-Only Operations Analysis

The Turboprop-Only analysis used turboprop departures track data. This analysis focused on the potential noise changes just from turboprops under the Proposed Action.

The noise results from the Turboprop-Only model conclude that there are only very minor changes to noise exposure levels, and none of the changes are high enough to result in a reportable noise impact. The results of the turboprop-only departure analysis are shown below.

Figure 22: Turboprop Only Procedures Noise Analysis Results

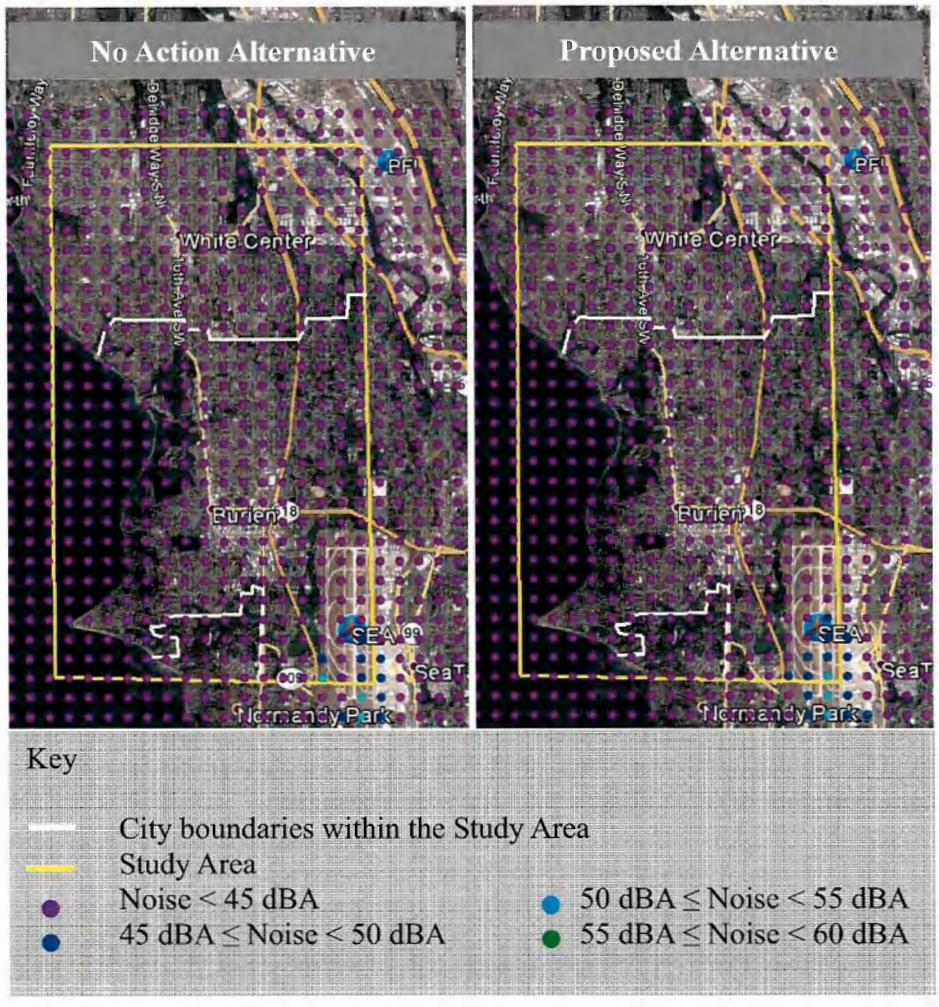


Table 4: Noise Results from Turboprop-Only Track Data

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

Table 5: Noise Impact Color Codes

	65 dB or higher	60–65 dB	45–60 dB
Minimum change in DNL with Alternative	1.5 dB	3.0 dB	5.0 dB
Impact	Significant	Slight to Moderate	Slight to Moderate
Noise Increases	Red	Orange	Yellow
Noise Decreases	Green	Blue	Purple

As illustrated in Figure 22 above, except in the immediate vicinity of SEA, both the No Action and Proposed Action have less than 45 dBA DNL[18] noise exposure within the Study Area. Therefore, the results in the table show that there will be no significant or reportable noise changes. There are very minor changes in noise exposure levels when comparing the baseline and alternative noise modeling results, but they do not meet the noise impact levels as described in Table 5 above.

All Arrival and Departure Operations

This noise analysis was conducted to show the total noise exposure levels within the Study Area. All arrival and departure operations were analyzed using the actual track data from before the original implementation of the automatic westerly turboprop turn. For the Proposed Action, the track data from when the LOA was implemented was used to define the boundaries of where the turboprops would fly for Proposed Action in the noise screening.

[18] 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.

The noise screening used track data from all arrivals and departures of the automatic 250° westerly turn for turboprops, resulting in noise exposure levels calculated for the Baseline and Proposed Action Alternatives. The Proposed Action was modeled in this second noise analysis because it was determined to be more conservative. The Proposed Action does not suspend the automatic westerly turns between 10 pm to 6 am, so the southern concentration of turboprop flight tracks would continue to be modeled at night, which has the potential to result in higher noise exposure levels in the areas underlying the flight track concentration.

The noise results from the All Arrivals and Departures model show that there are no changes to the noise exposure level within the General Study Area. The noise exposure levels for the All Arrival and Departure Operations are shown below.

Figure 21: All Arrival and Departure Noise Exposure Levels

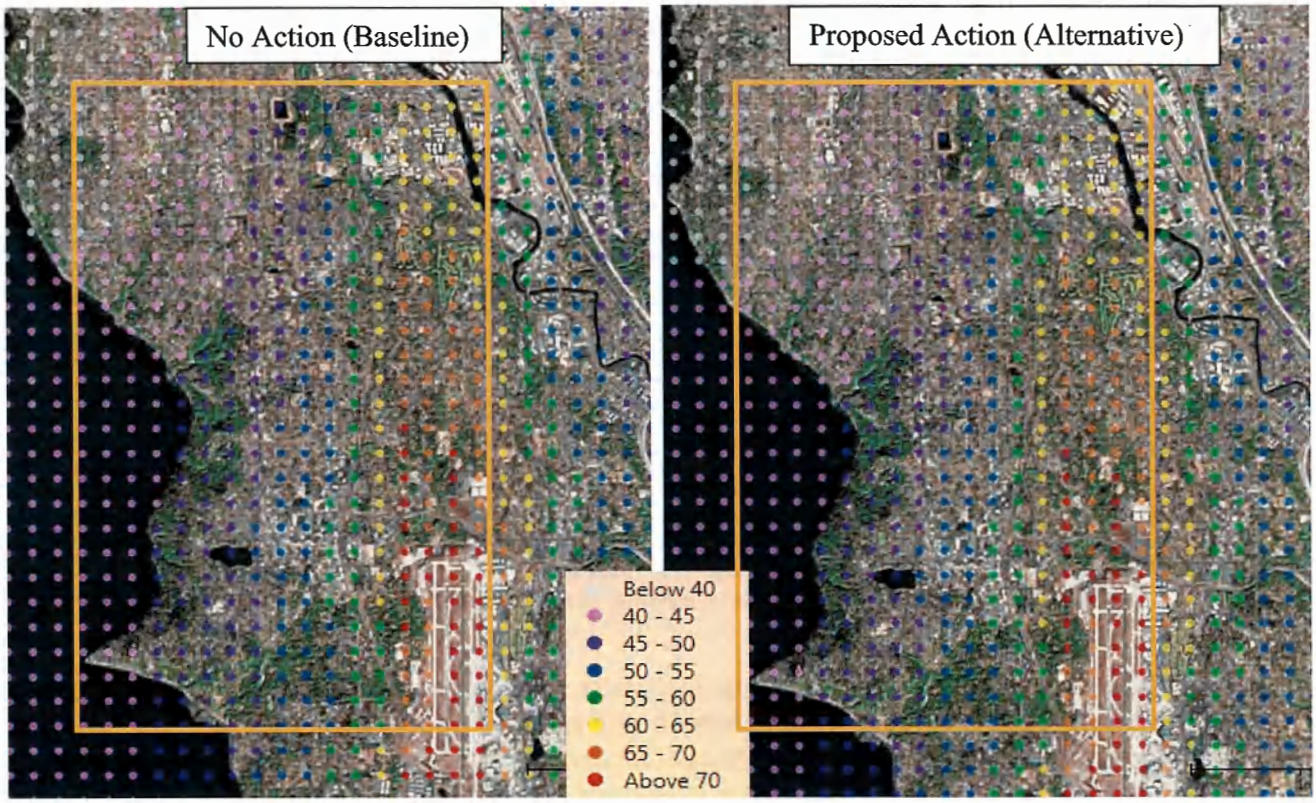


Table 6: Noise Results Using All Arrival and Departure Tracks

Baseline Exposure					
%65+dB	%65-60dB	%60-55dB	%55-50db	%50-45dB	%<45dB
5.2	5.6	6.9	8.8	13.8	59.7

Alternative Exposure					
% 65+dB	%65-60dB	%60-55dB	%55-50db	%50-45dB	% <45dB
5.2	5.6	6.9	8.8	13.8	59.7

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

As shown in the tables above, while there are some locations where the noise exposure level exceeds 65 dB, the noise significance threshold of +1.5 dB has not been reached. The tables also show that when all of the flights are accounted for in the noise analysis, the percentages of noise exposure levels in each category are identical when comparing the Baseline Exposure to the Alternative Exposure tables; therefore, there are also no reportable changes in noise exposure. Since the Proposed Action was more likely to result in a noise impact, and the noise analysis results determined there was no impact, it is reasonable to conclude that the Preferred Action does not have a noise impact.

As part of FAA's noise evaluation, FAA also compared the results of the All Arrival and Departure Operations noise analysis to the Part 150 Noise Compatibility Update for SEA, dated October 2013. This Part 150 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.

Geographically, the noise exposure levels in the All Arrival and Departure Operations noise analysis and Part 150 Study are reasonably close, which indicates that the results of the All Arrival and Departure Operations noise analysis is accounting for the cumulative impacts from all flights.

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

This section addresses the socioeconomic impacts, impacts on minority and low-income populations, and children's environmental health and safety risks of the Preferred Alternative as compared with No Action. Socioeconomic, environmental justice and children's health and safety impacts can result from changes in land use or transportation patterns or from other impacts to the environment, such as noise, air quality, and water quality for example. This analysis draws on the findings of other impact analyses, particularly noise, land use, and air quality.

Socioeconomics

Socioeconomics is an umbrella term used to describe aspects of a project that are either social or economic in nature. A socioeconomic analysis evaluates how elements of the human environment such as population, employment, housing, and public services might be affected by the proposed action and alternative(s). The principal social impacts to be considered are those

associated with relocation or other community disruption, transportation, planned development, and employment.

The Preferred Alternative does not involve land acquisition, physical disturbance, or construction activities because it focuses on changes to ATC procedures. In addition, the Preferred Alternative will not change the number of operations at SEA. There should be no changes to economic activity, employment, income, population, or public services including disruption to local traffic patterns. The amount of housing and social conditions should not be impacted by the Preferred Alternative.

There should be operational benefits through the reliable separation of departing turboprops from BFI traffic and SEA's missed approach, as well as being able to more consistently remove turboprops from the stream of straight out jet departures, allowing greater safety and efficiency of departures. The Preferred Alternative may also reduce daytime ground delays and congestion on the ground at SEA.

Environmental Justice and Children's Environmental Health and Safety Risks

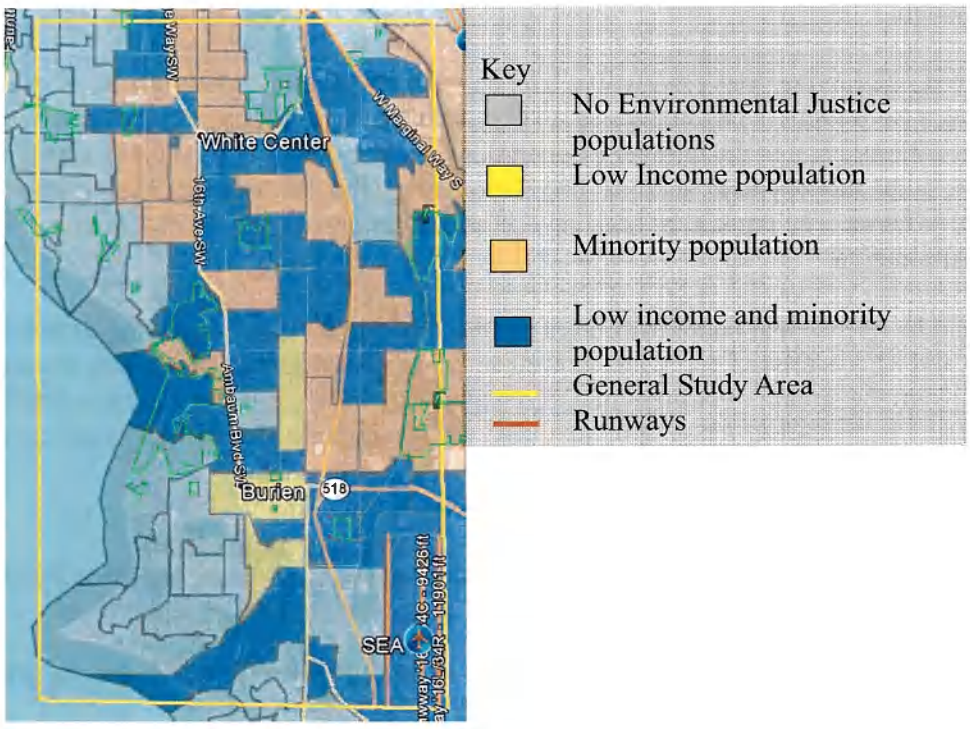
The following executive orders and guidelines require federal agencies to consider the effects of their actions on minority and low income populations (Environmental Justice):

- Executive Order 12989, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (59 FR 7629)*
- U.S. Department of Transportation (USDOT) Order 5610.2, *Environmental Justice in Minority and Low Income Populations*
- *Environmental Justice: Guidance Under the National Environmental Policy Act (CEQ, 1997)*
- *Final Guidance for Consideration of Environmental Justice in Clean Air Act 309 Reviews, (EPA, 1999)*

In weighing whether a proposed action raises environmental justice concerns, an agency considers whether a proposed action may have disproportionately high and adverse human health or environmental effects on minority and low-income populations.

Figure 23 below was created using the Environmental Justice Module in FAA's Aviation Environmental Design Tool (AEDT), using U.S Consensus 2015 data to determine if there are any minority or low income communities in the General Study Area.

Figure 23: Environmental Justice Communities per AEDT

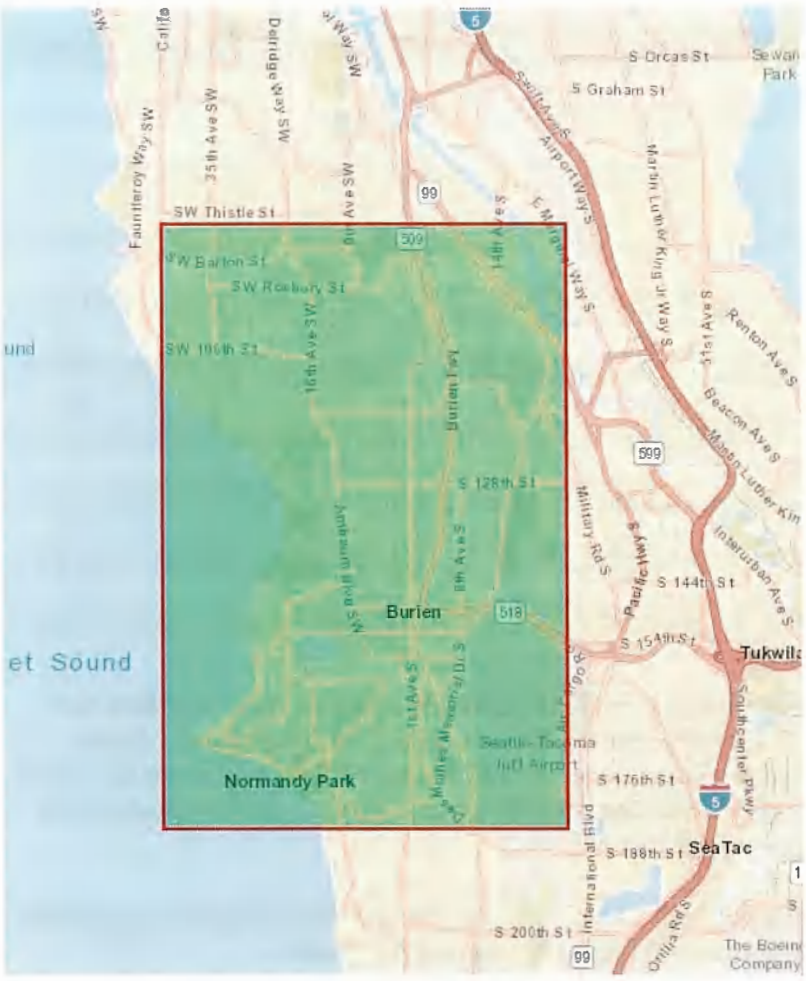


The results of the evaluation show there are multiple areas where there are populations that meet the definition of low income or minority within the Study Area, as shown in Figure 23 above.

Since AEDT did not provide data on children, FAA also used EPA's web-based EJScreen Tool[19] to determine the population of children in the General Study Area. The selected area was done using the rectangle tool, and may not exactly match the General Study Area identified above. The EJScreen Tool also provided information on minority populations.

[19] https://ejscreen.epa.gov/mapper/

Figure 24: EJ Screening Tool Study Area



The EJ Screen Tool also concluded that there are minority and low income communities within the General Study Area. In addition, the EJ Screen Tool indicates that the community within the General Study Area is comprised of 23% of children between ages 0 to 17.

Table 7: EJ Screen Tool Population Age Outputs

Population by Age	Number	Percent
Age 0-4	5,979	7%
Age 0-17	19,607	23%
Age 18+	66,051	77%
Age 65+	9,963	12%

Table 8: EJ Screen Tool Race Population Outputs

Population by Race	Number	Percent
Total	85,658	------
Population Reporting One Race	80,418	94%
White	49,867	58%
Black	6,213	7%
American Indian	1,396	2%
Asian	12,053	14%
Pacific Islander	1,495	2%
Some Other Race	9,395	11%
Population Reporting Two or More Races	5,240	6%
Total Hispanic Population	17,471	20%
Total Non-Hispanic Population	68,187	80%
White Alone	44,147	52%
Black Alone	5,888	7%
American Indian Alone	925	1%
Non-Hispanic Asian Alone	11,927	14%
Pacific Islander Alone	1,469	2%
Other Race Alone	192	0%
Two or More Races Alone	3,640	4%

Implementation of the Preferred Alternative would not adversely affect air quality or land use within the General Study Area. Additionally, per the Turboprop-Only noise analysis, 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. The noise results from the All Arrivals and Departures model show that there are no changes to the noise exposure level.

Therefore, there are no disproportionate impacts on minority, low income, and youth populations as a result of the Proposed Action as compared to the No Action Alternative.

5.2.9 Visual Effects

There is no defined threshold of significance for light emissions or visual impacts. Lands sensitive to visual impacts include National Parks, National Forest Wilderness Areas, and Tribal lands. None of these land types are found within the General Study Area.

The only potential for visual change or light emissions would be related to the shift in southbound turboprop flight paths. The Preferred Alternative would not introduce flight activity into any area that does not currently experience routine overflights.

Light emissions would not occur as a result of the Preferred Alternative because no additional operations will result from the Preferred Alternative and because the automatic 250° westerly turn is suspended between 10 pm and 6 am.

Visual resources and effects can be difficult to define and assess because they involve subjectivity. FAA received one comment on visual impacts during the comment period for the Preliminary Environmental Analysis. The commenter stated, "Seeing and hearing airplane traffic

over our home has had a significant negative impact on us and our home." FAA acknowledges the commenter's feelings, but has no data to support a finding of significant negative impacts.

Proposed aviation and aerospace actions do not commonly result in adverse visual effects, but these effects may occur in certain circumstances. The update of the LOA to allow the automation of the 250° westerly turn of the southbound turboprops will not change the levels of airport operations. There may be some concentration of flight paths within the General Study Area as a result of the implementation of the Preferred Alternative. However, given that aircraft have historically flown within the Study Area, as shown in Figure 13 above, the southern concentration in flight paths would only introduce minimal changes given the Preferred Alternative since it will only make a small change to the flight path for the southbound turboprops using the automated 250° westerly heading.

5.2.10 Cumulative Impacts

The FAA examined the Burien Plan[20], Washington State's current King County projects[21], Washington State's 4-year program of transportation projects ready for review[22], and the City of Normandy Park's Comprehensive Plan[23]. In particular, projects within the General Study Area were investigated to determine potential cumulative impacts. Table 9 provides details on the past, present, and future projects found:

Table 9: List of Past, Present and Reasonably Foreseeable Future Actions within the Study Area

	Name	Description	Location	Status
1	Resurfacing of 106th,107th and 108th streets.	Post overlay, new striping will create a bike lane where none exists.	White Center/ Highline	Pending a bike lane analysis and car count and outreach with the community.
2	Mini Roundabout Construction	Design and construction of a mini roundabout in Highline at the intersection of SW 102nd & 8th Ave SW. The mini roundabout may require right of way and will include relocation of a large electric utility pole at the SW corner.	Highline	Started in 2017, intended to be completed in 2018.
3	Construction of a stretch of missing sidewalk, curb and gutter along SW Roxbury Street	Project will replace uneven, cracked asphalt pathway with an 8 foot sidewalk, curb and gutter.	White Center	Intended start date in 2018

[20] The Comprehensive Plan for the City of Burien, Washington, December 14, 2009, revised December 2016
[21] http://www.transinfo.state.wa.us/projects/gis/mapping/mapcounty.asp?county=King
[22] http://www.wsdot.wa.gov/NR/rdonlyres/D4CF6A1B-C1FD-4AA1-88F8-3D6DE6AAF400/0/LP_2017_2020_STIP.pdf
[23] http://www.ci.normandy-park.wa.us/vertical/sites/%7BD313ED69-120E-439F-83D7-8BBE7447C948%7D/uploads/NormandyPark_CompPlan_Adopted_2016.01.26(1).pdf, dated January 2016

	Name	Description	Location	Status
4	The Sustain the Hyde Shuttles Project	Continues a coordinated, community-based paratransit operation in King County. The project provides affordable, accessible and appropriate transportation for seniors 55 years of age and older and people with disabilities of all ages.	Multiple locations, including Normandy Park, Burien, and all of Seattle except the downtown core.	There are two phases of the project, one to be completed in 2017 and the other to be started in 2017 and completed by 2019.
5	SR 518/Des Moines Memorial Drive Interchange Improvements[24]	Project will add a two-lane off-ramp from eastbound SR 518 to Des Moines Memorial Drive to support the planned redevelopment of the 135 acre Northeast Redevelopment Area that is being undertaken through incremental redevelopment of the area to land uses that are compatible with airport operations.	Burien	Project construction started in the summer of 2017, and is scheduled to be complete in the fall of 2018.
6	Northeast Redevelopment Area (NERA)[25]	This redevelopment plan was developed because many of the existing land uses in the NERA became incompatible with airport operations, and a new plan was needed for the area. The redevelopment area is bordered by South 138th Street to the north, 8th Avenue South to the west, and Des Moines Memorial Drive South to the east and south. The plan will aide NERA property owners in transitioning from the current mixture of vacant, residential, institutional, and small-scale commercial uses to land uses that are compatible with airport operations.	Burien	Ongoing
7	SR 509: Southbound S. 160th St. Vicinity to S. 112th St. Vicinity – Paving and ADA Compliance[26]	In the spring of 2015, contractor crews working for WSDOT repaved southbound SR 509 from South 112th Street to Southwest 160th Street in Burien. This four-mile stretch of highway,	Burien	Completed May 2015

[24] http://www.wsdot.wa.gov/Projects/SR518/desmoinesmemorialdrimprove/
[25] http://www.burienwa.gov/index.aspx?NID=320
[26] http://www.wsdot.wa.gov/Projects/SR509/160thTo112thPaving/

	Name	Description	Location	Status
		popularly known as the "Burien Freeway," was failing. Large cracks formed in the pavement and many areas were uneven as the result of potholes and previous maintenance repairs. Contractors also upgraded two pedestrian ramps at Southwest 128th Street to provide a safer transition for users.		
8	SR 509: S. Normandy Road Vicinity to 174th Intersection – Paving and ADA Compliance[27]	In summer 2015, contractor crews working for WSDOT repaved SR 509, also known as 1st Avenue South. The old pavement had deep cracks, chips, wheel ruts, and potholes. Once the new pavement was in place, crews replaced traffic detection equipment and placed new high visibility striping. In addition to new pavement, contractor crews upgraded 13 pedestrian ramps to meet current ADA standards.	Burien	Completed October 2015

The Study Area for the Preferred Alterative, show in Figure 18 above, was used to define the geographic extent for the cumulative impacts analysis. The cumulative impacts analysis focuses on those resource areas that may be impacted by the Preferred Alternative in conjunction with the past, present, and reasonable foreseeable future actions.

Actions 1 through 4 will address highway maintenance and/or safety deficiencies. Actions 7 and 8 are completed projects that addressed highway maintenance and deficiencies in compliance with the Americans with Disabilities Act. None of the projects did or will increase highway capacity, so any environmental impacts resulting from these projects will only be temporary during the construction period.

Action 5 is a highway project that will increase access to NERA, which is Action 6. The resources that may be impacted by the Preferred Alternative in conjunction with Actions 5 and 6 are: air quality, and noise and noise compatible land use.

Air Quality

No projects or proposals have been identified that, when combined with the Preferred Alternative, would violate any aspect of the current State Implementation Plan or threaten the attainment status of the region. In addition, no projects or proposals have been identified that,

[27] http://www.wsdot.wa.gov/Projects/SR509/NormandyRd174thPaving/

when combined with the Preferred Alternative, would have substantial GHG emissions, or would lead to a violation of any Federal, state, or local air regulation.

Noise and Noise-Compatible Land Use

Ground transportation changes in the NERA area may result in minor localized noise exposure changes in the immediate NERA area as a result of the SR 518/Des Moines Memorial Drive Interchange Improvements due to changes in traffic circulation patterns and improved access to the area. Land use changes in the area resulting from the NERA Plan are designed to make land use consistent with airport operations, which reduces sensitive noise areas that may be exposed to noise from airport operations.

Per the All Arrivals and Departures Noise exposure levels, the DNL in the NERA area range from the 60 – 65 dBA to over 70dBA. However, the noise results from the All Arrivals and Departures model show that there are no changes to the noise exposure level. Since the NERA area has been designed to be compatible with airport noise, and because there is no change in noise levels in the vicinity of NERA, this project in combination with the NERA development will not lead to a cumulative noise impact.

There are no projects identified above, that when combined with the Preferred Alternative, would have significant adverse noise impacts.

6.0 PUBLIC/COMMUNITY INVOLVEMENT

Community outreach was not undertaken prior to originally implementing the automatic 250° westerly turn for southbound turboprops on July 26, 2016 because FAA originally determined the automatic turn for southbound turboprops would not change where aircraft historically fly. After implementing the automatic 250° westerly turn, the Quiet Skies Coalition (QSC) and the City of Burien requested a meeting with FAA to discuss their concerns. Thus, FAA initiated community involvement and met with two members of QSC and the City of Burien on November 4, 2016.

At the November 4, 2016 meeting, QSC and the City of Burien conveyed the message that when FAA modified the LOA on July 26, 2016, the modification to turboprop operations created an

unannounced noise increase due to the shift in where turboprop aircraft flew, and that the change created a large noise impact to residents. QSC stated that they believed extraordinary circumstances apply, necessitating preparation of an Environmental Assessment to comply with NEPA. The City of Burien and QSC made it clear that they wished for the paragraph defining the 250° westerly heading and the distance from the end of the runway to be removed from the LOA. 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." The City of Burien ultimately 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 SEA. The City of Burien included their request to remove the LOA paragraph defining the 250° heading as part of the petition.

On March 24, 2017, the FAA removed the paragraph authorizing the automatic heading from the LOA. Since then, southbound turboprops in north-flow have been assigned a heading through direct coordination between SEA ATCT and S46. In the same timeframe as the LOA paragraph removal, the FAA initiated an environmental review under NEPA to investigate the impacts of the automatic heading for these southbound turboprops in north-flow.

FAA issued a press release on June 8, 2017 seeking comments on its Preliminary Environmental Analysis, which was a summary of the environmental impact analysis completed to date, and published it on a publically available website[28] from June 8, 2017 until July 5, 2017[29]. The FAA's purpose of the soliciting comments on the publically available Preliminary Environmental Analysis was to ask the community to identify the best place to have aircraft fly.

FAA received 716 comments from individuals and agencies on the Preliminary Environmental Analysis. Appendix D includes all comments and responses. Out of the specific comments received, FAA determined there were 23 general themes, and prepared general responses for the themes. Each comment letter has been bracketed, and either a general theme response is referenced, or specific comment response has been prepared.

The comment themes include: noise impacts (Generalized Responses, Response 1), air quality impacts (Response 2), damage to buildings from low flying aircraft (Response 3), impacts to property values from increased noise (Response 4), impacts to biological resources (Response 5), impacts from jet fuel dumping (Response 6), ATC's ability to change turboprop flight paths while maintaining safety (Response 7), requirements for environmental analysis through the National Environmental Policy Act (NEPA) (Response 8), entity responsible for setting aircraft operations levels (Response 9), health impact assessment requirements (Response 10), ATC safety requirements for setting turboprop headings (Response 11), impacts to low income and minority populations (Response 12), community involvement opportunities/requirements (Response 13), impacts from airplane flight path (Response 14), economic impacts (Response 15), the purpose of the Preliminary Environmental Analysis (Response 16), the appropriate level of NEPA documentation (Response 17), cumulative impact analysis (Response 18), impacts to

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

[29] The comment period was initially stated to be for two weeks, until June 21, 2017, but was extended by an additional two weeks until July 5, 2017 in response to a request made by Congresswoman Jayapal.

children health and safety (Response 19), noise impacts to parks (Response 20), requirements to coordinate with other agencies (Response 21), impacts to water resources (Response 22), and FAA's responsibility to ensure safe and efficient operations within the National Air Space (Response 23).

Out of the 716 comments, 205 of them raised issues that were not related to the automatic 250° westerly turn for the southbound turboprops. As seen in Appendix D, many of the members of the public who commented on the Preliminary Environmental Analysis did not agree with the determinations of the environmental analysis. All of the responses to these comments are contained within Appendix D.

The Environmental Protection Agency (EPA) provided comments during the preliminary environmental analysis comment period. The introduction in their comments stated that EPA's comments were in accordance with EPA's responsibilities under Section 309 of the Clean Air Act, and they did not include any comments regarding FAA's air quality analysis.

On July 25, 2017, the FAA met again with the City of Burien. The intent of the meeting was to discuss possible alternatives to the automatic 250° westerly turn, and several alternatives were suggested. On September 14, 2017, FAA met a third time with the City of Burien, where the City asked FAA to evaluate a number of alternatives, including: swapping the headings for missed approaches and southbound turboprops, and prohibiting the use of the automatic 250° westerly turn during night time hours.

The Alternatives Section of this document includes alternatives suggested by the public during the comment period, and alternatives suggested by the City as a result of meetings with FAA. The Preferred Alternative, which suspends automatic westerly turns between 10 pm and 6 am, was developed in response to concerns expressed by the City of Burien and members of the public. Suspending the automatic westerly turn is consistent with procedures currently in place to avoid flight noise over sensitive areas after 10 pm during north flow. FAA can accommodate the request to suspend automatic westerly turns after 10 pm because there are fewer departures.

7.0 MITIGATION MEASURES

No mitigation measures have been identified.

8.0 PREPARER(S)

The person(s) listed below are responsible for all or part of the information and representations contained herein.

Name: Elizabeth Healy
Title: Environmental Protection Specialist
Operations Support Group
Western Service Center

Name: Caroline Poyurs
Operations Research Analyst
Western Service Center

Appendix A

Initial Environmental Review

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/

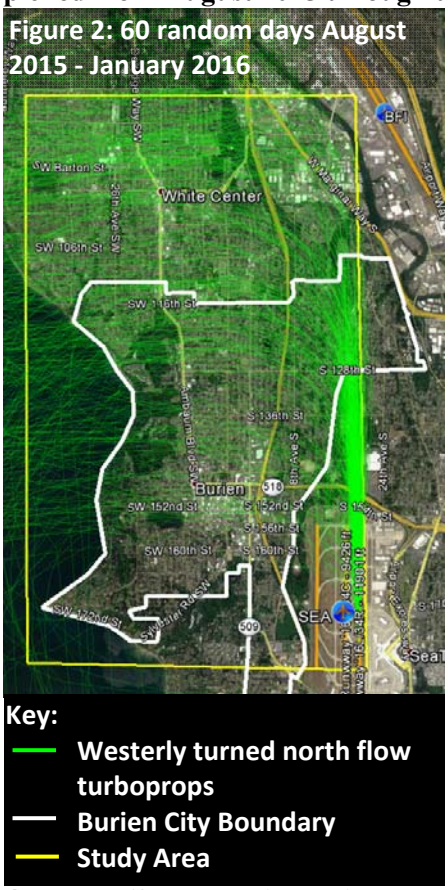
B. Has airspace modeling been conducted using Sector Design Analysis Tool (SDAT), Total Airspace and Airport Modeler (TAAM), Terminal Area Route Generation, Evaluation, and Traffic Simulation (TARGETS), or other airspace/air traffic design tool?

☐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

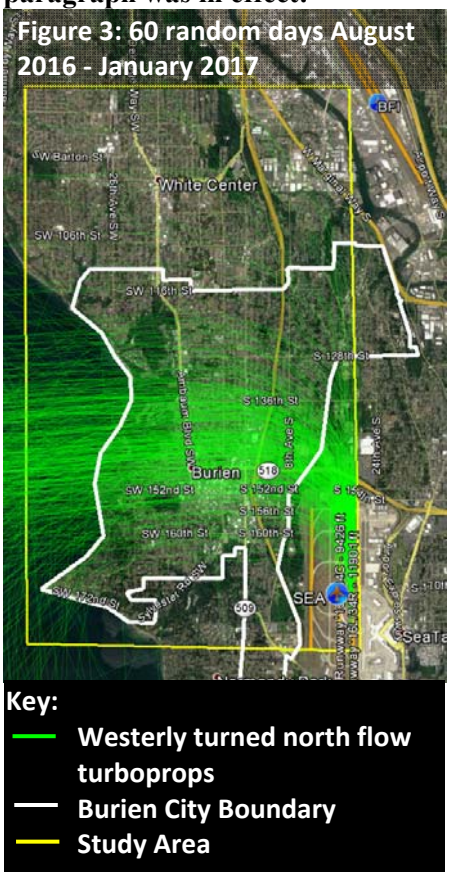
assign heading 250°, assign runway heading to 9,000 and coordinate with the appropriate departure controller."

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.

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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.

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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

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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

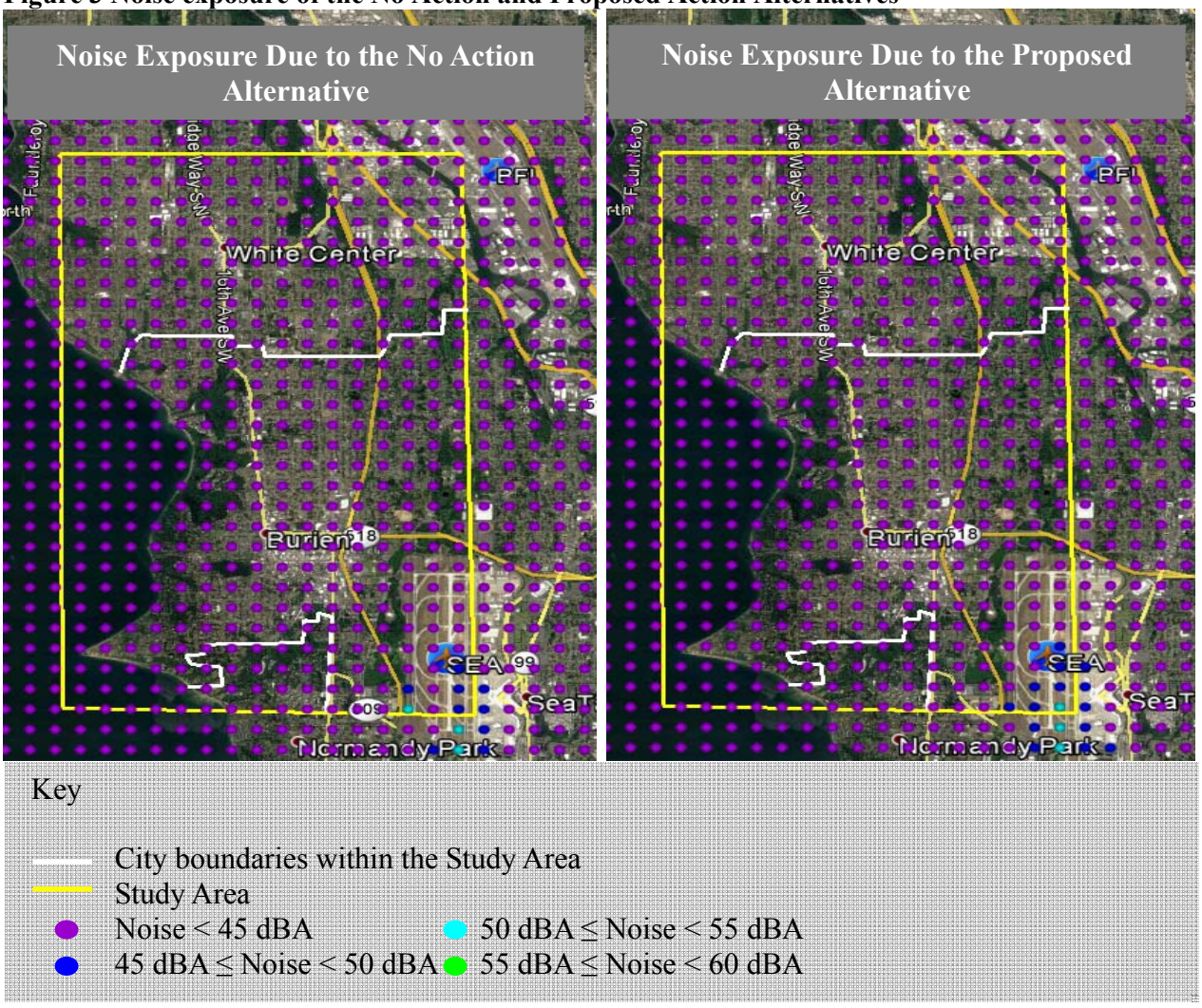
Alternative Exposure					
% 65+dB	% 65-60dB	% 60-55dB	% 55-50db	% 50-45dB	% <45dB
0	0	0	0.2	0.7	99.1

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.

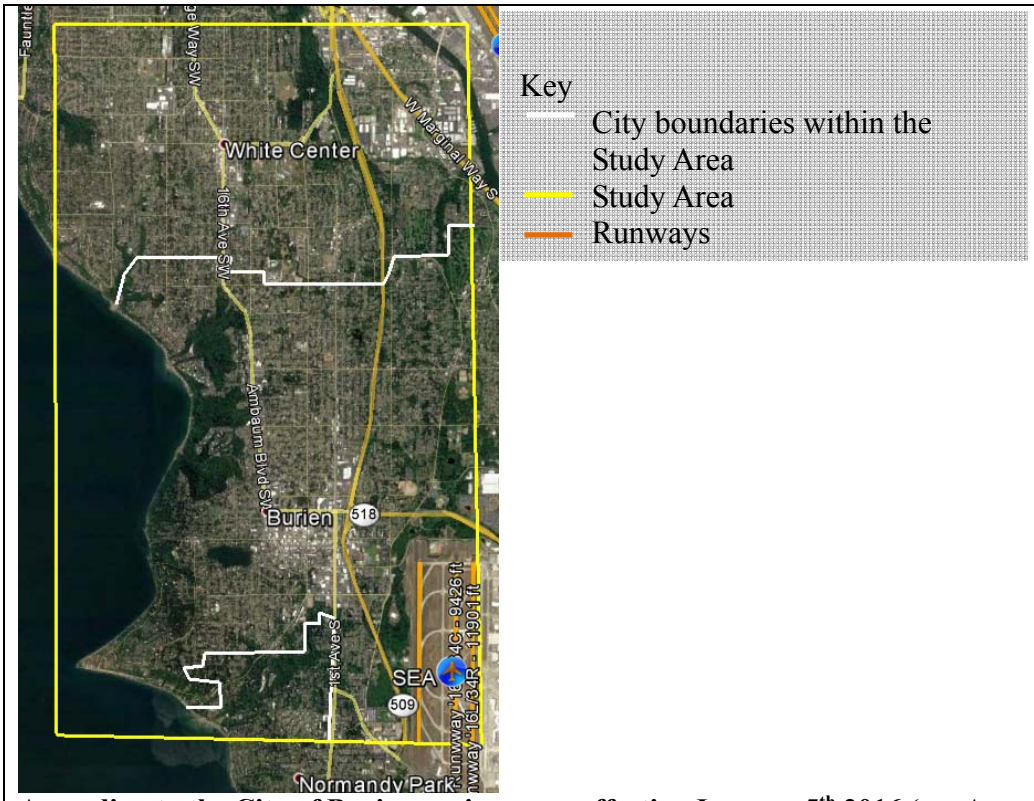
5. Describe the Affected Environment

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.

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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

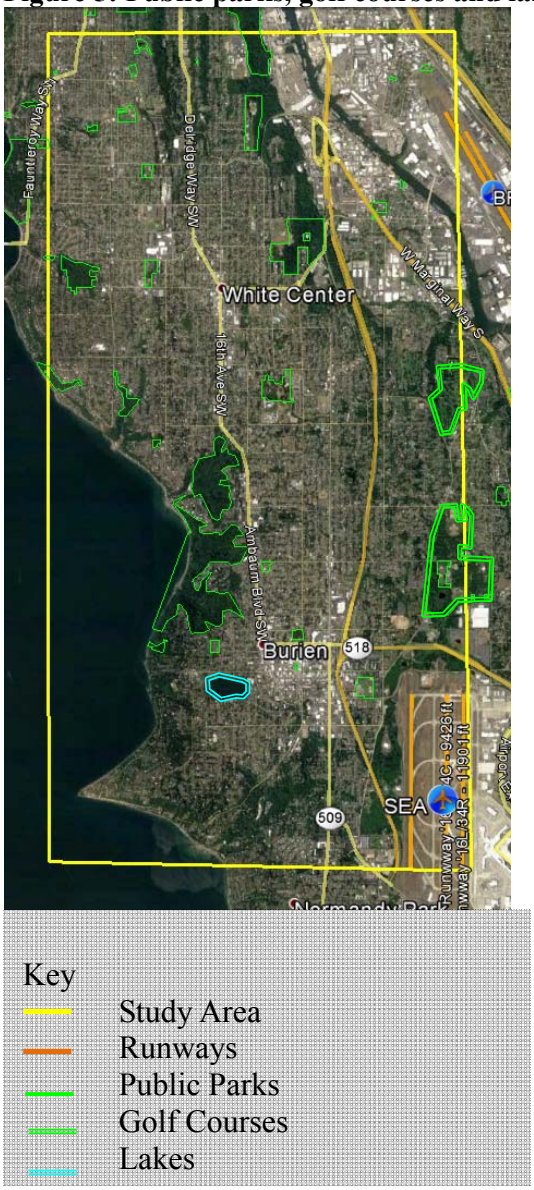


Table 1: Public Parks within the Study Area			
	Public Park		**Public Park**
1	Moshier Memorial Park	18	Oxbow Park
2	Burien Town Square Park	19	West Duwamish Greenbelt Puget Park
3	Eagle Landing Park	20	Riverview Playfield
4	Lake Burien School Memorial Park	21	Pudget Ridge Playground
5	Dottie Harper 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.

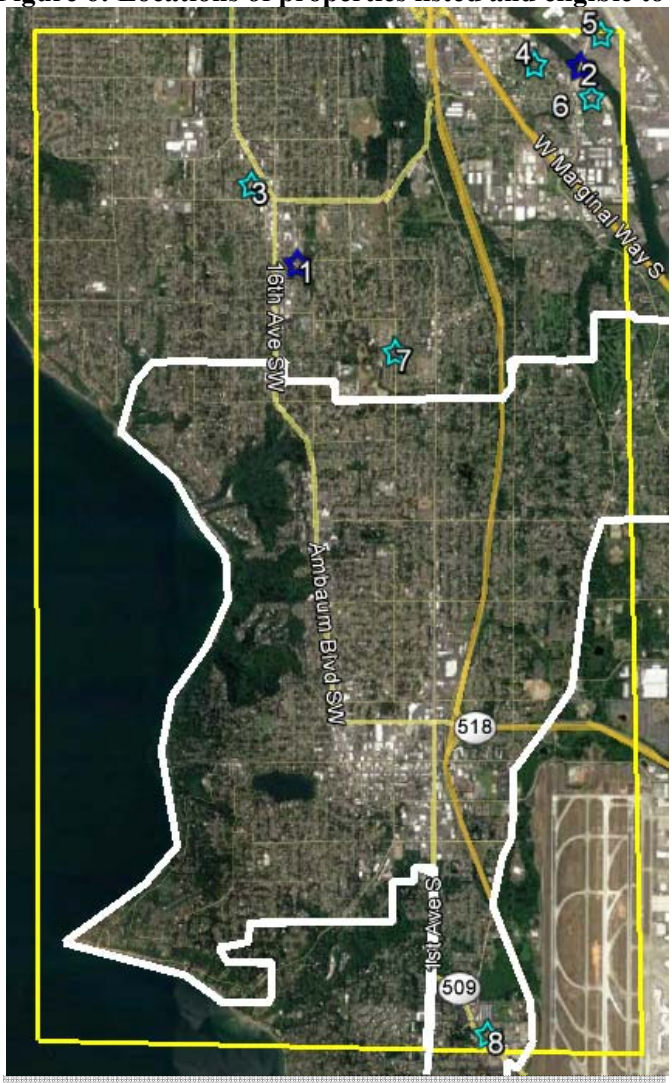
Table 2: Places on the NRHP, and places eligible[4] for listing on the NRHP within the APE

		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



Key
- Property listed on the NRHP
- Property which is eligible to be listed on the NRHP
- Study Area

The numbers refer to properties listed in Table 2

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?

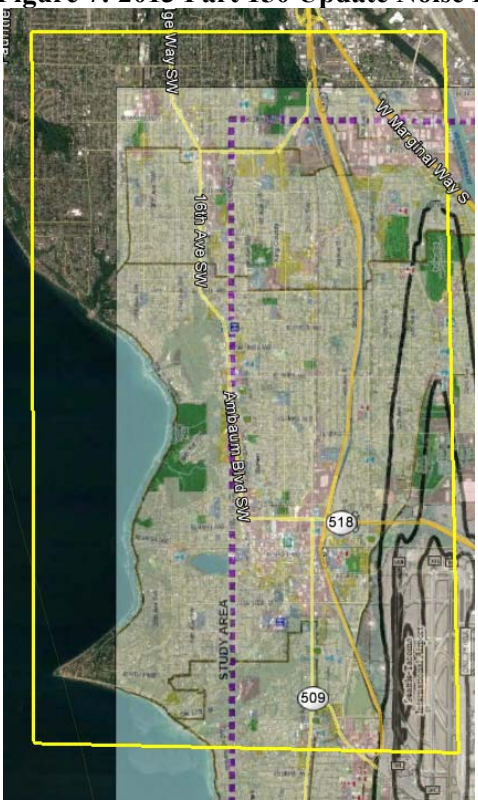
☒Yes ☐No ☐N/A

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.

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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

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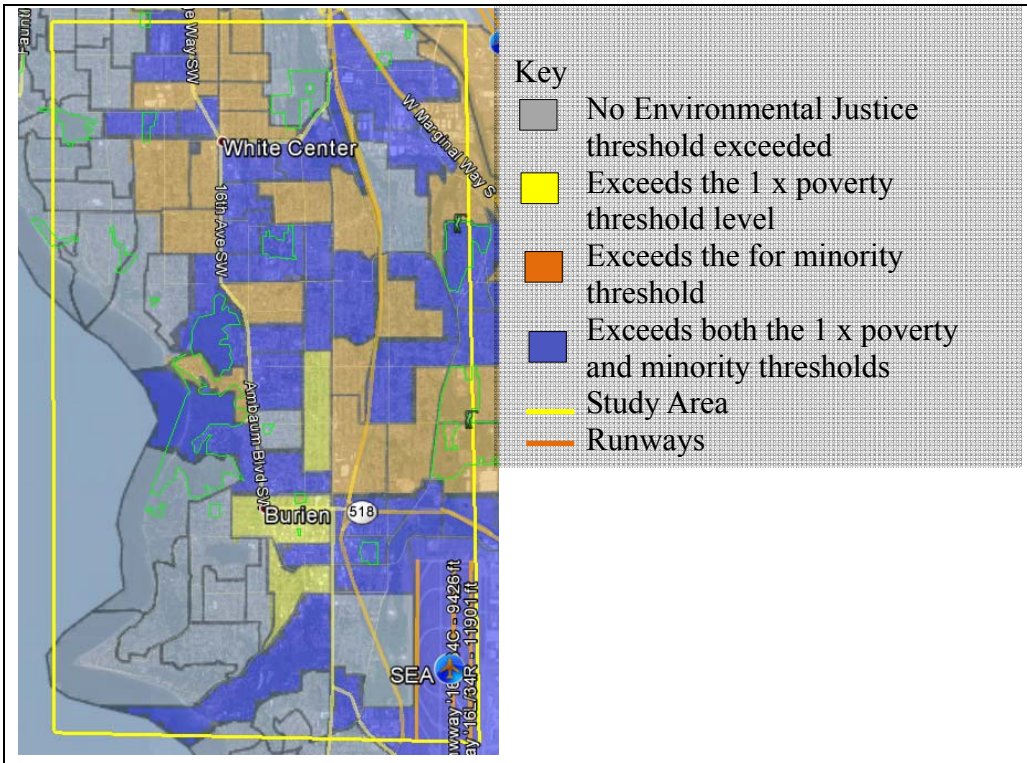


There are multiple areas of which exceed environmental justice thresholds within the Study Area. However, there are no reportable or significant noise impacts and the noise level of the No Action and Proposed Action are less than 45 dBA DNL. Furthermore, there is no change to air quality. Therefore,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

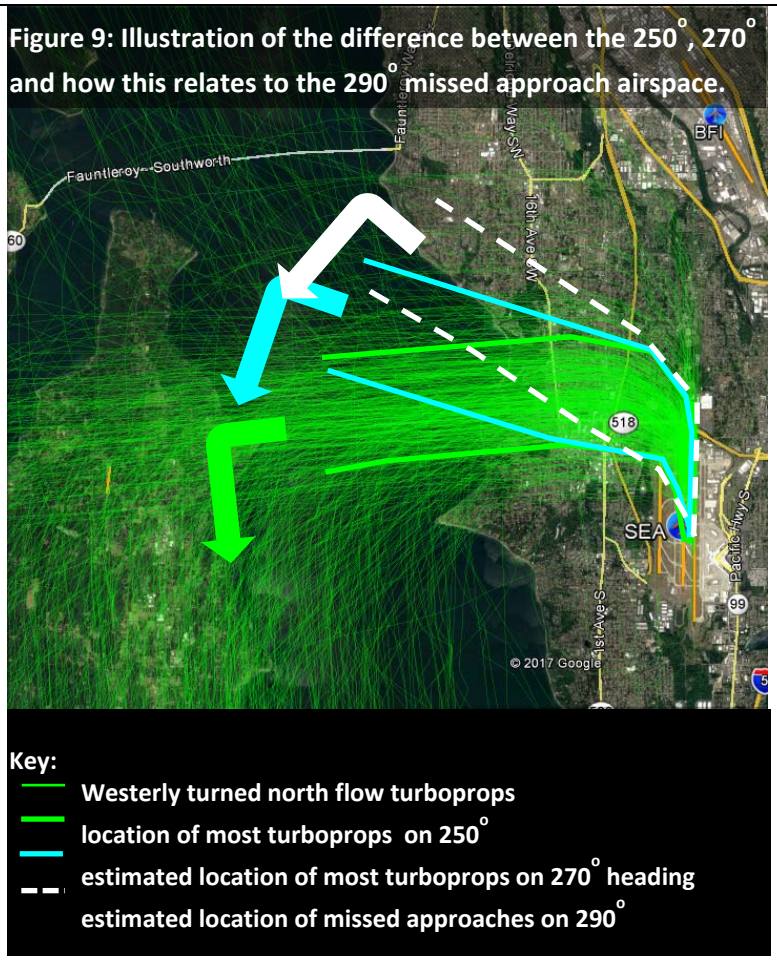


Figure 9: Illustration of the difference between the 250°, 270° and how this relates to the 290° missed approach airspace.

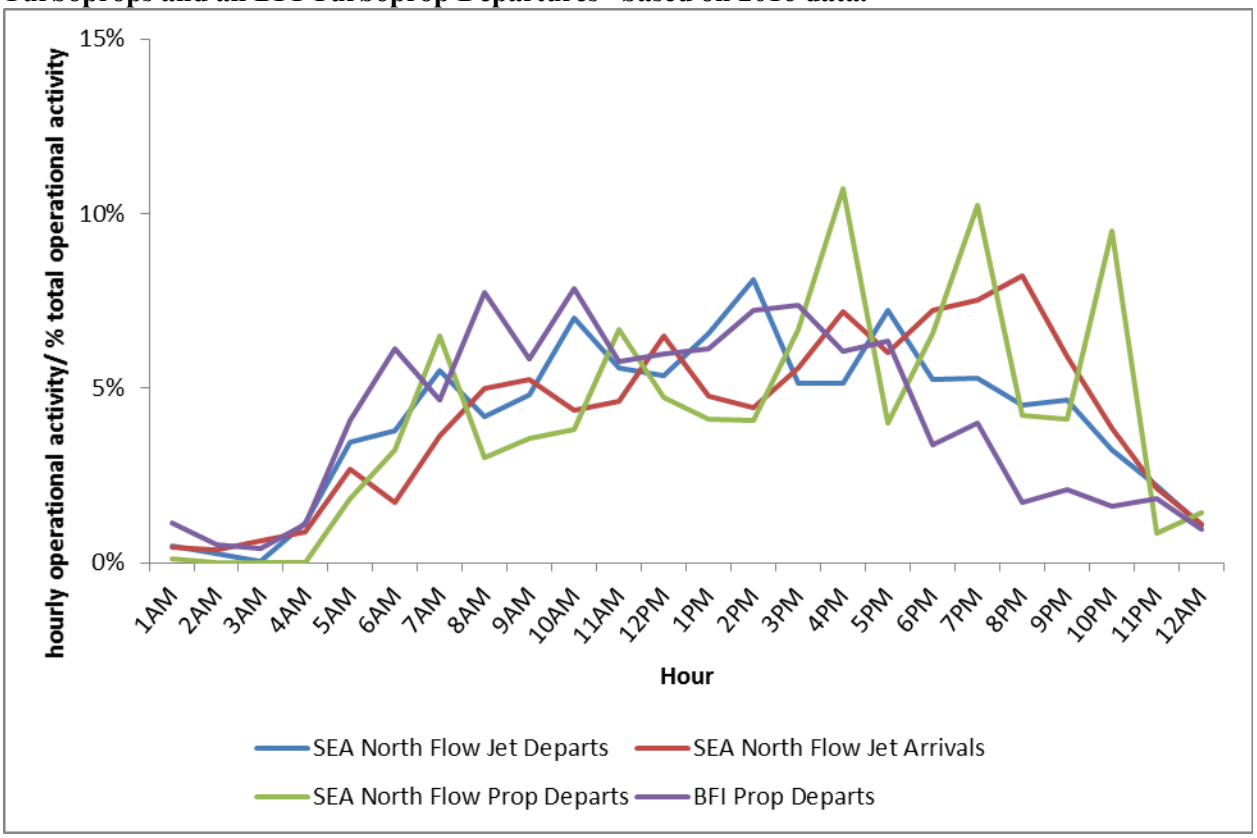
5. **Delay the initiation of the westerly turn: The Proposed Action includes the direction that the westerly turn should be established prior to 1NM from the departure end of the runway. This specification provides sufficient separation between turboprops departing SEA and those departing BFI. To allow 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.

Appendix D: Public Comments and Responses

This Appendix is divided into two parts. The first part contains generalized responses to concerns voiced by the public. Responses to each of the submitted comments are contained in Part 2. Responses to individual concerns within each comment may refer back to a generalized response. Part 2 also contains a table of all submitted concerns with the page number in which a response is provided for easy reference.

PART 1: GENERALIZED RESPONSES

Response 1:

Increases in aviation noise may result from FAA action such as creating new flight paths, modifying existing flight paths, or implementing flight paths using satellite-based navigation that concentrate flights over a narrower footprint or from non-FAA actions such as increases in the number of flights. When FAA is considering taking any of the above FAA actions, the FAA will determine the level of noise changes resulting from the FAA action based on computer modeling of aircraft flight tracks. Between July 26, 2016 and March 24, 2017, the FAA utilized automatic turning, which is where SEA ATCT issues the westerly turn instead of the departure controller at Seattle Terminal Radar Approach Control (S46), for approximately 90 percent of the southbound turboprops while SEA was in north-flow[1]. This was authorized through a paragraph in a Letter of Agreement (LOA) which was later removed from the LOA in March 2017. Any observation of increased turboprop overflights around the 250 heading outside of the July 2016-March 2017 LOA timeframe is a result of the operational increases at SEA and is not due to the Proposed Action currently analyzed here.

The FAA uses an established metric and noise impact criteria that were recommended by a Federal Interagency Committee[2]. 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).

For aviation noise analyses, the FAA has determined that the cumulative noise energy exposure of individuals to noise resulting from aviation activities must be established in terms of Yearly Day-Night Average Sound Level (DNL), the FAA's primary noise metric. This established noise metric, was identified by the Federal Interagency Committee as the most appropriate means of evaluating aviation 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[3] noise levels occurring at night (defined as 10 p.m. to 7 a.m.) are 10 decibels (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[4]. Based upon the recommendations of the Federal Interagency Committee, a number of Federal Agencies, including the FAA, have adopted the criteria that significant noise impacts occur if there is a $\geq$ 1.5 dBA increase within the 65 DNL noise exposure or greater.

---

[1] Approximately 90 percent of southbound turboprops taking-off in north-flow conditions make the westerly turn with the 250° heading. The remaining 10 percent of the southbound turboprops will follow the existing procedure where SEA ATCT turns them to the east on a heading of 20°, and there will be no changes to non-southbound turboprops.

[2] Federal Agency Review of Selected Airport Noise Issues, Federal Inter-Agency Committee On Noise (FICON), August 1992, Section 3-1. pp 3-1.

[3] A weighted noise is standard weighing of the audible frequencies designed to reflect the response of the human ear to noise

[4] Federal Agency Review of Selected Airport Noise Issues, Federal Inter-Agency Committee On Noise (FICON), August 1992, Section 2-4-1. pp 2-4.

In accordance with FAA Order 1050.1F Desk Reference, Section 11.1.3., the approved FAA methodology to evaluate potential noise impacts of the Proposed Action uses 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

FAA's guidance does not include noise impact criteria for noise levels lower than 45 dB. Given this, many of the FAA's noise screening applications do not detail noise levels below 45 dB.

FAA's noise significance threshold is triggered if the proposed action would increase noise by DNL 1.5 dB or more for a noise sensitive area that is exposed to noise at or above the DNL: 65 dB noise exposure level; or that will be exposed at or above the DNL: 65 dB level due to a 1.5 dB or greater increase, when compared to the no action alternative for the same timeframe.[5]

FAA evaluates whether the proposed action will result in reportable noise level changes as part of the extraordinary circumstances review. Reportable noise level changes are defined by FAA as:

- For DNL 60 dB to <65 dB: +3 dB
- For DNL 45 dB to <60 dB: +5 dB

FAA performed two noise analyses using the DNL metric. The first noise analysis only used turboprop fight tracks. This is the analysis that was included as part of the Preliminary Environmental Analysis[6]. The noise results from the Turboprop-Only model showed both the Proposed Action and the No Action alternatives produce noise environments that fall below 45 decibel (dB) DNL, except in the immediate vicinity of SEA, which is depicted in Figure 22 in the CATEX.

As FAA started preparing NEPA documentation for the Preferred Alternative, the results from the first noise analysis were compared to the noise contours from the SEA Part 150 Study dated October 2013. FAA discovered that the noise exposure levels in the Turboprop-Only Analysis were not consistent with the Part 150 Study noise contours. This resulted in FAA conducting a second noise analysis that used all arriving and departing aircraft to account for the noise from all aircraft operating within the General Study Area.

Both noise analyses used the same 60 random days of aircraft flight tracks. Through the use of the DNL metric, the FAA evaluated the effect of the observed concentration of flight tracks over Burien.

- The Turboprop-Only noise analysis used the turboprop aircraft tracks only, a subset of the All Arrival and Departure aircraft tracks, which exaggerates any potential changes in noise exposure from the concentration of turboprop flight tracks. The Turboprop-Only noise results emphasize any changes in noise exposure, but the results do not reflect the existing cumulative noise environment because only the turboprop flight tracks were modeled.
- The All Arrivals and Departures noise analysis evaluated the cumulative noise environment by using all arrival and departure fight tracks. The Proposed Action, not the Preferred Alternative, was modeled in this second noise analysis because it was determined to be more conservative. The Proposed Action does not suspend the automatic westerly turns during Sleepytime hours, so the southern concentration of

[5] FAA Order 1050.1F, Appendix B, Paragraph B-1.5 Significance Determination

[6] FAA prepared a Preliminary Environmental Analysis, which was a summary of the environmental impact analysis completed to date. This analysis was posted to FAA's website as part of community outreach to ask the community to identify the best place to have aircraft fly.

turboprop flight tracks would continue to be modeled at night, which has the potential to result in higher noise exposure levels in the areas underlying the flight track concentration.

The FAA has determined that it is appropriate to use the results from the two noise analyses to determine potential impacts to specific environmental impact categories.

- The All Arrivals and Departures shows the cumulative noise environment, and the results show there were no changes in noise exposure levels and no noise impacts.
- The Turboprop Only noise results indicate very minor changes in noise exposure levels when comparing the Baseline to the Proposed Action, and no noise impacts. The noise impact shows no change because none of the changes in noise exposure do not exceed FAA's significant or reportable noise impact levels.

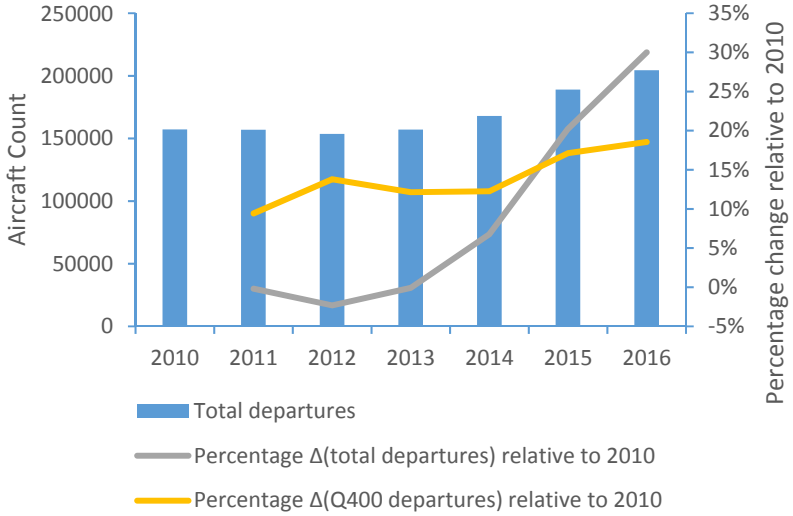
The noise exposures of the Proposed and No Action Alternatives were screened using the Aviation Environmental Design Tool (AEDT) plug-in tool for the Terminal Area Routes Generation and Traffic Simulation (TARGETs) software, one of the approved FAA noise screening tools. The result of the noise analysis was that there were no reportable or significant noise impacts as a result of the Proposed Action.

The implementation of the Proposed Action would result in a concentration of turboprop overflights around the 250° heading from SEA, but this concentration of flights does not result in reportable noise change. Also, the total number of flights that follow the 250° heading is only about 2 percent of the annual SEA departures.

Many comments voiced concerns over the current level of overflights over Burien. It should be noted that the automatic westerly turn of turboprops in north flow has not been utilized since March 2017. According to the FAA's Traffic Flow Management System Counts[7] data from 2010-2016, and as shown in Figure D1 below, there has been approximately a 33% increase in operations at SEA since 2010, most of which has occurred since 2014. Included in this, is a 20% increase in use of Bombardier Q400, the principal aircraft which are turned west in north flow. Another source of westerly turned overflights in north flow are missed approaches into SEA. FAA data shows that these missed approaches have remained at an approximate constant percentage of total SEA arrivals since January 2016. In other words, as the number of arrivals go up, the number of missed approaches also have also increased.

[7] https://aspm.faa.gov/tfms/sys/Airport.asp

Figure D.1: Change in the number of departures at SEA from 2010-2016



Response 2: In accordance with the Clean Air Act (CAA), the EPA developed the National Ambient Air Quality Standards (NAAQS) for six common air pollutants. These criteria air pollutants are carbon monoxide (CO), nitrogen dioxide (NO2), ozone (O3), particulate matter (PM), sulfur dioxide (SO2), and lead (Pb). The EPA determined that these criteria air pollutants may harm human health and the environment, and cause property damage. The EPA regulates these pollutants to permissible levels through human health-based (primary standards) and environmental-based (secondary standards) criteria.
EPA sets, reviews, and revises standards for air pollutants and how they are measured. Air pollutants are measured within a geography area, called an air basin.

The FAA evaluated the air quality impacts of the Preferred Alternative in accordance with the CAA. The implementation of the Preferred Alternative will not result in more aircraft being turned on westerly headings in north-flow. Furthermore, while there is expected to be a shift in where these turboprops fly, since the No Action and Preferred Alternatives are located within the same region tested for air quality standards, the implementation of the Preferred Alternative would not change the amount of aircraft emissions in this air quality region. Therefore, the FAA determined that there would be no air quality impacts as a result of the implementation of the Preferred Alternative.

EPA was provided the opportunity to review FAA's air quality analysis under Section 306 of the CAA but did not note any issues or inadequacies with the air quality analysis.

Response 3: The FAA recognizes that there have been few studies on the subject. In one study looking at low flying propeller overflights[8], it was found that such overflights are not expected to result in building damage.

Response 4: There are a few studies conducted to evaluate the relationship between airports and property values and these studies have focused primarily on the noise effects.

[8] Building Vibrations Induced by Noise from Rotorcraft and Propeller Aircraft Flyovers, NASA Technical Memorandum 104170, June 1992

The 2008 report by the Airport Cooperative Research Program (ACRP) Synthesis 9: Effects of Aircraft Noise: Research Update on Selected Topics concluded[9]:

> In summary, the studies of the effects of aviation noise on property values are highly complex owing to the differences in methodologies, airport/community environments, market conditions, and demand variables involved. Whereas most studies concluded that aviation noise effects on property value range from some negative impacts to significant negative impacts, some studies combined airport noise and proximity, and concluded that the net effect on property value was positive. Prospective homebuyers were at times not well-informed about the noise levels of aircraft operations near the property of interest. Lack of information often led to high bid prices and possible disappointment after purchase.
>
> Homeowners that experienced an increase in noise levels bore the burden of aviation noise, once noise levels stabilized, the next homeowner was compensated once the property value adjusted owing to the effects of noise. Lastly, the technology available to analyze data has improved throughout the years. The spatial nature of aircraft operations, noise contours, and property location will continue to prompt studies founded in GIS analysis that will improve our understanding of the effects of aviation noise on property value.

One of the difficulties in evaluating the effect of aircraft noise on property values is the application of findings from one location to another. The Effect of Airport Noise on Housing Values, a report prepared in 1994 by Booz-Allen & Hamilton for the FAA[10], outlined a viable method of examining the effects of airport noise on housing values at the national level by using an approach referred to as the "neighborhood pair model." A series of studies conducted at Baltimore-Washington International, Los Angeles International, and New York LaGuardia and Kennedy International Airports determined that the neighborhood pair model can be used to establish the boundaries of the effect that airport noise has on housing values at a given airport. However, Booz-Allen recommended that their approach not be used at this time to determine property values due to the small sample size. Furthermore, Booz-Allen concludes that, "Although these studies have been useful in provide some insight into this complex issue, it is difficult to draw any clear and unambiguous conclusions from the results, since each of the studies used a variety of quantitative and qualitative techniques, different measures of noise, and dissimilar sources of information. Therefore, the results of the study cannot be applied to airports in any general overall sense."

Older studies conducted at other airports, which are summarized in documents such as FAA's 1985 Aviation Noise Effects Report, have also concluded that airport noise has only a slight impact on property values within the 65 DNL or greater noise contour. Additionally, comparison of older studies to more recent studies indicates that noise impacts were greater in the 1960s, when jet aircraft first entered the fleet, than in the 1980s or 1990s. this presumably is the result of stabilization of real estate markets following an initial adjustment to noisier jets, and of noise reduction in more modern aircraft using Stage 3 engine technology. In addition, proximity to an airport could have a positive effect on property values in some markets as they provide access to travel and employment opportunities[11,12].

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[9] *Effects of Aircraft Noise: Research Update on Selected Topics, A Synthesis of Airport Practice*. Transportation Research Board, Airport Cooperative Research Program, Washington, DC, 2008

[10] Booz-Allen & Hamilton, Inc. *Effect of Airport Noise on Housing Values: A Summary Report*, 1994 (Prepared for the Federal Aviation Administration, Office of Environment and Energy)

[11] *Aviation Noise Effects*, Federal Aviation Administration, Washington, DC, March 1985

[12] *Meta-Analysis of Airport Noise and Hedonic Property Values: Problems and Prospects*, Jon P. Nelson, 2004

In the Summary and Conclusions section of the FAA's 1985 Aviation Noise Effects Report[3], it was stated "the magnitude of this impact [of noise on property values] cannot be estimated at the national level at this time, since the results varied across a wide range for the airports studied, and only a small sample of airports was considered.

While there are a number of studies that have been conducted regarding property values, none of them have been conclusive; therefore, FAA has not adopted any of the approaches in the studies at this time.

Response 5: In accordance with FAA's Order 1050.1F, there are fourteen environmental impact categories to be evaluated as part of the NEPA process, as well as other special use regulations to be considered. One of these categories is biological resources. There are multiple statues, Executive Orders (EO) or other guidance that the FAA considers in its evaluation of impact on biological resources. These statutes, EOs, and guidance are listed below in Table D1. Given the nature of the Preferred Alternative, an impact to biological resources would be a result of either noise or air quality impacts. As the analysis shows that both the noise and air quality impacts are at most *de minimus*, there would be no expected impact to biological resources, under any of these statutes, EOs, or other guidance as a result of the implementation of the Preferred Alternative.

Table D1: Statues, Executive Orders and other guidance considered in evaluating impacts to biological resources

Statute, EO, Guidance	**Location in U.S. Code or *Federal Register***	**Oversight Agency**
Bald and Golden Eagle Protection Act	16 U.S.C. § 668 et seq.	USFWS
Endangered Species Act	16 U.S.C. §§ 1531-1544	NMFS, USFWS
Fish and Wildlife Coordination Act	16 U.S.C. §§ 661-667d	USFWS
Magnuson-Stevens Fishery Conservation and Management Act	16 U.S.C. § 1801 et seq.	NMFS
Marine Mammal Protection Act	16 U.S.C. § 1361 et seq.	NMFS, USFWS
Migratory Bird Treaty Act	16 U.S.C. § 703 et seq.	USFWS
Executive Order 13112, Invasive Species	64 *Federal Register* 6183, (February 8, 1999)	
Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds	66 *Federal Register* 3853, (January 17, 2001)	
CEQ Guidance on Incorporating Biodiversity Considerations Into Environmental Impact Analysis Under the National Environmental Policy Act (January 1993)	Not applicable	
Memorandum of Understanding to Foster the Ecosystem Approach (December 1995)	Not applicable	

Response 6: Aircraft have two major types of weight limits: the maximum takeoff weight and the maximum structural landing weight, with the latter almost always being the lower of the two. This allows an aircraft on a

normal, routine flight to take off at the higher weight, consume fuel en-route, and arrive at a lower weight. If a flight takes off at the maximum takeoff weight and then faces a situation where it must return to the departure airport, there will not be time to consume the fuel meant for getting to the original destination. If an aircraft lands at more than its maximum allowable weight it might suffer structural damage, or even break apart on landing. In such rare emergency situations, airlines may dump fuel (jettison). A 1999 report issued by the Intergovernmental Panel on Climate Change[13] describes very rare emergency situations where jettisoning of fuel is necessary. According to this report, British Airways estimates that only a very small percentage (on the order of 0.01%) of fuel used by the aviation industry each year is released in this manner. Furthermore, FAA Order 7110.65W section 9-4 specifies that fuel dumping occur "at least 2,000 feet above the highest obstacle within 5 miles of the route or pattern being flown." Jet fuel evaporates quickly when dispersed in flight. When jet fuel is released at an altitude above 5,000 feet, the fuel is expected to evaporate completely before it reaches the ground.

Response 7: FAA has limited options with where it can route turboprop airplanes. Turboprops and jets typically have different flight paths due to safety concerns resulting from their differing performance. North flow turboprops from SEA historically have been turned east or west, depending on their destination. Over the past few years, the operational levels at SEA have been steadily increasing, which has led to the need to change how air traffic control provides sufficient separation between aircraft.

One of the ways ATC has to effectively manage SEA traffic and minimize potential safety issues is to put jets and turboprops on different headings using vectoring rules. Doing so minimizes/resolves the potential separation safety issues between these aircraft. ATC has been manually turning southbound turboprops to the 250° heading for many years. Under the manual turn procedures, some turboprops end up in the BFI conflict area and some end up being turned right away by the departure controller if there is no conflicting traffic. The departure controller is controlling departures off BFI and SEA, so they know what aircraft are released to depart BFI. The tower controller does not control aircraft at BFI and has no knowledge of the traffic situation that the departure controller has created. Delaying the turn would not ensure separation with the BFI departure path.

Automating this turn, which is where SEA ATCT issues the westerly turn instead of the departure controller at Seattle Terminal Radar Approach Control (S46), would reduce ATC workload and would ensure a more predictable path for turboprops as they leave SEA. In particular, this automatic westerly turn ensures separation with BFI traffic and SEA's arrival missed approach procedure, as well as allowing more aircraft to depart SEA within a given window of time. The reason the tower has to ensure the turn is made within 1 mile is that they are not working the airplanes off BFI so separation from that path must be ensured.

One purpose of the Preferred Alternative is to help ensure separation between turboprops departing SEA and the turboprops departing BFI airport. Ensuring this separation allows air traffic control to safely accommodate the increased operational demand at SEA without increasing ground delays for the flying public. There is no clear reverse correlation that the implementation of this tool would increase operational demand at SEA.

Response 8: The National Environmental Policy Act of 1969 (NEPA) requires federal agencies to disclose to federal decision makers a clear, accurate description of the potential environmental impacts that could arise from proposed federal actions. Through NEPA, Congress has directed federal agencies to consider environmental factors in their planning and decision-making processes and to encourage public involvement in

[13] Penner, J.E, D.H Lister, D.J Griggs, D.J Dokeen, M.McFarland, "Aviation and the Global Atmosphere" IPCC, 1999, Prepared in collaboration with the Scientific Assessment Panel to the Montreal Protocol on Substances that Deplete the Ozone Layer. Cambridge University Press, UK

decisions that affect the quality of the human environment. The FAA has established a process to ensure compliance with the provisions of NEPA through FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1). FAA Order 1050.1 specifies 14 environmental impact categories as well as consideration of other executive orders and regulations to determine whether the Proposed Action would result in a significant impact.

Preferred Alternative is similar to the Proposed Action. The difference between the Preferred Alternative and the Proposed Action is that for the Preferred Alternative, the turning of approximately 90 percent of the southbound turboprops in north-flow will revert to the departure controller at Seattle Terminal Radar Approach Control (S46) during the Sleepytime hours between 10 pm and 6 am. In accordance with NEPA and FAA Order 1050.1F, the FAA analyzed the impacts of the Preferred Alternative. Given the nature of the Preferred Alternative, impacts to any of these environmental impact categories would generally be caused by either noise or air quality impacts. The result of the noise and air quality impact analysis indicated that there were no significant noise impacts or air quality impacts as a result of the Preferred Alternative. Given these results, the FAA determined that the appropriate level of NEPA documentation is a Categorical Exclusion (CATEX). The environmental impacts to each of these 14 impact categories are discussed in the Initial Environmental Review (IER), which is part of the supporting documentation for the CATEX. For the purpose of this document, the CATEX memo, which determines the use of the CATEX, as well as the IER is collectively called the "CATEX."

Response 9: The FAA does not govern the number of flights at a given airport. That is a business decision made by airlines, with input from the airport. The FAA also does not govern an airline's schedules. Rather, the FAA is tasked with managing the aircraft in the National Airspace System (NAS). Similarly, the FAA does not have any discretion to reduce or increase overall operational levels in the NAS. Furthermore, the FAA does not own airports, which are typically owned by local municipalities.

Under current conditions, SEA ATCT coordinates with S46, and the departure controller at S46 issues the westerly turn for approximately 90 percent of the southbound turboprops taking-off in north-flow conditions. The Preferred Alternative for the CATEX is to update the Letter of Agreement (LOA) between SEA Airport Traffic Control Tower (ATCT) and Seattle Terminal Radar Approach Control (S46) to include a paragraph that would allow the SEA ATCT to issue a westerly turn departure with a 250° heading within one nautical mile of the runway end between 6 am and 10 pm for approximately 90 percent of southbound turboprops taking-off in north-flow conditions. Between 10 pm and 6 am, the departure controller at S46 will issue the westerly turn. This change in air traffic control procedures is referred to as an automatic or automated turn in the CATEX. A similar action was implemented in a paragraph in a LOA from July 26, 2016 – March 24, 2017 before being removed in March 2017.

Any observation of increased turboprop overflights around the 250° heading outside of when the LOA action was implemented from July 2016 to March 2017 is a result of the operational increases at SEA and is not due to the Preferred Alternative.

Response 10: NEPA provides a framework for evaluating the environmental impact of a proposed action. The FAA's NEPA compliance policies and procedures are contained in FAA Order 1050.1F, Environmental Impacts: Policies and Procedures. FAA Order 1050.1F specifies 14 environmental impact categories that may be relevant to FAA actions. There is no specific requirement to prepare health impact assessments to comply with NEPA. However, there are multiple environmental impact categories that address health impacts including: air quality, hazardous materials, solid waste, pollution prevention, noise, compatible land use, and

water resources. The analysis contained in the CATEX shows that, in accordance with FAA Order 1050.1F, there are no significant impacts to any of these environmental impact categories.

Response 11:
The FAA is primarily tasked with the safe and efficient use of the National Airspace. The FAA views "efficiency" as how quickly aircraft can be moved out of a section of airspace. The more predictable an aircraft routing, the less possibility of a separation issue with another aircraft. In this way, safety and efficiency are closely related.

The 250º heading for southbound turboprops in north flow is safe. It was recommended by an FAA workgroup, which was tasked with ensuring that these turboprops were separated from BFI (by a 3 NM buffer under most conditions) and from the SEA missed approach protected airspace (which starts at the 290º heading from SEA), as well as resolving the inefficiencies resulting from the necessary verbal coordination between SEA ATCT and S46 for these turns when done on a manual basis. This workgroup eventually recommended that SEA ATCT should issue the westerly turn instead of the departure controller at Seattle Terminal Radar Approach Control (S46) for these north-flow southbound turboprops on a 250º heading within 1NM of the departure runway end.

ATC typically builds in flexibility into its air traffic procedures, whenever possible. This flexibility allows each aircraft to be flown in the best way specific to that aircraft. For example, with regard to the 250º heading, there are no altitudes or speed restrictions on the turn. Within the safe framework of the turn, this allows the pilot to decide at which altitude and speed their aircraft should execute the turn. This ties in with the fact that the pilot is ultimately responsible for the safe flying of their aircraft[14]. Once ATC issues the heading, it is then up to the pilot how best to turn their aircraft within the capability of the aircraft.

Response 12: In accordance with the FAA Order 1050.1F desk guide, environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. *Fair treatment* means that no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental, and commercial operations or policies.

As there are no significant or reportable noise increases as a result of the implementation of the Preferred Alternative, there would be no disproportionate share of significant or reportable noise increases as a result of the implementation of the Preferred Alternative.

Response 13: FAA is committed to giving the public an opportunity to be informed, become involved, and have their concerns and views considered as the FAA makes aviation decisions that might affect them. On June 8, 2017, the FAA issued a press release stating the availability of a summary of the preliminary environmental analysis prepared for the NEPA Proposed Action[15]. From June 8, 2017 through July 5, 2017, the FAA solicited comments on this preliminary analysis, specifically requesting input on the best place to have aircraft fly from a community standpoint. On July 25, 2017 and then again on September 14, 2017, the FAA met with the City of Burien to discuss possible alternatives. All alternatives that were suggested during the public comment period as well as during the meetings with the City of Burien have been incorporated into the Alternatives Section of the CATEX and have been fully analyzed.

[14] 14 CFR Section 91.3 - Responsibility and authority of the pilot in command.
[15] https://www.faa.gov/nextgen/communityengagement/sea/

FAA ultimately designed and selected the Preferred Alternative in response to comments. The Preferred Alternative is the same as the Proposed Action, except that automatic westerly turns, which are where SEA ATCT issues the westerly turn instead of the departure controller at Seattle Terminal Radar Approach Control (S46), would be suspended and ATC would revert to coordinating turns between SEA ATCT and S46 during Sleepytime operations, when operationally feasible. Sleepytime operations typically take place between 10 pm and 6 am. FAA made this change in response to comments from the City of Burien and other comments. Suspending the automatic westerly turn is consistent with procedures currently in place to avoid flight noise over sensitive areas after 10 pm during north flow. FAA can accommodate the request to suspend automatic westerly turns during Sleepytime because there are fewer departures after 10 pm.

FAA understands that community outreach does not always lead to a broadly supported decision. The FAA's role is to manage the National Airspace System in a safe and efficient manner while considering the competing interests of minimizing noise and emissions with the increasing demand to move people and goods using the National Airspace System. The Preferred Action reflects the need to balance the competing interests.

Response 14: Generally speaking, during the summer months, SEA is in north flow (arrivals and departures land and take off to the north) and the rest of the time SEA is in south flow (departures take off and arrivals land to the south). Between July 26, 2016 and March 24, 2017, the FAA authorized automatic westerly turning, which is where SEA ATCT issues the westerly turn instead of the departure controller at Seattle Terminal Radar Approach Control (S46), for approximately 90 percent of the southbound turboprops while SEA was in north flow through an authorization in a Letter of Agreement (LOA). This authorization was removed from the LOA in March 2017. The FAA is now looking at reinstating this automatic turn and is analyzing the environmental impact of such reinstatement. Any increases in aircraft noise and overflights since March 2017 is not related to either the original LOA provision or the Proposed Action analyzed in the preliminary environmental analysis, but rather is a byproduct of the operational increases at SEA, while SEA is in north-flow.

Any increases in jet overflights are not due to the Preferred Alternative, which applies only to turboprops. Instead, these overflights may be jet arrivals into SEA that are going missed approach on the 290° heading. Missed approach data shows that since January 2016, the percentage of total SEA arrivals that have used the missed approach has remained approximately steady. However, given that there has been a steady increase in operations, there has also been a corresponding increase in missed approaches.

Response 15: In accordance with FAA Order 1050.1F, a socioeconomic analysis evaluates how elements of the human environment such as population, employment, housing, and public services might be affected by the Preferred Alternative.

The Preferred Alternative would not cause an increase in operations at SEA and therefore, is not expected to result in any changes in ground transportation in and around SEA. Therefore, the primary cause of any potential impact from the Preferred Alternative would be as a result of air quality and noise impacts. The results from the air quality and noise impact analysis indicates that the air quality impacts are *de minimus* and that there are no significant or reportable noise changes as a result of the implementation of the Preferred Alternative.

The principal social impacts to be considered are those associated with relocation or other community disruption, transportation, planned development, and employment. Since the Preferred Alternative will not change the number of flights and given the air quality and noise impact determinations, there is no foreseeable way in which the implementation of the Proposed Action would impact transportation, planned development, or employment within the Study Area. Given these factors, FAA has found that, the Preferred Alternative will not have a significant socioeconomic impact.

Response 16: The preliminary environmental analysis was not intended to be presented as a draft or final NEPA document, but rather as a summary of the environmental impact analysis undertaken, which may be incorporated into a NEPA document. The intent of presenting the preliminary environmental analysis was transparency and to allow the public to suggest alternatives pathways to best place these southbound turboprops departures where it would least intrusive from a community perspective.

Response 17: In response to comments received on the Proposed Action, FAA made changes to the Proposed Action, which resulted in the selection of the Preferred Alternative. The Preferred Alternative is the same as the Proposed Action, except that automatic westerly turns, which are where SEA ATCT issues the westerly turn instead of the departure controller at Seattle Terminal Radar Approach Control (S46), would be suspended and ATC would revert to coordinating turns between SEA ATCT and S46 during Sleepytime operations, when operationally feasible. Sleepytime operations typically take place between 10 pm and 6 am. FAA made this change in response to comments from the City of Burien and other comments.

This change to the Proposed Action resulted in FAA updating its environmental analysis and completing an evaluation of whether any potential impacts from the Preferred Alternative rose to the level of extraordinary circumstances. This evaluation included all the extraordinary circumstances listed in FAA Order 1050.1F, Section 5-2.b. Several environmental impact category analysis results showing they do not rise to the level of extraordinary circumstances are highlighted below:

- The noise results from the Turboprop-Only model conclude that there are only very minor changes to noise exposure levels, and none of the changes are high enough to result in a reportable noise impact. The noise results from the All Arrivals and Departures model show that there are no changes to the noise exposure level within the General Study Area.
- FAA's consultation with the Washington State Historic Preservation Officer concluded that the action would have no effect on historic properties.
- The action will not use any Section 4(f) Properties. The term "use" includes both physical and indirect or "constructive" impacts to Section 4(f) properties. Direct use is the physical occupation or alteration (direct use) of a Section 4(f) property or any portion of a Section 4(f) property. A "constructive" use does not require direct physical impacts or occupation of a Section 4(f) resource, which could be triggered by noise. Since the noise analysis results using the All Arrivals and Departure conclude there are no change in noise exposure, there is no constructive use of any Section 4(f) Properties.
- No additional operations will result from the Preferred Alternative, and there is no change in the number of turboprops within the air basin. The proposed action may result in turboprops making the turn to the 250° heading sooner than under current procedures except during Sleepytime, which may result in equivalent or slightly less emissions since the turboprops may reach their southbound heading sooner. Therefore, the Preferred Alternative is not expected to impact air quality.
- FAA evaluated whether the controversy of the project meets FAA's extraordinary test on whether the impacts on the quality of the human environment are highly controversial on environmental grounds. Public comments received show that there is public controversy. Per FAA Order 1050.1F, Section 5-2.b(10), highly controversial on environmental grounds means there is a substantial dispute involving reasonable disagreement of 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, but the reasons provided in the comments are based on substantially based on noise impacts. Based on the updated environmental analysis, FAA determined that the Preferred Alternative may be highly controversial, but

> the results of the environmental analysis concluded the controversy is not based on environmental grounds.

As per FAA Order 1050.1F 3-1-1, a CATEX refers to a category of actions that do not individually or cumulatively have a significant effect on the human environment and for which there are no extraordinary circumstances. In particular FAA Order 1050.1F, Section 5-6.5.i states that, in absence of extraordinary circumstances, the following actions fall under a CATEX:

> "...modifications to currently approved procedures conducted below 3,000 feet AGL that do not significantly increase noise over noise sensitive areas;.."

FAA Order 1050.1F Section 5-2 details the Extraordinary Circumstances. These are factors or circumstances in which a normally categorically excluded action may have a significant environmental impact that then requires further analysis in an EA or an EIS. For FAA proposed actions, extraordinary circumstances exist when the proposed action meets both of the following criteria (see 40 CFR § 1508.4, CEQ Regulations):

> (1) Involves any of the circumstances which are listed in Table 1 of the Preliminary Environmental Analysis; and
> (2) May have a significant impact (see 40 CFR § 1508.4, CEQ Regulations).

The updated environmental analysis shows that there are no significant impacts in any of the environmental categories and that no extraordinary circumstances exist, per their definitions in FAA Order. A CATEX was therefore determined to be the appropriate level of NEPA review for the Proposed Action.

Response 18: Section 5.2.10 Cumulative Impacts has been updated to detail reasonable foreseeable projects within the General Study Area. These projects were taken from the City of Seattle's, Burien and Normandy Parks' comprehensive plans as well as from the Washington State Department of Transportation list of projects. As detailed in the Appendix A, Section 9, based upon the temporary nature of the construction of these projects and the fact that there are no noise and air quality significant impacts associated with the Preferred Alternative, the construction phase of these projects would not result in a cumulative significant impacts when considered with the Preferred Alternative. Furthermore, once these projects are constructed, given the nature of these projects, there would still not be any significant cumulative impacts under NEPA as a result of the implementation of the Preferred Alternative. Some commenters pointed out that Washington State Department of Transportation has a plan to connect SR509 to Interstate 5. This project is intended to be completed in 2030 and will connect the southern termination point of SR 509, to the south of SEA, to Route 5 in the Des Moines area. This project is wholly outside of the Study area. Due to the geographical separation, and that all impacts from the Propose Actions would be a result of either noise or air quality changes, there are no expected cumulative impacts associated between this project and the Preferred Alternative.

Response 19: In accordance with FAA Order 1050.1F, Federal agencies are directed to make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children. To that end, the FAA may identify and assess environmental health risks and safety risks that the FAA believes could disproportionately affect children. Environmental health risks and safety risks include risks to health or to safety that are attributable to products or substances that a child is likely to come in contact with or ingest, such as air, food, drinking water, recreational waters, soil, or products they might use or be exposed to. Given the air quality and noise impact determinations, there are no significant impacts associated with the implementation of the Preferred Alternative. Therefore, the Preferred Alternative would not disproportionately affect children.

Response 20: In the CATEX, the noise section explains that two noise analyses were performed using the DNL metric. The first noise analysis only used turboprop fight tracks. This is the analysis that was included as

part of the Preliminary Environmental Analysis. The noise results from the Turboprop-Only model showed that both the Proposed Action and the No Action alternatives produce noise environments that fall below 45 decibel (dB) DNL, except in the immediate vicinity of SEA. This first noise analysis concluded there would only be very minor changes to noise exposure levels, and none of the changes would be high enough to result in a reportable noise impact. The second noise analysis considered a broader set of data. The Proposed Action was modeled in this second noise analysis because it was determined to be more conservative. The Proposed Action allows SEA ATCT to issue the westerly turn for turboprops instead of the departure controller at Seattle Terminal Radar Approach Control (S46) during Sleepytime hours. This assumption would model the southern concentration of turboprop flight tracks would continue to be modeled at night, which has the potential to result in higher noise exposure levels in the areas underlying the flight track concentration. The noise results from this All Arrivals and Departures model show that there are no changes to the noise exposure level within the General Study Area. Therefore, the FAA has determined that there would be no use of these 4(f) properties as a result of the implementation of the Preferred Alternative.

Response 21: Council on Environmental Quality (CEQ) Regulations state that during the preparation of an Environmental Impact Statements (EIS) the lead federal agency should invite Federal, state, tribal, and local agencies with special expertise or jurisdiction by law to be cooperating agencies[16]. The intent is to ensure that the views of agencies who may be affected by the Proposed Action, (which in this case is the Preferred Alternative) or who have relevant special expertise are adequately reflected in the environmental document. There is no expected change in overall SEA operations as a result of the implementation of the Preferred Alternative. The Preliminary Environmental Analysis showed that there are no significant noise or air quality impact changes. Based on this information, there was no need to invite the Port of Seattle as a cooperating agency for this CATEX. The FAA did, however, coordinate with the SHPO, EPA, the Port of Seattle, and the City of Burien. Furthermore, during the coordination with City of Burien, at no time was further coordination under Section 106 of the National Historic Preservation Act requested or mentioned.

Response 22: In accordance with FAA's Order 1050.1F, there are fourteen environmental impact categories to be evaluated as part of the NEPA process, as well as other special use regulations to be considered. One of these categories is water resources. There are multiple statues and Executive Orders (EO) that the FAA considers in its evaluation of impact on water resources. These statutes and EOs are listed below in Table D2. Given the nature of the Preferred Alternative, an impact to water resources would be a result of either noise or air quality impacts. As the analysis shows that both the noise and air quality impacts are at most *de minimus*, there would be no expected impact to water resources, under any of these statutes and EOs as a result of the implementation of the Preferred Alternative.

[16] See CEQ regulation 40 CFR 1501.6

Table D2: Statues, Executive Orders and other guidance considered in evaluating impacts to water resources

Statute or EO	**Location in U.S. Code or *Federal Register***	**Oversight Agency**
Executive Order 11990, Protection of Wetlands	42 *Federal Register* 26961	DOT
Clean Water Act	33 U.S.C. §§ 1251-1387	USACE, EPA
Fish and Wildlife Coordination Act	16 U.S.C. §§ 661-667d	USFWS
DOT Order 5660.1A, Preservation of the Nation's Wetlands	N/A	DOT
State statutes protecting wetlands	N/A	DOT

Response 23: The FAA is congressionally directed to ensure a safe and efficient NAS. After an FAA internal workgroup discussed how best to manage certain southbound turboprops departing SEA in north flow, the FAA determined having an automatic turn, where SEA Airport Traffic Control Tower (ATCT) issues the westerly 250° turn instead of the departure controller at Seattle Terminal Radar Approach Control (S46), for these southbound turboprops through the addition of a paragraph in the SEA ATCT-S46 LOA, was the best solution. This automatic turn is in place of the previous coordinated westerly heading. This automatic turn affects approximately 90 percent of the southbound turboprops departing SEA in north flow, which amounts to approximately 2 percent of SEA departures. As shown in Figure 13 in the CATEX, this automatic turn would not change where aircraft has historically flown, and so the addition of this paragraph to the SEA ATCT – S46 LOA was not thought of as procedurally changing where aircraft fly. Given all of this, community outreach was not undertaken at that time when the Proposed Action was initially implemented on July 26, 2016. The FAA removed the paragraph authorizing the automatic turn from the LOA on March 24, 2017. Since then, these southbound turboprops in north flow have been provided a heading through direct coordination between SEA ATCT and S46. Around this time, the FAA initiated an environmental review to investigate the impacts under NEPA of the automatic heading for these southbound turboprops in north-flow. The results of the Preliminary Environmental Review were published online from June 8, 2017 until July 5, 2017. The FAA's intention was to be transparent with its environmental findings and to allow the public to make comments and to suggest alternatives to the automatic turn for these southbound turboprops in north flow. In addition to this outreach, the FAA has had two discussions with the City of Burien regarding possible alternatives to the automatic turn for these southbound turboprops in north flow. These meetings took place on July 25, 2017 and September 14, 2017.

In response to comments received on the Proposed Action, FAA made changes to the Proposed Action, which resulted in the selection of the Preferred Alternative. The Preferred Alternative is the same as the Proposed Action, except that automatic westerly turns would be suspended and ATC would revert to coordinating turns between SEA and S46 during Sleepytime operations, when operationally feasible. Sleepytime operations typically take place between 10 pm and 6 am. FAA made this change in response to comments from the City of Burien and other comments.

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613	Barb Tatham	D-814
614	Dean Tatham	D-815
615	Andrew Taylor	D-816
616	Andrew Taylor	D-817
617	Eve Taylor	D-819
618	Inez Taylor	D-820
619	Katherine Taylor	D-821
620	Karl Tegtmeyer	D-822
621	Mark Thomas	D-825
622	Nathan Thomas	D-826
623	Earnest Thompson	D-827
624	Chris Thomsen	D-828
625	Sansern Thongmee	D-830
626	Jonathon Tolton	D-831
627	Lee Tomlin	D-832
628	David Toppano	D-834
629	Nancy Tosta	D-835
630	Duc Tran	D-837
631	Joan Tritchler	D-838
632	Klaasjan Tukker	D-839
633	Kimisha Turner	D-840
634	Amauri Umbelino	D-841
635	Giae and Shawn Unknown last name	D-842
636	Ink Unknown last name	D-843
637	Jennifer Unknown last name	D-844
638	Melissa Unknown last name	D-845
639	Unnamed submission	D-846
640	Unnamed submission	D-847
641	Karen Upchurch	D-848
642	Cynthia Upthegrove	D-849
643	Candace Urquhart	D-850
644	Glen Urquhart	D-852
645	Caryl Utigard	D-853
646	Caryl Utigard	D-855
647	Caryl Utigard	D-857
648	Gary Utigard	D-858
649	Andy Vagi	D-859
650	Jacquelyn Vail	D-860
651	Julie Van Arcken	D-861
652	Irma Vanbus	D-862
653	Steve VanDerhoef	D-863
654	Jay van der Net	D-864
655	Matthijs van Leeuwen	D-865
656	Chris Varo	D-866
657	Jeanette Varo	D-868
658	Barb Vasey	D-870
659	John Vasicek	D-871
660	Loretta Vasicek	D-873
661	Ann Vasquez	D-875
662	Scott Vestal	D-876
663	Pamela Videen	D-877
664	Pamela Videen	D-881

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665	Corina Viera	D-882
666	Corina Viera	D-883
667	Brent Volle	D-884
668	Brent Volle	D-885
669	Cindy Waddington	D-886
670	Deborah Wade	D-888
671	Debi Wagner	D-889
672	Debi Wagner	D-904
673	Dianne Wagner	D-910
674	Jayme Wagner	D-911
675	Lisa Walls	D-912
676	Lindsay Walter	D-913
677	Abby Wammer	D-914
678	Marilyn Watkins	D-915
679	Terryll Watkins	D-916
680	Kevin Watson	D-917
681	Colleen Webster	D-918
682	Cai Weir	D-919
683	Janet Welborn	D-920
684	Mark Welborn	D-921
685	Claude, Lori, Ariana and Corryn Wetzel	D-922
686	Christian Whitmyre	D-923
687	Terry Wilbur	D-924
688	Pamela Williams	D-925
689	Nicholas Wilson	D-926
690	Bryan Wiseman	D-927
691	Bryan Wiseman	D-928
692	Holly Wolford	D-929
693	Kevin Wood	D-930
694	Raymond Wood	D-931
695	Dan Wright	D-933
696	Greg Wright	D-934
697	Sylas Wright	D-935
698	Teresa Wright	D-936
699	Angela Wuttig	D-938
700	Mark Oliver Wuttig	D-939
701	Stephen Wyand	D-940
702	Anh Wylde	D-941
703	David Wylde	D-942
704	Jan Yokers	D-943
705	Mark & Jan Yokers	D-944
706	Jennifer Young	D-945
707	W Loralyn Young	D-946
708	Brian Youngstrom	D-947
709	Mary Zaches	D-948
710	Rorie Zajac	D-949
711	Greg Zatrine	D-950
712	Ted Zepeda	D-952
713	Stephen Zielke	D-953
714	Eric Zimmerman	D-954
715	Lauren Zimmerman	D-956
716	Michelle Zipperman	D-958

Comment 331

Teresa Kubo

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From: Kubo, Teresa <Kubo.Teresa@epa.gov>
Sent: Tuesday, June 27, 2017 9:42 AM
To: 9-ATO-WSA-Public-Comments (FAA)
Subject: Automation of a westerly heading for turboprops aircraft departing SEA in north flow

Dear Members of the FAA Analysis Team:

Members of the public have contacted EPA Region 10 requesting our review of FAA's preliminary environmental analysis regarding Automation of a westerly heading for turboprops aircraft departing SEA in north flow. We offer the following comments in accordance with our responsibilities under the National Environmental Policy Act and Section 309 of the Clean Air Act.

1) The analysis available at https://www.faa.gov/documentLibrary/media/order/energy_orders/1050-1E.pdf <https://www.faa.gov/documentLibrary/media/order/energy_orders/1050-1E.pdf> is characterized as preliminary. We do not find the use of "preliminary environmental analyses" referenced in FAA's implementing regulations for NEPA and are therefore not clear on the purpose of this document. Will there be a draft and final environmental analysis issued prior to the issuance of a FONSI? If so, we recommend this be clarified. 1

2) The document states that the purpose of the EA is to assess the impact of adopting language that would direct turboprop airplanes in north flow to establish a heading of 250 within 1 Nautical Mile (NM) of the runway departure end. It is implied in the document that this is to address a flight safety risk associated with turboprops sharing airspace with faster jets, however this need is not explicitly stated. The draft and final documents should clearly articulate the purpose and need for the proposed change. To what extent does the current flight arrangement represent a flight safety hazard? 2

3) Are there other alternatives that could address the stated purpose and need? 3

Could changes to flight elevations/rates of ascent or descent be modified to address the purpose and need? 4

Response to Comment 331

The FAA appreciates your comments.
1. The preliminary environmental analysis was not intended to be presented as a draft or final NEPA document, but rather as a summary of the environmental impact analysis undertaken, which may be incorporated into a NEPA document. Our final NEPA document is a CATEX to which this analysis is attached.

2. There is no safely hazard inherent in the current flight arrangement. The purpose and need of the Proposed Action is to provide ATC with additional tools which would enable them to manage more aircraft in the airspace around SEA safely. This in turn, allows ATC to manage the increased number of operations at SEA without the need to increase ground delays. Additional background information has been included into the CATEX documentation (the Initial Environmental Review) to better explain this purpose and need .

3. The intent of the comment period is to solicit input on the best place to have aircraft fly from a community stand point. All suggested alternatives provided to the FAA during comment period are analyzed and discussed in Section 4.

4. There is no altitude restriction associated with the Proposed Action, so pilots have the ability to climb as much as they feel is within the safe operation of the aircraft. Instituting an altitude restriction may interfere with how the pilots would safely fly their aircraft. For this reason, the FAA has determined this alternative does not meet the Purpose and Need to enhance NAS safety and efficiency at SEA during north-flow operations.

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Teresa Kubo

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4) The document states that the number and type of aircraft flying within the area immediately to the west of SEA is not expected to change. This statement does not appear to be consistent with language on the FAA website (https://www.faa.gov/nextgen/communityengagement/SEA/) which states that SEA has witnessed a nearly 9% increase in operations between 2015 and 2016 and that this increase in operations is projected to continue. We recommend the draft and final EA clarify the extent to which air traffic is expected to increase within the project area and incorporate that into the impact analysis. Additionally, the document does not specify the current average number of turboprop flights leaving SEA that would be subject to this language change. It would be informative to reviewers and the decision-maker to know the average number of flights on a daily, monthly and yearly basis. 5

5) The documents includes the results of a noise impact analysis. For the sake of the public, any acronyms used in the document (such as DNL and dBA) should be clearly explained.

6) The document indicates that a noise sceening tool called "TARGETS" was utilized. It is not clear from the document whether TARGETS is designed to analyze the "community noise equivalent level or CNEL" (i.e. does TARGETS provide a time-weighted energy average noise level based on the A-weighted decibel?) If TARGETS does not measure the overall noise experienced during an entire day, or does not apply a time-weighted penalty to noise events occuring during sensitive time periods, we would recommend the draft EA include a CNEL-type analysis. If TARGETS accomplishes this type of analysis, that should be clarified. 6

7) Figure 5 and Figure 6 are mislabeled (with the no action alternative labled as the proposed action and vice versa) 7

8) Although the noise screen does not show significant noise impacts, it is evident from Figures 1 and 2 that turboprop traffic would be concentrated over a much narrower corridor under the proposed alternative than it is at present. We recommend the EA consider how this concentration (greater number of flights over the course of the day) may affect residents and businesses within the flight corridor (annoyance, sleep interference, physiological response). 8

Response to Comment 331

5. Response 7. According to 2016 data, south bound turboprops flights in north flow account for ~2% of all SEA departures.

6. This has been clarified in Section 5.6.2, as suggested. Response 1.

7. Thank you for pointing this error out.

8. The intent of the National Environmental Policy Act (NEPA) is to provide a single frame work in which impacts to human health are examined. For example, as accepted by the Department of Transportation and the U.S. Environmental Protection Agency (EPA), aircraft noise is best characterized by the DNL noise metric, and the determination of a significant or reportable impact is determined by well-defined impact criteria. The noise analysis includes the effect of concentration. This impact determination provides a way for the public to understand the noise impact of a proposed action without the need to understand how the noise profile of a given aircraft is affected by speed, altitude and engine configuration, for example. These variables are all incorporated into the noise metric. The provided document clearly details the noise impact of the proposed action as well as disclosing potential impacts to all other applicable impact categories.

Comment 331

Teresa Kubo

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9) The comment period for this document was initially abreviated given the apparent level of public interest. We appreciate that the FAA extended the comment deadline to July 5. As you move forward we encourage you to make the draft EA available for review for 30 days.] 9

Thank you for taking the time to read our comments, and please feel free to contact me at kubo.teresa@epa.gov or 503-326-2859 if you have any questions.

Sincerely,

Teresa Kubo
Environmental Review and Sediment Management
US EPA Oregon Operations
805 SW Broadway, Ste 500
Portland, Oregon 97205
Tel. 503-326-2859

Response to Comment 331

9. As Per FAA Order 1050.1F 3-1-1, a CATEX refers to a category of actions that do not individually or cumulatively have a significant effect on the human environment and for which there are no extraordinary circumstances.
In particular FAA Order 5-6-5 i states that, in absence of extraordinary circumstances, the following action fall under a CATEX:
"..modifications to currently approved procedures conducted below 3,000 feet AGL that do not significantly increase noise over noise sensitive areas;.."
The noise analysis indicates that the noise exposure, as measured in DNL, does not change with the implementation of the Proposed Action.

FAA order 1050.1F Section 5-2 details the Extraordinary Circumstances. These are factors or circumstances in which a normally categorically excluded action may have a significant environmental impact that then requires further analysis in an EA or an EIS. For FAA proposed actions, extraordinary circumstances exist when the proposed action meets both of the following criteria (see 40 CFR § 1508.4, CEQ Regulations):
(1) Involves any of the circumstances which are listed in Table 1 of the Preliminary Environmental Analysis; and
(2) May have a significant impact (see 40 CFR § 1508.4, CEQ Regulations).

The preliminary environmental analysis clearly shows that since there is no significant impact in any of the environmental categories that no extraordinary circumstances exist. The FAA has determined that a CATEX is an appropriate level of NEPA review for the Proposed Action.

Comment 106

City of Burien

Page 1

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burienwa.gov

June 21, 2017

Federal Aviation Administration
AJV-W25
1601 Lind Avenue, SW
Renton WA 98057
9-ATO-WSA-Public-Comments@faa.gov

Dear Sir or Madam:

Thank you for the opportunity to review the Preliminary Environmental Analysis ("PEA") prepared by the Federal Aviation Administration ("FAA") in connection with a proposal to establish a new flight path over the City of Burien for turboprop aircraft departing Seattle-Tacoma International Airport ("Sea-Tac") in a north flow (the "Project").

This letter provides comments from the members of the Burien City Council: Mayor Lucy Krakowiak; Deputy Mayor Nancy Tosta; Councilmember Steve Armstrong; Councilmember Austin Bell; Councilmember Lauren Berkowitz; Councilmember Bob Edgar; and Councilmember Debi Wagner.

We have significant concerns about both the Draft PEA and the Project itself. As explained in detail below, (1) the Draft PEA does not contain sufficient information about the Project to permit meaningful analysis and comment; (2) based on the limited information provided, the FAA does not appear to have taken a "hard look" at the Project's potential environmental consequences, as the National Environmental Policy Act ("NEPA") and other federal environmental laws require; and (3) the Draft PEA appears to have ignored alternatives to the Project that would avoid unnecessary damage to Burien and the surrounding community. If the FAA does not remedy these deficiencies, it will not have a legally-defensible basis for reaching a decision on the Project.

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Response to Comment 106

1. Based on some public comments, the FAA has included more detailed descriptions of the analysis behind the determinations presented in the preliminary environemtnal analysis. FAA Order 1050.1F specifies 14 environmental impact categories as well as consideration of other executive orders and regulations to determine whether the Proposed Action would result in a significant impact. Given the nature of the Proposed Action, impacts to these environmental impact categories are generally caused by either noise of air quality impacts. The result of the noise and air quality impact analysis indicated that there were no significant noise impacts or air quality impacts as a result of the Proposed Action. Given this, further evaluation into some of the environmental impact categories was not merited.

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City of Burien

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1. The Draft PEA Does Not Provide Sufficient Information to Permit Meaningful Review and Comment

While we appreciate the FAA's willingness to make the Draft PEA available, we are concerned that the document does not provide sufficient information to permit meaningful review and comment.

- The Draft PEA fails to provide a reasonable description of the purpose and need for the Project. Although the document contains a general reference to the concept of separating jet aircraft from turboprop aircraft, it provides no specific information or data demonstrating that the absence of such separation is creating safety or operational problems at Sea-Tac. Indeed, the City understands that safety is *not* currently a problem at Sea-Tac.

- Similarly, the Draft PEA contains very little description of the Project itself. For example, the document fails to explain how many turboprop flights would be affected, the altitude at which the turboprops would turn onto the new flight path, or the height and speed at which aircraft would pass over the City. Without this basic information, the City and its residents simply cannot get a full picture of all Project impacts or meaningfully review the FAA's draft assessment of those impacts.

- There are three — and only three — methods by which a federal agency may document its compliance with NEPA:[1] by preparing an Environmental Impact Statement (or "EIS");[2] by preparing an Environmental Assessment (or "EA");[3] or by properly documenting reliance on a Categorical Exclusion (or "Cat Ex").[4] A PEA is not an EIS, an EA, or a Cat Ex. And *this* Draft PEA fails to specify which of the three compliance paths the FAA intends to follow or the agency's rationale for following such path. For this reason, too, the City and its citizens have not had a reasonable opportunity to review and comment on the FAA's NEPA decision-making.

- To the extent the FAA is considering whether to proceed on the basis of a Cat Ex, it is worth noting that the Draft PEA contains no information or analysis demonstrating that such an approach is permissible. For one thing, the Draft PEA does not explain whether the FAA believes the Project falls within the

[1] *See* FAA Order 1050.1F ch. 3.

[2] 42 U.S.C. §4332(2)(C); 40 C.F.R. part 1502; Order 1050.1F ch. 7.

[3] 42 U.S.C. §4332(2)(E); 40 C.F.R. §§1501.3, 1508.9; Order 1050.1F ch. 6.

[4] 40 C.F.R. § 1508.4; Order 1050.1F ch. 5.

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Response to Comment 106

2. The FAA appreciates your comment and has incorporated additional language into Sections 2 and 3, which supports the CATEX in order to clarify the Purpose and Need of the Proposed Action.

It is ATC's primary responsibility to ensure the safety of the NAS. Effectively this means ensuring that there is sufficient lateral and/or vertical separation between aircraft as well as coordination with pilots to ensure that their aircraft can safely fly the procedure/directions provided by ATC. Ensuring safe separation is simple when there are few aircraft in the same area of airspace at any one given moment. This gets more complicated as more aircraft are added into that same section of airspace. ATC manages busy airspace by using separation tools, as well as imposing departure and arrival delays, if necessary to reduce the number of aircraft in the airspace at any given moment. However, the FAA is also congressionally tasked with ensuring that these delays are minimized, as a service to the flying public. Congress has therefore directed the FAA to use available technology as well as other tools to ensure separation while minimizing delays. The proposed action is one of those tools. The turning of these turboprops provides a way for ATC to remove turboprops from the stream of SEA jet departure traffic, as well as turning SEA departing turboprops away from the westerly departures from BFI. As SEA gets busier, ATC has the option of using improved tools to ensure separation while keeping up with the air travel demand at SEA or increasing ground delays. The City of Burien is correct in that safety is not currently a problem at Sea-Tac. The intent of this proposed automation is to help alleviate ground delays while ensuring safety.

3. The intent of the National Environmental Policy Act (NEPA) is to provide a single frame work in which impacts are examined. For example, as accepted by the Department of Transportation and the U.S. Environmental Protection Agency (EPA), aircraft noise is best characterized by the DNL noise metric, and the determination of the potential of a significant or reportable impact is determined by well-defined impact criteria. This impact determination provides a way for the public to understand the noise impact of a proposed action without the need to understand how the noise profile of a given aircraft is affected by speed,

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scope of a recognized Cat Ex. For another, the document does not evaluate whether "extraordinary circumstances" might render a Cat Ex inappropriate. Both of the missing analyses are required by the FAA's own Orders.[5] By failing to provide those analyses, the FAA has deprived the City and its residents of the opportunity to review and comment on them. That failure is not insignificant, for it appears that reliance on a Cat Ex is not, in fact, appropriate here: the Project does not fall within any recognized Cat Ex, and, even if it did, the existence of extraordinary circumstances (in the form of significant public controversy and impacts on noise-sensitive areas) would require the preparation of an EA or an EIS.[6]

- NEPA compliance must be integrated "with other planning and environmental review procedures required by law or by agency practice so that all such procedures run concurrently rather than consecutively."[7] The Draft PEA does not reflect such an integrated approach. Among other things, it fails to confront the requirements of the Clean Air Act requirements. And while the National Historic Preservation Act and Section 4(f) of the Department of Transportation Act are briefly mentioned, neither statute is fully addressed. As a result, City residents have not had a meaningful opportunity to address the full range of planning and environmental review requirements implicated by the Project.

2. Based on the Limited Information Provided, the Draft PEA's Environmental Analysis Appears to be Deficient

Although the FAA has not provided sufficient information to permit meaningful review and comment, the limited information made available to date reveals a number of troubling deficiencies in the Draft PEA.

[5] Order 1050.1F §§ 5-1 (FAA "must determine whether a proposed action is within the scope of a Cat Ex"), 5-2 (requiring "extraordinary circumstances" evaluation).

[6] With respect to the scope of recognized FAA Cat Exes, we note that the Project would cause air traffic to be routed over noise-sensitive areas at less than 3,000 feet AGL, rendering inapplicable Order 1050.1F § 5-6.5i and other, similar provisions. With respect to extraordinary circumstances, we note the extraordinary level of community controversy generated by the FAA's initial decision to implement the Project without any NEPA review whatsoever as well as the substantial concerns raised by elected officials, including members of Congress (*see* Attachment 1). The federal courts have not hesitated to invalidate agency reliance on Cat Exes in circumstances such as these. *See, e.g., United States v. Codition for Buzzards Bay*, 644 F.3d 26, 34-36 (1st Cir. 2011).

[7] 40 C.F.R. § 1500.2.

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Response to Comment 106

altitude and engine configuration, for example. These variables are all incorporated into the noise metric. The provided document clearly details the noise impact of the proposed action as well as disclosing potential impacts to all other applicable impact categories.

4. Response 17

5. Response 2

6. In accordance with Section 106 of the National Historic Preservation Act and using the Washington State Department of Archeology and Historic Preservation's (DAHP) Wissard application, the FAA identified two places listed on the National Register of Historic Places (NRHP) as well as six places eligible to be listed on the NRHP and Washington Heritage Register which had a potential of being affected by the Proposed Action. The FAA contacted Dr. Allyson Brooks, the Washington State Historic Preservation Officer (SHPO) at the DAHP on May 5th 2017 detailing the Proposed Action, the area in which properties were determined to be potentially affected by the Proposed Action, and providing this list of properties. The FAA also presented its determination of No Adverse Effect based upon the noise and air quality determinations. In a letter dated May 10th 2017, the Washington SHPO responded to the FAA stating that the SHPO concurred with the determination of properties potentially affected by the Proposed Action as well as the FAA's determination of No Adverse Effect. In addition to this, the City of Burien was provided this information and has had multiple meetings with the FAA in which no comment was made regarding the potential adverse effect on historic properties. In accordance with Section 4(f) of the Department of Transportation Act, the FAA identified 34 public parks within the Study Area. Given that the noise analysis showed that there are no changes to the noise exposure level as a result of the Proposed Action, the FAA determined that there would be no use and/or constructive use of these 4(f) properties as a result of the implementation of the Proposed Action.

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City of Burien
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- As a general matter, the FAA's analysis is premised on the assumption that the Project will have no impact on the total number or type of aircraft departing from Sea-Tac. That premise does not appear to be accurate. Indeed, the FAA's own website suggests that the Project is designed to accommodate "greater demand and additional air carriers entering the market."[8] This error contaminates the whole Draft PEA and renders the FAA's entire analysis arbitrary and capricious.

- The Draft PEA claims the Project will not result in significant noise impacts. That conclusion is based on the results of FAA's noise modeling. But the Draft PEA does not identify or explain the assumptions that were used for that modeling. Unless those assumptions are disclosed and their accuracy confirmed, the noise analysis will not satisfy NEPA.

- The FAA assumes the Project will not impact air quality because the total number and type of aircraft departing Sea-Tac will remain constant. This assumption is flawed in two fundamental respects. First, as explained above, it is inaccurate to assume that the total number and type of aircraft departing Sea-Tac will remain constant. Second, the air quality analysis fails to account for the impacts of localized air pollution associated with direct overflights (as distinguished from regional pollution issues).

- The Draft PEA does not address significant safety concerns. The Project calls for north flow turboprop departures to establish a 250-degree heading within one nautical mile of the Sea-Tac runway. As a practical matter, this requires a sharp left turn at low altitude immediately after takeoff — an unnecessarily risky maneuver in and of itself. That risk is further heightened by the fact that most turboprop departures do not take place on the western-most (left-most, in north flow) of Sea-Tac's runways. In essence, the Project requires turboprops to execute the equivalent of a sharp left turn from the right-hand lane of a four-lane highway. There is simply no reason to subject travelers, airlines, and the communities surrounding Sea-Tac to the risks inherent in such a procedure.

- The Draft PEA ignores the fact that the Project is inconsistent with local planning and zoning provisions. The City has invested considerable effort, money, and regulatory resources on noise mitigation within existing noise corridors. At the same time, it has enacted land use requirements directing noise sensitive uses (including residential development required to meet the City's state-mandated share of regional housing needs) into areas outside of

[8] https://www.faa.gov/nextgen/communityengagement/sea/ (visited June 20, 2017).

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Response to Comment 106

7. Response 7.

8. The FAA appreciates your comment and has added language into the CATEX to better explain the FAA's noise modeling methodology. 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. For aviation noise analyses, the FAA has determined that the cumulative noise energy exposure of individuals to noise resulting from aviation activities must be established in terms of Yearly Day-Night Average Sound Level (DNL), the FAA's primary noise metric. The Community Noise Equivalent Level (CNEL) may be used in lieu of DNL for FAA actions needing approval in California. In this noise analysis, all noise exposure was expressed in DNL. 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.

9. Response 11

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City of Burien

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those corridors. The Project is inconsistent with both sets of land use provisions: low-flying aircraft would be directed away from established noise corridors (where mitigation has been implemented at great cost) and toward areas which have been set aside for noise-sensitive uses (where no mitigation has occurred and noise levels are tightly regulated). For example, the Project would route aircraft directly over Seahurst Park, which is subject to strict noise limits imposed to protect habitat conservation areas. Aircraft would also fly directly over the public library, City Hall, schools, churches, and parks, all of which were sited and built with the reasonable expectation that departures from Sea-Tac would stay within existing noise corridors and be consistent with existing land use restrictions. The Draft PEA does not account for these issues.

- Although the Draft PEA briefly mentions the concept of environmental justice, it fails to fully address the issue. Under existing conditions, turboprop aircraft are dispersed over the area surrounding Sea-Tac. The Project proposes to concentrate those aircraft over minority and low-income communities. This is precisely the sort of outcome prohibited by federal environmental justice requirements (including the FAA's own Orders and regulations).

- The Draft PEA fails to evaluate indirect and cumulative impacts. That failure is significant in light of (1) the Project's potential to increase functional capacity at Sea-Tac and (2) future capacity-enhancing future projects planned for the airport.

Additional deficiencies in the Draft PEA's environmental analysis are outlined in Analytical Environmental Services' technical report, a copy of which is attached hereto (*see* Attachment 2).

3. The Draft PEA Ignores Reasonable Alternatives Capable of Avoiding Unnecessary Damage to the Community

The FAA's failure to provide meaningful information and accurate analysis is particularly problematic because there are reasonable alternatives to the Project which are capable of avoiding unnecessary damage to the community.

By way of example, we note a proposal by a group of concerned Burien citizens (including several veterans of the aviation industry with decades of first-hand experience at Sea-Tac) which calls for turboprops to take an automatic 320-degree heading during north flow. Such a procedure would provide lateral separation between turboprops and jets; would keep all departures within existing noise corridors; would avoid additional overflights of noise-sensitive land uses within the City; would eliminate the safety risks associated with sharp, immediate turns onto the

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Response to Comment 106

10. In accordance with the Part 150 Land Use compatibility guidelines (14 CFR Part 150), as well as a search of the City of Burien's planning and current zoning provisions, the reasonably foreseeable noise footprint of the Proposed Action is compatible with the current and planned land use within the Study area.

11. In accordance with FAA Order 1050.1F, environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. *Fair treatment* means that no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental, and commercial operations or policies. As per FAA's criteria – there are no significant or reportable noise increases as a result of the implementation of the Proposed Action and therefore there would be no disproportionate share of significant or reportable noise increases as a result of the implementation of the Proposed Action. Furthermore, the FAA provided a way in which all members of the public could provide meaningful input into the decision making process of the Federal action, through the four-week comment period on the provisional environmental analysis.

12. As per FAA's criteria – there are no significant or reportable noise increases (in dBA DNL) as a result of the implementation of the Proposed Action. Furthermore, the noise analysis indicates that outside of the immediate vicinity of the SEA, there would be no changes in noise exposure (measured in dBA DNL) as a result of the implementation of the Proposed Action. The Proposed Action is intended to provide an additional tool by which ATC may safely accommodate more aircraft in the NAS – which minimizes ground delays, as is the FAA's congressional directive to best serve the flying public. This proposal is in response to an increase in

Comment 106

City of Burien

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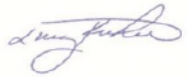
250-degree heading; and would be generally consistent with other departure procedures at Sea-Tac.

Other headings, altitudes, and turn locations also appear feasible. The City stands ready to work with the FAA's technical team to identify the specific options that will best accommodate all parties' interests. We are confident that a good-faith analysis will reveal less-damaging alternatives to the Project.

*****

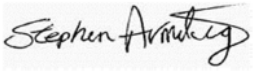
In light of the deficiencies set forth above, we must respectfully insist that the FAA re-consider both the Draft PEA and the Project itself. If the agency insists on proceeding with the current Project proposal, an EA or an EIS must be prepared. Alternatively, the FAA may elect to develop an alternative capable of avoiding impacts on the City and its residents. Either way, substantial changes are needed. If the FAA fails to make those changes, it will not have a legally-defensible basis for reaching a decision on the Project.

Respectfully submitted,



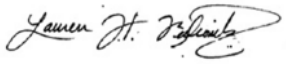
Lucy Krakowiak, Mayor

Nancy Tosta, Deputy Mayor



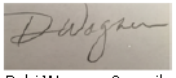
Stephen Armstrong, Councilmember

Austin Bell, Councilmember



Lauren Berkowitz, Councilmember

Bob Edgar, Councilmember



Debi Wagner, Councilmember

Response to Comment 106

operations at SEA and is not expected to increase operations at SEA. Therefore there would be no significant environmental impacts under NEPA, nor significant cumulative impact or indirect impacts or any other associated specials act, including the Clean Air Act.

13. Southbound turboprops in north-flow need to be placed on a heading with at least a 30° separation from the missed approach corridor (currently 290°-310°) to comply with FAA Order 7110.65W Section 5-8-5. This would place them at least at a heading of 340°. Given the proximity to the jet departures from SEA, this combination of headings would negate the efficiency gains intended to be captured by turning the southbound turboprops out of the way of the jet departures. For this reason, the FAA has determined this combination of headings does not meet the Purpose and Need to enhance NAS safety and efficiency at SEA during north-flow operations.

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PRAMILA JAYAPAL
7TH DISTRICT, WASHINGTON

COMMITTEE ON THE BUDGET
COMMITTEE ON THE JUDICIARY
SUBCOMMITTEE ON IMMIGRATION AND BORDER SECURITY
SUBCOMMITTEE ON REGULATORY REFORM, COMMERCIAL, AND ANTITRUST LAW

Congress of the United States
House of Representatives
Washington, DC 20515–4707

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1904 3RD AVENUE
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SEATTLE, WA 98101
(206) 674-0040

May 22, 2017

Michael P. Huerta
Administrator
Federal Aviation Administration
800 Independence Avenue, SW
Washington, DC 20591

Dear Administrator Huerta,

I write to request more information as to how the Federal Aviation Administration (FAA) makes decisions on flight paths over communities.

In particular, I would like to know:

1. How does the FAA determine changes in use of flight paths?
2. How are changes to flight paths communicated with impacted communities?
3. Is there an opportunity for meaningful community and stakeholder input and engagement?
4. How is local community input incorporated into final decisions?
5. What flexibility is there for making changes once decisions have been made?
6. How often does the FAA review flight paths and make modifications?
7. Is there a process to assess potential environmental and health impacts on the ground that result from increased air traffic?

I understand that you have an unenviable task of balancing many competing needs. However, in order to ensure a proper balance of interests, I want to be certain that all points of view are expressed and are given serious consideration.

I have heard from residents and communities in my district, like Burien, WA, where there has been significant public controversy over flight paths. My constituents in Burien are concerned that there has not been adequate community input and consultation before flight pattern decisions have been made. Communities in my district are not only concerned about the process in which these flight paths are determined but the health and environmental impacts that result from increased air traffic.

I do appreciate that the FAA recently made changes to its Approach Control Service and Coordination Procedures Letter of Agreement at Sea-Tac Airport. I certainly hope that this represents the beginning of a dialogue and that you incorporate public consultation as much as possible.

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I would like to be able to better understand how this process works at the FAA and would appreciate a prompt response. Should you have any questions, please contact Ven Neralla of n office at ven.neralla@mail.house.gov or 202-225-3106.

Sincerely,

PRAMILA JAYAPAL
Member of Congress

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City of Burien

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ATTACHMENT 2

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ANALYTICAL ENVIRONMENTAL SERVICES

DATE: June 19, 2017

TO: Ms. Lisa Marshall, City Attorney
City of Burien
Lisam@burienwa.gov
(206) 248-5535

FROM: Trent Wilson, Senior Project Manager

RE: **Comments on National Environmental Policy Act Preliminary Environmental Analysis – Federal Aviation Administration Departures over City of Burien**

The following memorandum provides comments on a document titled *Automation of a Westerly Heading for Turboprops Aircraft Departing SEA in North Flow Preliminary Environmental Analysis* prepared by the Federal Aviation Administration (FAA) under the National Environmental Policy Act (NEPA). The FAA is seeking to reinstate a requirement for turboprop airplanes to establish a western flight path within one nautical mile of northern departure from the Seattle-Tacoma International Airport (Proposed Action).

Project Understanding

In July of 2016, turboprop airplanes departing in the North Flow were required to turn west within one nautical mile of the runway departure end. The change in departure maneuvers was instigated to prevent conflicts between turborprop and faster moving airplanes. However, the requirement was lifted in March of 2017. Recently, the FAA released a document titled Prliminary Environmental Analysis (PEA) for the proposed reinstatement of this requirement for turboprop aircraft. The Preliminary Environmental Analysis provides a limited analysis of impacts from reinstating the western heading requirement. Two figures are provided showing the No Action flight tracks and the Proposed Action Flight tracks. No other alternatives are presented in the PEA. The FAA has requested comments concerning the document be submitted by June 21, 2017, 11:59 P.M.

Environmental Analysis

The introduction to the PEA states that the FAA is undertaking an enviornmental review under NEPA as implemented through FAA Order 1050.1F, "Environmental Impacts and Policies and Procedures". As indicated by the title, the FAA presents only the Preliminary Environmental Analysis (PEA) required by Section 4-1-6 of FAA Order 7210.3z, which is used to screen an FAA decision to determine the appropriate level of environmental review level under NEPA (categorical exclusion [Cat-Ex], environmental assessment [EA], or environmental impact statement [EIS]). The PEA provides an unsubstantiated conclusion that, given the preliminary analysis presented in the PEA and the nature of the Proposed Action, there would be no direct, indirect, or cumulative significant impacts associated with the implementation of the Proposed Action.

As stated in FAA Order 1050.1F, environmental impact categories that may be relevant to FAA actions include:

- Air quality
- Biological resources (including fish, wildlife, and plants)
- Climate
- Coastal resources
- Department of Transportation Act, Section 4(f)
- Farmlands

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Ms. Lisa Marshall
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- Hazardous materials, solid waste, and pollution prevention
- Historical, architectural, archeological, and cultural resources
- Land use
- Natural resources and energy supply
- Noise and compatible land use
- Socioeconomics, environmental justice, and children's environmental health and safety risks
- Visual effects (including light emissions)
- Water resources (including wetlands, floodplains, surface waters, groundwater, and wild and scenic rivers)

As stated in Section 4-2 of Order 1050.1F, the 1050.1F Desk Reference[1] provides details on current guidance and updated technical information for each environmental impact category that the FAA examines for its proposed actions and alternatives. This includes references to current requirements; information about permits, licenses, certificates, or other forms of approval and review; an overview of specific responsibilities for gathering data, assessing impacts, consulting other agencies, and involving the public; significance thresholds; and factors to consider in evaluating impact significance when there is no significance threshold.

The PEA references the need to assess the impacts to these resources areas, listing them in Table 1; however, there is no referral to the 1050.1F Desk Reference as guiding the analysis within the PEA. Stating that no ground disturbance would result from implementation of the Proposed Action, the PEA summarizes that many of the impact categories above would only be affected, if at all, as a result of noise and air quality impacts. The PEA then provides preliminary analysis concerning air quality and climate change; noise; historical, architectural, archeological, and cultural resources; land use; and socioeconomics, environmental justice, and children's enviornmental health and safety risks.

PEA Preliminary Analysis of Impacts

Air Quality and Climate Impact Analysis

As stated in Section 1.2 of the 1050.1F Desk Reference, when discussing the air quality of an area potentially impacted by FAA actions, including impacts from aircraft flight, the analysis must refer to the following:

- The current National Ambient Air Quality Standards (NAAQS);
- Applicable state ambient air quality standards;
- The attainment status(es) of the study area;
- A summary of recent measured air pollutant concentrations, if there are any monitoring sites in the region that are representative of conditions in the study area;
- A brief description of the meteorological and topographical conditions of the study area and an indication of whether these conditions could hinder the dispersal of air pollutant emissions in the study area;
- Other conditions in the study area if relevant to air quality, e.g., local land use or large emission sources nearby. For many Federal actions, discussion of such other conditions may not be needed; and
- List or table of existing permits;
- List or table of new permits that may be required by the action;

[1] Available online at https://www.faa.gov/about/office_org/headquarters_offices/apl/environ_policy_guidance/policy/faa_nepa_order/desk_ref/

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- For commercial space launch actions, a brief description of the affected layers of the atmosphere (e.g., troposphere, stratosphere, mesosphere, ionosphere).

None of these issues are addressed in the PEA and must be addressed in the Environmental Assessment for the Proposed Action.

Without the analysis required by the 1050.1f Desk Reference, the impact finding presented in the PEA for Air Quality and Climate is unsubstantiated and is contradicted by the figures presented as the No Action and Proposed Action flight tracks (Figures 1 and 2, respectively). Section 1.3.2 of the 1050.1f Desk Reference states that while there is no single, universal criterion for deciding whether an ambient pollutant concentration analysis is necessary for Federal actions, a review of any unusual circumstances, such as intense emission sources in close proximity to areas where the public has access, might indicate a need for further anlaysis. As shown in Figure 1, the No Action flight tracks for turboprops are concentrated due north of SEATAC with a wide spread, vearing west several miles north of the airport; a majority of the western tracks are located outside of the City of Burien limits. Under the Proposed Action, nearly all of the turboprop tracks are concentrated within City of Burien limits, which has the potential to impact local air quality and the City's ability to manage local air quality impacts. Figure 2 shows that air quality within the City would worsen due to the heavy concentration of tracks compared to the tracks shown in Figure 1. The concentration of flight tracks shown in Figure 2 for the Proposed Action constitutes an unusual circumstance for which ambient pollutant concentration analysis is necessary and required to provide the FAA with all the information necessary to make an informed decision under NEPA. As stated in the City of Burien Comprehensive Plan (Comprehensive Plan)[2], Section 5.2.9, Air Quality, air quality impacts associated with SEATAC airport-related aircraft operations are unknown. However, subsequent in-field monitoring by Ecology in 1996-97 found that modeled emission for nitrogen oxides (NOx) (off the north end of the SeaTac runway) predicted that EPA standards may be exceeded. The study concluded that at this time there is no field data to verify, refute, or otherwise qualify the findings. As noted in the Comprehensive Plan, complaints from the community have arisen concerning residue fallout/deposition, jet fuel odors, and long-term health risks associated with exposure to toxic pollutants in ambient air in the vicinity of the airport. With the heavy concentration of western flight tracks arising from the Proposed Action, an Environmental Assessment must be conducted that assesses the air quality impacts arising from heavily concentrated flight paths over the City of Burien, including impacts to sensitive receptors such as residential neighborhoods. In addition to the ambient pollutant concentration analysis required for the Proposed Action under the 1050.1f Desk Reference, the analysis within the environmental assessment must include a health risk assessment that includes dispersion modeling to calculate the cancer risk and short-term health risk due to the uncertainties relating to the concentration of flight tracks within the City of Burien. Air dispersion modelling to determine the health risks should include the following:

(1) Create an emission inventory of the toxic releases,
(2) Identify the source types,
(3) Identify the terrain type,
(4) Determine the detail needed for the analysis: screening or refined,
(5) Identify the population exposure,
(6) Identify the receptor network,
(7) Obtain meteorological data (for refined air dispersion modeling only),
(8) Select an air dispersion model,
(9) Prepare a modeling protocol and submit to the City of Burien for review,

[1] Available online at http://www.burienwa.gov/index.aspx?nid=147

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(10) Complete the air dispersion analysis,
(11) If necessary, redefine the receptor network and return to Step 10, and
(12) Complete the risk assessment

General Conformity

Under the General Conformity Rule, the lead agency with respect to a federal action conducted in an area designated nonattainment or maintenance for any NAAQS for Criteria Air Pollutants (CAPs) is required to demonstrate that the proposed federal action conforms to the applicable State Implementation Plan (CIP) to meet nonconformances before the action is taken. The purpose of the rule is to ensure that federal activities do not cause or worsen existing violations of the NAAQS, or delay attainment for maintenance areas. There are two phases to a demonstration of general conformity:

1. The Conformity Review process, which entails an initial review of the federal action to assess whether a full conformity determination is necessary; and
2. The Conformity Determination process, which requires that a proposed federal action be demonstrated to conform to the applicable SIP.

The Conformity Review requires the lead agency to compare estimated emissions of CAPs to the applicable general conformity de minimis levels (40 Code of Federal Regulations [CFR] 153 (b)(1) and (2)). If the emission estimates from step one are below the applicable threshold(s), then a general conformity determination is not necessary and the full Conformity Determination is not required. If emission estimates are greater than the applicable threshold(s), the lead agency must conduct a Conformity Determination. Therefore, within the environmental assessment for the Proposed Action, the FAA must determine whether conformity requirements apply and consider the following:

- The nonattainment or maintenance status of the area;
- Emissions budget;
- Exemptions from conformity;
- FAA-specific activities that are presumed to conform (72 Federal Register 41565-41580 (July 30, 2007)); and
- Response to emergency or disaster.

Climate Impact Analysis

As stated in Section 3.1.1 of the 1050.1f Desk Reference, climate impacts should be documented in a separate section of the NEPA document, distinct from air quality, under a heading labeled "Climate". Climate impacts are grouped in the PEA with Air Quality, in conflict with the 1050.1f Desk Reference. Furthermore, Section 3.3.1 of the 1050.1f Desk References requires that if the FAA deams there would be no net increase in greenhouse gas emissions from Proposed Action over the No Action alternative, then the environmental assessment must explain the reasoning. The environmental assessment must address the increase in greenhouse gas emissions that would occur within the City of Burien as shown by the flight tracks in Figure 2 compared to Figure 1 and the significant impacts to the City's ability to initiate local climate change planning that would result. The FAA must develop mitigation for incorporation into the environmental assessment of the Proposed Action, in coordination with the City of Burien, to address these impacts.

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Summary

Accordingly, the discussion within the PEA for Air Quality and Climate does not meet the requirements under NEPA nor the policies of the FAA presented in Order 1050.1f and the 1050.1f Desk Reference. An environmental assessment must be developed and include descriptions of the existing air quality setting as outlined in the 1050.1f Desk Reference. An ambient pollutant concentration analysis along with a health risk assessment must be conducted to assess air quality impacts and the FAA needs to comply with the General Conformity provision of the Clean Air Act. Climate change must be addressed as a seperate topic and include mitigation for the singificant impact that would result from concentrating greenhouse gas emissions within the City of Burien.

Noise Impact Analysis

According to Section 11.2 of the 1050.1f Desk Reference, a NEPA document must determine the study area for noise analysis, identify noise sensitive areas in the study area and pertinent land use information, and describe current noise conditions in the study area. According to the 1050.1f Desk Reference, the study area for noise is the three dimensional geographic area with the potential to be impacted by noise from the proposed project. The study area can vary in size from an airport's environs to a larger scale airspace redesign that includes multiple airports. An airport environs study area must be large enough to include the area within the DNL 65 dB contour, and may be larger. An environmental assessment is required to assess the above noise environment.

The PEA states that noise screening of the flight tracks for the Proposed Action were assessed using the FAA computer-based noise screening tool Terminal Area Reoute Generation, Evaluation, and Traffic Simimulation (TARGETS) Aviation Environmental Design Tool (AEDT) Plug-In as recommended under order 1050.1f to assess impacts of the Proposed Action. The PEA then presents the results without providing a summary of the assumptions utilized within the modeling tool. Accordingly, in the environmental assessment for the Proposed Action, the FAA must summarize the assumption utilized for the model to substantiate the findings. Section 11.3 of the 1050.1f Desk Reference is specific in the requirements for such an analysis, stating that:

> "The environmental consequences section of the NEPA document will include the analysis of the potential noise impacts of the proposed action and alternative(s) for each timeframe evaluated. The noise analysis will include DNL contours, grid point, and/or change-of-exposure analysis for the proposed action and each alternative compared to the no action alternative for the same future timeframe. Comparisons should be done for appropriate timeframes. Timeframes usually selected are the year of anticipated project implementation and 5 to 10 years after implementation. Additional timeframes may be desirable for particular projects."

Contour map requirements are codified under 14 CFR Apendix A to Part 150, Noise Contour Maps (Apendix A to Part 150). Part B of Apendix A to Part 150 states that:

> "To determine the extent of the noise impact around an airport, airport proprietors developing noise exposure maps in accordance with this part must develop Ldn contours. Continuous contours must be developed for YDNL levels of 65, 70, and 75 (additional contours may be developed and depicted when appropriate). In those areas where YDNL

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values are 65 YDNL or greater, the airport operator shall identify land uses and determine land use compatibility in accordance with the standards and procedures of this appendix."

In addition, coutour maps must include flight tracks. Accordingly, to fully assess the impacts associated with the drastic change in flight tracks (as evidenced by the comparison of Figure 2 to Figure 1 of the PEA), the FAA must develop noise coutour maps for both alternatives and determine compatible land uses. These countour maps must be included in the environmental assessment for the Proposed Action. After completion of the maps, the environmental assessment must include a detailed assessment in accordance with Department of Transportation Act, Section 4(f).

Summary

Accordingly, the discussion within the PEA for noise does not meet the requirements under NEPA nor the policies of the FAA presented in Order 1050.1f and the 1050.1f Desk Reference. An environmental assessment must be developed and include descriptions of the existing noise setting as outlined in the 1050.1f Desk Reference. Noise countour maps must be developed to assess compatible land uses with the Proposed Action.

Historical, Architectural, Archeological and Cultural Resources

While the FAA received concurence from the State Historic Preservation Office under Section 106 of the National Historic Preservaiton Act, that process is separate from NEPA and the environmental assessment must include the requirements outlined in Secton 8 of the 1050.1f Desk Reference. The environmental assessment must include a discussion of the existing setting as related to historical, architectural, archeological, and cultural resources.

Land Use

According to Section 9.2 of the 1050.1f Desk Reference, a NEPA document must describe the affected environment for land use and determine the existing and planned and future land uses in the area. While the PEA gives a general listing of the land uses within the study area, there is no discussion of the planned and future uses that may be impacted from greatly concentrating flight tracks within the City of Burien. The analysis within the PEA relies on the findings of the noise analysis to conclude that no significant impacts would result from the implementation of the Proposed Action. However, as stated above, the noise analysis does not provide sufficient detail or documentation for such conclusions and the environmental assessment must include an updated noise analysis to assess land use impacts. Furthermore, incompatibility with existing land uses must be assessed in the context of the City of Burien's ability to implement existing and future planned development. Section 9.3.1 of the 1050.1f Desk Reference acknowledges that significance criteria have not been established by the FAA for impacts concerning land use and and the FAA has not provided specific factors to consider in making a significance determination for land use. Accordingly, the FAA states that "(i)f the proposal would result in other impacts that have land use ramifications, for example, disruption of communities, relocation, and induced socioeconomic impacts, the impacts on land use should be analyzed in these contexts and described accordingly." With such an increase in flight tracks over residential areas, impacts to land use would be significant including, but not limited to, disruption of the existing communities, potential relocation of inhabitants, and even socioeconomic impacts from decrease in land values due to the increase in the number of overhead flights. These issues must be addressed in the environmental assessment.

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Summary

The EA must assess the direct and indirect impacts to land use beyond noise impacts and must include mitigation for community disruption, relocation demands of existing residences, and socioeconomic impacts.

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

The PEA assesses socioeconomics, environmental justice, and Children's environmental health and safety risks stating that there are no impacts to the identified minority and impoverished area because there are no significant impacts assocated with air quality or noise . However, as noted above, the PEA does not substantiate the claims that the concentration of flight tracks within the City of Burien would not result in significant impacts. Furthmore, there is no indication that the FAA consulted local transportation, housing and economic development, relocation and social agency officials, and community groups regarding the social impacts of the proposed action and alternative(s) as required under Section 12.1.2 of the 1050.1f Desk Reference. Consultation must be conducted before the environmental assessment is completed and released to the public for review. Furthermore, the principal social impacts to be considered are those associated with relocation or other community disruption, transportation, planned development, and employment. The baseline conditions to be addressed in the enviornmental assessment must include the size of local population centers, the distance from a project site to these areas, and the nature of the local economies.

Please note, that for the sake of this discussion it is assumed that the titles of Figures 5 and 6 are mislabeled as Figure 5 actually represents the Proposed Action flight tracks and Figure 6 actually represents the No Action flight tracks. As shown in Figure 5, the flight tracks are concentrated within impoverished and minority areas. Under the No Action (Figure 6), flight tracks are evenly spread throughout the region which includes areas for which no enviornmental justice thresholds are exceeded. Concentrating the flight tracks within minority and impoverished areas is a significant environmental justice impact and must be mitigated within the environmental assessment. Such concentration of flight tracks conflicts with Executive Order 12898, which directs each federal agency to make environmental justice part of its mission, and sets responsibilities for agencies including developing a strategy to identify and address "disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations."

Summary

The figures presented in the PEA provide evidence that the Proposed Project violates Executive Order 12898 by causing flight tracks to be concentrated over impoverished and minority areas within the City of Burien. The FAA must consult with local agencies prior to completion of the environmental assessment to ensure compliance with the 1050.1f Desk Reference and Executive Order 12898. The discussion within the environmental assessment must acknoledge the significant impacts of the Proposed Action on environmental justice and include mitigation to reduce impacts.

Other NEPA Requirements

FAA Order 1050.1f states that to comply with NEPA, the environmental review process must include analysis of direct, indirect, and cumulative impacts as well as identifty irreversible and irretrievable commitment of resources. The PEA attempts to meet these requirements by merely stating there are no such impacts. In accordance with Section 15 of the 1050.1f Desk Reference, the FAA must assess the cumulative environment by considering past, present, and reasonably foreseeable future actions before an action can be taken.

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Accordingly, the environmental assessment must comply with the requirements outlined within Section 15 of the 1050.1f Desk Reference. Furthermore, the FAA needs to provide justification within the environmental assessment as to why implementaiton of the Propsoed Action would not result in irreversible and irretrievable commitment of resources.

Other Environmental Resources

While the resources above were discussed in the PEA, several resource areas were omitted. For example, visual resources were not addressed. With such a clustering of flight tracks over the City of Burien, both daytime and nighttime skyward views would be significantly impacted as such clustering would be considered intrusive, and therefore the statement in Section 13.32 of the 1050.1f Desk Reference that such issues are not to be considered as an adverse affect does not apply to the Proposed Project.

The FAA must fully implement the requirements of the 1050.1f Desk Reference when completing the environmental assessment for the Proposed Action. For those resource areas that would not be impacted by the Proposed Action, as stated in Paragraph of 4-2.c of FAA Order 1050.1F, "[i]f an environmental impact category is not relevant to the proposed action or any of the reasonable alternatives identified (i.e., the resources included in the category are not present or the category is not otherwise applicable to the proposed action and alternative(s)), this should be briefly noted and no further analysis is required." Those impact categories that are minimally affected by a project need not be described in detail, but instead should be briefly discussed and dismissed early in the NEPA review. An explanation as to why these impact categories are being dismissed should be provided. Adequate evidence must support the explanation as to why the impact categories are being dismissed.

Environmental Assessment Required

As shown above, the FAA's PEA for the westerly shift in northern departure flight tracks from SEATAC airport does not meet the requirements outlined by CEQ or FAA policies and procedures for implementing NEPA. Due to the extraordinary circumstances as evidenced above, the FAA must complete an Environmental Assessment. The discussion of the existing setting, analysis, and mitigation must follow the 1050.1f Desk Reference to comply with NEPA. The existing setting and impact analysis must include the areas within the City of Burien and associated sensitive receptors that would be adversely impacted from the increase in flight tracks within city limits. The FAA, in accordance with the requirements outlined in the 1050.1f Desk Reference, must consult with affected jurisdictions, which includes the City of Burien, prior to release of a draft EA. Consultation should include alternatives to the Proposed Action as required under NEPA. 40 CFR Section 1500.1(a) of the CEQ Regulations for Implementing the Procedural Provisions of NEPA states that the purpose of NEPA is to use the process to identify and assess "resonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions upon the quality of the human environment". The FAA must work closely with impacted parties to ensure full compliance under the NEPA process to ensure impacts to the City of Burien are adequately mitigated.

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City of Burien

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burienwa.gov

August 17, 2017

David C. Suomi
Acting Regional Administrator
Federal Aviation Administration - Northwest Mountain Region
1601 Lind Avenue, S.W.
Renton, WA 98057

Re: July 25th, 2017 City of Burien-FAA Meeting

Dear Mr. Suomi:

Thank you for meeting with me, Matt Adams, and Brian Wilson on July 25th 2017 to discuss the FAA's proposed procedure establishing an automatic 250-degree heading for turboprop aircraft departing Seattle-Tacoma International Airport (Sea-Tac) during North Flow conditions.

The proposed procedure has been the subject of substantial public controversy. The City of Burien and its residents are concerned that the 250-degree heading may result in significant and unnecessary environmental impacts, and have urged the FAA to take a hard look at the procedure's impacts and potential alternatives thereto. I understand that more than 750 public comments on the proposed procedure have been submitted to the FAA so far.

I believe our July 25 meeting was a productive first step in identifying feasible alternatives to the 250-degree heading, and I very much appreciate you and your staff's willingness to continue that conversation. This letter clarifies some of the points raised in the meeting and provides an update on follow-up actions the City has taken since then.

1. Alternative Headings

The proposed procedure would assign north flow turboprop departures to a 250-degree heading. As a practical matter, this would require aircraft to make a sharp left turn immediately after takeoff, routing low-flying planes directly over the heart of the City.

1

1

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1. Response 8. We had in total 716 comments, 205 of which were not associated with the westerly turn of some south bound turboprops in North Flow.

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On July 25, we discussed the possibility of identifying alternative headings capable of reducing impacts to the City and its residents. Much of the discussion centered on a proposal by a group of Burien citizens to route turboprop departures on a 320-degree heading. The FAA suggested that the 320-degree heading is not feasible because it would require turboprop aircraft to cross the protected path reserved for Sea-Tac missed approaches, which currently occupies a 290-degree heading. But the schematic diagram your team prepared and distributed on July 25, shows that the proposed procedure's 250-degree heading also requires turboprop aircraft to cross the protected missed approach path — particularly when departing Sea-Tac's central and eastern runways. It would be helpful to Burien to have a further explanation of the manner in which the FAA agency protects air space for missed approaches and/or breakouts.

Although you and your team expressed concern about routing turboprops on a 320-degree heading, you also noted that a 270-degree heading for turboprop departures is viable. We appreciate your willingness to discuss routing turboprops on a 270-degree heading, and we agree with you that this option appears feasible. We further agree that it might be somewhat helpful in reducing impacts on the City and its residents.

However, we also believe the availability of the 270-degree heading — and, more specifically, the fact that the 270-degree and 290-degree headings would not conflict — presents an opportunity for an even better solution. Specifically, we suggest that turboprops be routed on the 290-degree heading and the 270-degree heading be reserved for Sea-Tac missed approaches. This would greatly diminish, if not eliminate, impacts to Burien citizens residing under the 250-degree heading, while also addressing the FAA's interest in maintaining a clear path for missed approaches. This option warrants further discussion.

2. Timing Restrictions

Our July 25 discussion also explored the possibility that time-of-day restrictions might also help limit impacts on the City and its residents, either as stand-alone measures or as additions to a procedure involving an alternative heading. I understand that this approach has been used, in various forms, at other airports where environmental impacts are a concern. Your team agreed to evaluate the potential for time-of-day restrictions to help address the City's concerns. The City looks forward to discussing the results of that evaluation.

3. Jet Aircaft

The current version of the proposed procedure applies only to turboprop aircraft. On July 25, Brian, Matt, and I explained that many Burien residents are concerned that the procedure might one day be opened to jet aircraft. In response, your team confirmed that (a) the proposed procedure is limited to turboprop aircraft and (b) a procedure routing jet aircraft over Burien on a 250-degree heading would not be consistent with the FAA Records of Decision governing arrival and departure paths at Sea-Tac. The City appreciates this confirmation. Please let me know immediately if the FAA's plans or interpretations change in any way.

Response to Comment 107

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2. Aircraft issued different headings from the same point would get further away from each other as they travel along that heading. The greater the difference between those headings, the greater the separation. This difference is known as divergence. While aircraft on the 250º and 320º headings may both cross into the missed approach protected airspace (between 290º – 310º), aircraft on the 250º would have greater divergence from any missed approach than those on a 320º heading. Furthermore placing aircraft on a 320 º heading from SEA are not sufficiently separated from BFI traffic, as it places them within 3NM of BFI.

3

3. A minimum of 30° separation is required between a departure and a missed approach heading per FAA Order 7110.65W Section 5-8-5. Having the missed approach be on the 270º heading and the automatic turning of turboprops in west flow be the 290º heading do not provide the minimum 30° divergence. For this reason, as discussed in the Section 4, Alternatives, the FAA has determined that heading ranges do not meet the Purpose and Need to enhance NAS safety and efficiency at SEA during north-flow operations.

4

4. The FAA evaluated the discussed alternative of having time-of-day restrictions in Section 4, Alternatives. It was determined that reverting to coordinating turns between SEA and S46 during Sleeptime operations[1], when operationally feasible would not decrease the safe and efficient use of the NAS. Upon consideration of public input, the preferred alternative became including the suspension of the automatic turn, when operationally feasible during Sleeptime operations[1].

[1]Sleepytime operations typically take place between 10 pm and 6 am.

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City of Burien

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4. Further Outreach

You suggested that the City may wish to contact Alaska Air Group to discuss some of the alternatives and mitigation measures we addressed on July 25. The City has indeed contacted Alaska Air Group. The Port of Seattle has also requested a meeting. I will continue to update you on the results of the City's discussions with Alaska Air Group and the Port.

5. Status of Environmental Review

As explained in written comments on the FAA's Preliminary Environmental Analysis ("PEA"), a Categorical Exclusion ("CATEX") is not appropriate for the procedure *as proposed*. The City understands your team is continuing to review our comments, as well as those submitted by other stakeholders. I trust no final action will be taken on the environmental review or the proposed procedure while the parties are continuing to discuss alternatives and mitigation in good faith.

***

We would welcome the opportunity to discuss the foregoing with you and your team, and would be happy to meet with you again at your offices. Thank you for your consideration. We look forward to hearing from you soon.

Regards,

Lisa Marshall
City Attorney

Cc: Brian Wilson, Burien City Manager
Matt Adams, Dentons

3

Response to Comment 107

1

Seattle Airport Traffic Control Tower and Seattle Terminal Radar Approach Control

LETTER OF AGREEMENT

EFFECTIVE: October 3, 2017

SUBJECT: Approach Control Service and Coordination Procedures

1. PURPOSE: To establish coordination and control procedures between Seattle Terminal Radar Approach Control "TRACON" and Seattle Airport Traffic Control Tower "Tower".

2. CANCELLATION: Seattle TRACON and Seattle ATCT Letter of Agreement dated July 26, 2016 and all its revisions, and NOTICE S46 N7110.716/SEA N7110.133.

3. SCOPE: The responsibilities and procedures outlined herein must apply to Tower and TRACON personnel for inter-facility coordination and control of air traffic.

4. RESPONSIBILITIES: Tower and TRACON must be responsible to ensure that all applicable personnel are briefed on and comply with the procedures contained in this agreement.

5. PROCEDURES:

NOTE: *Unless otherwise defined, acronyms, contractions and location identifiers used within this agreement including attachments are defined within JO 7350.9 Location Identifiers, JO 7340.2 Contractions, or JO 7110.65, Air Traffic Control, paragraph 1-2-6. Unless otherwise noted, all altitudes are MSL and frequencies Megahertz (MHz).*

a. Pre-arranged Coordination.

(1) A clear operational benefit may result by establishing prearranged coordination procedures in this Letter of Agreement. In the event of a malfunction or failure of the radar/computer system that prevents complete alphanumeric track data from being displayed, or in the event that prearranged coordination procedures become impractical due to other circumstances; i.e. weather, equipment, frequencies, etc., the FLM must terminate the applicable prearranged coordination procedures immediately.

(2) Prearranged coordination may be terminated at any time by the controller responsible for the airspace and must not be resumed until additional coordination has been effected.

(3) When using Special Interfacility Procedures (i.e., Plan Alpha, Plan Bravo, Plan Charlie) between SEA ATCT, BFI ATCT, and Seattle TRACON refer to that Letter of Agreement. Due to the limited scope of this Letter of Agreement, the tri-facility LOA must provide the in-depth guidance necessary for the above procedures.

(4) Tower must Quick Look the F1 and F2, Y, N, P and A Sectors and the sector that has control of the BFI final. See Attachments 1, 2, 3, and 4 for descriptions and depictions of Tower and TRACON airspace.

(5) TRACON may climb and descend BFI arrivals and departures through Tower delegated airspace along the Runway (RWY) 14R/32L centerlines, except BFI arrivals or departures opposite to the established flow of traffic must be coordinated with Tower.

(6) For VFR cross-overs that will enter S46 airspace on routes depicted in Attachments 2.a. and 2.b., Tower is responsible for initiating an automated point-out to DR-A in a south-flow and, in a north flow: to AR-O for westbound aircraft; to DR-Y for eastbound aircraft. Tower will place "WWW" in the scratchpad for westbound and "EEE" for eastbound. TRACON acceptance of the automated point-out constitutes authorization for the Tower to provide VFR service to aircraft on the cross-over routes, at-or-below 2,500 feet. The approving TRACON sector is responsible for any further internal TRACON coordination for the VFR aircraft, should it be necessary.

b. Transfer of Control/Communication.

(1) TRACON must transfer communications no sooner than 15 Nautical Miles (NM) and no later than the final approach fix unless (in a south flow) there is BFI arrival traffic within 6 NM of BFI, then not until over BFI.

(2) TRACON has control to turn departures after transfer of communications with respect to subsequent departures that have LOA authorized headings or have been issued pre-coordinated headings.

(3) Tower must maintain IFR or visual separation between arrivals established on final within the lateral boundaries of Tower airspace.

(4) Tower has control to change assigned runway with arrivals established on final within the lateral boundaries of Tower airspace. When changing the assigned runway, Tower is responsible to ensure separation from the preceding and succeeding arrivals.

c. Arrivals.

(1) RWY 16R/34L is the arrival runway. The TRACON Traffic Management Coordinator (TMC)/FLM/CIC and the Tower FLM/CIC must coordinate to determine runway usage restrictions as described in the Seattle ATCT/Seattle TRACON Runway Use Procedures Letter of Agreement.

(2) TRACON must post the runway usage restrictions on the ACE-IDS, using the following terms:

(a) NA – no arrivals may be assigned without coordination.

(b) U – unlimited/no arrival restrictions.

(c) # – [miles-in-trail restriction]. i.e. 3 means 3 miles-in-trail at the threshold.

(d) XX – runway is closed.

(e) TM – available as assigned by Traffic Management
EXAMPLE- *16L – 8, 16C – NA, 16R – U*

(3) TRACON must:

(a) Handoff non-STARS tagged SEA arrivals.

(b) Furnish the Tower arrival information and type aircraft when the STARS/TDW is out of service.

(c) Place the following scratchpad information in the full data block for SEA arrivals:

ILS	**Visual Approaches**	**CAT III**
16R/34R	VAR-16R/34R	C3R- 16R/34R
16C/34C	VAC-16C/34C	C3C- 16C/34C
16L/34L	VAL-16L/34L	C3L- 16L/34L

CATII	**Pilot Provided Visual On Visual Approach**	**RNAV (RNP) Approach**
C2R – 34R	VVR - 16R/34R	Z or Y 6R/C/L or M6R – 16R/C/L
C2C – 34C	VVC - 16C/34C	Z or Y 4L/C/R or M4L – 34L/C/R
C2L – 34L	VVL - 16L/34L	

NOTE-
When the weather reported at SEA is below 800 feet AGL ceiling and/or 2 statute miles visibility, TRACON may use either Instrument or CAT III scratchpad entries.

NOTE-
Pilot-provided visual separation must be coordinated with the Tower verbally or by the use of the VVR/C/L on the trailing aircraft.

(d) Verbally coordinate aircraft's intentions for multiple or practice approaches.

(e) When placing IFR arrival RVR requirements in the STARS second scratchpad, use the letter V followed by two digits to denote RVR minimums – V__.

EXAMPLE-
V18 indicates 1800 RVR required.

(f) When Tower Local Control positions are combined assign 119.9, regardless of runway assignment.

(g) Verbally coordinate the use of Shoreline Arrivals with ATCT.

(4) Tower must:

(a) Update STARS full data blocks to depict actual runway assignments.

(b) Sequence pop-up VFR arrivals that will not interrupt the flow of traffic on final.

(c) Coordinate with the TMC when an arrival sequence is required for VFR aircraft.

(d) Inform TRACON when re-clearing an aircraft for a visual approach when simultaneous dependent approaches are being conducted. This can be accomplished with a scratchpad entry.

(e) Ensure that the FLM/CIC verbally coordinates through TRACON FLM/CIC when combining/decombining local control positions, and when 2.5 NM in-trail arrival separation is/is not authorized due to tower visibility.

(f) Update the ACE-IDS when 1 or 2 local control frequencies are in use.

(5) Breakouts/Missed Approach/Go-Arounds: See Attachment 5 for a depiction of the breakout areas.

(a) Breakout aircraft requiring a turn prior to reaching the appropriate breakout point should be coordinated through CI-2 when staffed, or AR-F.

(b) In a south flow, assign the breakout aircraft 2,000 feet and in a north flow assign 3,000 feet. Coordinate with the appropriate TRACON departure controller as soon as possible.

(c) Aircraft assigned a higher altitude by TRACON must not be issued the higher altitude until past the approach end of the runway.

NOTE- *The intent is to ensure that the breakout aircraft departs Tower airspace into a TRACON departure sector's airspace.*

(d) South flow aircraft may be assigned a heading of 160° through 195° after crossing the Final Approach Fix or, if a southeast-bound turn is required, a heading of 140° may be assigned when over the approach threshold. During split flow, no 140° headings will be assigned.

(e) North flow aircraft must be assigned a heading of 340° or vectored to remain in the tower's 3,000-foot airspace, then positioned to exit the Three Tree Breakout Area, and assigned a heading of 290° through 310°. Aircraft at or north of the Runway 34R threshold must be assigned heading 340° or turned to exit the Three Tree Breakout Area, and assigned a heading of 290°.

d. Departures. Tower must:

(1) Release IFR and VFR departures which will subsequently receive flight following from TRACON without prior approval except:

(a) When any check departure lights are on:

1) Inform the appropriate departure sector of any aircraft which have commenced takeoff roll prior to the activation of the check departure lights.

2) Acknowledge the lights by depressing the button located directly beneath the illuminated position indicator lamp.

(b) In the event of radar failure.

(2) When STARS or TDW is inoperative, advise the appropriate TRACON departure sector of Identification (ID), STARS gate and filed altitude for each departing aircraft prior to commencing take off roll.

(3) Coordinate all un-tagged or incorrectly tagged aircraft (IFR and VFR) with the appropriate departure sector before the aircraft reaches a point 2 NM from SEA. Include aircraft position, ID, STARS gate assignment, and filed altitude.

(4) In a north flow, release IFR departures with respect to traffic on the BFI RWY 32 final approach course. TRACON Boeing Sector must advise Tower of any aircraft not displaying a STARS full data block including current, verified altitude or in a coast status.

(5) Provide departure/departure separation:

(a) 3 NM constant or increasing or wake-turbulence separation as required by JO 7110.65, or:

(b) Pilot-provided visual separation may be used for other than successive, same-gate, like-type pairs. All ATOME departures are considered same-gate.

(c) When a pilot is applying visual separation with a preceding departure, Tower will place a "VV" in the secondary scratch pad of the STARS data block or verbally coordinate prior to transfer of communication of the succeeding aircraft.

NOTE- *Visual separation is not authorized when the lead aircraft is an Airbus or when the trailing aircraft is a B757, unless both aircraft are same-type (i.e. Airbus/Airbus or B757/B757).*

(d) In a south flow, provide 5 NM initial departure separation between successive Q and E gate departures when the lead aircraft is a Group B, C, or D aircraft and the trailing aircraft is a Group A aircraft.

NOTE- *Groups of aircraft are defined in Attachment 7.*

(6) Assign all departing IFR aircraft SID procedures as follows:

(a) Group A aircraft – Issue SIDs in accordance with Attachment 6. BFI arrivals must be issued the SEA SID. Exception: during Sleepytime, assign all departures the ATOME SID, unless filed to an airport within S46 airspace. Individual flights that are not assigned the ATOME SID must be coordinated.

(b) Group B, C, and D aircraft – Issue the SEA SID.

(c) If a pilot does not possess or cannot accept a SID, issue the SEA 161° radial (south flow) or the SEA 341° radial (north flow), as appropriate, for initial departure routing and coordinate with the appropriate TRACON departure sector.

(d) For all aircraft which are unable to meet the altitude restrictions contained in some SIDs prior to the aircraft commencing take off roll, instruct the aircraft to fly the SEA SID and verbally coordinate with the appropriate TRACON departure sector.

(e) Aircraft having a Seattle Center FDIO-generated PDR printed on the strip must be issued the PDR in addition to the appropriate SID.

(7) Assign the following automatic turns to departing IFR Groups B, C, and D aircraft:

(a) South Flow:

1) With filed routes between the SEA 230° and 340° radials, or filed to airports within the Satellite area, or aircraft filed on V187, V165, or V287 (i.e. I, U, or L Gates) south of OLM, a heading of 230°.

2) With filed routes between the SEA 341° and 104° radials, except P Gate departures filed for altitudes of 12,000 feet and above, a heading of 140°, to be assigned at the departure end of the runway or leaving 1500 feet.

3) P Gate departures, filed for altitudes of 12,000 feet and above, a heading of 230°.

(b) North-Flow:

1) P Gate filed 8,000 feet and below, a heading of 020°.

2) T, M, A and ZAD Gate, a heading of 020°.

3) Between 6 am and 10 pm local: E, F, Q, 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.

(c) Early turn provisions are automatically canceled when SEA and BFI are in a split flow configuration, except when BFI is north and SEA is south, the 230° heading remains in effect.

(8) Request turns using the following procedure:

(a) APREQ turns using aircraft identification and gate.

(b) If necessary, modify the STARS position symbol to the appropriate TRACON departure sector, and issue the correct departure frequency.

(9) Assign the following altitudes to departing IFR aircraft:

(a) All North-flow departures filed above 9,000 feet must be assigned 9,000 feet and to expect filed altitude 15 NM from SEA. All South-flow departures filed above 7,000 feet must be assigned 7,000 feet, and to expect filed altitude 15 miles from Seattle. If filed altitude is below 9,000 in a North-flow, or 7,000 in a South-flow, assign filed altitude.

NOTE- *Aircraft assigned the ATOME SID will be instructed to expect filed altitude 5 minutes from SEA.*

(b) Any Group B, C, or D aircraft not departing straight out (e.g. via a SID, runway heading, or via SEA 341R/161R) must be assigned 3,000 feet and to expect filed altitude 15 NM from SEA. This applies to all departure aircraft that are turned by Tower, including automatic turns (as defined in paragraph 5.d.(7)) as well as those specifically APREQed.

NOTE- *When automatic turns are suspended (except 250° headings), aircraft normally assigned these headings will be assigned 3,000 feet. When 250° headings are suspended, aircraft will be assigned runway heading to 9,000.*

REV 3, 06JUNE2018

(c) Group A aircraft, filed below 5,000 feet, must be assigned 5,000 feet. Altitude information in the FDIO must be updated to reflect the assigned altitude.

(10) Assign departure frequency as follows:

(a) In a south flow, assign departure frequency in accordance with sectors depicted in Attachment 3, except assign VFR aircraft requesting flight following to the west and northwest to the "D" Sector and issue 125.9.

(b) In a north flow, assign departure frequency in accordance with sectors depicted in Attachment 4.

(c) In either flow, assign all VFR aircraft requesting flight following from TRACON the frequency for the TRACON sector based upon direction of flight as depicted in Attachment 3 and 4.

(11) Any IFR aircraft that is not assigned a PDR, or that is filed on a route that does not coincide with the routes in Attachment 6 (e.g.: direct to a point/airport outside TRACON airspace) must be coordinated with the appropriate TRACON departure sector.

(12) Aircraft departing SEA and landing BFI:

(a) South Flow:

1) Group A, assigned Seattle SID, altitude of 5,000 feet, and frequency 120.4.

2) Group B, C, D assigned Seattle SID, heading of 230°, altitude 3,000 feet and frequency 120.4.

(b) North Flow:

1) Group A, assigned Seattle SID, altitude of 5,000 feet and frequency 119.2.

2) Group B, C, D assigned Seattle SID, heading of 020°, altitude 3,000 feet and frequency 119.2.

(13) Aircraft departing SEA and landing PAE:

(a) South Flow:

1) Group A, assigned Mountain SID, altitude of 5,000 feet and frequency 119.2.

2) Group B, C, D, assigned Seattle SID, heading of 140°, altitude 3,000 feet to expect 4,000 feet in 15 NM, and frequency 119.2.

(b) North Flow:

1) Group A, assigned Seattle SID, altitude of 5,000 feet and frequency 119.2.

2) Group B, C, D, assigned Seattle SID, heading of 020°, altitude 3,000 feet and frequency 119.2.

e. Flow Change.

(1) When a flow change is anticipated, the following positions must be staffed (staffing permitting):

(a) Tower must staff the Local Assist (LA) position.

(b) TRACON must staff the Coordinator (CI-2) position.

(2) All coordination regarding flow changes will be accomplished by the LA and CI-2 positions.

(3) LA and CI-2 will coordinate their last departure and arrival, respectively.

(4) Automatic releases are suspended when the last arrival (as determined by CI-2) is on a 5 NM final.

f. VFR Transitions. Utilize automation for all VFR transition aircraft unless otherwise specified.

g. ATIS.

(1) Tower must:

(a) Disseminate ATIS code changes and related information by entering the new approach information and ATIS code into the ACE-IDS.

(b) Assign the ATIS codes A through M in sequence for their ATIS, displaying on the IDS system a single letter with the current weather when VFR. Use double character (AA, BB, etc.) to denote IFR weather.

(c) Notify the TRACON FLM when the ATIS fails or returns to service.

(d) When in a south flow, broadcast the following on the ATIS: *"SIMULTANEOUS APPROACHES TO BOEING AND SEATAC AIRPORTS IN USE. EXPECT TRAFFIC BELOW YOU ON FINAL."*

(e) Advertise all runways used for arrivals.

(4) Whenever the Tower or TRACON receives information that would make a change to the advertised approach necessary (e.g.: weather, equipment outage, etc.), the change must be coordinated with the other facility.

6. BEACON CODES: Tower is authorized the permanent use of TRACON's beacon codes 5560 and 5561 for surface traffic/vehicles only (e.g. ASDE-X). These codes must not be used for airborne aircraft. Tower must return these beacon codes to TRACON when they are no longer needed.

7. OPPOSITE DIRECTION OPERATION PROCEDURES: See Attachment 8

8. SINGLE PERSON MIDSHIFT PROCEDURES: See Attachment 9.

9. ATTACHMENTS:

a. Attachment 1: Jurisdiction of Airspace.

b. Attachment 2: Tower Areas of Jurisdiction.

c. Attachment 3: South Flow TRACON Airspace.

d. Attachment 4: North Flow TRACON Airspace.

e. Attachment 5: Breakout areas.

f. Attachment 6: STARS Gate/PDR/Group A Departure Procedure (SID) Assignment.

g. Attachment 7: Definitions.

h. Attachment 8: Opposite Direction Operation Procedures.

i. Attachment 9: Single Person Midnight Operations at TRACON and Tower

Steven Vale
Air Traffic Manager
Seattle ATCT

Michael K. Coulter
Air Traffic Manager
Seattle TRACON

Seattle Airport Traffic Control Tower and Seattle Terminal Radar Approach Control

ATTACHMENT 1 – JURISDICTION OF AIRSPACE

1. Tower has continuous jurisdiction of the following airspace (See Attachments 2a, and 2b):

   a. Seattle Area A, from the surface to 2,000 feet MSL in a south flow. Area A, from the surface to 3,000 feet MSL in a north flow.

   b Seattle Area B, 1,100 to 2,000 feet MSL.

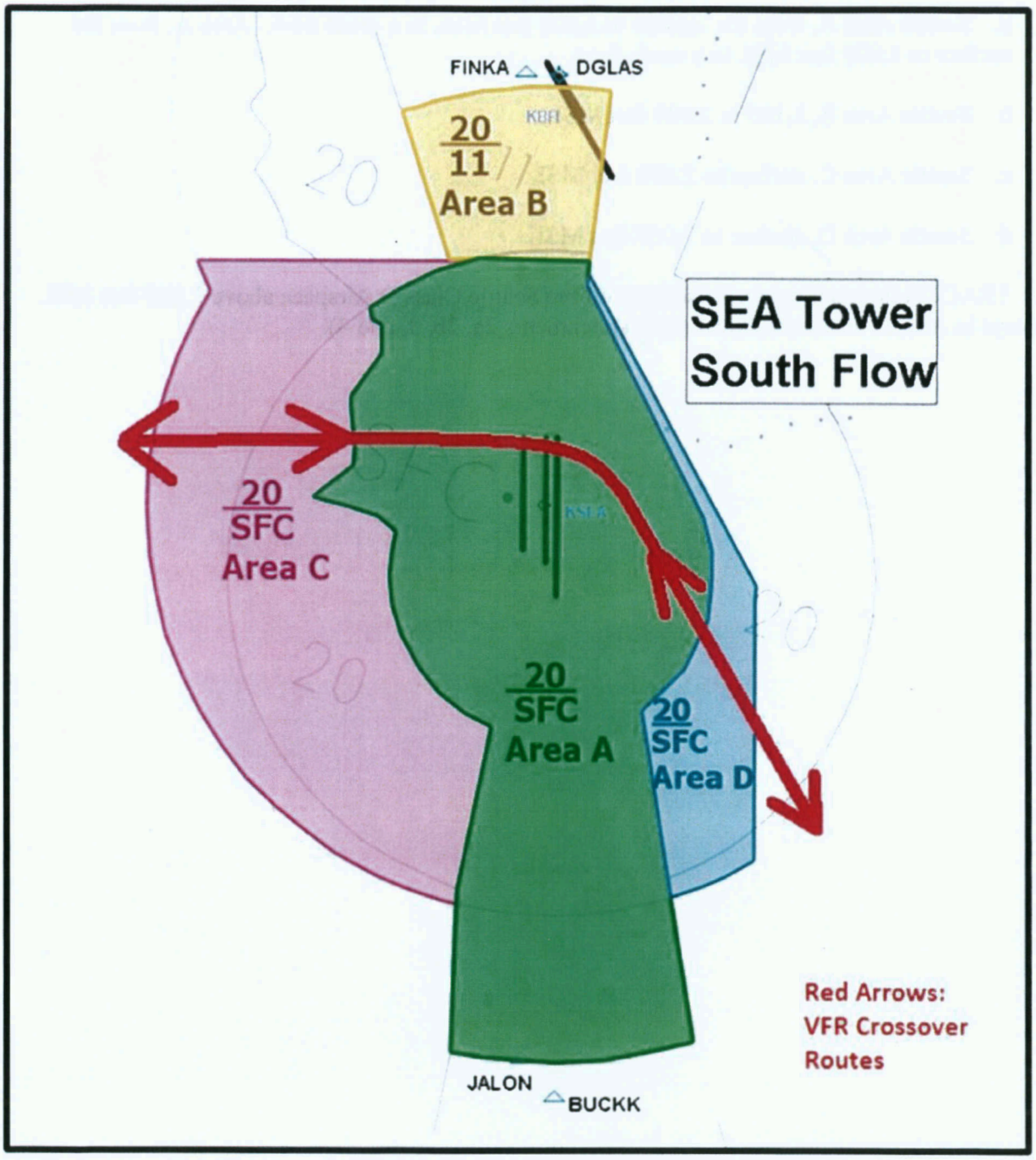
   c. Seattle Area C, surface to 2,000 feet MSL.

   d Seattle Area D, surface to 2,000 feet MSL.

2. TRACON has continuous jurisdiction of the Seattle Class D Airspace above 2,000 feet MSL except in Area A in a north flow. (See Attachments 2a, 2b, 3, and 4).

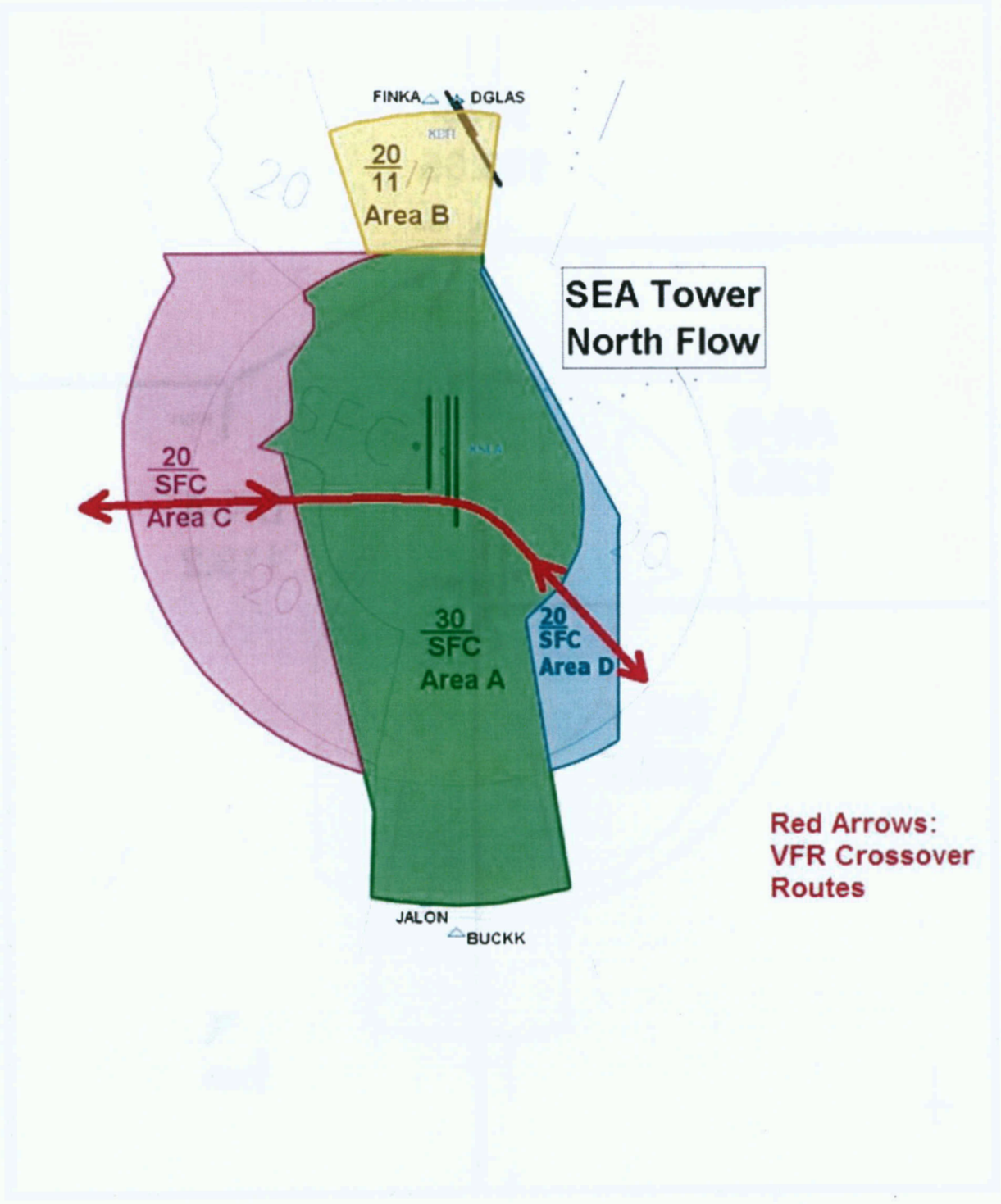
Seattle Airport Traffic Control Tower and Seattle Terminal Radar Approach Control

ATTACHMENT 2 (a) – TOWER AREAS OF JURISDICTION



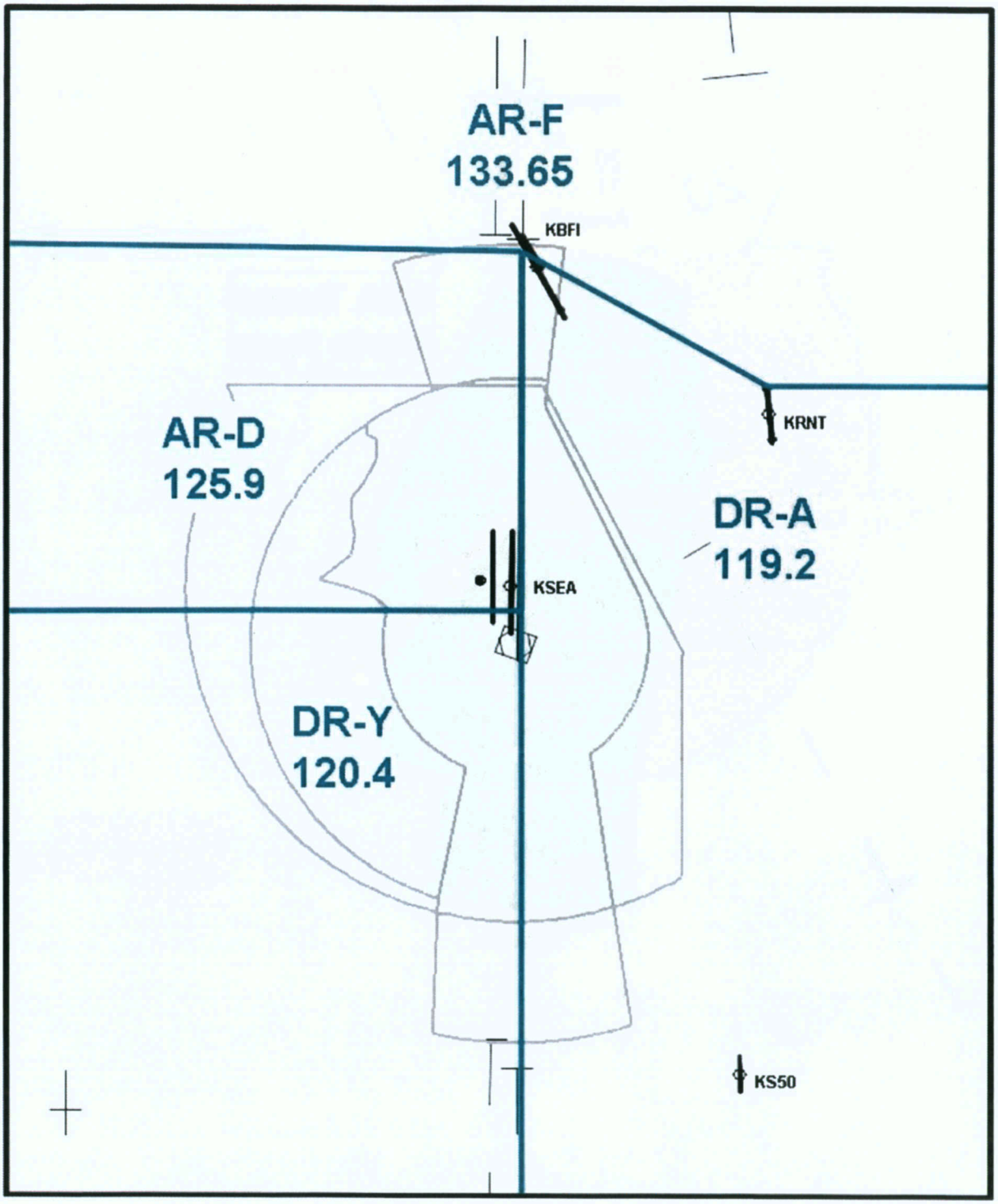
Seattle Airport Traffic Control Tower and Seattle Terminal Radar Approach Control

ATTACHMENT 2 (b) – TOWER AREAS OF JURISDICTION



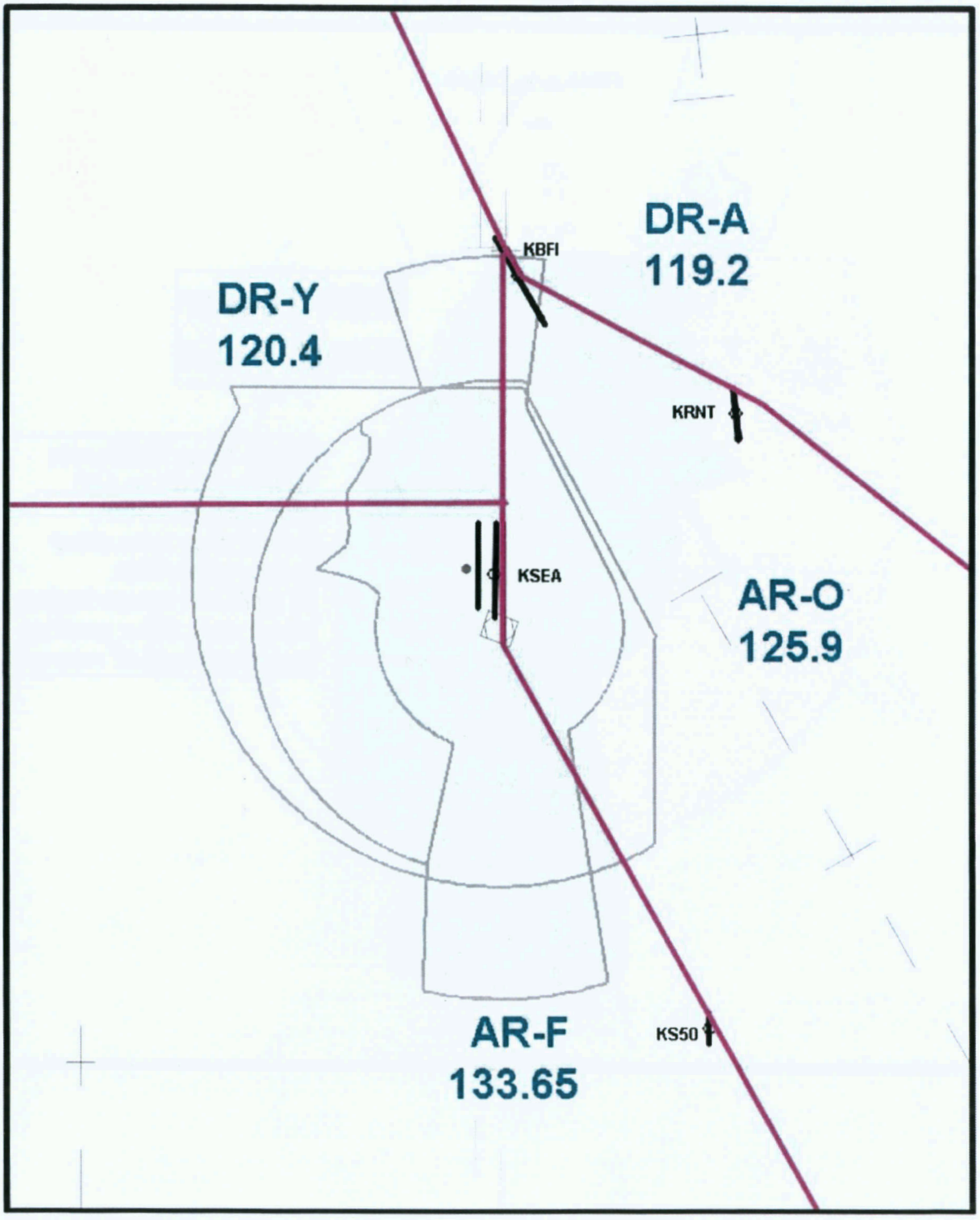
Seattle Airport Traffic Control Tower and Seattle Terminal Radar Approach Control

ATTACHMENT 3 – SOUTH FLOW TRACON AIRSPACE



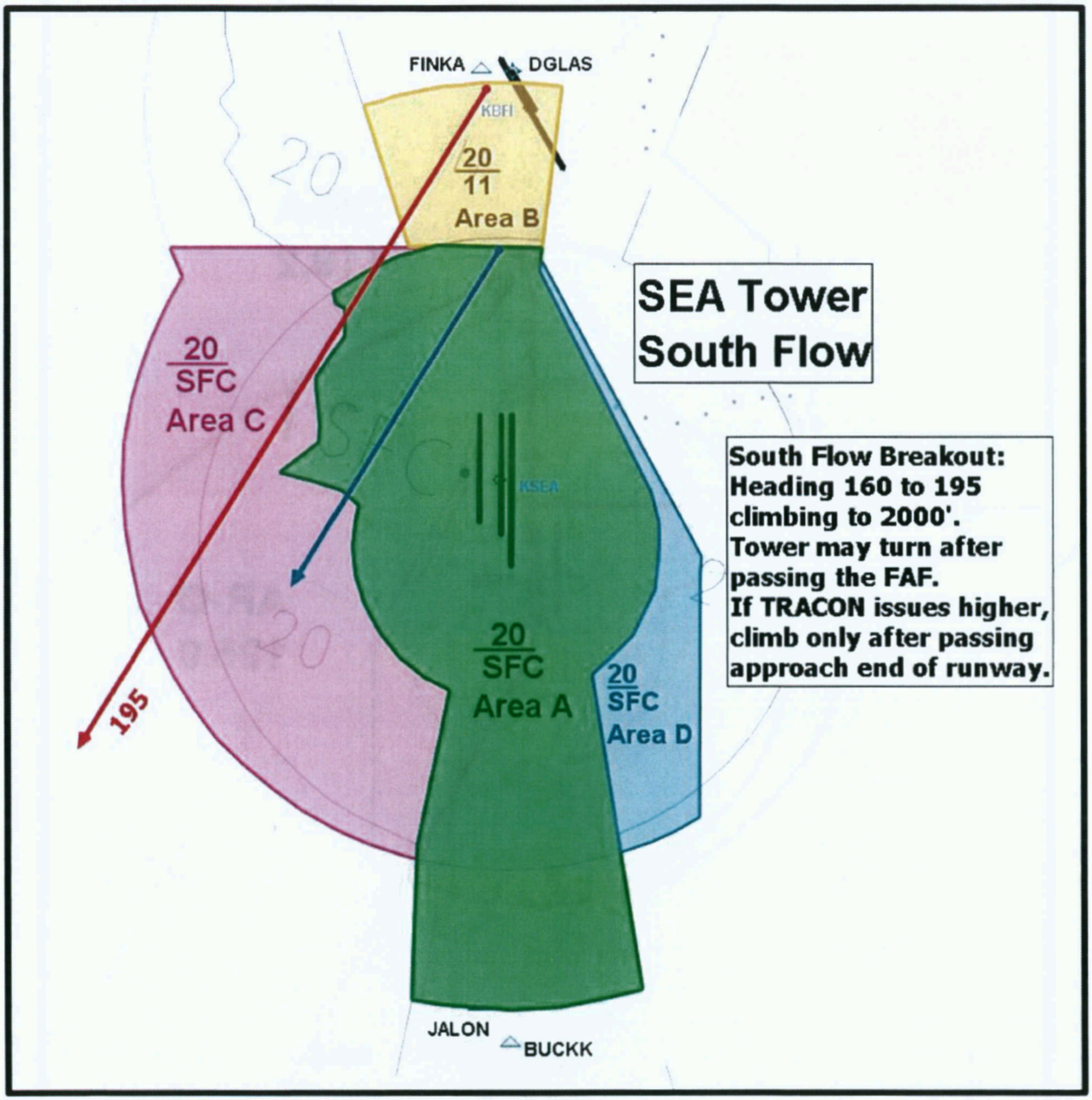
Seattle Airport Traffic Control Tower and Seattle Terminal Radar Approach Control

ATTACHMENT 4 – NORTH FLOW TRACON AIRSPACE



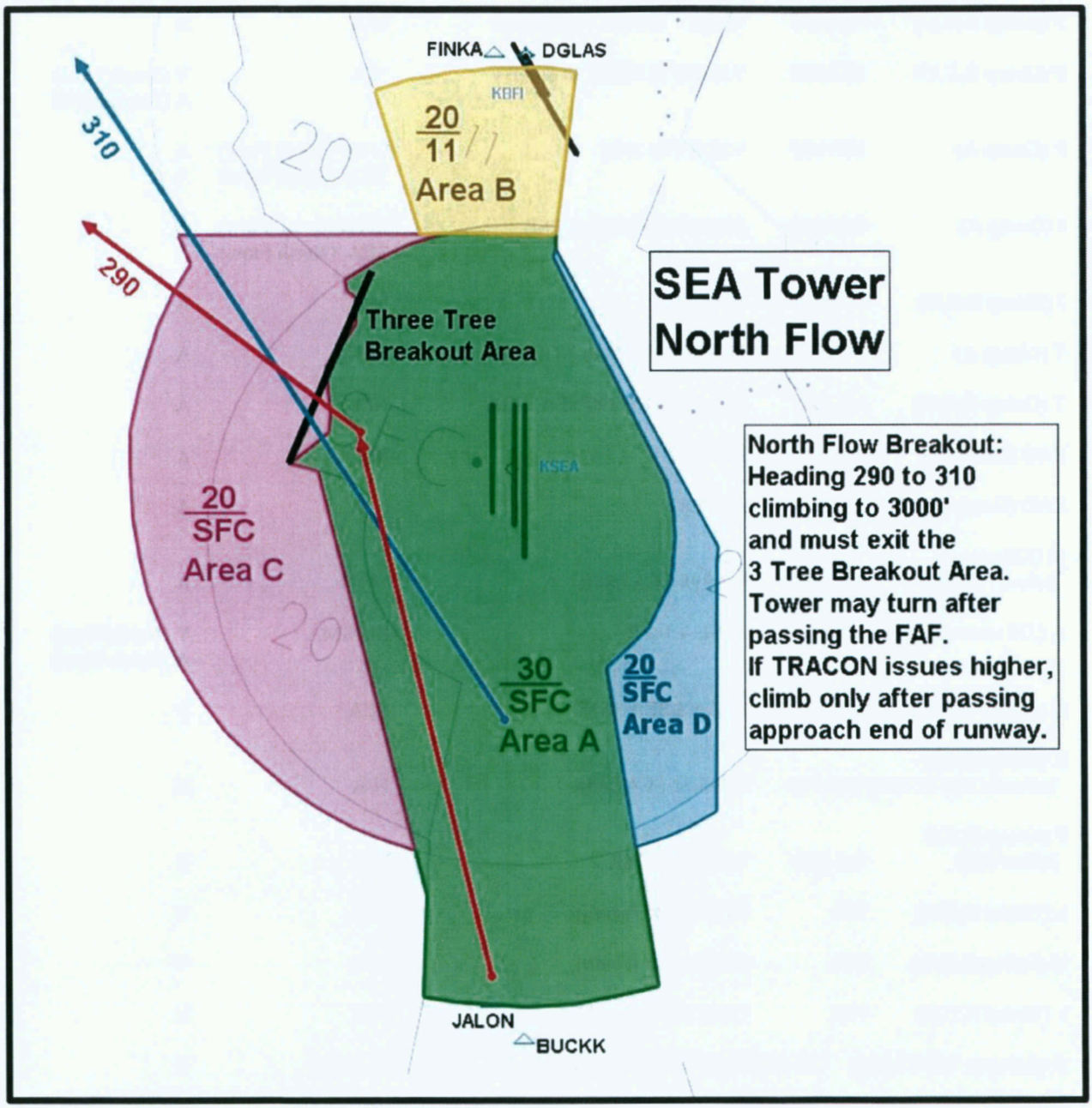
Seattle Airport Traffic Control Tower and Seattle Terminal Radar Approach Control

ATTACHMENT 5 (a) – BREAKOUT AREAS



Seattle Airport Traffic Control Tower and Seattle Terminal Radar Approach Control

ATTACHMENT 5 (b) – BREAKOUT AREAS



Seattle Airport Traffic Control Tower and Seattle Terminal Radar Approach Control

ATTACHMENT 6 – STARS GATE/PDR/Group A Departure Procedure (SID) Assignment

STARS GATE	SEA RADIALS	ROUTE/PDR	GROUP A SID	DEPARTURE SECTOR
P (Group B,C,D)	327-008	V23,RV to PAE 110 & BLO	N/A	A
P (Group B,C,D)	327-008	V23,RV to PAE 120 & ABV	N/A	Y (South Flow) A (North Flow)
P (Group A)	327-008	V23,RV to PAE	MTN (South Flow) SEA (North Flow)	A A
J (Group A)	009-042	J503/J505/RV to ALPSE	MTN (South Flow) SEA (North Flow)	A A
J (Group B,C,D)	009-040	J503/RV	N/A	A
T (Group A)	043-103	J12/J70/J90/RV to NORMY	MTN	A
T (Group B,C,D)	041-085	V120/J12/J70/J90/SEA 072R	N/A	A
ZAD (Group A)	ZADON	ZADON	MTN	A
ZAD (Group B,C,D)	ZADON	ZADON	N/A	A
M (J20 at and below FL230)	086-123	V2-298/SEA 088R	MTN	A
A (J20 above FL230)	104-160	J5/SEA 146R	SUMMA	Y (South Flow) A (North Flow)
Q (Group A,B)	161-178	HELNS/SEA 161R	SEA	Y
E (Group B,C,D between 100-FL230)	161-178	V495/J1/SEA 168R	N/A	Y
F (Group B,C,D below 100)	161-178	V23/SEA 178R	N/A	Y
L (Group B,C,D)	N/A	OLM.V287 (south)	N/A	Y
U (Group B,C,D)	N/A	OLM.V165 (south)	N/A	Y
I (Group B,C,D)	N/A	OLM.V187 (south)	N/A	Y
Z (Between 100-FL230)	179-230	V27/J70/SEA 230R	ELMAA	Y
Z (Above FL 230)	161-230	J70/SEA 230R	ELMAA	Y
Y (At or above 100)	231-326	J523/SEA 281R	SEA	Y
Y (Below 100)	231-326	V4/V495/SEA 310R	SEA	Y
ZFM (At or above FL240)	161-230	HAROB	HAROB	Y
YFM (At or above 100)	231-326	BANGR	BANGR	Y
ALL (Group A)	ALL	Nighttime/North Flow (Sleepytime)	ATOME	Y

ATTACHMENT 7 – DEFINITIONS

1. ACE-IDS: A computerized system for the dissemination of Air Traffic weather and aviation information throughout the Puget Sound area by means of a network of video monitors and keyboards. Also called the IDS.

2. AIRCRAFT PERFORMANCE GROUPS:

a. Group A - Jet aircraft.
b. Group B - Aircraft with true airspeeds (TAS) greater than 200 knots.
c. Group C - Aircraft with TAS of between 150 and 200 knots.
d. Group D - Aircraft with TAS of less than 150 knots.

3. CHECK DEPARTURE LIGHTS: A visual/aural coordination system consisting of a light and buzzer activated by the TRACON to stop or restrict SEA departures.

4. CONCURRENT APPROACHES: A procedure utilizing an Approach Radar Monitor (ARM), to be used when ILS and RNAV approaches to SEA Runways 16 and BFI RWY 14R are being conducted concurrently and Plan Alpha procedures are not in effect.

5. FLOW: The designated direction of landing at SEA upon which all flow-sensitive procedures are based.

6. PLAN ALPHA, PLAN BRAVO & PLAN CHARLIE: Procedures described in the Seattle ATCT, Seattle TRACON, and BFI ATCT Letter of Agreement in which TRACON delegates to BFI ATCT and SEA ATCT the responsibility to apply visual separation between BFI and SEA IFR traffic.

7. SLEEPYTIME: Special procedures in effect during Runway 34 operations at SEA between the hours of 2200L and 0600L, to avoid flight over noise sensitive areas. After Tower/TRACON coordination, Tower will advise ZSE Flight Data (FD) of nightly "Sleepytime" start/stop time.

8. SPLIT FLOW: The condition which exists when SEA and BFI airports are in opposite flows.

9. STARS GATE: A term used to describe a letter inserted into a full data block scratchpad area by the STARS to indicate departure route information (see Attachment 6).

10. SHORELINE ARRIVALS: This applies to Group C and D aircraft only. When an aircraft is cleared for a visual approach to RWY 34L it will proceed to the west shoreline in the area of Three Tree Point. The Tower will provide visual separation between that aircraft and any other aircraft on RWY 34R. The TRACON will be required to provide spacing between that aircraft and the next 34L arrival.

ATTACHMENT 8 – Opposite Direction Operations Procedures

a. Opposite Direction Operations (ODO) are defined as IFR/VFR Operations conducted to the same or parallel runway where an aircraft is operating in a reciprocal direction of another aircraft arriving, departing, or conducting an approach.

b. Cutoff points are established as ten (10) NM from the runway threshold, regardless of individual runway, runway configuration, same-runway or parallel-runway operation. Parallel runways will be treated as the same runway.

c. These procedures apply to all IFR and VFR ODO interactions at SeaTac airport.

d. Visual separation is not authorized for ODO.

e. All coordination must be on a recorded line and state "opposite direction." Initial coordination must include call-sign, type and arrival or departure runway.

f. Initial coordination between the hours of 0600L and 2200L must be between the OS/WS/CIC in each facility, using the following recorded phone numbers (TRACON: x4722, x4723, x4724 or x4725; Tower: x2516), who may then delegate additional coordination responsibility to another position.

g. Tower must:

(1) Unless an emergency exists, ensure that a departure is airborne and issued a turn to avoid conflict prior to an opposite direction arrival reaching the cutoff point.

(2) Issue traffic advisories IAW JO 7210.3 paragraph 2-1-30.

(3) Utilize facility designated memory aids when conducting ODO.

h. TRACON must:

(1) Unless an emergency exists, prohibit an arrival from proceeding beyond the cutoff point if:

(a) an opposing arrival has not crossed the runway threshold, or;

(b) an opposing departure is not airborne and issued a turn.

(2) If the conditions of either Subparagraphs i. (1) (a) or (b) above are not met, take immediate action to protect the integrity of the cutoff points.

(3) Issue traffic advisories IAW JO 7210.3 paragraph 2-1-30.

(4) Utilize facility designated memory aids when conducting ODO.

ATTACHMENT 9 – Single Person Midnight Operations at Tower and TRACON

Procedures/Responsibilities: In order to ensure that a receiving controller is prepared to accept an aircraft, coordination between facilities during the hours of 0000L and 0500L must be as follows:

a. Tower must:

(1) Notify TRACON when the Tower is being operated with one ATCS.

(2) Call for release for all IFR departures when the TRACON is being operated with one ATCS. Tower must ensure that the aircraft departs within 5 minutes of the time of release.

(3) If TRACON is unresponsive to any coordination, utilize the following phone numbers to determine the status of the unresponsive controller and if necessary begin notifications outlined in the ACT2 Contingency Plan:

(a) TRACON Kitchen/Break rooms – 206-214-2477 (2474) (2475)

(b) TRACON CBI Lab – 206-214-4621

(c) TRACON Sign-in room – 206-214-4687

(d) TRACON Guard Shack – 206-214-4881 or 4882

b. TRACON must:

(1) Notify Tower when the TRACON is being operated with one ATCS.

(2) Verbally coordinate with Tower prior to the transfer of communication of an IFR arrival when the Tower is being operated with one ATCS. Verbal coordination must occur no earlier than 5 minutes before the FAF estimate, after which the normal automated transfer of arrival information via scratchpad is allowed.

(3) If Tower is unresponsive to any coordination, utilize the following phone numbers to determine the status of the unresponsive controller and if necessary begin notifications outlined in the Automated Contingency Tool (ACT)2 Contingency Plan:

Tower 16th Floor – 206-214-2566 or 2528

CERTIFICATE OF SERVICE - CM/ECF

I certify that on November 29, 2018, I electronically filed the **PETITIONER'S EXCERPTS OF RECORD, VOLUME 1** with the Clerk of the Court for the United States Court of Appeals for the Ninth Circuit by using the appellate CM/ECF system. Counsel for all parties are registered to use that system and, to my knowledge, will receive copies of this document upon its filing.

/s/Matthew G. Adams
Matthew G. Adams

Case No. 18-71705

IN THE UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

CITY OF BURIEN, WASHINGTON

Petitioner,

v.

FEDERAL AVIATION ADMINISTRATION and
MICHAEL HUERTA,

Respondents.

PETITIONER'S EXCERPTS OF RECORD

Volume 2

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3	FAA Order 1050.1 F - Environmental Impacts: Policies and Procedures	07/16/2015	ER00215-ER00249
6	FAA Office of Environment and Energy 1050.1 F Desk Reference	07/2015	ER00250-ER00291

Dated: November 30, 2018

Respectfully submitted,

DENTONS US LLP

By */s/ Matthew G. Adams*
Matthew G. Adams
Jessica L. Duggan
Attorneys for Petitioners

U.S. Department of Transportation
Federal Aviation Administration

Office of the Administrator

800 Independence Ave., S.W.
Washington, D.C. 20591

August 29, 2017

The Honorable Pramila Jayapal
House of Representatives
Washington, DC 20515

Dear Congresswoman Jayapal:

Thank you for your May 22 letter asking a series of questions so that you may better understand how the Federal Aviation Administration (FAA) makes decisions on designing airspace while taking into consideration the impact of flight paths on the communities affected.

Question 1: How does the FAA determine changes in use of flight paths?

Response: The FAA works to ensure the safe and efficient use of the National Airspace System (NAS), which includes making changes to flight paths as the demand on the NAS changes. For example, the operational activity at Seattle-Tacoma International Airport (SEA) has increased by 33 percent since 2012. In order for Air Traffic Control (ATC) to keep up with the increased demand at SEA without increasing ground delays for the flying public, ATC uses a number of tools, including changing flight paths, to more efficiently get aircraft into and out of SEA while still ensuring safety. Your letter references public concern over flight paths in your district in Burien, Washington, where turboprop aircraft are being turned west during north flow operations. The automatic west turn for turboprop aircraft during north flow operations is one of the tools ATC employs in order to safely manage the increased operations without increasing ground delays.

Question 2: How are changes to flight paths communicated with impacted communities?

Response: The FAA recognizes the importance of developing and maintaining an effective strategy for community involvement. In February 2016, the FAA updated its Community Involvement Manual. The Community Involvement Manual is a high-level policy document that outlines why community involvement is important, provides some best practices for the FAA in implementing new projects, and suggests how the FAA can get communities involved earlier in the development of a new project. In May 2016, the Air Traffic Organization (ATO) updated its Community Involvement Plan to enhance its community involvement techniques and more proactively address community needs when implementing Performance Based Navigation (PBN) projects. Both of these documents are housed on the Web site https://www.faa.gov/nextgen/communityengagement/. While the Community Involvement Plan

has been developed for PBN-based projects, it may be applied on a case by case basis to non-PBN projects. Phase 1 of ATO's Community Involvement Plan includes identifying community concerns, understanding community characteristics, and developing a community involvement plan. This Web site also provides extensive information on the FAA's community involvement activities. These updates reflect the FAA's commitment to inform and involve the public and to give meaningful consideration to community concerns and views as the FAA makes aviation decisions that affect the public. The Web site includes the preliminary environmental analysis conducted for the proposed automatic 250° (degree) heading for turboprop aircraft departing SEA in North Flow.

Question 3: Is there an opportunity for meaningful community and stakeholder input and engagement?

Response: Phase 2 of ATO's Community Involvement Plan includes initiating community outreach, of which a milestone is that the affected community is aware of the project and how to participate. For example, with regard to the proposed automatic 250° heading for turboprop aircraft departing SEA in North Flow, on June 8, 2017, the FAA placed on a public Web site a description of the purpose and need as well as a detailed preliminary analysis of the environmental impacts of implementing the automatic 250° heading. The FAA then issued a press release informing the public of the availability of the preliminary environmental analysis as well as inviting the public to comment on this analysis. The comment period ran from June 8 through July 5, 2017. In particular, FAA requested input on the best place to have aircraft fly from a community stand point.

Question 4: How is local community input incorporated into final decisions?

Response: The National Environmental Policy Act of 1969 (NEPA) requires Federal agencies to disclose to federal decision makers a clear, accurate description of the potential environmental impacts that could arise from proposed federal actions. Through NEPA, Congress has directed federal agencies to consider environmental factors in their planning and decision-making processes and to encourage public involvement in decisions that affect the quality of the human environment.

Phase 4 of ATO's Community Involvement Plan includes responding to community questions and addressing community issues. In particular, a milestone of this phase is that the community is informed of project progress and is given opportunities to raise questions and issues for FAA response and consideration.

With respect to the proposed automatic 250° heading for turboprop aircraft departing SEA in North Flow, all of the suggested alternatives put forward by the public during the comment period are being considered in the final NEPA document. Once the FAA has finalized the NEPA document, it will be available on https://www.faa.gov/nextgen/communityengagement/SEA.

Question 5: What flexibility is there for making changes once decisions have been made?

Response: The process for making a flight path change is typically an involved and time intensive process that takes into account many factors. While it is possible to make changes

once decisions are made, these changes would likely be subject to the same level of scrutiny as the original proposal, and the change may take as long to consider and implement, if deemed feasible.

Phase 5 of ATO's Community Involvement Plan recognized this need. One of the activities during Phase 5 is to identify ongoing community involvement opportunities with the milestone that the community knows the results of the project and how to reach out to the FAA after project completion.

Question 6: How often does the FAA review flight paths and make modifications?

The FAA has the statutory responsibility and primary mission to promote the safe and efficient use of airspace. There is no fixed schedule during which the FAA reviews the many different ways it manages flight paths though the NAS. Rather, the review and initial discussion of any proposed modifications of flight paths is a continual process.

Question 7: Is there a process to assess potential environmental and health impacts on the ground that result from increased air traffic?

NEPA was enacted so that Federal agencies can assess the environmental effects of major Federal actions before making changes. NEPA provides a framework for evaluating the environmental impact of a proposed action The FAA's NEPA compliance policies and procedures are contained in FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (http://www.faa.gov/documentLibrary/media/Order/FAA_Order_1050_1F.pdf). FAA Order 1050.1F specifies 14 environmental impact categories that may be relevant to FAA actions. A change in any of these environmental impact categories resulting from the implementation of a FAA action is analyzed in accordance with FAA Order 1050.1F. This allows the FAA to make the determination if the FAA action would result in a significant impact. These impact categories include impacts to air quality and noise as well as to wildlife and water resources.

If I can be of further assistance, please contact me or Chris Brown, Assistant Administrator for Government and Industry Affairs, at (202) 267-3277.

Sincerely,

Michael P. Huerta
Administrator

Burien

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burienwa.gov

August 17, 2017

David C. Suomi
Acting Regional Administrator
Federal Aviation Administration - Northwest Mountain Region
1601 Lind Avenue, S.W.
Renton, WA 98057

Re: July 25th, 2017 City of Burien-FAA Meeting

Dear Mr. Suomi:

Thank you for meeting with me, Matt Adams, and Brian Wilson on July 25th 2017 to discuss the FAA's proposed procedure establishing an automatic 250-degree heading for turboprop aircraft departing Seattle-Tacoma International Airport (Sea-Tac) during North Flow conditions.

The proposed procedure has been the subject of substantial public controversy. The City of Burien and its residents are concerned that the 250-degree heading may result in significant and unnecessary environmental impacts, and have urged the FAA to take a hard look at the procedure's impacts and potential alternatives thereto. I understand that more than 750 public comments on the proposed procedure have been submitted to the FAA so far.

I believe our July 25 meeting was a productive first step in identifying feasible alternatives to the 250-degree heading, and I very much appreciate you and your staff's willingness to continue that conversation. This letter clarifies some of the points raised in the meeting and provides an update on follow-up actions the City has taken since then.

1. Alternative Headings

The proposed procedure would assign north flow turboprop departures to a 250-degree heading. As a practical matter, this would require aircraft to make a sharp left turn immediately after takeoff, routing low-flying planes directly over the heart of the City.

On July 25, we discussed the possibility of identifying alternative headings capable of reducing impacts to the City and its residents. Much of the discussion centered on a proposal by a group of Burien citizens to route turboprop departures on a 320-degree heading. The FAA suggested that the 320-degree heading is not feasible because it would require turboprop aircraft to cross the protected path reserved for Sea-Tac missed approaches, which currently occupies a 290-degree heading. But the schematic diagram your team prepared and distributed on July 25, shows that the proposed procedure's 250-degree heading also requires turboprop aircraft to cross the protected missed approach path — particularly when departing Sea-Tac's central and eastern runways. It would be helpful to Burien to have a further explanation of the manner in which the FAA agency protects air space for missed approaches and/or breakouts.

Although you and your team expressed concern about routing turboprops on a 320-degree heading, you also noted that a 270-degree heading for turboprop departures is viable. We appreciate your willingness to discuss routing turboprops on a 270-degree heading, and we agree with you that this option appears feasible. We further agree that it might be somewhat helpful in reducing impacts on the City and its residents.

However, we also believe the availability of the 270-degree heading — and, more specifically, the fact that the 270-degree and 290-degree headings would not conflict — presents an opportunity for an even better solution. Specifically, we suggest that turboprops be routed on the 290-degree heading and the 270-degree heading be reserved for Sea-Tac missed approaches. This would greatly diminish, if not eliminate, impacts to Burien citizens residing under the 250-degree heading, while also addressing the FAA's interest in maintaining a clear path for missed approaches. This option warrants further discussion.

2. Timing Restrictions

Our July 25 discussion also explored the possibility that time-of-day restrictions might also help limit impacts on the City and its residents, either as stand-alone measures or as additions to a procedure involving an alternative heading. I understand that this approach has been used, in various forms, at other airports where environmental impacts are a concern. Your team agreed to evaluate the potential for time-of-day restrictions to help address the City's concerns. The City looks forward to discussing the results of that evaluation.

3. Jet Aircaft

The current version of the proposed procedure applies only to turboprop aircraft. On July 25, Brian, Matt, and I explained that many Burien residents are concerned that the procedure might one day be opened to jet aircraft. In response, your team confirmed that (a) the proposed procedure is limited to turboprop aircraft and (b) a procedure routing jet aircraft over Burien on a 250-degree heading would not be consistent with the FAA Records of Decision governing arrival and departure paths at Sea-Tac. The City appreciates this confirmation. Please let me know immediately if the FAA's plans or interpretations change in any way.

4. Further Outreach

You suggested that the City may wish to contact Alaska Air Group to discuss some of the alternatives and mitigation measures we addressed on July 25. The City has indeed contacted Alaska Air Group. The Port of Seattle has also requested a meeting. I will continue to update you on the results of the City's discussions with Alaska Air Group and the Port.

5. Status of Environmental Review

As explained in written comments on the FAA's Preliminary Environmental Analysis ("PEA"), a Categorical Exclusion ("CATEX") is not appropriate for the procedure *as proposed*. The City understands your team is continuing to review our comments, as well as those submitted by other stakeholders. I trust no final action will be taken on the environmental review or the proposed procedure while the parties are continuing to discuss alternatives and mitigation in good faith.

***

We would welcome the opportunity to discuss the foregoing with you and your team, and would be happy to meet with you again at your offices. Thank you for your consideration. We look forward to hearing from you soon.

Regards,

Lisa Marshall
City Attorney

Cc: Brian Wilson, Burien City Manager
Matt Adams, Dentons

AR 020

From: <David.Suomi@faa.gov>
Date: June 22, 2017 at 1:15:25 PM PDT
To: <tonyp@burienwa.gov>
Subject: Comment Period Extension

Tony... This is in response to several requests for an extension of the comment period on the "automation of the westerly heading for turboprop aircraft departing SEA in north flow."

As you know, the FAA completed a draft environmental analysis for the proposed automated heading for turboprop aircraft in north flow operations. As part of the analysis, the FAA undertook a noise screen of the flight pattern associated with the Proposed Action. The result of this preliminary noise screen shows that there are no reportable or significant noise impacts as a result of the implementation of the Proposed Action.

Based on the noise analysis results showing there are no reportable or significant noiseimpacts and the FAA's determination that there are no extraordinary circumstances pursuant to FAA Order 1050.1F, the FAA has concluded that a Categorical Exclusion (catex) would be the appropriate level of review under the National Environmental Policy Act (NEPA).

While there is no requirement for a public comment period for a catex under NEPA, we appreciate Burien's continued engagement and in the interest of the full involvement of the community. Accordingly, the FAA is extending the public comment period by fourteen days.

Please pass this action on to appropriate interested parties.

D

David C. Suomi
Deputy Regional Administrator
Northwest Mountain Region
Federal Aviation Administration
425.227.2002

PRAMILA JAYAPAL
7TH DISTRICT, WASHINGTON

COMMITTEE ON THE BUDGET
COMMITTEE ON THE JUDICIARY
SUBCOMMITTEE ON IMMIGRATION AND BORDER SECURITY
SUBCOMMITTEE ON REGULATORY REFORM, COMMERCIAL, AND ANTITRUST LAW

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Congress of the United States
House of Representatives
Washington, DC 20515–4707

June 21, 2017

David Suomi
FAA Regional Administrator
Northwest Mountain Region
1601 Lind Avenue S.W.
Renton, WA 98057-3356

Dear Administrator Suomi,

I request that you extend the 14-day public comment period on FAA's recently issued "Automation of a westerly heading for turboprops aircraft departing SEA in north flow: Preliminary Environmental Analysis" (PEA) by at least another two weeks. Providing such an extension would let Burien residents to understand the PEA and allow for meaningful technical feedback.

As you are aware, the City of Burien has been working with the FAA to find a mutually acceptable solution to FAA's proposed change to flight paths of turbo prop aircraft taking off to the north at SeaTac Airport. I sent a letter to Administrator Huerta (enclosed) on this issue, posed a number of questions relating to FAA's flight pattern decision-making process, and made the point that increased community engagement by the FAA as decisions are being made would go a long way to promote understanding on all sides.

Unfortunately, setting a two-week comment window on a topic that has had significant public controversy gives the wrong impression about FAA's interests in public engagement. I hope that you will be able to accommodate this request to extend the comment period by at least another 14 days.

Should you wish to discuss this request, please contact Ven Neralla of my staff at ven.neralla@mail.house.gov or 202-225-3106.

Sincerely,

PRAMILA JAYAPAL
Member of Congress

PRAMILA JAYAPAL
7TH DISTRICT, WASHINGTON

COMMITTEE ON THE BUDGET

COMMITTEE ON THE JUDICIARY
SUBCOMMITTEE ON IMMIGRATION AND BORDER SECURITY
SUBCOMMITTEE ON REGULATORY REFORM, COMMERCIAL, AND ANTITRUST LAW

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May 22, 2017

Michael P. Huerta
Administrator
Federal Aviation Administration
800 Independence Avenue, SW
Washington, DC 20591

Dear Administrator Huerta,

I write to request more information as to how the Federal Aviation Administration (FAA) makes decisions on flight paths over communities.

In particular, I would like to know:

1. How does the FAA determine changes in use of flight paths?
2. How are changes to flight paths communicated with impacted communities?
3. Is there an opportunity for meaningful community and stakeholder input and engagement?
4. How is local community input incorporated into final decisions?
5. What flexibility is there for making changes once decisions have been made?
6. How often does the FAA review flight paths and make modifications?
7. Is there a process to assess potential environmental and health impacts on the ground that result from increased air traffic?

I understand that you have an unenviable task of balancing many competing needs. However, in order to ensure a proper balance of interests, I want to be certain that all points of view are expressed and are given serious consideration.

I have heard from residents and communities in my district, like Burien, WA, where there has been significant public controversy over flight paths. My constituents in Burien are concerned that there has not been adequate community input and consultation before flight pattern decisions have been made. Communities in my district are not only concerned about the process in which these flight paths are determined but the health and environmental impacts that result from increased air traffic.

I do appreciate that the FAA recently made changes to its Approach Control Service and Coordination Procedures Letter of Agreement at Sea-Tac Airport. I certainly hope that this represents the beginning of a dialogue and that you incorporate public consultation as much as possible.

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I would like to be able to better understand how this process works at the FAA and would appreciate a prompt response. Should you have any questions, please contact Ven Neralla of my office at ven.neralla@mail.house.gov or 202-225-3106.

Sincerely,

PRAMILA JAYAPAL
Member of Congress

Automation of a westerly heading for turboprops aircraft departing SEA in north flow
Preliminary Environmental Analysis

On July 26th 2016, the Letter of Agreement (LOA) between the Sea-Tac Airport Air Traffic Control Tower (SEA ATCT) and the Seattle Terminal Radar Control (S46) was amended to include a paragraph directing turboprops in north flow to establish a heading of 250 within 1 Nautical Mile (NM) of the runway departure end. This allowed these slower moving turboprop aircraft to quickly and safely move out of the way of the faster moving jet aircraft when SEA is in North Flow. This paragraph was effectively removed from the SEA ATCT-S46 LOA in March 2017.

The FAA is undertaking an environmental review under the National Environmental Policy Act (NEPA) for the proposed reinstatement of this removed paragraph ("Proposed Action"). The results of that analysis, in comparison with not reinstating the paragraph ("No Action"), are summarized in this document.

The FAA is providing this information to solicit feedback and to provide an opportunity for alternative proposals to be suggested that would still allow these turboprops to be separated from the flow of jet traffic when SEA is in North Flow.

Environmental Analysis:
The FAA implements NEPA through its Order 1050.1F, "*Environmental Impacts: Policies and Procedures*". Listed within Order 1050.1F, are sixteen environmental impact categories that a Federal Action may affect. These are listed in Table 1 below.

The Proposed Action was analyzed to investigate if any of the listed environmental impact categories would be significantly impacted within a Study Area. This Study area, as well as the flight tracks with the No Action and the Propose Action alternatives is illustrated in Figures 1 and 2 below.

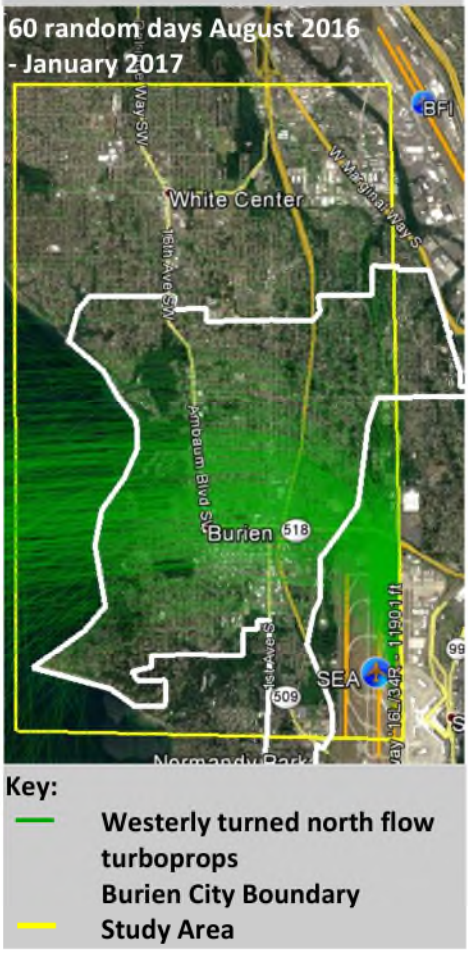
Table 1: List of Environmental Impact Categories in FAA Order 10501.1F

	Environmental Impact Category
1	Air Quality
2	Biological Resources
3	Climate
4	Coastal Resources
5	Department of Transportation Act, Section 4(f)
	Environmental Impact Category
6	Farmlands
7	Hazardous Materials, Solid Waste, and Pollution Prevention
8	Historical, Architectural, Archeological and Cultural Resources
9	Land Use
10	Natural Resources and Energy Supply

	Environmental Impact Category
11	Noise and Noise-Compatible Land Use
12	Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks
13	Visual Effects
14	Water Resources
15	Cumulative Impacts
16	Irreversible and Irretrievable Commitment of Resources

Figure 1: No Action flight tracks

Figure 2: Proposed Action flight tracks



Given that the proposed reinstatement of the paragraph ("Proposed Action") does not involve ground disturbance, many of these impact categories would only be affected, if at all, as a result of noise and air quality impacts generated by the implementation of the Proposed Action.

Air Quality and Climate Impact Analysis

It is not reasonably expected that the Proposed Action would change the number of turboprop aircraft which are directed to the west. Since the number and type of aircraft

flying within area immediately to the west of SEA is not expected to change, there would be no significant air quality impacts as a result of the implementation of the Proposed Action.

Noise Impact Analysis

To further investigate the effect of noise resulting from the implementation of the Proposed Action on the impact categories, the FAA undertook a noise screen of the flight pattern associated with the inclusion of the aforementioned paragraph. This noise screen was undertaken using an FAA computer-based noise screening tool, the Terminal Area Route Generation, Evaluation, and Traffic Simulation (TARGETS) Aviation Environmental Design Tool (AEDT) Plug-in. This Plug-in is one of the approved aircraft noise screening tools per the FAA Order 10501.1F.

As per the FAA Order 1050.1F, for air traffic airspace and procedure actions, analysis is normally conducted to identify if (and where) noise will change by the following specified amounts:

a) For DNL 65 dB and higher: +1.5 dBA
b) For DNL 60 dB to <65 dB: +3 dBA
c) For DNL 45 dB to <60 dB: +5 dBA

Where (a) is a significant noise increase, and both (b) and (c) are reportable noise increases.

The result of this noise screen, shown in Tables 2 - 4 below, shows that there are no reportable or significant noise impacts as a result of the implementation of the Proposed Action. Furthermore, as indicated in Figures 3 and 4, except in the immediate vicinity of SEA, both flight patterns result in a noise environment of less than 45 dBA DNL. This is well below any FAA threshold that would trigger further environmental consideration.

Figure 4: Noise Exposure Due to Flight Paths with the paragraph in the LOA

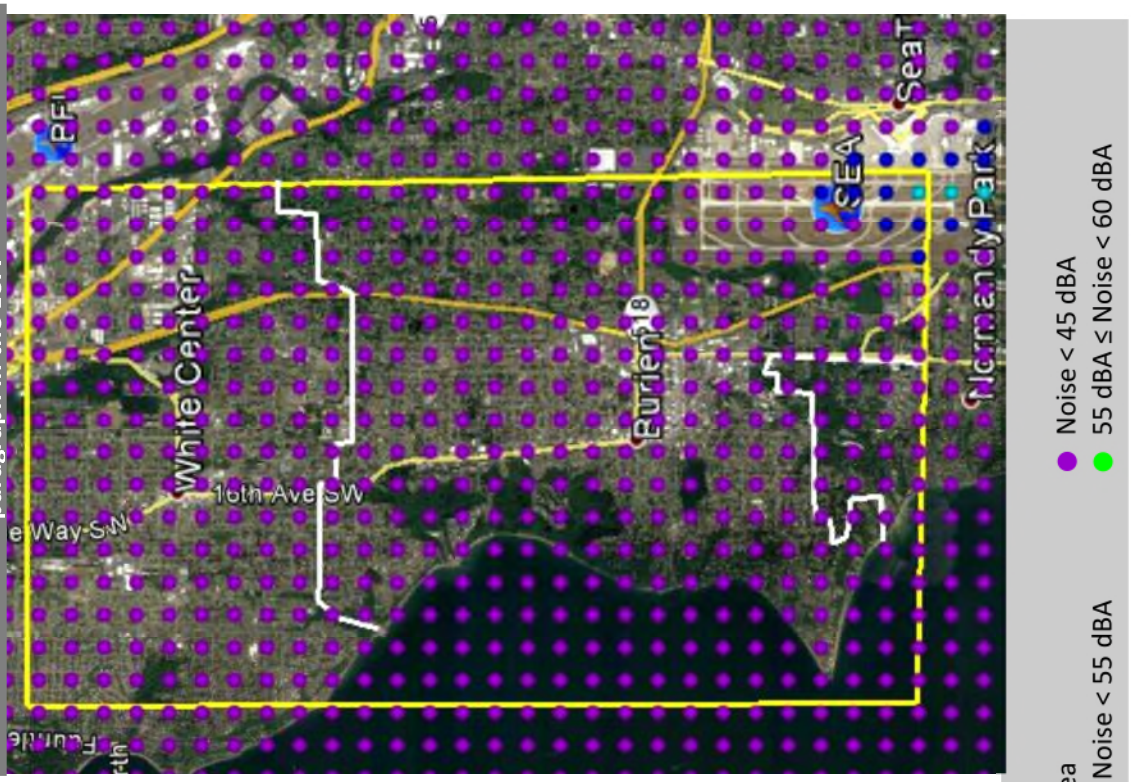


Figure 3: Noise Exposure Due to Flight Paths without the paragraph in the LOA

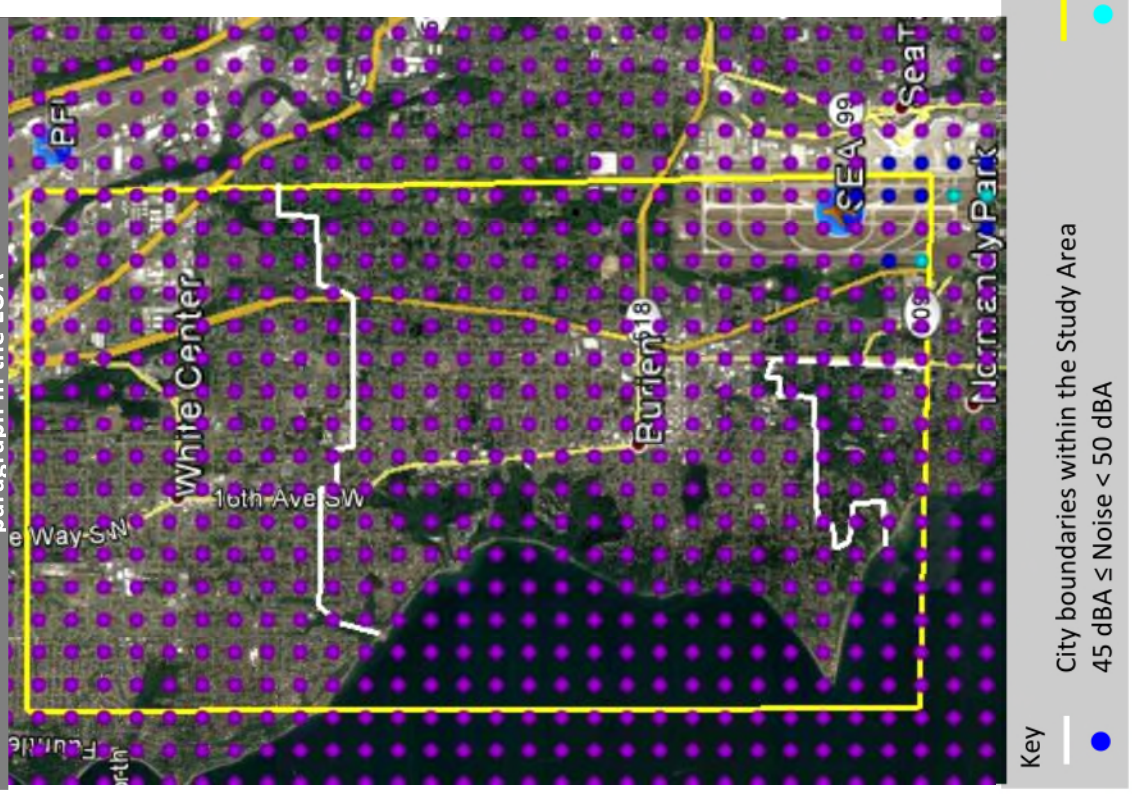


Table 2: Noise Exposure Due to Flight Paths without the paragraph in the LOA/dBA DNL					
Percentage of grid points at:					
65+dB	65-60dB	60-55dB	55-50db	50-45dB	<45dB
0	0	0	0.1	0.5	99.4

Table 3: Noise Exposure Due to Flight Paths with the paragraph in the LOA/dBA DNL					
Percentage of grid points at:					
65+dB	**% 65-60dB**	**% 60-55dB**	**% 55-50db**	**% 50-45dB**	**% <45dB**
0	0	0	0.2	0.7	99.1

Table 4: Impact						
Percentage of grid points at:						
Increase			**No Change**	**Decrease**		
≥ 1.5dBA increase at or greater than 65 dBA DNL	**≥ 3dBA increase between 60 - 65 dBA DNL**	**≥ 5dBA increase between 45 - 60 dBA DNL**		**≥ 5dBA decrease between 45 - 60 dBA DNL**	**≥ 3dBA decrease between 60 - 65 dBA DNL**	**≥ 1.5dBA decrease at or greater than 65 dBA DNL**
0	0	0	100%	0	0	0

Case: 18-71705, 11/30/2018, ID: 11104168, DktEntry: 18-2, Page 20 of 146 (237 of 1318)

Preliminary Determinations:

As a result of this noise and air quality analysis results, the FAA has made the following preliminary determinations to those environmental impact categories which may be affected by the Proposed Action:

Department of Transportation Act, Section 4(f)

As listed below in Table 5, there are 35 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. There are also two golf courses, both located between SEA and Boeing Field Airport (BFI) and one lake, which is potentially used as a recreation area within the Study Area. The aircraft flight track changes resulting from the July 26th 2016 LOA indicates that there will likely be more air traffic over these noise sensitive resources as a result of the Proposed Action. However, the noise results show that, except in the immediate vicinity of SEA, both the Proposed Action alternative and the alternative without the reinstatement of the LOA ("No Action Alternative") 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. As a result of this noise and air quality analysis results, the FAA has preliminarily determined that there would be no constructive use under DOT Act Section 4(f) of any eligible property and that no further coordination is necessary.

Table 5: 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

Historical, Architectural, Archeological and Cultural Resources

As listed in Table 6, there are two properties listed on the National Register of Historic Places (NRHP) and six properties which are eligible for listing on the NRHP within the Study Area.

Table 6: Places on the NRHP, and places eligible[4] for listing on the NRHP within the APE

		Property 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/

The primary basis for determining adverse effects on historic and cultural resources is the degree of increase in aircraft noise exposure level as a result of the Proposed Action. Based on the noise results, the FAA made a determination of "No Adverse Effect" on all properties listed or eligible to be listed on the National Register of Historic Properties (NRHP). On May 4th 2017, the FAA wrote to the Washington State Historic Preservation Officer (SHPO), detailing the Proposed Action and requesting concurrence with its "No Adverse Effect" determination. That letter may be found here. On May 10th 2017, the SHPO responded, concurring with the FAA's determination. That response may be found here.

Land Use

According to the City of Burien zoning map, effective January 5th 2016[1], the portion of the City of Burien within the Study Area consists of residential, neighborhood centers, office, commercial, 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 FAA's Land Use Compatibility guidelines, these types of land use are all compatible with the noise projected to result from the Proposed Action.

[1] http://www.burienwa.gov/DocumentCenter/Home/View/665

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

Figures 5 and 6 shows the areas in which Environmental Justice (EJ) 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. 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 Alternatives are less than 45 dBA DNL. Furthermore, there is no change to air quality. Therefore, the FAA has preliminarily determined that there are no high and disproportionate impacts to environmental justice communities.

Figure 5: EJ areas with the No Action flight tracks

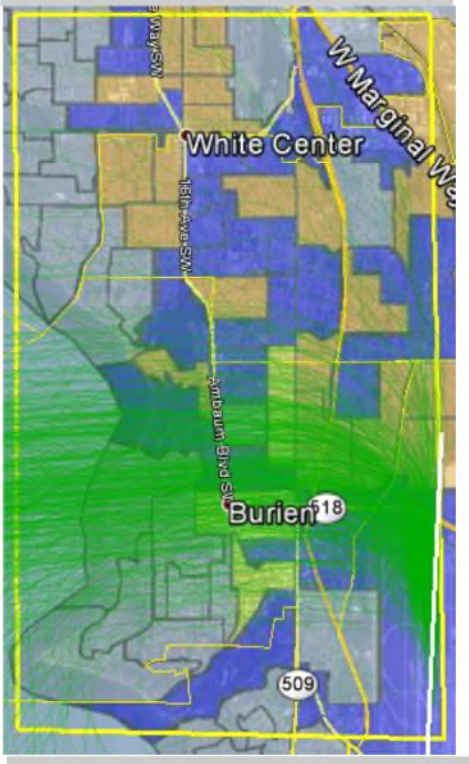
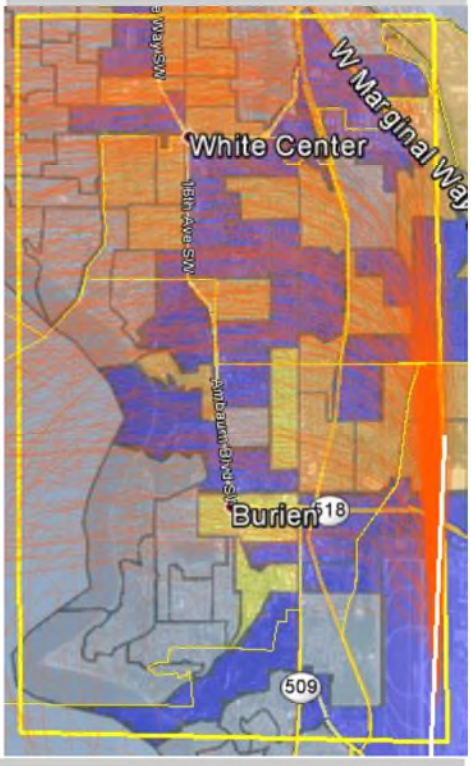


Figure 6: EJ areas with the Proposed Action flight tracks



Key
- No Environmental Justice threshold exceeded
- Exceeds the 1 x poverty threshold level
- Exceeds the for minority threshold
- Exceeds both the 1 x poverty and minority thresholds
- Study Area
- No Action flight tracks
- Proposed Action flight tracks

The aforementioned analysis preliminarily indicates that there would be no direct or indirect or cumulative significant impact as a result of the implementation of the Proposed Action.

Furthermore, the FAA has preliminarily determined that the Proposed Action does not conflict with communities' plans and that there would be no irreversible and irretrievable commitment of resources. Given the nature of the Proposed Action, there are no impacts to the remaining environmental impact categories.

The FAA kindly requests your comments to ensure that our determination is well informed and alternative proposals, if any, no later than June 21st 2017.

AR 16

PRAMILA JAYAPAL
7TH DISTRICT, WASHINGTON

COMMITTEE ON THE BUDGET

COMMITTEE ON THE JUDICIARY
SUBCOMMITTEE ON IMMIGRATION AND BORDER SECURITY
SUBCOMMITTEE ON REGULATORY REFORM, COMMERCIAL, AND ANTITRUST LAW

Congress of the United States
House of Representatives
Washington, DC 20515–4707

319 CANNON HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
(202) 225-3106

1904 3RD AVENUE
SUITE 510
SEATTLE, WA 98101
(206) 674-0040

May 22, 2017

Michael P. Huerta
Administrator
Federal Aviation Administration
800 Independence Avenue, SW
Washington, DC 20591

Dear Administrator Huerta,

I write to request more information as to how the Federal Aviation Administration (FAA) makes decisions on flight paths over communities.

In particular, I would like to know:

1. How does the FAA determine changes in use of flight paths?
2. How are changes to flight paths communicated with impacted communities?
3. Is there an opportunity for meaningful community and stakeholder input and engagement?
4. How is local community input incorporated into final decisions?
5. What flexibility is there for making changes once decisions have been made?
6. How often does the FAA review flight paths and make modifications?
7. Is there a process to assess potential environmental and health impacts on the ground that result from increased air traffic?

I understand that you have an unenviable task of balancing many competing needs. However, in order to ensure a proper balance of interests, I want to be certain that all points of view are expressed and are given serious consideration.

I have heard from residents and communities in my district, like Burien, WA, where there has been significant public controversy over flight paths. My constituents in Burien are concerned that there has not been adequate community input and consultation before flight pattern decisions have been made. Communities in my district are not only concerned about the process in which these flight paths are determined but the health and environmental impacts that result from increased air traffic.

I do appreciate that the FAA recently made changes to its Approach Control Service and Coordination Procedures Letter of Agreement at Sea-Tac Airport. I certainly hope that this represents the beginning of a dialogue and that you incorporate public consultation as much as possible.

PRINTED ON RECYCLED PAPER

I would like to be able to better understand how this process works at the FAA and would appreciate a prompt response. Should you have any questions, please contact Ven Neralla of my office at ven.neralla@mail.house.gov or 202-225-3106.

Sincerely,

PRAMILA JAYAPAL
Member of Congress

DECEIVE 5-23-17

Walker, Lisa D (FAA)

From: Langdon, Brian (FAA)
Sent: Tuesday, May 23, 2017 6:47 PM
To: Stuart, Gladys L (FAA); Walker, Lisa D (FAA)
Subject: FW: Letter from Congresswoman Jayapal to Administrator Huerta RE: FAA flight patterns
Attachments: Scanned from a Xerox Multifunction Printer.pdf

Please enter into CCMS for response.

Thanks....

Brian Langdon
Manager - Office of Government and Industry Affairs (AGI-3)
800 Independence Avenue, SW
Washington, DC 20591
202-267-3277 – office
Brian.Langdon@faa.gov

-----Original Message-----
From: Neralla, Ven [mailto:Ven.Neralla@mail.house.gov]
Sent: Tuesday, May 23, 2017 5:12 PM
To: Langdon, Brian (FAA)
Cc: Carstensen, Zachary
Subject: Letter from Congresswoman Jayapal to Administrator Huerta RE: FAA flight patterns

Hi Brian,
Wanted to share that Congresswoman sent this letter to Administrator Huerta this afternoon. Please let me know if I can answer any questions or provide context as the Administrator develops his response. Thanks, --Ven

--
Ven Neralla
Deputy Chief of Staff/Legislative Director Office of Congresswoman Pramila Jayapal (WA-7)
319 Cannon House Office Building
Main: 202-225-3106
Direct: 202-225-3235
Email: ven.neralla@mail.house.gov

NOTICE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

SEA N7110.131
S46 N7110.715

Seattle Airport Traffic Control Tower
Seattle Terminal Radar Approach Control

Effective Date:
March 24, 2017

SUBJECT: Automatic Turns for Departing IFR Groups B, C, and D aircraft

1. Purpose of this Notice. This notice amends the SEA/S46 Approach Control Service and Coordination Procedures LOA to remove a paragraph.

2. Audience. This notice applies to Seattle TRACON (S46) and Seattle ATCT (SEA).

3. Where can I Find This Notice? This notice is available at Seattle TRACON (S46 TRACON) and Seattle ATCT (SEA ATCT).

4. Explanation of Changes:

The following paragraph, from page 6, of the Approach Control Service and Coordination Procedures LOA between your facilities, that was effective July 26, 2016, be removed:

d. Departures. Tower must:

(9) Assign the following automatic turns to departing IFR Groups B, C, and D aircraft:

(b) North Flow:

3) 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.

NOTE: There are no other changes to the LOA.

Steven L. Vale
Air Traffic Manager
Seattle ATCT

Michael K. Coulter
Air Traffic Manager
Seattle TRACON

Distribution: SEA; S46 | 1 | Initiated By: SS

FAA Response to Quiet Skies Coalition Request for Information from November 4, 2016 Meeting

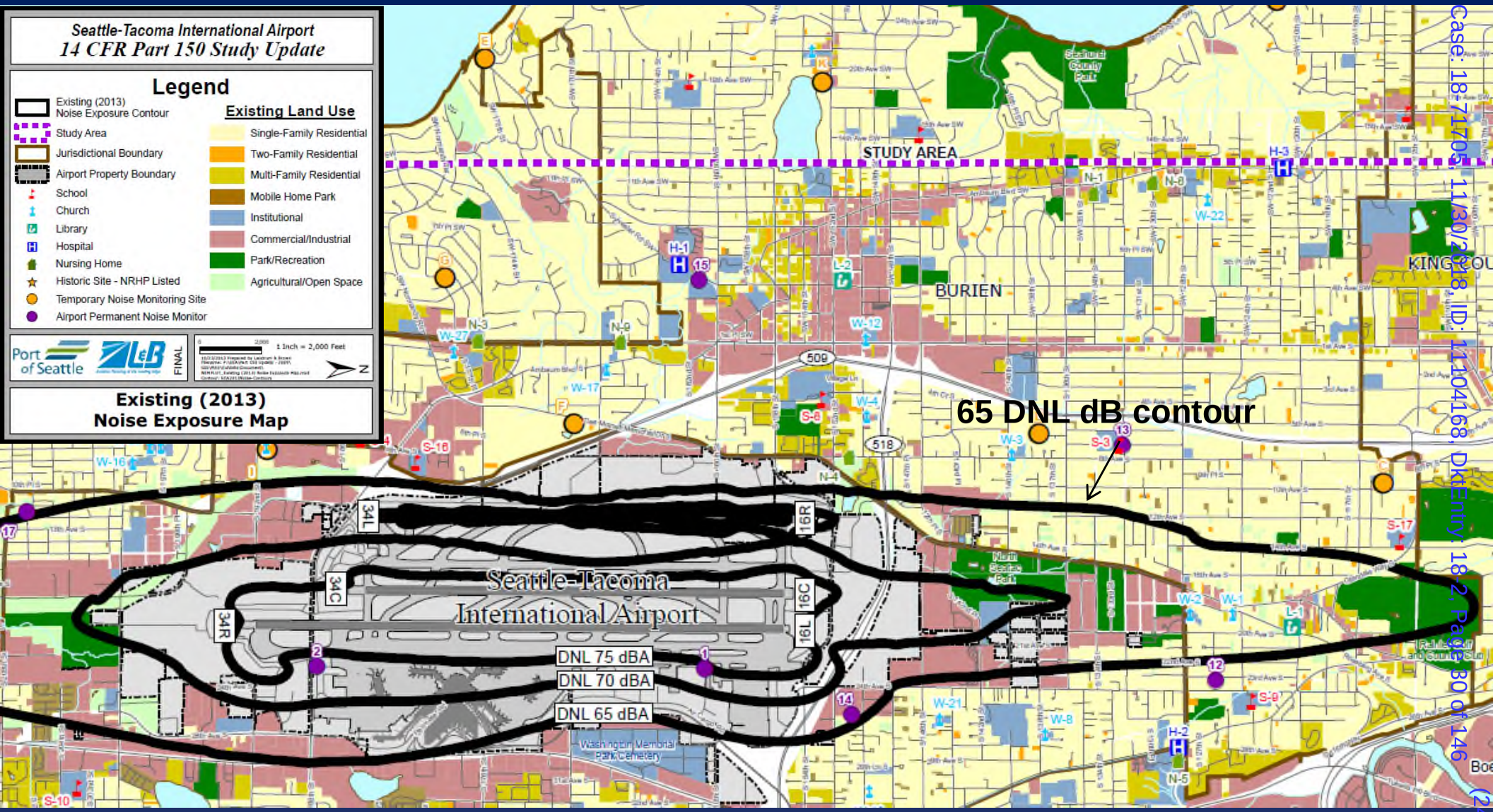
Presented to: City of Burien

By: FAA Northwest Mountain Region

Date: December 28th, 2016

Case: 18-71705, 11/30/2018, ID: 11104168, DktEntry: 18-2, Page 29 of 146 (246 of 1318)
ER00175

Section 3- SEA 2013 Part 150 2013 Noise Contours



Case: 18-71705, 11/30/2018, ID: 11104168, DktEntry: 18-2, Page 80 of 146 (247 of 1318)

From: Kamuron Gurol
To: Fuller, Diane (FAA)
Cc: Suomi, David (FAA); "Shepherd.S@portseattle.org"; Stover, Kim (FAA); Abbey, Peter (FAA); Mellon, Christine (FAA); Fiertz, Randall (FAA); Allison, Stan (FAA); "milanese.m@portseattle.org"; "Lyttle.L@portseattle.org"; "Gallagher.C@portseattle.org"; "Leavitt.E@portseattle.org"; "Brown.J@portseattle.org"; Thomas, Todd (FAA); Vale, Steven L (FAA); Lindbeck, Rodney (FAA); Morgan, Cayla (FAA); Kenitzer, Allen (FAA)
Subject: RE: Request for Meeting with FAA to Discuss Flight Patterns over Burien
Date: Monday, September 26, 2016 6:54:32 PM
Importance: High

Good Day,

Thanks again for your email response last Monday. I am writing to convey and emphasize the importance of the overflight impact issue to the City of Burien. I hope we can schedule and hold the staff-level meeting I requested on or before Thursday October 6th.

Also, city staff have been asked to organize a community meeting that would include city, FAA and Port staff. We are considering the **evening of Tuesday, October 25,** for the community meeting so please let us know if that would work for you and your staff. At the staff meeting, we can discuss the purpose, goals and format for the community meeting.

Please note that at the Monday, September 19, 2016 City Council meeting a large crowd of highly concerned residents attended and offered comment on this subject. Please see link below to access the video record of that evening:

http://burien.vod.castus.tv/vod/index.php/6/a/3/e/c/7/6a3ec701-5266-4efc-b0cb-c8025190ca431474349759.000+3067113.498@castus4-burien+1474352857147435000834372 2.1.vod.September%2019,%202016%20Regular%20City%20Council%20Meeting360p.mp4#castusvod_autoplay=1

Here's a bullet point summary of the citizen comments:

- A citizen group is forming and will pursue FOIA requests and other avenues for information
- People want a community meeting with FAA and the Port
- The city is in contact with our federal representatives and other nearby cities
- Concern about a potential 4th runway being considered by the Port
- Concern over lost property values, lost tax revenue
- Concern over noise and emissions impacts to human health
- Flights occur at all hours of day and night
- Need for an alternative regional airport
- Many other comments

Thanks again for your prompt response to these messages, it is appreciated.

Sincerely,

Kamuron Gurol
Burien City Manager

From: Kamuron Gurol
Sent: Monday, September 19, 2016 2:51 PM
To: 'Diane.Fuller@faa.gov' <Diane.Fuller@faa.gov>
Cc: David.Suomi@faa.gov; Shepherd.S@portseattle.org; Kim.Stover@faa.gov; peter.abbey@faa.gov; Christine.Mellon@faa.gov; Randall.Fiertz@faa.gov; Stan.Allison@faa.gov; milanese.m@portseattle.org; Lyttle.L@portseattle.org; Gallagher.C@portseattle.org; Leavitt.E@portseattle.org; Brown.J@portseattle.org; Todd.Thomas@faa.gov; Steven.L.Vale@faa.gov; Rodney.Lindbeck@faa.gov; Cayla.Morgan@faa.gov; Allen.Kenitzer@faa.gov
Subject: RE: Request for Meeting with FAA to Discuss Flight Patterns over Burien

Thanks Diane, I appreciate the prompt response. I look forward to hearing back from you to schedule the meeting. Many thanks, -Kamuron

---

From: Diane.Fuller@faa.gov [mailto:Diane.Fuller@faa.gov]
Sent: Monday, September 19, 2016 2:23 PM
To: Kamuron Gurol <kamurong@burienwa.gov>
Cc: David.Suomi@faa.gov; Shepherd.S@portseattle.org; Kim.Stover@faa.gov; peter.abbey@faa.gov; Christine.Mellon@faa.gov; Randall.Fiertz@faa.gov; Stan.Allison@faa.gov; milanese.m@portseattle.org; Lyttle.L@portseattle.org; Gallagher.C@portseattle.org; Leavitt.E@portseattle.org; Brown.J@portseattle.org; Todd.Thomas@faa.gov; Steven.L.Vale@faa.gov; Rodney.Lindbeck@faa.gov; Cayla.Morgan@faa.gov; Allen.Kenitzer@faa.gov
Subject: Request for Meeting with FAA to Discuss Flight Patterns over Burien

Good afternoon, Mr. Gurol. On David Suomi's behalf, I am responding to your request for a meeting with FAA and Port of Seattle staff to discuss concerns raised re: flight patterns over Burien.

FAA takes your concerns seriously, and is certainly amenable to meet with you to address those concerns. There are, however, several aspects that must be considered to ensure a comprehensive and fact-based meeting. Just this morning, we have initiated internal discussions and information gathering in preparation for this meeting. Once we know the extent of the information to be gathered, we will contact you to schedule a meeting as soon as possible.

If you have any questions, please do not hesitate to contact me.

Respectfully,

Diane Fuller
Senior Advisor, ANM-SA
Office of the Regional Administrator
Northwest Mountain Region
1601 Lind Avenue SW
Renton, WA 98057-3356
Office: 425-227-2809
Cell: 425-606-1543
Fax: 425-227-1041

ARC values your feedback and strives to improve the service we provide. Please take a moment to click the "Provide Feedback" link and let us know how we did. Thanks!

Provide Feedback

Federal Aviation Administration

Memorandum

Date: JUL 2 6 2016

To: Christine Mellon, District Manager, Northwest District, TWNF

From: Tracey Johnson, Manager, Operations Support Group, Western Service Center, AJV-W2

Subject: Seattle Airport Traffic Control Tower and Seattle Terminal Radar Approach Control Tower Letter of Agreement; Subject: Approach Control Service and Coordination Procedures

The Operations Support Group has reviewed the attached Seattle Terminal Radar Approach Control and Boeing Field Airport Traffic Control Tower Letter of Agreement; Subject: Approach Control Service and Coordination Procedures, and finds it to be in compliance with FAA JO 7210.3, *Facility Operation and Administration*.

If you have any questions, contact Joseph Bert, NISC Contract Support Specialist, Operations Support Group, Western Service Center at (425) 203-4549.

Attachment

Federal Aviation Administration

Memorandum

Date: JUL 2 6 2016

To: Christine Mellon, District Manager, Northwest District, TWNF

From: Tracey Johnson, Manager, Operations Support Group,
Western Service Center, AJV-W2

Subject: Verification of Opposite Direction Operation Documents in Response to AOV Audit.

Operations Support Group (OSG) has reviewed the Opposite Direction procedures contained within the attached Seattle Airport Traffic Control Tower and Seattle Terminal Radar Approach Control Letter of Agreement; Subject: Approach Control Service and Coordination Procedures, and find these procedures to be in compliance with FAA JO 7210.3, *Facility Operation and Administration*, paragraph 2-1-30, and ATO-SG-15-07.

If you have questions, please contact Stephen D. Pearce, Operations Support, AJV-W22 at 425-203-4531 or via E-mail at Stephen.d.pearce@faa.gov

Seattle Airport Traffic Control Tower and Seattle Terminal Radar Approach Control

LETTER OF AGREEMENT

EFFECTIVE: JULY 26, 2016

SUBJECT: Approach Control Service and Coordination Procedures.

1. PURPOSE: To establish coordination and control procedures between Seattle Terminal Radar Approach Control (TRACON) and Seattle Airport Traffic Control Tower (Tower).

2. CANCELLATION: Seattle TRACON and Seattle ATCT Letter of Agreement dated June 10, 2013 and all its revisions, and NOTICES S46 N7110.705/SEA N7110.121, S46 N7110.706/SEA N7110.122, S46 N7110.690/SEA N7110.107 and S46 N7110.698/SEA N7110.109.

3. SCOPE: The responsibilities and procedures outlined herein must apply to Tower and TRACON personnel for inter-facility coordination and control of air traffic.

4. RESPONSIBILITIES: Tower and TRACON must be responsible to ensure that all applicable personnel are briefed on and comply with the procedures contained in this agreement.

5. PROCEDURES:

a. Pre-arranged Coordination.

(1) A clear operational benefit may result by establishing prearranged coordination procedures in this Letter of Agreement. In the event of a malfunction or failure of the radar/computer system that prevents complete alphanumeric track data from being displayed, or in the event that prearranged coordination procedures become impractical due to other circumstances; i.e. weather, equipment, frequencies, etc., the FLM must terminate the applicable prearranged coordination procedures immediately.

(2) Prearranged coordination may be terminated at any time by the controller responsible for the airspace and must not be resumed until additional coordination has been effected.

(3) When using Special Interfacility Procedures (i.e., Plan Alpha, Plan Bravo, Plan Charlie) between SEA ATCT, BFI ATCT, and Seattle TRACON refer to that Letter of Agreement. Due to the limited scope of this Letter of Agreement, the tri-facility LOA must provide the in-depth guidance necessary for the above procedures.

(4) Tower must Quick Look the F1 and F2, Y, and A Sectors and the sector that has control of the BFI final. See Attachments 1, 2, 3, and 4 for descriptions and depictions of Tower and TRACON airspace.

(5) TRACON may climb and descend BFI arrivals and departures through Tower delegated airspace along the Runway (RWY) 13R/31L centerlines, except BFI arrivals or departures opposite to the established flow of traffic must be coordinated with Tower.

b. Transfer of Control/Communication.

(1) TRACON must transfer communications no sooner than 15 Nautical Miles (NM) and no later than the final approach fix unless (in a south flow) there is BFI arrival traffic within 6 NM of BFI, then not until over BFI.

(2) TRACON has control to turn departures after transfer of communications with respect to subsequent departures that have LOA authorized headings or have been issued pre-coordinated headings.

(3) Tower must maintain IFR or visual separation between arrivals established on final within the lateral boundaries of Tower airspace.

(4) Tower has control to change assigned runway with arrivals established on final within the lateral boundaries of Tower airspace. When changing the assigned runway, Tower is responsible to ensure separation from the preceding and succeeding arrivals.

c. Arrivals.

(1) RWY 16R/34L is the arrival runway. The TRACON Traffic Management Coordinator (TMC)/FLM/CIC and the Tower FLM/CIC must coordinate to determine runway usage restrictions as described in the Seattle ATCT/Seattle TRACON Runway Use Procedures Letter of Agreement.

(2) TRACON must post the runway usage restrictions on the ACE-IDS, using the following terms:

(a) **NA** – no arrivals may be assigned without coordination.

(b) U – unlimited/no arrival restrictions.

(c) # – [miles-in-trail restriction]. i.e. 3 means 3 miles-in-trail at the threshold.

(d) XX – runway is closed.

(e) TM – available as assigned by Traffic Management

EXAMPLE- *16L – 8, 16C – NA, 16R – U*

(3) TRACON must:

(a) Handoff non-STARS tagged SEA arrivals.

(b) Furnish the Tower arrival information and type aircraft when the STARS/TDW is out of service.

(c) Place the following scratchpad information in the full data block for SEA arrivals:

ILS	**Visual Approaches**	**CAT III**
16R/34R	VAR-16R/34R	C3R- 16R/34R
16C/34C	VAC-16C/34C	C3C- 16C/34C
16L/34L	VAL-16L/34L	C3L- 16L/34L

CATII	**Pilot Provided Visual On Visual Approach**	**RNAV (RNP) Approach**
C2R – 34R	VVR - 16R/34R	Z or Y 6R/C/L or M6R – 16R/C/L
C2C – 34C	VVC - 16C/34C	Z or Y 4L/C/R or M4L – 34L/C/R
C2L – 34L	VVL - 16L/34L	

NOTE-
When the weather reported at SEA is below 800' ceiling and/or 2 statute miles visibility, TRACON may use either Instrument or CAT III scratchpad entries.

NOTE-
Pilot-provided visual separation must be coordinated with the Tower verbally or by the use of the VVR/C/L on the trailing aircraft.

(d) Verbally coordinate aircraft's intentions for multiple or practice approaches.

(e) When placing IFR arrival RVR requirements in the STARS second scratchpad, use the letter V followed by two digits to denote RVR minimums – V__.

EXAMPLE-
V18 indicates 1800 RVR required.

(f) When Tower Local Control positions are combined assign 119.9, regardless of runway assignment

(4) Tower must:

(a) Update STARS full data blocks to depict actual runway assignments.

(b) Sequence pop-up VFR arrivals that will not interrupt the flow of traffic on final.

(c) Coordinate with the TMC when an arrival sequence is required for VFR aircraft.

(d) Inform TRACON when re-clearing an aircraft for a visual approach when simultaneous dependent approaches are being conducted. This can be accomplished with a scratchpad entry.

(e) Ensure that the FLM/CIC verbally coordinates through TRACON FLM/CIC when combining/decombining local control positions, and when 2.5 NM in-trail arrival separation is/is not authorized due to tower visibility.

(f) Update the ACE-IDS when 1 or 2 local control frequencies are in use.

(5) Breakouts/Missed Approach/Go-Arounds: See Attachment 5 for a depiction of the breakout areas.

(a) Breakout aircraft requiring a turn prior to reaching the appropriate breakout point should be coordinated through CI-2 when staffed, or AR-F.

(b) In a south flow, assign the breakout aircraft 2,000 feet and in a north flow assign 3,000 feet. Coordinate with the appropriate TRACON departure controller as soon as possible.

(c) Aircraft assigned a higher altitude by TRACON must not be issued the higher altitude until past the approach end of the runway.

NOTE- *The intent is to ensure that the breakout aircraft departs Tower airspace into a TRACON departure sector's airspace.*

(d) South flow aircraft may be assigned a heading of 160° through 195° after crossing the Final Approach Fix or, if a southeast-bound turn is required, a heading of 140° may be assigned when over the approach threshold. During split flow, no 140° headings will be assigned.

(e) North flow aircraft must be assigned a heading of 340° or vectored to remain in the tower's 3,000' airspace, then positioned to exit the Three Tree Breakout Area, and assigned a heading of 290° through 310°. Aircraft at or north of the Runway 34R threshold must be assigned heading 340° or turned to exit the Three Tree Breakout Area, and assigned a heading of 290°.

d. Departures. Tower must:

(1) Release IFR and VFR departures which will subsequently receive flight following from TRACON without prior approval except:

(a) When any check departure lights are on:

1) Inform the appropriate departure sector of any aircraft which have commenced takeoff roll prior to the activation of the check departure lights.

2) Acknowledge the lights by depressing the button located directly beneath the illuminated position indicator lamp.

(b) In the event of radar failure.

(2) When STARS or TDW is inoperative, advise the appropriate TRACON departure sector of ID, STARS gate and filed altitude for each departing aircraft prior to commencing take off roll.

(3) Coordinate all un-tagged or incorrectly tagged aircraft (IFR and VFR) with the appropriate departure sector before the aircraft reaches a point 2 NM from SEA. Include aircraft position, ID, STARS gate assignment, and filed altitude.

(4) In a north flow, release IFR departures with respect to traffic on the BFI RWY 31 final approach course. TRACON Boeing Sector must advise Tower of any aircraft not displaying a STARS full data block including current, verified altitude or in a coast status.

(5) Provide 3 NM initial departure separation between successive like-type departures out the same STARS gate. (In a south flow Q and E Gates are considered the same STARS gate).

(6) Be authorized to use pilot-provided visual separation for other than same-gate departure pairs.

(7) To the extent possible, not use Tower or pilot-provided visual separation when the lead aircraft is an A320/A321 or when the trailing aircraft is a B757.

(8) Assign all departing IFR aircraft standard instrument departure procedures (SID) as follows:

(a) Group A aircraft – Issue SIDs in accordance with Attachment 6. BFI arrivals must be issued the SEA SID. Exception: during Sleepytime, assign all departures the SEA SID unless a HAROB, KTSAP, BANGR, or KMORE FMS was filed.

NOTE- *Groups of aircraft are defined in Attachment 7.*

(b) Group B, C, and D aircraft – Issue the SEA SID.

(c) If a pilot does not possess or cannot accept a SID, issue the SEA 161° radial (south flow) or the SEA 341° radial (north flow), as appropriate, for initial departure routing and coordinate with the appropriate TRACON departure sector.

(d) For all aircraft which are unable to meet the altitude restrictions contained in some SIDs prior to the aircraft commencing take off roll, instruct the aircraft to fly the SEA SID and verbally coordinate with the appropriate TRACON departure sector.

(e) Aircraft having a Seattle Center FDIO-generated PDR printed on the strip must be issued the PDR in addition to the appropriate SID.

(f) Coordinate with the TRACON Departure West controller any aircraft assigned the KTSAP/KMORE SID.

(9) Assign the following automatic turns to departing IFR Groups B, C, and D aircraft:

(a) South Flow:

1) With filed routes between the SEA 230° and 340° radials, or filed to airports within the Satellite area, or aircraft filed on V187, V165, or V287 (i.e. I, U, or L Gates) south of OLM, a heading of 230°.

2) With filed routes between the SEA 341° and 104° radials, except P Gate departures filed for altitudes of 12,000 feet and above, a heading of 140°, to be assigned at the departure end of the runway or leaving 1500 feet.

3) P Gate departures, filed for altitudes of 12,000 feet and above, a heading of 230°.

(b) North Flow:

1) P Gate filed 8,000 feet and below, a heading of 020°.

2) T, M, A and ZAD Gate, a heading of 020°.

3) 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.

(c) Early turn provisions are automatically canceled when SEA and BFI are in a split flow configuration, except when BFI is north and SEA is south, the 230° heading remains in effect.

(10) Request turns using the following procedure:

(a) APREQ turns using aircraft identification and gate.

(b) If necessary, modify the STARS position symbol to the appropriate TRACON departure sector, and issue the correct departure frequency.

(11) Assign the following altitudes to departing IFR aircraft:

(a) Any Group B, C, or D aircraft not departing straight out (e.g. via a SID, runway heading, or via SEA 341R/161R) must be assigned 3,000 feet and to expect filed altitude 15 NM from SEA. This applies to all departure aircraft that are turned by Tower, including automatic turns as well as those specifically APREQed.

NOTE-*This does not apply to an arrival aircraft that cannot complete a normal landing (e.g. a go-around).*

(b) Group A aircraft, filed below 5,000 feet, must be assigned 5,000 feet. Altitude information in the FDIO must be updated to reflect the assigned altitude. ***NOTE-*** *This is for noise abatement.*

(c) Except as in (a) and (b) above, all North flow departures filed above 9,000 feet must be assigned 9,000 feet and to expect filed altitude 15 NM from SEA. All South flow departures filed above 7,000 feet must be assigned 7,000 feet, and to expect filed altitude 15 miles from Seattle. If filed altitude is below 9,000 in a North flow, or 7,000 in a South flow, assign filed altitude.

(12) Assign departure frequency as follows:

(a) In a south flow, assign departure frequency in accordance with sectors depicted in Attachment 3, except assign VFR aircraft requesting flight following to the west and northwest to the "D" Sector and issue 125.9.

(b) In a north flow, assign departure frequency in accordance with sectors depicted in Attachment 4.

(c) In either flow, assign all VFR aircraft requesting flight following from TRACON the frequency for the TRACON sector based upon direction of flight as depicted in Attachment 3 and 4.

(13) Any IFR aircraft that is not assigned a PDR, or that is filed on a route that does not coincide with the routes in Attachment 6 (e.g.: direct to a point/airport outside TRACON airspace) must be coordinated with the appropriate TRACON departure sector.

(14) Aircraft departing SEA and landing BFI:

(a) South Flow:

1) Group A, assigned Seattle SID, altitude of 5,000 feet, and frequency 120.4.

2) Group B, C, D assigned SEA-X SID, heading of 230°, altitude 3,000 feet and frequency 120.4.

(b) North Flow:

1) Group A, assigned Seattle SID, altitude of 5,000 feet and frequency 119.2.

2) Group B, C, D assigned Seattle SID, heading of 020°, altitude 3,000 feet and frequency 119.2.

(15) Aircraft departing SEA and landing PAE:

(a) South Flow:

1) Group A, assigned Mountain SID, altitude of 5,000 feet and frequency 119.2.

2) Group B, C, D, assigned Seattle SID, heading of 140°, altitude 3,000 feet to expect 4,000 feet in 15 NM, and frequency 119.2.

(b) North Flow:

1) Group A, assigned Seattle SID, altitude of 5,000 feet and frequency 119.2.

2) Group B, C, D, assigned Seattle SID, heading of 020°, altitude 3,000 feet and frequency 119.2.

(16) Successive Departures: When a pilot is applying visual separation with a preceding departure, tower will place "VV" in the secondary scratch pad of the STARS data block or verbally coordinated prior to transfer of communication of the succeeding aircraft.

e. Flow Change.

(1) Staffing. When a flow change is anticipated, the following positions must be staffed (staffing permitting):

(a) Tower must staff the Local Assist (LA) position.

(b) TRACON must staff the Coordinator (CI) position.

(2) Responsibilities. All coordination regarding flow changes will be coordinated by the LA and CI positions, unless otherwise coordinated.

(3) Procedures. Tower must have automatic releases for as many departure aircraft as they can depart until the last arrival (as determined by the CI) is on a 5 NM final.

f. VFR Transitions. Utilize automation for all VFR transition aircraft unless otherwise specified.

g. ATIS.

(1) Tower must:

(a) Disseminate ATIS code changes and related information by entering the new approach information and ATIS code into the ACE-IDS.

(b) Assign the ATIS codes A through M in sequence for their ATIS, displaying on the IDS system a single letter with the current weather when VFR. Use double character (AA, BB, etc.) to denote IFR weather.

(c) Notify the TRACON FLM when the ATIS fails or returns to service.

(d) When in a south flow, broadcast the following on the ATIS: *"SIMULTANEOUS APPROACHES TO BOEING AND SEATAC AIRPORTS IN USE. EXPECT*

Seattle Airport Traffic Control Tower and Seattle Terminal Radar Approach Control

TRAFFIC BELOW YOU ON FINAL."

(4) Whenever the Tower or TRACON receives information that would make a change to the advertised approach necessary (e.g.: weather, equipment outage, etc.), the change must be coordinated with the other facility.

6. BEACON CODES: Tower is authorized the permanent use of TRACON's beacon codes 5560 and 5561 for surface traffic/vehicles only (e.g. ASDE-X). These codes must not be used for airborne aircraft. Tower must return these beacon codes to TRACON when they are no longer needed.

7. OPPOSITE DIRECTION OPERATION PROCEDURES: See Attachment 8

8. SINGLE PERSON MIDSHIFT PROCEDURES: See Attachment 9.

9. ATTACHMENTS:

a. Attachment 1: Jurisdiction of Airspace.

b. Attachment 2: Tower Areas of Jurisdiction.

c. Attachment 3: South Flow TRACON Airspace.

d. Attachment 4: North Flow TRACON Airspace.

e. Attachment 5: Breakout areas.

f. Attachment 6: STARS Gate/PDR/Group A Departure Procedure (SID) Assignment.

g. Attachment 7: Definitions.

h. Attachment 8: Opposite Direction Operation Procedures.

i. Attachment 9: Single Person Midnight Operations at TRACON and Tower

Seattle Airport Traffic Control Tower and Seattle Terminal Radar Approach Control

Steven Vale
Air Traffic Manager
Seattle ATCT

Todd Thomas
Air Traffic Manager
Seattle TRACON

Seattle Airport Traffic Control Tower and Seattle Terminal Radar Approach Control

ATTACHMENT 1 – JURISDICTION OF AIRSPACE

1. Tower has continuous jurisdiction of the following airspace (See Attachments 2a, and 2b):

   a. Seattle Area A, from the surface to 2,000 feet MSL in a south flow. Area A, from the surface to 3,000 feet MSL in a north flow.

   b Seattle Area B, 1,100 to 2,000 feet MSL.

   c. Seattle Area C, surface to 2,000 feet MSL.

   d Seattle Area D, surface to 2,000 feet MSL.

2. TRACON has continuous jurisdiction of the Seattle Class D Airspace above 2,000 feet MSL except in Area A in a north flow. (See Attachments 2a, 2b, 3, and 4).

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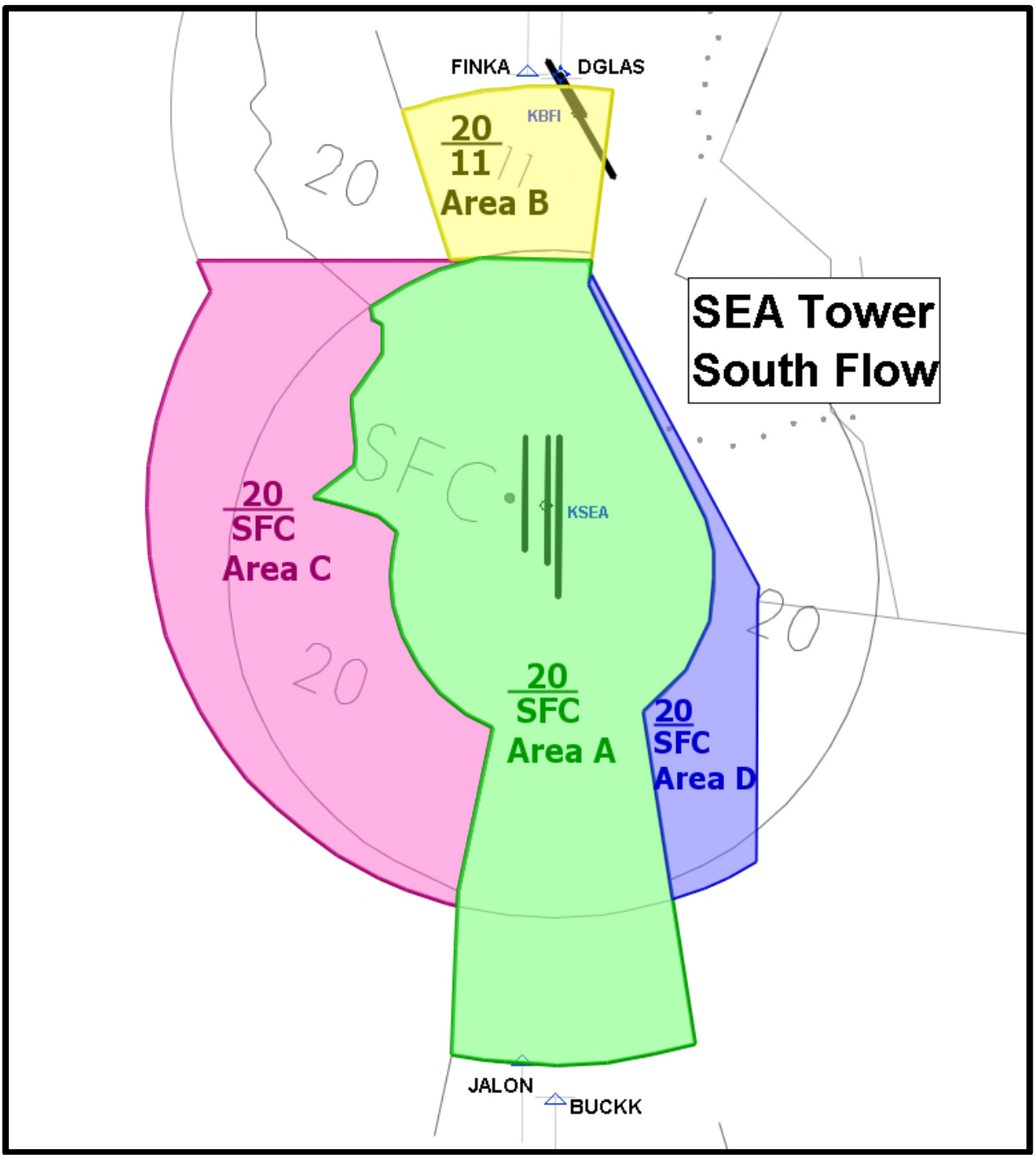
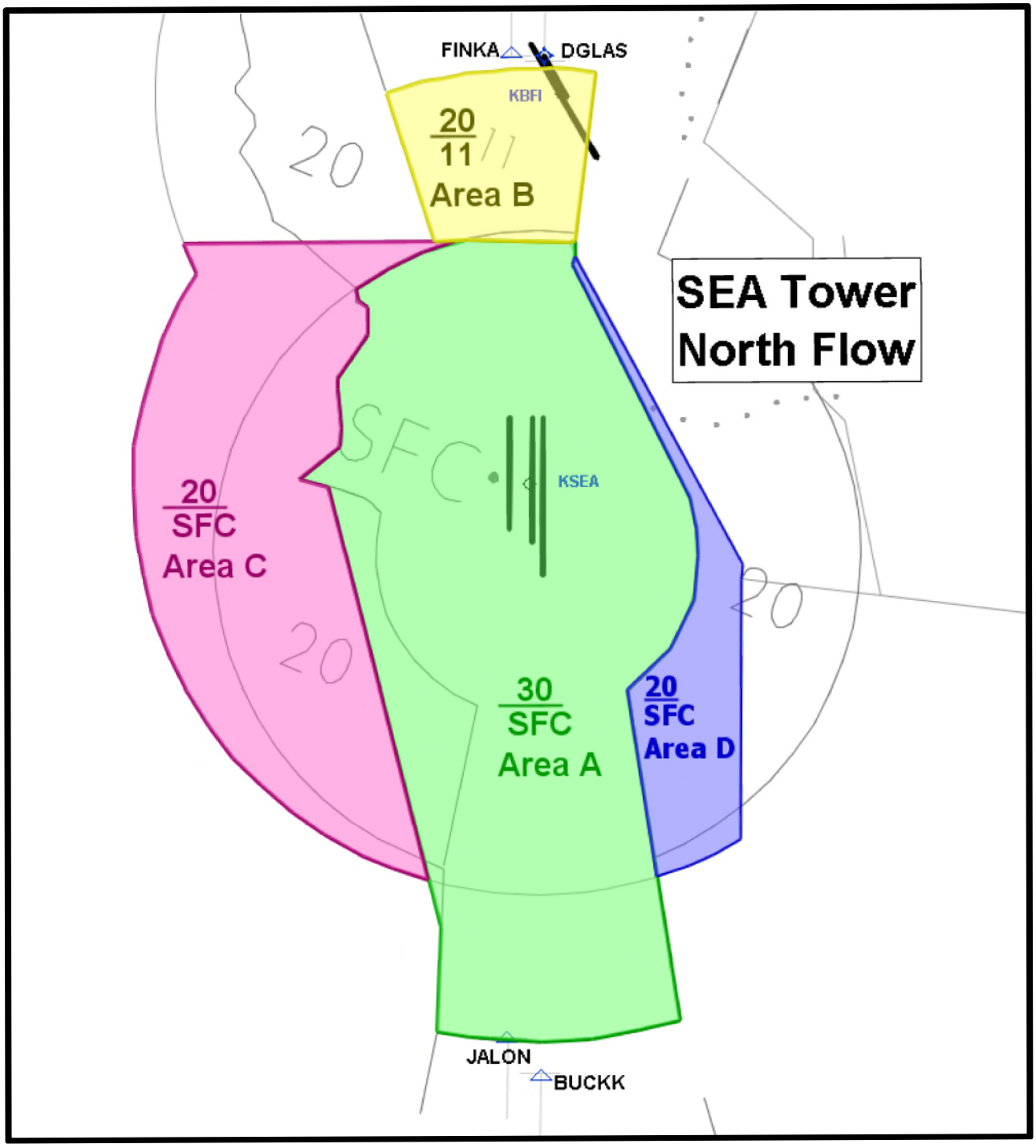
ATTACHMENT 2 (a) – TOWER AREAS OF JURISDICTION



ATTACHMENT 2 (b) – TOWER AREAS OF JURISDICTION



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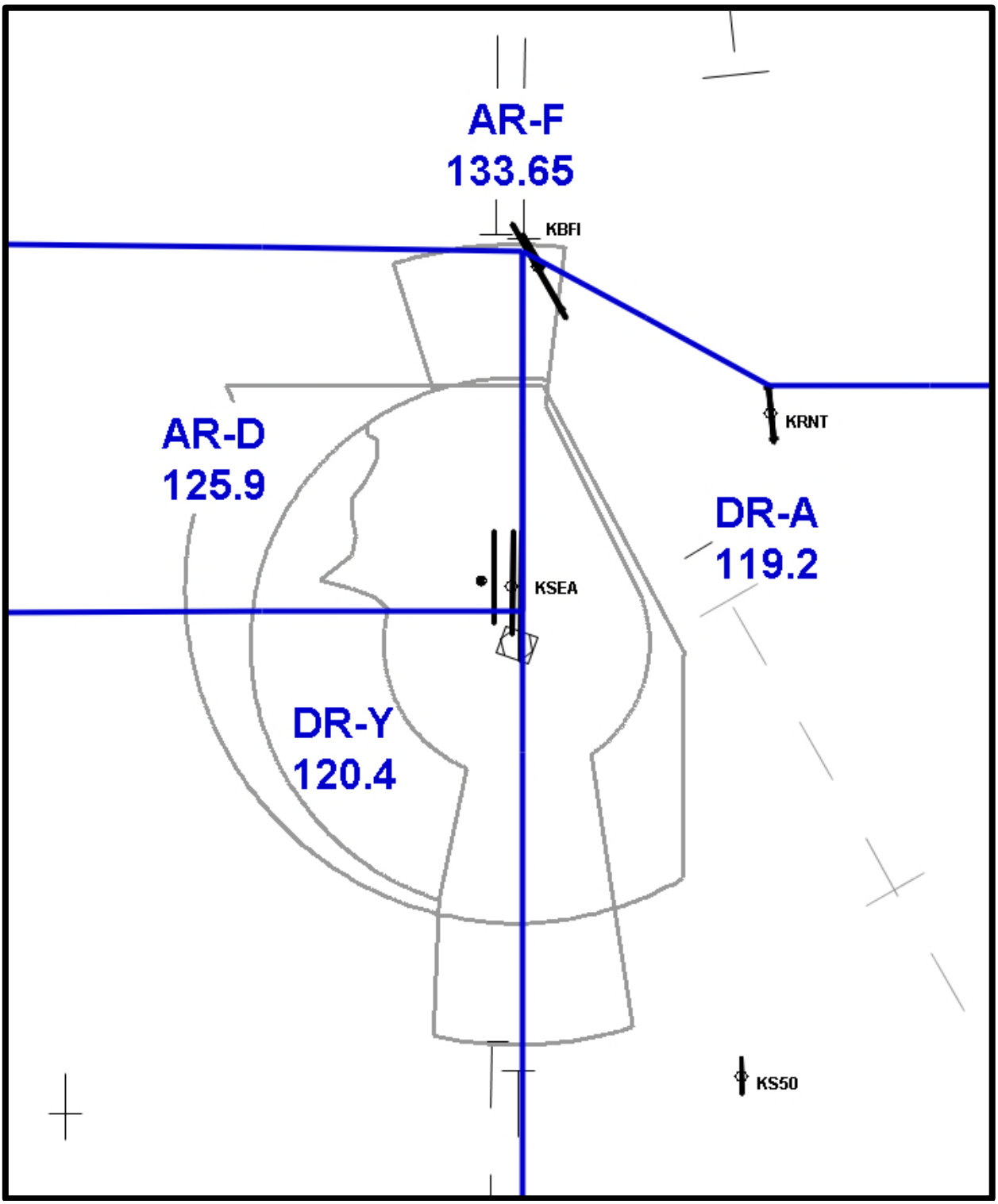
ATTACHMENT 3 – SOUTH FLOW TRACON AIRSPACE



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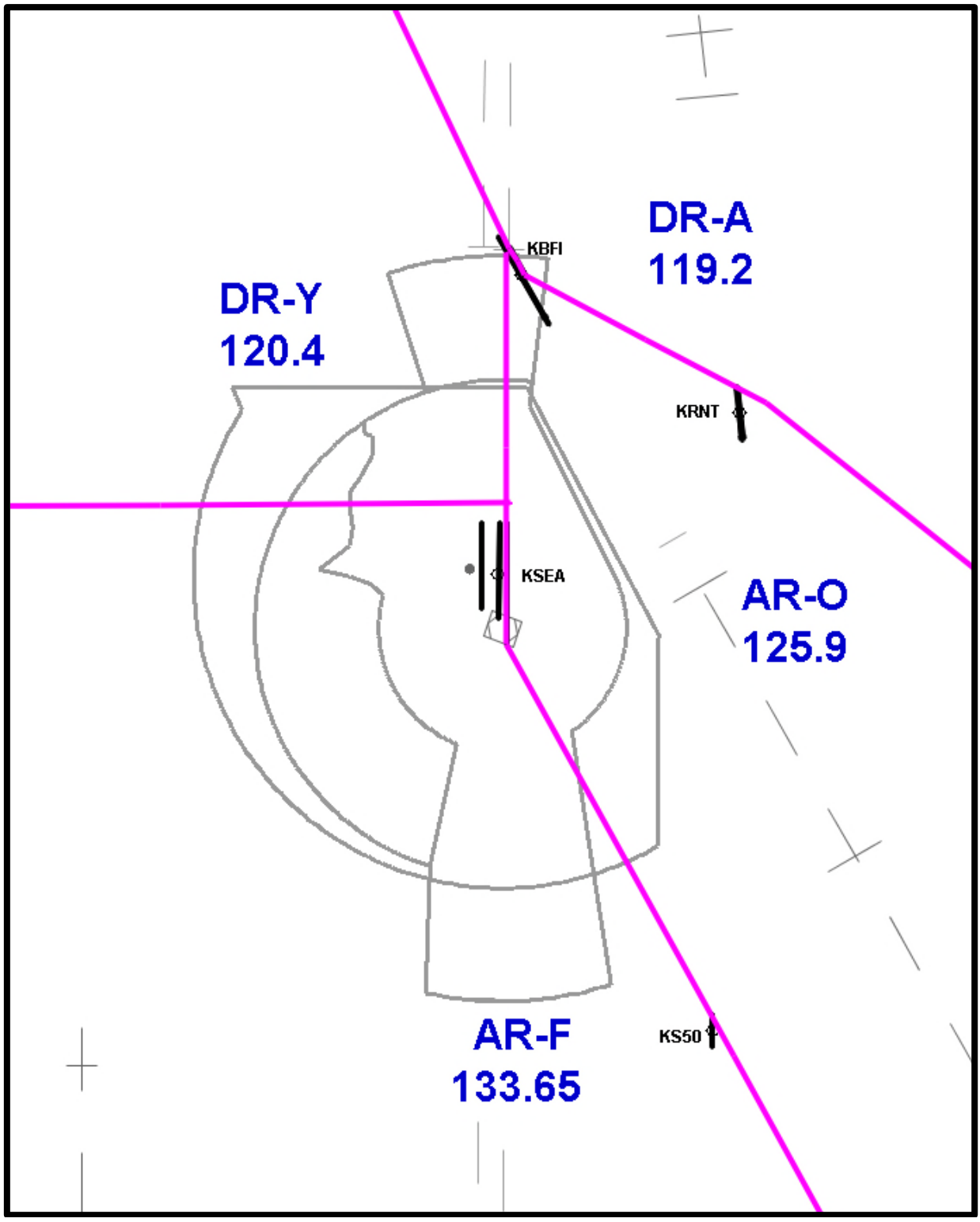
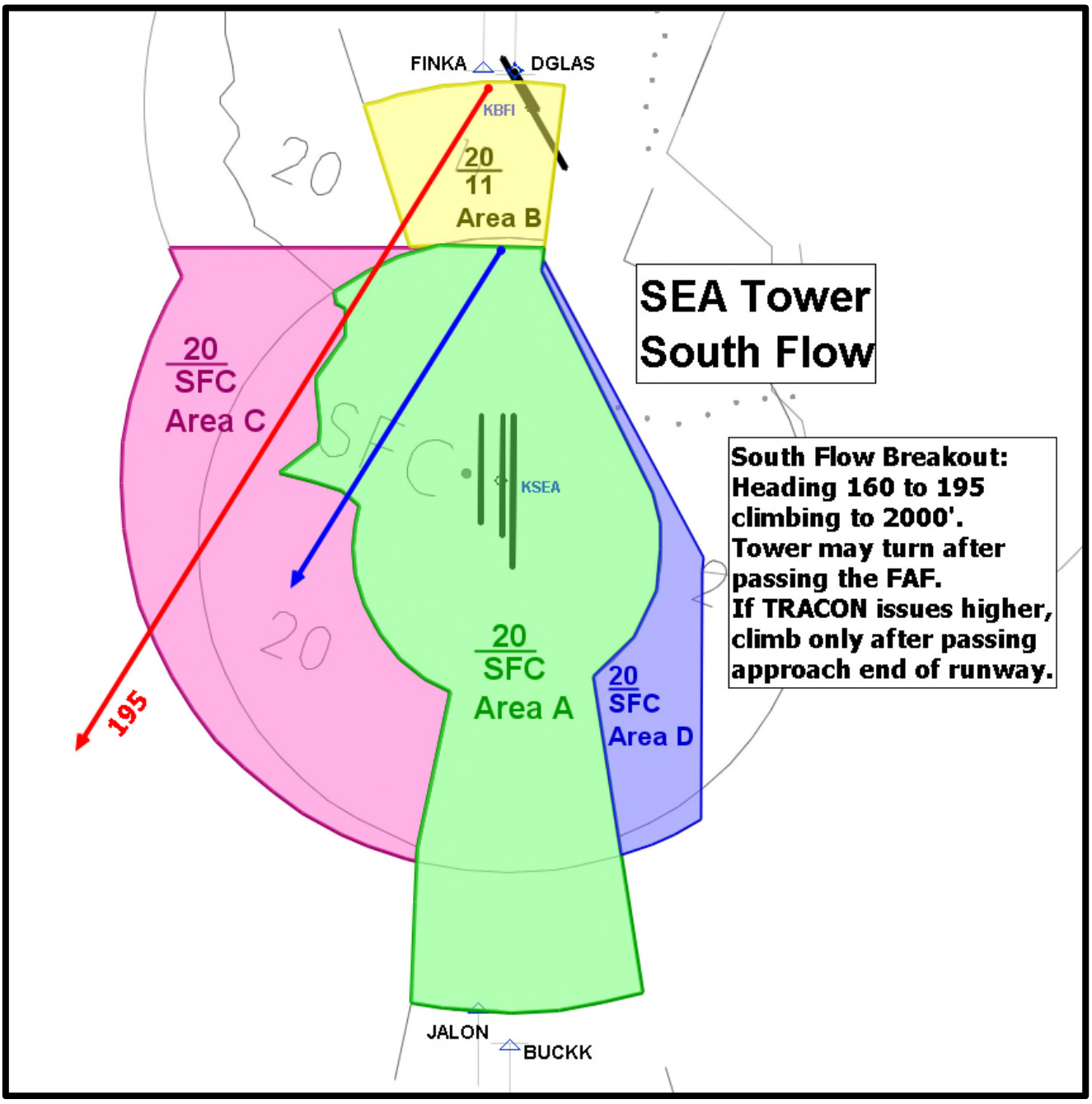
ATTACHMENT 4 – NORTH FLOW TRACON AIRSPACE



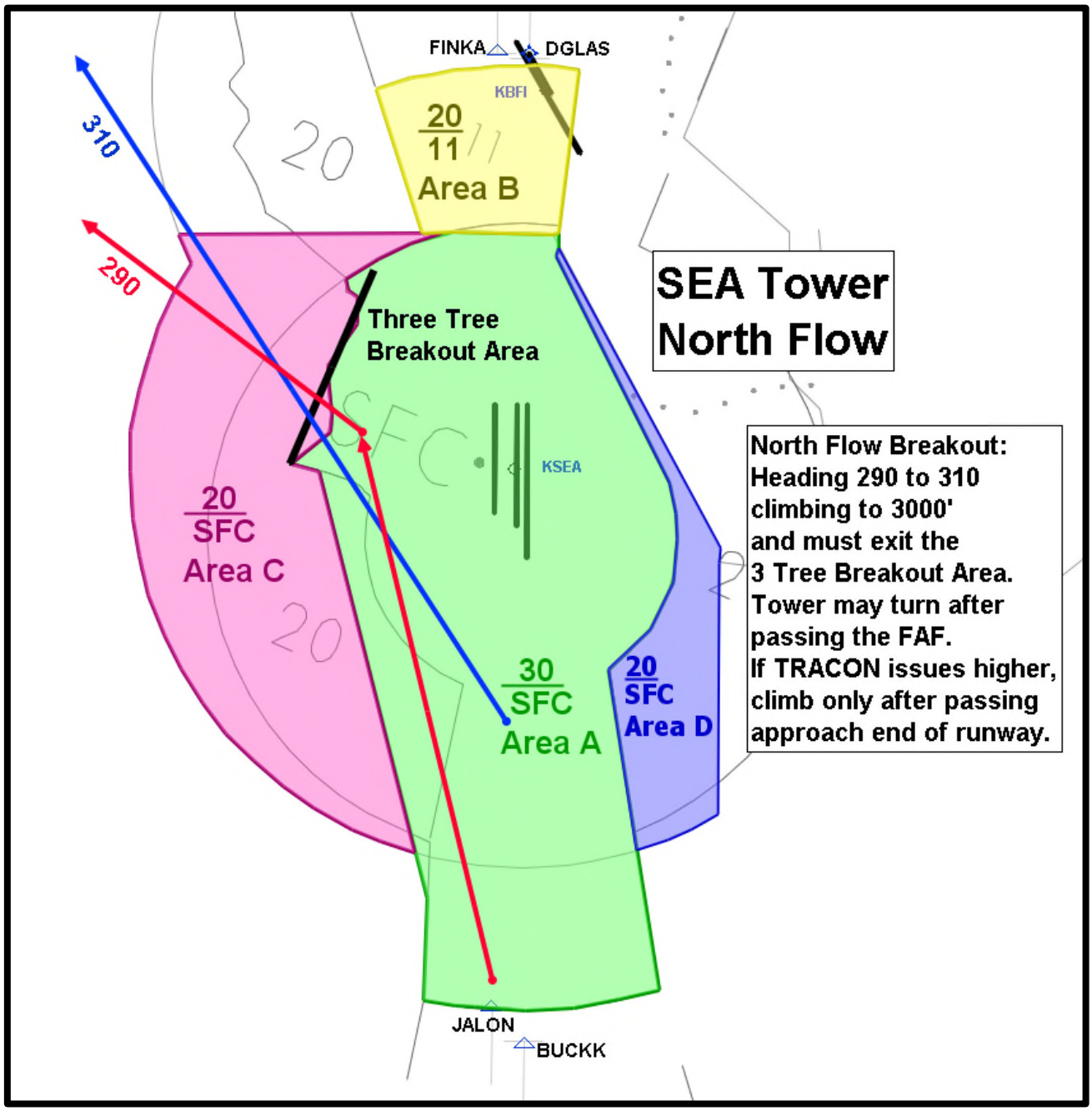
Seattle Airport Traffic Control Tower and Seattle Terminal Radar Approach Control

ATTACHMENT 5 (a) – BREAKOUT AREAS



Seattle Airport Traffic Control Tower and Seattle Terminal Radar Approach Control

ATTACHMENT 5 (b) – BREAKOUT AREAS



ATTACHMENT 6 – STARS GATE/PDR/Group A Departure Procedure (SID) Assignment

STARS GATE	SEA RADIALS	ROUTE/PDR	GROUP A SID	DEPARTURE SECTOR
P (Group B,C,D)	327-008	V23/ACORD,RV to PAE 110 & BLO	N/A	A
P (Group B,C,D)	327-008	V23/ACORD,RV to PAE 120 & ABV	N/A	Y (South Flow) A (North Flow)
P (Group A)	327-008	V23/ACORD,RV to PAE	MTN (South Flow) SEA (North Flow)	A A
J (Group A)	009-042	J503/J505/RV	MTN (South Flow) SEA (North Flow)	A A
J (Group B,C,D)	009-040	J503/RV	N/A	A
T (Group A)	043-103	J12/J70/J90/SEA 072R	MTN	A
T (Group B,C,D)	041-085	V120/J12/J70/J90/SEA 072R	N/A	A
ZAD (Group A)	ZADON	ZADON	MTN	A
ZAD (Group B,C,D)	ZADON	ZADON	N/A	A
M (J20 at and below FL230)	086-123	V2-298/SEA 088R	MTN	A
A (J20 above FL230)	104-160	J5/SEA 146R	SUMMA	Y (South Flow) A (North Flow)
Q (Group A,B)	161-178	HELNS/SEA 161R	SEA	Y
E (Group B,C,D between 100-FL230)	161-178	V495/J1/SEA 168R	N/A	Y
F (Group B,C,D below 100)	161-178	V23/SEA 178R	N/A	Y
L (Group B,C,D)	N/A	OLM.V287 (south)	N/A	Y
U (Group B,C,D)	N/A	OLM.V165 (south)	N/A	Y
I (Group B,C,D)	N/A	OLM.V187 (south)	N/A	Y
Z (Between 100-FL230)	179-230	V27/J70/SEA 230R	ELMAA	Y
Z (Above FL 230)	161-230	J70/SEA 230R	ELMAA	Y
Y (At or above 100)	231-326	J523/SEA 281R	SEA	Y
Y (Below 100)	231-326	V4/V495/SEA 310R	SEA	Y
ZFM (At or above FL240)	161-230	HAROB	HAROB	Y
YFM (At or above 100)	231-326	BANGR	BANGR	Y

ATTACHMENT 7 – DEFINITIONS

1. ACE-IDS. A computerized system for the dissemination of Air Traffic weather and aviation information throughout the Puget Sound area by means of a network of video monitors and keyboards. Also called the IDS.

2. AIRCRAFT PERFORMANCE GROUPS.
a. Group A - Jet aircraft.
b. Group B - Aircraft with true airspeeds (TAS) greater than 200 knots.
c. Group C - Aircraft with TAS of between 150 and 200 knots.
d. Group D - Aircraft with TAS of less than 150 knots.

3. CHECK DEPARTURE LIGHTS: A visual/aural coordination system consisting of a light and buzzer activated by the TRACON to stop or restrict SEA departures.

4. CONCURRENT APPROACHES: A procedure, utilizing an Approach Radar Monitor (ARM), to be used when ILS approaches to SEA Runways 16 and BFI RWY 13R are being conducted concurrently and Plan Alpha procedures are not in effect.

5. FLOW: The designated direction of landing at SEA upon which all flow-sensitive procedures are based.

6. PLAN ALPHA, PLAN BRAVO & PLAN CHARLIE: Procedures described in the Seattle ATCT, Seattle TRACON, and BFI ATCT Letter of Agreement in which TRACON delegates to BFI ATCT and SEA ATCT the responsibility to apply visual separation between BFI and SEA IFR traffic.

7. SLEEPYTIME: Noise abatement procedures used during Runway 34 operations at SEA-TAC between the hours of 10:00 PM and 6:00 AM.

8. SPLIT FLOW: The condition which exists when SEA and BFI airports are in opposite flows.

9. STARS GATE: A term used to describe a letter inserted into a full data block scratchpad area by the STARS to indicate departure route information (see Attachment 6).

10. SHORELINE ARRIVALS: This applies to C208 aircraft only. When a C208 aircraft is cleared for a visual approach to RWY 34L it will proceed to the west shoreline in the area of Three Tree Point. The tower will provide visual separation between the C208 and any aircraft on RWY 34R. The TRACON will be required to provide spacing between the C208 and the next 34L arrival. `This procedure is only available in north flow, Config 2.

ATTACHMENT 8 – Opposite Direction Operations Procedures

a. Opposite Direction Operations (ODO) are defined as IFR/VFR Operations conducted to the same or parallel runway where an aircraft is operating in a reciprocal direction of another aircraft arriving, departing, or conducting an approach.

b Cutoff points are established as ten (10) NM from the runway threshold, regardless of individual runway, runway configuration, same-runway or parallel-runway operation. Parallel runways will be treated as the same runway.

c These procedures apply to all IFR and VFR ODO interactions at SeaTac airport.

d Visual separation is not authorized for ODO.

e All coordination must be on a recorded line and state "opposite direction." Initial coordination must include call-sign, type and arrival or departure runway.

f Initial coordination between the hours of 0600L and 2200L must be between the OS/WS/CIC in each facility, using the following recorded phone numbers (TRACON: x4722, x4723, x4724 or x4725; Tower: x2516), who may then delegate additional coordination responsibility to another position.

g From the hours of 2200L to 0600L all coordination must be between Local Control and Satellite N.

h. Tower must:

(1) Unless an emergency exists, ensure that a departure is airborne and issued a turn to avoid conflict prior to an opposite direction arrival reaching the cutoff point.

(2) Issue traffic advisories IAW JO 7210.3 paragraph 2-1-30.

(3) Utilize facility designated memory aids when conducting ODO.

i. TRACON must:

(1) Unless an emergency exists, prohibit an arrival from proceeding beyond the cutoff point if:

(a) an opposing arrival has not crossed the runway threshold, or;

(b) an opposing departure is not airborne and issued a turn.

(2) If the conditions of either Subparagraphs i. (1) (a) or (b) above are not met, take immediate action to protect the integrity of the cutoff points.

(3) Issue traffic advisories IAW JO 7210.3 paragraph 2-1-30.

Seattle Airport Traffic Control Tower and Seattle Terminal Radar Approach Control

(4) Utilize facility designated memory aids when conducting ODO.

Seattle Airport Traffic Control Tower and Seattle Terminal Radar Approach Control

ATTACHMENT 9 – Single Person Midnight Operations at Tower and TRACON

Procedures/Responsibilities. In order to ensure that a receiving controller is prepared to accept an aircraft, coordination between facilities during the hours of 0000L and 0500L must be as follows:

a. Tower must:

(1) Notify TRACON when the Tower is being operated with one ATCS.

(2) Call for release for all IFR departures when the TRACON is being operated with one ATCS. Tower must ensure that the aircraft departs within 5 minutes of the time of release.

(3) If TRACON is unresponsive to any coordination, utilize the following phone numbers to determine the status of the unresponsive controller and if necessary begin notifications outlined in the ACT2 Contingency Plan:

(a) TRACON Kitchen/Break rooms – 206-214-2477 (2474) (2475)

(b) TRACON CBI Lab – 206-214-4621

(c) TRACON Sign-in room – 206-214-4687

(d) TRACON Guard Shack – 206-214-4881 or 4882

b. TRACON must:

(1) Notify Tower when the TRACON is being operated with one ATCS.

(2) Verbally coordinate with Tower prior to the transfer of communication of an IFR arrival when the Tower is being operated with one ATCS. Verbal coordination must occur no earlier than 5 minutes before the FAF estimate, after which the normal automated transfer of arrival information via scratchpad is allowed.

(3) If Tower is unresponsive to any coordination, utilize the following phone numbers to determine the status of the unresponsive controller and if necessary begin notifications outlined in the ACT2 Contingency Plan:

(a) Tower 16th Floor – 206-214-2566 or 2528

Briefing Guide SEA/S46 Runway Use and LOA June 2016

Issue Description: A collaborative work group was formed to identify a suitable north flow runway use configuration that best accommodates the needs of the NAS. The team was also tasked with evaluating departure separation in both flows, and the issuance of the tower frequency by the final controller at S46. The following changes were made to the SEA/S46 Letters of Agreement (LOA):

Overview: Demand at Seattle is increasing, and there is a need for a more organized and structured runway use system. We have shown during construction to be more efficient in using an inboard/outboard configuration, than any others we have tried. The focus was on safely maximizing through-put at SEA. Due to the many restrictions placed on both facilities in a North Flow, selective use of the inboard runway is critical to the operation of SEA and S46. Since S46 will still need to use RWY 34R for arrivals, and SEA will be primarily departing RWY 34R, we looked at ways to increase the departure flow as well.

SEA/S46 LOA Coordination and control procedures:

- The 34L/C configuration will no longer exist. Runway 34L is the designated arrival runway, Runway 34R will be the overflow runway, but it will not be made available until TMU determines a need for it. This need will normally be based on the arrival volume exceeding the single runway rate. In-trail restrictions will be in place, or TMU will advise (feeders/ final) how many arrivals, or which arrivals will be suitable candidates for using the overflow runway.
    - The decision was made to have the North flow operation match the South flow operation as much as possible, to establish consistency and move away from configurations where rules can change on the controller mid-session. This also eliminates excess verbiage and scratchpad entries (VVL) when using visual separation on closely spaced parallel runways, lightening the workload on the final controller.
    - This is very similar to what we did during construction, except that the use of the inboard runway will be a little more structured, due to it being a primary departure runway.
    - There will be times when SEA will need to select good candidates to depart the center runway to keep traffic moving. The OS/CIC should be monitoring the inbound aircraft and assisting GC in knowing when 34R is going to be needed for arrivals, and planning accordingly for select center departures.
    -
- Added “TM” to the runway usage restrictions on the ACE-IDS. “TM” means, the use of a runway will be as assigned by Traffic Management. For example, 34L-U 34C-NA 34R-TM. If traffic management projects minimal need for the inboard runway, but maybe 1-3 aircraft will need it due to volume exceeding the single runway rate, the TM will advise you which aircraft or how many aircraft can use the inboard during a certain time period. There will be times that a miles-

in-trail (MIT) restriction is the most appropriate, so expect either one. These are considered a Traffic Management Initiatives (TMI's).

  - Traffic management is here to manage the flow of traffic. They are the best equipped to determine when an overflow runway is needed. TMC's constantly monitor the flow of traffic, fleet mix, and the overall efficiency of the airspace.
  - In the event a TMC is not available, these duties become the OS/CIC's duties.
  - There may be times that a prop is a better candidate for the inboard runway.

- SEA ATCT is authorized to provide **3 miles** initial departure spacing between all departures, either flow.
  - SEA will take into consideration the workload placed on S46. For example, if multiple same gate departures are in sequence together, SEA will still use same gates as crossing holes or try to split the gates when able.
  - More emphasis should be put on aircraft performance for crossing holes. For example, instead of crossing between same gates, it may now be more beneficial to cross behind a low performing aircraft with a higher performing aircraft behind.

- Pilot applied visual separation is not authorized out the same departure gate, and it is preferred that an A320/321 is not the lead aircraft in a visual separation pair. It is also preferred that a B757 is not the trailing aircraft in a visual separation pair.
  - The language is not expressly prohibitive; this is to allow for the occasional "tighter than expected" scenario.
  - This is based on aircraft performance, an A320 following an A321 is acceptable as both aircraft perform the same.
- In a North flow, South and Westbound props will be issued a 250 heading, stopped at 3,000. These aircraft must be in a turn prior to 1mile of the departure end to avoid conflicting with BFI departures. If a turn is not possible, issue runway heading and 9,000 then coordinate.
  - This decision was made based on the need to maximize throughput in a north flow since the arrival runway will be shared with the departure runway at times.
  - Some traps to be aware of: 250 heading departures will need to be climbed to miss the N sector, turning a Y gate prop on course could result in cutting off a west bound jet or a BFI departure.
  - 250 headings can always be shut off if traffic dictates, ie the Empire push.

- Frequencies: S46 will no longer be required to issue the tower frequency when the frequency in use is as published on the approach charts. However, when SEA ATCT local control positions are combined, the frequencies are not used as published; S46 will issue frequency 119.9 to all arrivals. Responsibility to update the ACE-IDS frequency box will change from S46 to SEA ATCT.

2−1−17. RADIO COMMUNICATIONS

a. Transfer radio communications before an aircraft enters the receiving controller's area of jurisdiction unless otherwise coordinated or specified by a letter of agreement or a facility directive.

b. Transfer radio communications by specifying the following:

NOTE−
Radio communications transfer procedures may be specified by a letter of agreement or contained in the route description of an MTR as published in the DOD Planning AP/1B (AP/3).

1. The facility name or location name and terminal function to be contacted. *TERMINAL*: Omit the location name when transferring communications to another controller within your facility, or, when the tower and TRACON share the same name (for example, Phoenix Tower and Phoenix TRACON).

EXCEPTION. Controllers must include the name of the facility when instructing an aircraft to change frequency for final approach guidance.

2. Frequency to use except the following may be omitted:

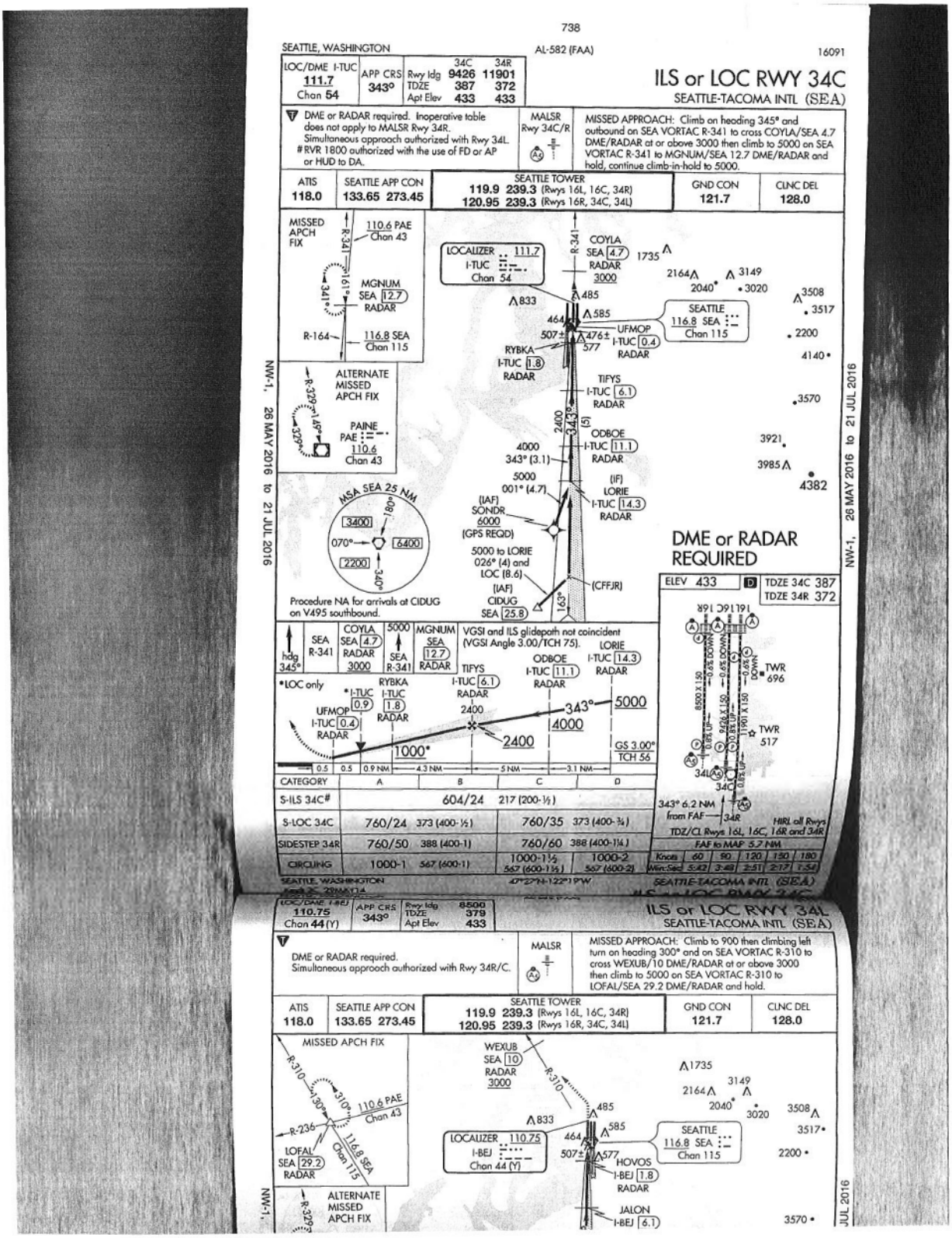
(a) FSS frequency.

(b) Departure frequency if previously given or published on a SID chart for the procedure issued.

(c) *TERMINAL:*

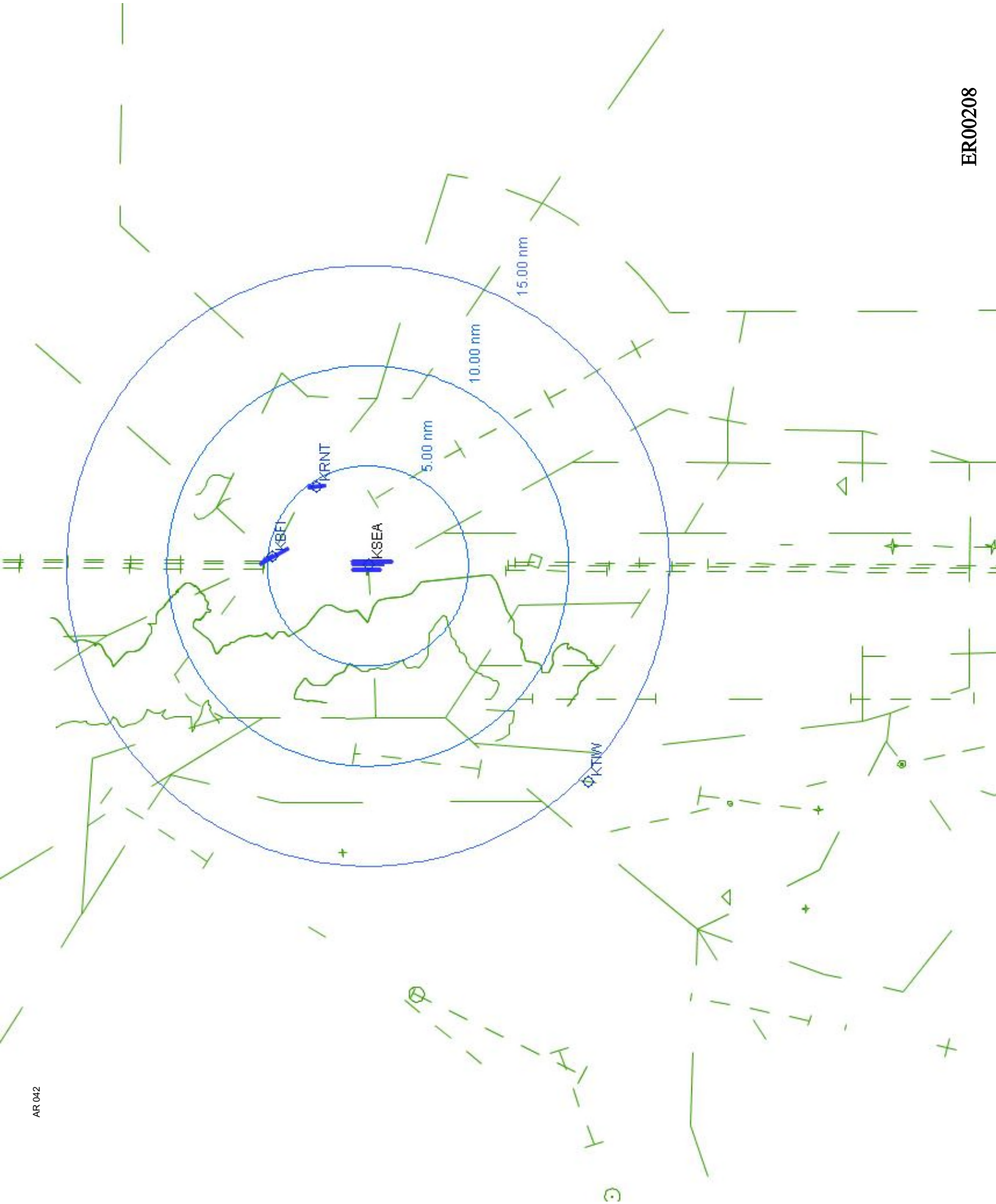
(1) Ground or local control frequency if in your opinion the pilot knows which frequency is in use.

(2) The numbers preceding the decimal point if the ground control frequency is in the 121 MHz bandwidth.


738
SEATTLE, WASHINGTON
AL-582 (FAA)
16091
ILS or LOC RWY 34C
SEATTLE-TACOMA INTL (SEA)
LOC/DME I-TUC 111.7 Chan 54
APP CRS 343°
Rwy Idg 34C 34R
TDZE 9426 11901
Apt Elev 387 372 433 433
DME or RADAR required. Inoperative table does not apply to MALSR Rwy 34R. Simultaneous approach authorized with Rwy 34L. #RVR 1800 authorized with the use of FD or AP or HUD to DA.
MALSR Rwy 34C/R
MISSED APPROACH: Climb on heading 345° and outbound on SEA VORTAC R-341 to cross COYLA/SEA 4.7 DME/RADAR at or above 3000 then climb to 5000 on SEA VORTAC R-341 to MGNUM/SEA 12.7 DME/RADAR and hold, continue climb-in-hold to 5000.
ATIS 118.0
SEATTLE APP CON 133.65 273.45
SEATTLE TOWER 119.9 239.3 (Rwys 16L, 16C, 34R) 120.95 239.3 (Rwys 16R, 34C, 34L)
GND CON 121.7
CLNC DEL 128.0
MISSED APCH FIX
110.6 PAE Chan 43
MGNUM SEA 12.7 RADAR
116.8 SEA Chan 115
ALTERNATE MISSED APCH FIX
PAINE PAE 110.6 Chan 43
MSA SEA 25 NM
3400
6400
2200
Procedure NA for arrivals at CIDUG on V495 southbound.
LOCALIZER 111.7 I-TUC Chan 54
COYLA SEA 4.7 RADAR 3000
SEATTLE 116.8 SEA Chan 115
UFMOP I-TUC 0.4 RADAR
RYBKA I-TUC 1.8 RADAR
TIFYS I-TUC 6.1 RADAR
ODBOE I-TUC 11.1 RADAR
LORIE I-TUC 14.3 RADAR
(IAF) SONDR 6000 (GPS REQD)
5000 to LORIE 026° (4) and LOC (8.6)
(IAF) CIDUG SEA 25.8
(CFFJR)
DME or RADAR REQUIRED
ELEV 433
TDZE 34C 387
TDZ 34R 372
VGSI and ILS glidepath not coincident (VGSI Angle 3.00/TCH 75).
•LOC only
GS 3.00° TCH 56
CATEGORY A B C D
S-ILS 34C# 604/24 217 (200-½)
S-LOC 34C 760/24 373 (400-½) 760/35 373 (400-¾)
SIDESTEP 34R 760/50 388 (400-1) 760/60 388 (400-1¼)
CIRCLING 1000-1 567 (600-1) 1000-1½ 567 (600-1½) 1000-2 567 (600-2)
343° 6.2 NM from FAF
HIRL all Rwys
TDZ/CL Rwys 16L, 16C, 16R and 34R
FAF to MAP 5.7 NM
Knots 60 90 120 150 180
Min:Sec 5:42 3:48 2:51 2:17 1:54
SEATTLE, WASHINGTON
47°27'N-122°19'W
SEATTLE-TACOMA INTL (SEA)
ILS or LOC RWY 34L
SEATTLE-TACOMA INTL (SEA)
LOC/DME I-BEJ 110.75 Chan 44 (Y)
APP CRS 343°
Rwy Idg 8500
TDZE 379
Apt Elev 433
DME or RADAR required. Simultaneous approach authorized with Rwy 34R/C.
MALSR
MISSED APPROACH: Climb to 900 then climbing left turn on heading 300° and on SEA VORTAC R-310 to cross WEXUB/10 DME/RADAR at or above 3000 then climb to 5000 on SEA VORTAC R-310 to LOFAL/SEA 29.2 DME/RADAR and hold.
ATIS 118.0
SEATTLE APP CON 133.65 273.45
SEATTLE TOWER 119.9 239.3 (Rwys 16L, 16C, 34R) 120.95 239.3 (Rwys 16R, 34C, 34L)
GND CON 121.7
CLNC DEL 128.0
MISSED APCH FIX
WEXUB SEA 10 RADAR 3000
110.6 PAE Chan 43
LOFAL SEA 29.2 RADAR
116.8 SEA Chan 115
LOCALIZER 110.75 I-BEJ Chan 44 (Y)
SEATTLE 116.8 SEA Chan 115
HOVOS I-BEJ 1.8 RADAR
JALON I-BEJ 6.1
ALTERNATE MISSED APCH FIX
NW-1, 26 MAY 2016 to 21 JUL 2016

Runway Use Procedures Letter of Agreement:

- The primary departure runway in a north flow is Runway 34R. Arrivals shall be assigned Runway 34L.
- TMU will coordinate with the SEA supervisor when there is an overflow situation on Runway 34L, and together they will determine use of Runway 34R. This will normally be based on volume exceeding the single runway rate. Arrival sectors will be notified verbally and via the ACE-IDS when Runway 34R is made available.
- When 34R is made available, there will either be an in-trail interval posted on the ACE-IDS, or "TM" placed in the box for that runway. When "TM" is in the box, TMU will be directing the use of the inboard runway.



ER00208

AR 042

AR 04

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
Air Traffic Organization Policy

ORDER
JO 7110.65W

Effective Date:
December 10, 2015

SUBJ: Air Traffic Control

This order prescribes air traffic control procedures and phraseology for use by personnel providing air traffic control services. Controllers are required to be familiar with the provisions of this order that pertain to their operational responsibilities and to exercise their best judgment if they encounter situations not covered by it.

Elizabeth L. Ray

Digitally signed by Elizabeth L. Ray
DN: cn= Elizabeth L. Ray, o= Mission Support Services, AJV 0, ou= Air Traffic Organization, email=valentina.smith@faa.gov, c=US
Date: 2015.10.28 09:44:49 -04'00'

Vice President, Mission Support Services
Air Traffic Organization

Date: OCT 27 2015

Distribution: ZAT-710, ZAT-464

Initiated By: AJV-0
Vice President, System Operations Services

Section 8. Radar Departures

5–8–1. PROCEDURES

Use standard departure routes and channelized altitudes whenever practical to reduce coordination. Do not, however, assign these routes solely to provide for possible radar or communication failure.

5–8–2. INITIAL HEADING

a. Before departure, assign the initial heading to be flown if a departing aircraft is to be vectored immediately after takeoff.

PHRASEOLOGY–
FLY RUNWAY HEADING.
TURN LEFT/RIGHT, HEADING (degrees).

NOTE–
1. *TERMINAL. A purpose for the heading is not necessary, since pilots operating in a radar environment associate assigned headings with vectors to their planned route of flight.*

2. *ATC assumes responsibility for terrain and obstacle avoidance when IFR aircraft are below the minimum IFR altitude (MVA, MIA, MEA) and are taken off departure/missed approach procedures, or are issued go–around instructions, except when utilizing a Diverse Vector Area (DVA) with an aircraft departing from the surface.*

REFERENCE–
FAAO JO 7110.65, Para 4–3–2, Departure Clearances.
FAAO JO 7110.65, Para 5–6–3, Vectors Below Minimum Altitude.

b. Issue an altitude to maintain with the initial heading when the heading will take the aircraft off a departure procedure that contains both a published lateral path to a waypoint and crossing restrictions.

c. When conducting simultaneous parallel runway departures utilizing RNAV SIDs, advise aircraft of the initial fix/waypoint on the RNAV route.

PHRASEOLOGY–
RNAV to (fix/waypoint), RUNWAY (number), CLEARED FOR TAKEOFF.

EXAMPLE–
"RNAV to MPASS, Runway Two–Six Left, cleared for takeoff."

NOTE–
1. *TERMINAL. A purpose for an initial waypoint advisory is not necessary since pilots associate this advisory with the flight path to their planned route of flight. Pilots must immediately advise ATC if a different RNAV SID is entered in the aircraft FMS.*

2. *The SID transition is not restated as it is contained in the ATC clearance.*

3. *Aircraft cleared via RNAV SIDs designed to begin with a vector to the initial waypoint are assigned a heading before departure.*

REFERENCE–
FAAO JO 7110.65, Para 3-9-9, Takeoff Clearance
FAAO JO 7110.65, Para 4-3-2, Departure Clearances
AIM, Para 5–2–7. Departure Control

5–8–3. SUCCESSIVE OR SIMULTANEOUS DEPARTURES

TERMINAL

Separate aircraft departing from the same airport/heliport or adjacent airports/heliports in accordance with the following minima provided radar identification with the aircraft will be established within 1 mile of the takeoff runway end/helipad and courses will diverge by 15 degrees or more.

NOTE–
1. *FAAO 8260.46, Departure Procedure (DP) Program, and FAAO 8260.3, United States Standard for Terminal Instrument Procedures (TERPS), Volume 4, establishes guidelines for IFR departure turning procedures which assumes a climb to 400 feet above the departure end of runway (DER) elevation before a turn is commenced. TERPS criteria ensures obstacle clearance with a climb gradient of 200 feet per nautical mile from the DER. "Immediately after departure" is considered to be any turn that provides at least 15 degrees of divergence that commences no later than 2 miles from the DER.*

2. *Consider known aircraft performance characteristics when applying initial separation to successive departing aircraft.*

3. *When one or both of the departure surfaces is a helipad, use the takeoff course of the helicopter as a reference, comparable to the centerline of a runway and the helipad center as the threshold.*

a. Between aircraft departing the same runway/helipad or parallel runways/helicopter takeoff courses separated by less than 2,500 feet– *1 mile* if courses diverge by 15 degrees or more immediately after departure or 10 degrees or more when both aircraft are departing the same runway and both are flying an RNAV SID. (See FIG 5–8–1, FIG 5–8–2, and FIG 5–8–3.)

NOTE–
RNAV SIDs specific to this paragraph are those SIDs

constructed with a specific lateral path that begins at the DER.

FIG 5–8–1
Successive Departures

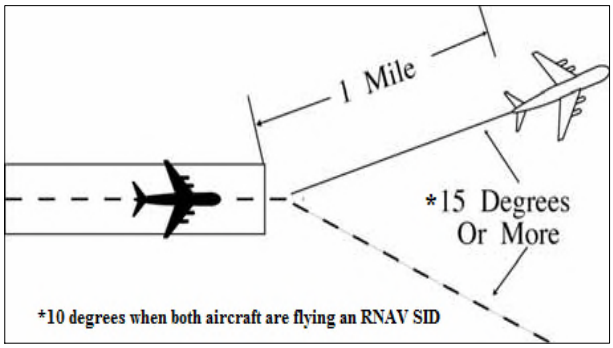


FIG 5–8–2
Simultaneous Departures

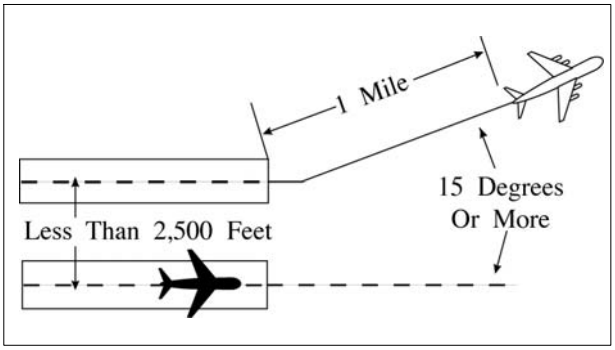
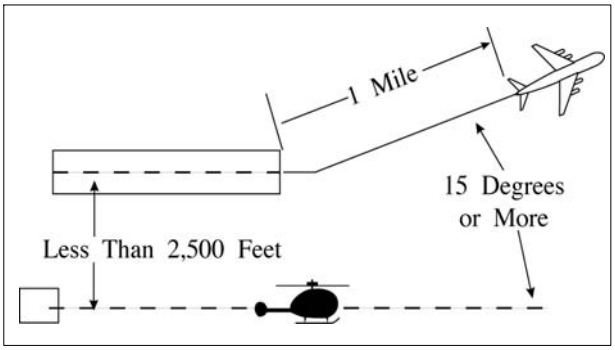


FIG 5–8–3
Simultaneous Departures



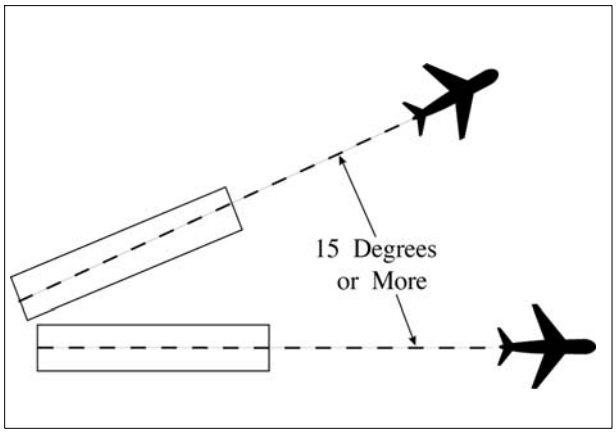
NOTE–
This procedure does not apply when wake turbulence separation is required.

REFERENCE–
FAAO JO 7110.65, Para 3–9–7, Wake Turbulence Separation for Intersection Departures.
FAAO JO 7110.65, Para 3–9–8, Intersecting Runway/Intersecting Flight Path Operations.
FAAO JO 7110.65, Para 5–5–4, Minima.
FAAO JO 7110.65, Para 5 5 4, Minima, Subparagraph g.

b. Between aircraft departing from diverging runways:

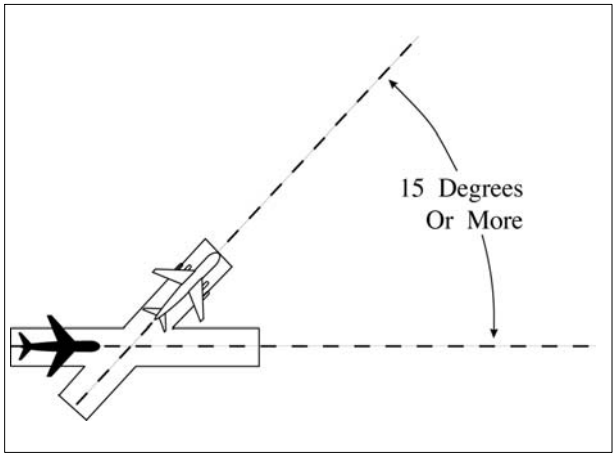
1. Nonintersecting runways. Authorize simultaneous takeoffs if runways diverge by 15 degrees or more. (See FIG 5–8–4.)

FIG 5–8–4
Nonintersecting Runway Departures



2. Intersecting runways and/or helicopter takeoff courses which diverge by 15 degrees or more. Authorize takeoff of a succeeding aircraft when the preceding aircraft has passed the point of runway and/or takeoff course intersection. When applicable, apply the procedure in para 3–9–5, Anticipating Separation. (See FIG 5–8–5 and FIG 5–8–6.)

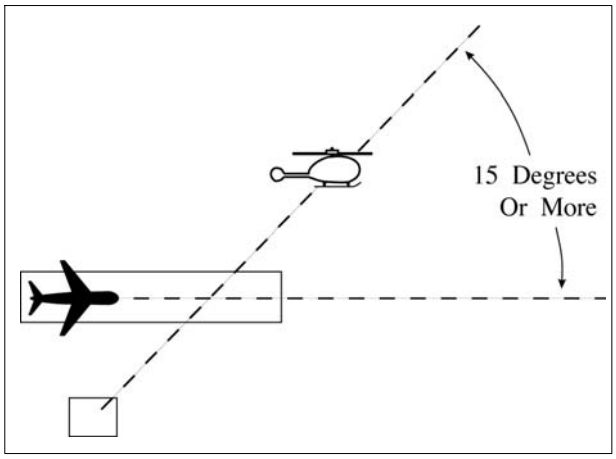
FIG 5–8–5
Intersecting Runway Departures



NOTE–
This procedure does not apply when wake turbulence separation is required.

REFERENCE–
FAAO JO 7110.65, Para 5-5-4, Minima, Subparagraph g.

FIG 5–8–6
Intersecting Helicopter Course Departures



c. Between aircraft departing in the same direction from parallel runways/helicopter takeoff courses. Authorize simultaneous takeoffs if the centerlines/takeoff courses are separated by at least 2,500 feet and courses diverge by 15 degrees or more immediately after departure or 10 degrees or more when both aircraft are flying an RNAV SID. (See FIG 5–8–7 and FIG 5–8–8.)

NOTE–
RNAV SIDs specific to this paragraph are those SIDs constructed with a specific lateral path that begins at the DER.

FIG 5–8–7
Parallel Runway Departures

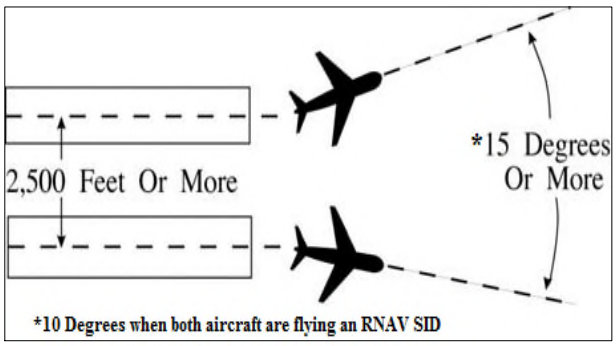
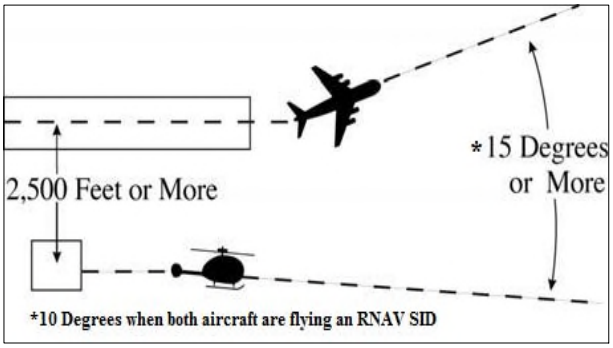


FIG 5–8–8
Parallel Helicopter Course Departures



5–8–4. DEPARTURE AND ARRIVAL

TERMINAL. Except as provided in para 5–8–5, Departures and Arrivals on Parallel or Nonintersecting Diverging Runways, separate a departing aircraft from an arriving aircraft on final approach by a minimum of *2 miles* if separation will increase to a minimum of 3 miles (5 miles when 40 miles or more from the antenna) within 1 minute after takeoff.

NOTE–
1. *This procedure permits a departing aircraft to be released so long as an arriving aircraft is no closer than 2 miles from the runway at the time. This separation is determined at the time the departing aircraft commences takeoff roll.*

2. *Consider the effect surface conditions, such as ice, snow, and other precipitation, may have on known aircraft performance characteristics, and the influence these conditions may have on the pilot's ability to commence takeoff roll in a timely manner.*

5–8–5. DEPARTURES AND ARRIVALS ON PARALLEL OR NONINTERSECTING DIVERGING RUNWAYS

TERMINAL. Authorize simultaneous operations between an aircraft departing on a runway and an aircraft on final approach to another parallel or nonintersecting diverging runway if the departure course diverges immediately by at least 30 degrees from the missed approach course until separation is applied and provided one of the following conditions are met:

NOTE–
When one or both of the takeoff/landing surfaces is a helipad, consider the helicopter takeoff course as the runway centerline and the helipad center as the threshold.

a. When parallel runway thresholds are even, the runway centerlines are at least 2,500 feet apart. (See FIG 5−8−9 and FIG 5−8−10.)

FIG 5−8−9
Parallel Thresholds are Even

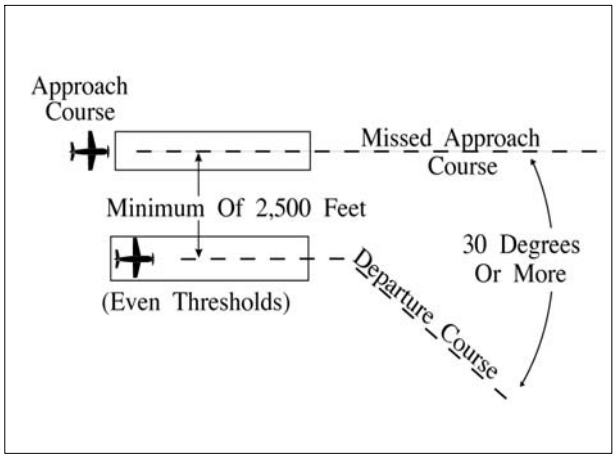
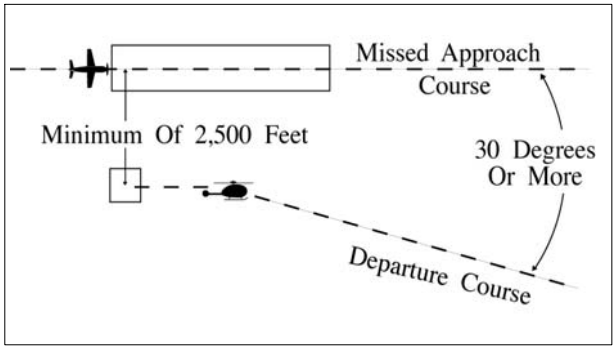


FIG 5−8−10
Parallel Thresholds are Even



b. When parallel runway thresholds are staggered and:

1. The arriving aircraft is approaching the nearer runway: the centerlines are at least 1,000 feet apart and the landing thresholds are staggered at least 500 feet for each 100 feet less than 2,500 the centerlines are separated. (See FIG 5−8−11 and FIG 5−8−12.)

FIG 5−8−11
Parallel Thresholds are Staggered

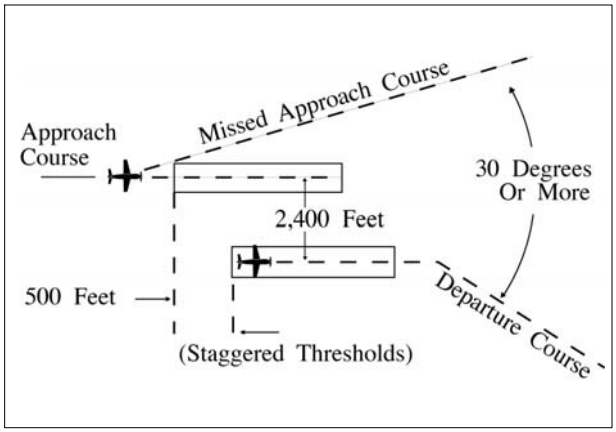
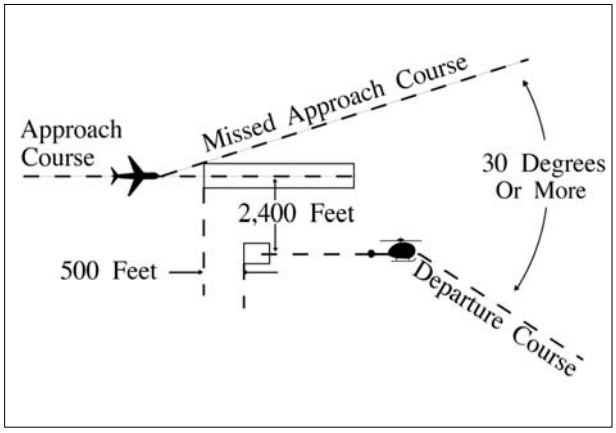


FIG 5−8−12
Parallel Thresholds are Staggered



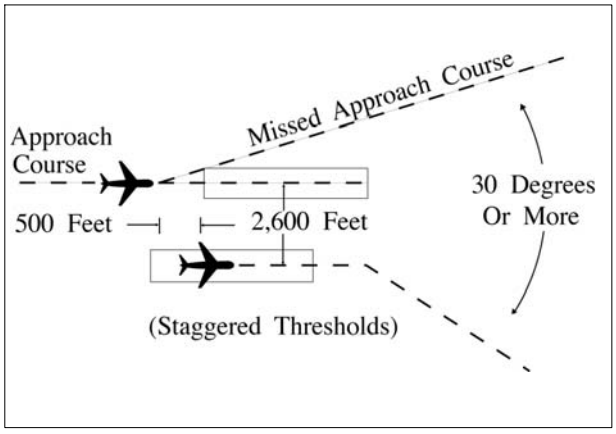
NOTE−
In the event of a missed approach by an aircraft requiring wake turbulence separation behind it, apply the procedures in Para 3-9-6, Same Runway Separation, Para 3-9-8, Intersecting Runway/Intersecting Flight Path Operations, ensure that the larger aircraft does not overtake or cross in front of an aircraft departing from the adjacent parallel runway.

REFERENCE−
FAAO JO 7110.65, Para 5-5-4, Minima, Subparagraph f.

2. The arriving aircraft is approaching the farther runway: the runway centerlines separation exceeds 2,500 feet by at least 100 feet for each

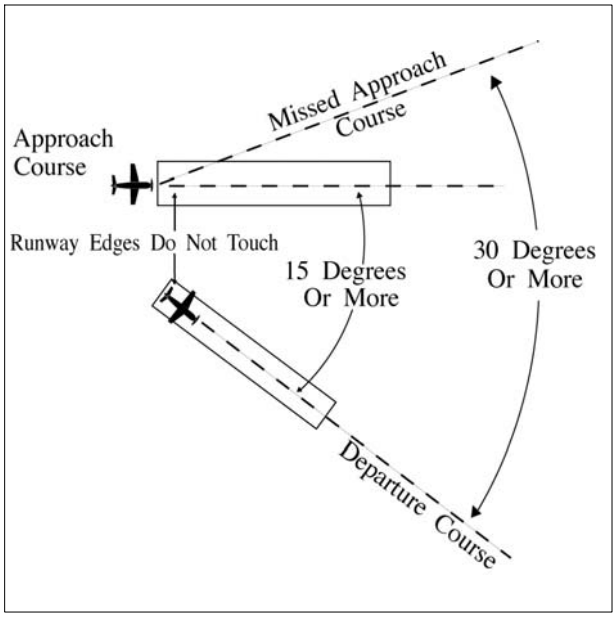
500 feet the landing thresholds are staggered. (See FIG 5−8−13.)

FIG 5−8−13
Parallel Thresholds are Staggered



c. When nonintersecting runways diverge by 15 degrees or more and runway edges do not touch. (See FIG 5−8−14.)

FIG 5−8−14
Diverging Nonintersecting Runways



d. When the aircraft on takeoff is a helicopter, hold the helicopter until visual separation is possible or apply the separation criteria in subparas a, b, or c.

REFERENCE−
FAAO JO 7110.65, Para 5−8−4, Departure and Arrival.

AR 03

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

ORDER
1050.1F

Effective Date:
7/16/15

SUBJ: Environmental Impacts: Policies and Procedures

This Order serves as the Federal Aviation Administration's (FAA) policy and procedures for compliance with the National Environmental Policy Act (NEPA) and implementing regulations issued by the Council on Environmental Quality (CEQ). The provisions of this Order and the CEQ Regulations apply to actions directly undertaken by the FAA and to actions undertaken by a non-Federal entity where the FAA has authority to condition a permit, license, or other approval. The requirements in this Order apply to, but are not limited to, the following actions: grants, loans, contracts, leases, construction and installation actions, procedural actions, research activities, rulemaking and regulatory actions, certifications, licensing, permits, plans submitted to the FAA by state and local agencies for approval, and legislation proposed by the FAA. The Order was last revised in 2006.

This Order updates FAA Order 1050.1E to: 1) provide a clear, concise, and up-to-date discussion of the FAA's requirements for implementing NEPA; and 2) clarify requirements in order to facilitate timely, effective, and efficient environmental reviews of FAA actions, including NextGen improvements.

Rich Swayze
Assistant Administrator
Policy, International Affairs & Environment

Distribution: Electronically

Initiated By: AEE-400

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Chapter 1: General

1-1. Purpose of This Order. This Order provides the Federal Aviation Administration's (FAA) policies and procedures to ensure agency compliance with the National Environmental Policy Act (NEPA) (42 United States Code [U.S.C.] §§ 4321-4335), the requirements set forth in the Council on Environmental Quality (CEQ), Title 40, Code of Federal Regulations (CFR), parts 1500-1508, *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act* (CEQ Regulations), and Department of Transportation (DOT) Order 5610.1C, *Procedures for Considering Environmental Impacts*. The CEQ Regulations establish procedures for complying with NEPA. In accordance with 40 CFR § 1507.3 of the CEQ Regulations, this Order contains the FAA's implementing procedures, which supplement those regulations.

1-2. Audience. All FAA employees who approve, manage, or otherwise participate in actions requiring FAA compliance with NEPA, the CEQ Regulations, or DOT Order 5610.1C, and all FAA contractors and applicants involved in such actions.

1-3. Where to Find This Order. This Order can be found on the FAA's website at: https://employees.faa.gov/tools_resources/orders_notices/. This Order is available to the public at http://www.faa.gov/regulations_policies/orders_notices/ by clicking on the topic "Environment."

1-4. How to Cite This Order. This Order should be cited as FAA Order 1050.1F. The body of the Order is organized by paragraphs. If citing a particular paragraph, the format "FAA Order 1050.1F, Paragraph ___" should be used. For example, if referencing the definition for Noise Sensitive Area, the proper citation is "FAA Order 1050.1F, Paragraph 11-5.b.(10)."

1-5. Cancellation. FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures,* dated June 8, 2004 (as updated by Change 1, dated March 20, 2006), is cancelled.

1-6. Related Publications. The latest version of referenced publications should be used in conjunction with this order. The FAA Order 1050.1F Desk Reference (1050.1F Desk Reference) provides details on current guidance and updated technical information. This includes information about permits, licenses, consultations, and other forms of approval or review; up-to-date details on technical information such as FAA-approved tools for analyzing noise and air emissions; overviews of special purpose laws and requirements; and specific responsibilities and guidance for gathering data, assessing impacts, consulting other agencies, and involving the public. The 1050.1F Desk Reference can be found on the FAA's website at: http://www.faa.gov/regulations_policies/orders_notices/ by clicking on the topic, "Environment."

1-7. The National Environmental Policy Act and the Council on Environmental Quality Regulations. NEPA and the CEQ Regulations establish a broad national policy to protect and enhance the quality of the human environment, and require Federal agencies to develop programs and measures to meet national environmental goals. Section 102(2) of NEPA provides specific direction to Federal agencies, sometimes called "action-forcing" provisions (see 40 CFR §§ 1500.1(a), 1500.3, and 1507, CEQ Regulations) on how to implement the goals of NEPA. The major provisions include the requirement to use a systematic, interdisciplinary approach and develop implementing methods and procedures. Section 102(2)(C) requires detailed analysis in the form of Environmental Impact Statements (EISs) for proposed major Federal actions

significantly affecting the quality of the human environment. The CEQ Regulations additionally provide for Environmental Assessments (EAs) to assist agencies in determining whether potential environmental impacts are significant and Categorical Exclusions (CATEXs), which are categories of actions that the FAA has determined, based on previous experience, do not have significant individual or cumulative impact on the quality of the human environment except in extraordinary circumstances. The presence of extraordinary circumstances would preclude the use of a CATEX and would merit additional review in an EA or EIS. In addition to NEPA and the CEQ Regulations, other laws, regulations, and Executive Orders address aspects of the environment and require compliance by Federal agencies. The CEQ Regulations direct Federal agencies to list all Federal permits, licenses, and other approvals that must be obtained in implementing the proposed action, and, to the fullest extent possible, integrate compliance with such requirements with the NEPA process.

This Order implements the mandate of NEPA, as defined and discussed in the CEQ Regulations, within the programs of the FAA. The Order is not a substitute for the CEQ Regulations; rather, it supplements the CEQ Regulations for FAA programs. All FAA Lines of Business and Staff Offices (LOB/SOs) must comply with the CEQ Regulations as further implemented and supplemented by this Order.

1-8. Federal Aviation Administration Policy. The FAA's primary mission is to provide the safest, most efficient aerospace system in the world. NEPA compliance and other environmental responsibilities are integral components of that mission. The FAA is responsible for complying with the procedures and policies of NEPA and other environmental laws, regulations, and orders applicable to FAA actions. The FAA decision-making process must consider and disclose the potential impacts of a proposed action and its alternatives on the quality of the human environment. In meeting its NEPA obligations, the FAA should seek to achieve the policy objectives of 40 CFR § 1500.2 to the fullest extent possible. The FAA must integrate NEPA and other environmental reviews and consultations into agency planning processes as early as possible. Funding requirements must be justified and requested in accordance with existing budgetary and fiscal policies. Each FAA LOB/SO is responsible for seeking sufficient funds through the budget process to implement the provisions of this Order.

The Next Generation Air Transportation System (NextGen) involves operational and infrastructure improvements that require the FAA's environmental review in accordance with NEPA. The FAA's goal is to ensure timely, effective, and efficient environmental reviews of proposed NextGen improvements, consistent with Executive Order 13604, *Improving Performance of Federal Permitting and Review of Infrastructure Projects*, 77 *Federal Register* 18887 (March 28, 2012). The FAA is using an environmental management system (EMS) approach to improve the integration of environmental performance into the planning, decision-making, and operation of NextGen in furtherance of the goal of environmental protection that allows sustained aviation growth.

It is FAA policy to ensure the integrity of environmental reviews while emphasizing and implementing instructions in 40 CFR §§ 1500.4 and 1500.5 of the CEQ Regulations to reduce excessive paperwork and environmental process delays. The FAA implements an expedited and coordinated environmental review process for aviation safety projects, aviation security projects, and airport capacity projects at congested airports in accordance with Title III of Vision 100-Century of Aviation Reauthorization Act, also cited as the Aviation Streamlining Approval Process Act of 2003, 49 U.S.C. §§ 47171-47175. The FAA has also established expedited

environmental review procedures and processes for area navigation (RNAV) and required navigation performance (RNP) that offer efficiency improvements. In addition, Section 213 of the FAA Modernization and Reform Act of 2012, Public Law 112-95, established two legislative CATEXs that are included in this Order.

For projects subject to expedited environmental review, the FAA must comply with this Order, maintain the integrity of the environmental process, and respect the environmental responsibilities of other agencies. Expedited environmental reviews will be used to give review priority to certain projects, manage timelines during the review process, improve and expedite interagency coordination, reduce undue delays, and emphasize accountability. Certain airport capacity projects, aviation safety projects, and aviation security projects may be subject to special designation and treatment in accordance with provisions of the Aviation Streamlining Approval Process Act. Airport infrastructure projects may also be selected for review under Executive Order 13274, *Environmental Stewardship and Transportation Infrastructure Project Reviews*, 67 *Federal Register* 59449 (September 23, 2002). In addition, Executive Order 13604, *Improving Performance of Federal Permitting and Review of Infrastructure Projects*, 77 *Federal Register* 18887 (March 28, 2012) calls for the execution of Federal permitting and review processes, including environmental review processes, with maximum efficiency and effectiveness. *The Implementation Plan for the Presidential Memorandum on Modernizing Infrastructure Permitting* provides strategies for agencies to improve the Federal government's role in permitting and review processes, including improved coordination and project planning, and increased use of programmatic approaches and information technology tools. It is the responsibility of the FAA office that has the primary responsibility for a proposed action and that is leading the environmental review to ensure that applicable special review provisions are applied effectively.

1-9. Applicability and Scope. The provisions of this Order and the CEQ Regulations apply to actions directly undertaken by the FAA and to actions undertaken by a non-Federal entity where the FAA has authority to condition a permit, license or approval. The requirements in this Order apply, but are not limited, to the following actions: grants, loans, contracts, leases, construction and installation actions, procedural actions, research activities, rulemaking and regulatory actions, certifications, licensing, permits, plans submitted to the FAA by state or local agencies for approval, and legislation proposed by the FAA. Exceptions to these requirements are listed in Paragraph 2-1.2. The procedures in this Order apply to the extent practicable to ongoing activities and environmental documents begun before the effective date. However, procedures contained in this Order should not apply to ongoing environmental reviews where substantial revisions to ongoing environmental documents would be required. This Order does not apply to decisions made and final environmental documents issued prior to the effective date of this Order.

1-10. Explanation of Policy Changes. This paragraph briefly highlights significant changes from FAA Order 1050.1E.

1-10.1. Appendix A. Moves the information in Appendix A of FAA Order 1050.1E, *Analysis of Environmental Impact Categories*, to the 1050.1F Desk Reference, which can be easily updated, as necessary.

1-10.2. Re-organization of Order. Restructures the Order to make environmental compliance more efficient and effective, and to focus the discussion, reduce redundancies,

Chapter 3: Levels of National Environmental Policy Act Review

3-1. Three Levels of National Environmental Policy Act Review. Once the FAA determines that NEPA applies to a proposed action, it needs to decide on the appropriate level of review. The three levels of NEPA review are Categorical Exclusion (CATEX), Environmental Assessment (EA), and Environmental Impact Statement (EIS). Each of the three levels of review is briefly described in the following paragraphs.

3-1.1. Categorically Excluded Actions. A CATEX refers to a category of actions that do not individually or cumulatively have a significant effect on the human environment, and for which, neither an EA nor an EIS is required. A CATEX is not an exemption or waiver of NEPA review; it is a level of NEPA review. If a proposed action falls within the scope of a CATEX (see Paragraph 5-6, The Federal Aviation Administration's Categorical Exclusions), and there are no extraordinary circumstances (see Paragraph 5-2, Extraordinary Circumstances), an EA or EIS is not required. The FAA may, at its discretion, decide to prepare an EA in order to assist agency planning and decision-making even if a proposed action fits within a CATEX and extraordinary circumstances do not exist, except for actions subject to categorical exclusion under Section 213 of the FAA Modernization and Reform Act (see Paragraphs 5-6.5.q and 5-6.5.r).

3-1.2. Actions Normally Requiring an Environmental Assessment. The purpose of an EA is to determine whether a proposed action has the potential to significantly affect the human environment (see Paragraph 4-3 for more information on determining significance). An EA is a concise public document that briefly provides sufficient evidence and analysis for determining whether to prepare an EIS or a FONSI. An EA may facilitate the preparation of an EIS, when one is necessary.

a. Environmental Assessments. An EA, at a minimum, must be prepared when the proposed action does not normally require an EIS (see Paragraph 3-1.3, Actions Normally Requiring an Environmental Impact Statement) and:

(1) does not fall within the scope of a CATEX (see Paragraph 5-6, The Federal Aviation Administration's Categorical Exclusions); or

(2) falls within the scope of a CATEX, but there are one or more extraordinary circumstances (see Paragraph 5-2, Extraordinary Circumstances).

b. Examples. The following FAA actions normally require an EA:

(1) Acquisition of land greater than three acres for, and the construction of, new office buildings and essentially similar FAA facilities.

(2) Issuance of certificates for new, amended, or supplemental aircraft types for which (a) environmental regulations have not been issued; or (b) new, amended, or supplemental engine types for which emission regulations have not been issued; or (c) where a NEPA analysis has not been prepared in connection with a regulatory action.

(3) Establishment of aircraft/avionics maintenance bases to be operated by the FAA.

(4) Authorization to exceed Mach 1 flight under 14 CFR § 91.817, *Civil Aircraft Sonic Boom*.

(5) Establishment of FAA housing, sanitation systems, fuel storage and distribution systems, and power source and distribution systems.

(6) Establishment or relocation of facilities such as Air Route Traffic Control Centers (ARTCC), Airport Traffic Control Towers (ATCT), and off-airport Air Route Surveillance Radars (ARSR), Air Traffic Control Beacons (ATCB), and Next Generation Radar (NEXRAD).

(7) Establishment, relocation, or construction of facilities used for communications (except as provided under Paragraph 5-6.3a) and navigation that are not on airport property.

(8) Establishment or relocation of instrument landing systems (ILS).

(9) Establishment or relocation of approach lighting systems (ALS) that are not on airport property.

(10) Unconditional Airport Layout Plan (ALP) approval of, or Federal financial participation in, the following categories of airport actions:

(a) Location of a new airport that would serve only general aviation;

(b) Location of a new commercial service airport that would not be located in a Metropolitan Statistical Area (MSA);

(c) A new runway at an existing airport that is not located in an MSA;

(d) Runway strengthening having the potential to significantly increase off-airport noise impacts (see Exhibit 4-1);

(e) Construction or relocation of entrance or service road connections to public roads that substantially reduce the level of service rating of such public roads below the acceptable level determined by the appropriate transportation agency (i.e., a highway agency); and

(f) Land acquisition associated with any of the items in (10)(a)–(f).

(11) Approval of operations specifications or amendments that may significantly change the character of the operational environment of an airport, including, but not limited to:

(a) Approval of operations specifications authorizing an operator to use aircraft to provide scheduled passenger or cargo service at an airport that may cause significant impacts to noise, air quality, or other environmental impact categories (see Exhibit 4-1); or

(b) Amendment of operations specifications authorizing an operator to serve an airport with different aircraft that may cause significant impacts to noise, air quality, or other environmental impact categories (see Exhibit 4-1).

(12) New air traffic control procedures (e.g., instrument approach procedures, departure procedures, en route procedures) and modifications to currently approved procedures that routinely route aircraft over noise sensitive areas at less than 3,000 feet above ground level (AGL) (unless otherwise categorically excluded under Paragraphs (procedures category) 5-6.5q and 5-6.5r).

(13) Establishment or modification of an Instrument Flight Rules Military Training Route (IR MTR).

(14) Special Use Airspace (SUA) (unless otherwise explicitly listed as an advisory action (see Paragraph 2-1.2.b, Advisory Actions) or categorically excluded (see Paragraph 5-6, The Federal Aviation Administration's Categorical Exclusions)).

(15) Issuance of any of the following:

(a) A commercial space launch site operator license for operation of a launch site at an existing facility on developed land where little to no infrastructure would be constructed (e.g., co-located with a Federal range or municipal airport); or

(b) A commercial space launch license, reentry license, or experimental permit to operate a vehicle to/from an existing site.

(16) Formal and informal runway use programs that may significantly increase noise over noise sensitive areas (see Exhibit 4-1).

3-1.3. Actions Normally Requiring an Environmental Impact Statement.

a. Environmental Impact Statements. Under NEPA, the FAA must prepare an EIS for actions significantly affecting the quality of the human environment (see Chapter 4 for additional information regarding significance of impacts). An EIS is a detailed written statement required under Section 102(2)(C) of NEPA when one or more environmental impacts would be significant and mitigation measures cannot reduce the impact(s) below significant levels. Direct, indirect, and cumulative impacts must be considered when determining significance (see Paragraphs 4-2.d and 4-3).

b. Examples. The following are actions that normally require an EIS:

(1) Unconditional ALP approval, or Federal financial participation in, the following categories of airport actions:

(a) Location of a new commercial service airport in an MSA;

(b) A new runway to accommodate air carrier aircraft at a commercial service airport in an MSA; and

(c) Major runway extension.

(2) Issuance of a commercial space launch site operator license, launch license, or experimental permit to support activities requiring the construction of a new commercial space launch site on undeveloped land.

3-2. Programmatic National Environmental Policy Act Documents and Tiering. A programmatic review should assist decisionmakers and the public in understanding the environmental impact from proposed large scope federal actions and activities. A programmatic EIS or EA may be prepared to cover (1) a broad group of related actions; or (2) a program, policy, plan, system, or national level proposal that may later lead to individual actions, requiring subsequent NEPA analysis. A programmatic document is useful in analyzing the cumulative impacts of a group of related actions and when the proposed actions are adequately analyzed can serve as the NEPA review for those actions. Programmatic documents may also be useful in

providing the basis for subsequent project-level specific environmental review. A programmatic EIS or EA may contain a broader, less specific, analysis than is done for a specific proposed project. If a programmatic EIS or EA is prepared, the FAA will determine whether project-specific EISs or EAs are needed for individual actions. Broad Federal actions analyzed in a programmatic EIS or EA may be evaluated geographically, generically, or by stage of technological development (see 40 CFR § 1502.4(c), CEQ Regulations).

When a programmatic EIS or EA has been prepared, any subsequent EIS or EA for proposed projects within the scope of the programmatic document only needs to incorporate by reference (40 CFR 1502.21) by summarizing the issues discussed in the programmatic document, providing access to the programmatic EIS or EA, and concentrating the subsequent project specific EIS or EA on site-specific impacts not covered by the programmatic document. The project specific document must state how to obtain a copy of the earlier programmatic document (i.e., a webpage or contact person/office).

The use of a programmatic EIS or EA, and subsequent preparation of a project specific EIS or EA is referred to as “tiering” the environmental review (see 40 CFR §§ 1502.20 and 1508.28, CEQ Regulations). Tiering can also be used to sequence environmental documents from the early stage of a proposed action (e.g., need for the action and site selection) to a subsequent stage (e.g., proposed construction) to help focus on issues that are ripe for decision and exclude from consideration issues not yet ripe or already decided. When this approach is used, the FAA must ensure that the proposed action is not being segmented by describing the independent utility of each stage. Programmatic and tiered EISs and EAs are subject to the same preparation and processing requirements as other EISs and EAs.

3-3. FAA NEPA Database. FAA LOB/SOs will whenever possible, use the FAA NEPA Database to track projects and make final documents available to others in the FAA.

3-4. -3-50. Reserved.

Chapter 4: Impact Categories, Significance, and Mitigation

4-1. Environmental Impact Categories. Environmental impact categories that may be relevant to FAA actions are listed below. These categories are alphabetized below for ease of reference, but are not intended to impose an alphabetical order on the FAA's NEPA documents. Detailed guidance on evaluating impacts in these categories is located in the 1050.1F Desk Reference.[4] Construction and secondary (induced) impacts are addressed within the relevant environmental impact category chapters of the FAA 1050.1F Desk Reference. FAA-specific requirements for assessing impacts are highlighted in Appendix B of this Order and discussed in detail in the 1050.1F Desk Reference.

- Air quality
- Biological resources (including fish, wildlife, and plants)
- Climate
- Coastal resources
- Department of Transportation Act, Section 4(f)
- Farmlands
- Hazardous materials, solid waste, and pollution prevention
- Historical, architectural, archeological, and cultural resources
- Land use
- Natural resources and energy supply
- Noise and compatible land use
- Socioeconomics, environmental justice, and children's environmental health and safety risks
- Visual effects (including light emissions)
- Water resources (including wetlands, floodplains, surface waters, groundwater, and wild and scenic rivers)

4-2. Consideration of Impacts.

a. Desk Reference. The 1050.1F Desk Reference provides details on current guidance and updated technical information for each environmental impact category that the FAA examines for its proposed actions and alternatives. The desk reference is available on the FAA website at http://www.faa.gov/about/office_org/headquarters_offices/apl /environ_policy_guidance/policy/. This includes references to current requirements; information about permits, licenses, certificates, or other forms of approval and review; an overview of specific responsibilities for gathering data, assessing impacts, consulting other

[4] The Desk Reference is available on the FAA website at http://www.faa.gov/about/office_org/headquarters_offices/apl/environ_policy_guidance/policy/

agencies, and involving the public; significance thresholds; and factors to consider in evaluating impact significance when there is no significance threshold.

b. FAA-Approved Models. The latest FAA-approved model must be used for both air quality and noise analysis. A list of approved models for each type of analysis is available in the 1050.1F Desk Reference. Prior approval from AEE is required to use other models or methodologies. At the completion of the NEPA process, all input files used in the analysis and corresponding output files must be provided to AEE. Details on requirements for noise analysis are located in Appendix B. In the event a model is updated or replaced after the environmental analysis process is underway, the updated or replacement model may be used to provide additional disclosure concerning noise or air quality impacts, but use of the updated or replacement model is not required.

c. Environmental Impact Category Not Affected. If an environmental impact category is not relevant to the proposed action or any of the reasonable alternatives identified (i.e., the resources included in the category are not present or the category is not otherwise applicable to the proposed action and alternatives), the reason why should be briefly noted and no further analysis is required. Consistent with 40 CFR § 1502.2(b), CEQ Regulations, the responsible FAA official should discuss impacts in proportion to their significance for each applicable environmental impact category.

d. Types of Impacts. Within each applicable environmental impact category, the EA or EIS must address the following types of impacts (for further details, see the 1050.1F Desk Reference):

(1) Direct impacts (see 40 CFR § 1508.8(a), CEQ Regulations);

(2) Indirect (including induced) impacts (see 40 CFR § 1508.8(b), CEQ Regulations); and

(3) Cumulative impacts (see 40 CFR §§ 1508.7, 1508.8, 1508.25, and 1508.27(b)(7), CEQ Regulations, and CEQ Guidance on *Considering Cumulative Effects Under the National Environmental Policy Act* (January 1997)). Cumulative impacts are those that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, whether Federal or non-Federal. If the proposed action would cause significant incremental additions to cumulative impacts, an EIS is required.

e. Multiple FAA Actions. Some FAA projects involve actions by multiple FAA LOB/SOs; impacts of such actions, when viewed together, govern whether an EA or an EIS is required. Absent independent utility, such actions must be considered in the same EA or EIS.

f. Special Purpose Laws and Requirements. The responsible FAA official should include in the EA or EIS, under appropriate impact categories, the information required to demonstrate compliance with other applicable requirements and should identify any permits, licenses, other approvals, or reviews that apply and indicate any known problems with obtaining them. The EA or EIS must report on the status of any special consultation required (e.g., under Section 7 of the Endangered Species Act, 16 U.S.C. § 1536, Section 106 of the National Historic Preservation Act, 54 U.S.C. § 306108, Section

4(f), 49 U.S.C. § 303, or the Coastal Zone Management Act, 16 U.S.C. §§ 1451-1466). Agency consultation(s) should occur concurrently with the NEPA process.

4-3. Significance and Significance Thresholds.

4-3.1. General. An EIS is required when any of the impacts of the proposed action, after incorporating any mitigation commitments, remain significant to the human environment.

4-3.2. Context and Intensity. The CEQ Regulations state that the determination of a significant impact, as used in NEPA, requires consideration of both context and intensity (see 40 CFR § 1508.27). The significance of an impact may vary with the context and setting of a proposed action. Depending on the proposed action, the context may be society as a whole, nationwide, an affected region, affected interests, or a locality. For a site-specific action, significance would usually depend upon local impacts. Both short and long-term impacts are relevant. According to the CEQ Regulations, intensity refers to the severity of the impacts and includes, but is not limited to, consideration of the following:

- Unique characteristics of the geographic area (e.g., proximity to historic or cultural resources, parks, prime farmlands, wetlands, wild and scenic rivers, ecologically critical areas);
- Adverse impacts on properties listed or eligible for listing in the National Register of Historic Places;
- Loss or destruction of significant scientific, cultural, or historical resources;
- Adverse impacts on endangered or threatened species or critical habitat;
- Whether an action threatens a violation of Federal, state, or local law or requirements imposed for the protection of the environment;
- Impacts that may be both beneficial and adverse. A significant impact may exist even if the Federal agency believes that on balance the impact will be beneficial;
- The degree to which the effects on the quality of the human environment are likely to be highly controversial; and
- Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance cannot be avoided by terming an action temporary or by breaking it down into component parts.

4-3.3. Significance Thresholds. The FAA uses thresholds that serve as specific indicators of significant impact for some environmental impact categories. FAA proposed actions that would result in impacts at or above these thresholds require the preparation of an EIS, unless impacts can be reduced below threshold levels. Quantitative significance thresholds do not exist for all impact categories; however, consistent with the CEQ Regulations, the FAA has identified factors that should be considered in evaluating the context and intensity of potential environmental impacts. If these factors exist, there is not necessarily a significant impact. Some impact categories may have both a significance threshold and significance factors to consider. In these instances, a conclusion of significance can be determined based on the factors to consider even if the impacts do not meet the significance threshold criteria. Depending on the proposed action and potential impacts, other factors may also need to be

evaluated to make a determination of significance. After consideration of all relevant factors, the FAA determines whether there would be a significant impact.

The responsible FAA official should use the most current FAA guidance on consideration of significant impacts for each applicable environmental impact category (identified below in Exhibit 4-1) in the 1050.1F Desk Reference. If the LOB/SO is uncertain whether a proposed action would have significant impacts, it should consult with AEE and AGC for guidance.

Exhibit 4-1 shows the FAA's significance thresholds and factors to consider for each relevant environmental impact category.

Exhibit 4-1. Significance Determination for FAA Actions.

Environmental Impact Category	Significance Threshold	Factors to Consider
Air Quality	*The action would cause pollutant concentrations to exceed one or more of the National Ambient Air Quality Standards (NAAQS), as established by the Environmental Protection Agency under the Clean Air Act, for any of the time periods analyzed, or to increase the frequency or severity of any such existing violations.*	
Biological Resources (including fish, wildlife, and plants)	*The U.S. Fish and Wildlife Service or the National Marine Fisheries Service determines that the action would be likely to jeopardize the continued existence of a federally listed threatened or endangered species, or would result in the destruction or adverse modification of federally designated critical habitat.* The FAA has not established a significance threshold for non-listed species.	The action would have the potential for: • A long-term or permanent loss of unlisted plant or wildlife species, i.e., extirpation of the species from a large project area (e.g., a new commercial service airport); • Adverse impacts to special status species (e.g., state species of concern, species proposed for listing, migratory birds, bald and golden eagles) or their habitats; • Substantial loss, reduction, degradation, disturbance, or fragmentation of native species' habitats or their populations; or • Adverse impacts on a species' reproductive success rates, natural mortality rates, non-natural mortality (e.g., road kills and hunting), or ability to sustain the minimum population levels required for population maintenance.

Chapter 5: Categorical Exclusions

5-1. General. The CATEXs listed in Paragraphs 5-6.1 through 5-6.6 are for types of actions that the FAA has found do not normally have the potential for individual or cumulative significant impacts on the human environment.

a. Scope of CATEX. The responsible FAA official must determine whether a proposed action is within the scope of a CATEX listed in this chapter. If a proposed action is within the scope of a CATEX, but the responsible FAA official determines that extraordinary circumstances exist, an EA or EIS must be prepared. If a proposed action is not within the scope of a CATEX, an EA or EIS must be prepared. The CATEX determination process is described in flowchart form in Exhibit D-1 of Appendix D.

b. Segmentation. A CATEX should not be used for a segment or an interdependent part of a larger proposed action.

5-2. Extraordinary Circumstances.

a. Extraordinary Circumstances. Extraordinary circumstances are factors or circumstances in which a normally categorically excluded action may have a significant environmental impact that then requires further analysis in an EA or an EIS. For FAA proposed actions, extraordinary circumstances exist when the proposed action meets both of the following criteria (see 40 CFR § 1508.4, CEQ Regulations):

(1) Involves any of the circumstances described in Subparagraph b. below; and

(2) May have a significant impact (see 40 CFR § 1508.4, CEQ Regulations).

An impact involving one or more of the circumstances described below in connection with a proposed action does not require the preparation of an EA or EIS unless the additional determination is made that the proposed action may have a significant environmental impact (i.e., that the circumstances rise to the level of extraordinary circumstances). The FAA uses screening and other analyses and consultation, as appropriate, to assist in determining extraordinary circumstances (see supporting guidance in the 1050.1F Desk Reference for information to determine the potential for significant environmental impacts and Paragraph 4-3 of this Order for the FAA's significance thresholds and factors to consider in evaluating significance). When extraordinary circumstances exist and the proposed action cannot be modified to eliminate the extraordinary circumstances, an EA or EIS must be prepared. If extraordinary circumstances do not exist or are eliminated, a CATEX may be used. If it is uncertain whether the proposed action involves an extraordinary circumstance, the LOB/SO should consult with AEE and AGC for guidance.

b. Circumstances. An extraordinary circumstance exists if a proposed action involves any of the following circumstances and has the potential for a significant impact:

(1) An adverse effect on cultural resources protected under the National Historic Preservation Act of 1966, as amended, 54 U.S.C. §300101 et seq.;

(2) An impact on properties protected under Section 4(f);

(3) An impact on natural, ecological, or scenic resources of Federal, state, tribal, or local significance (e.g., federally listed or proposed endangered, threatened, or candidate species, or designated or proposed critical habitat under the Endangered Species Act, 16 U.S.C. §§ 1531-1544);

(4) An impact on the following resources: resources protected by the Fish and Wildlife Coordination Act, 16 U.S.C. §§ 661-667d; wetlands; floodplains; coastal zones; national marine sanctuaries; wilderness areas; National Resource Conservation Service-designated prime and unique farmlands; energy supply and natural resources; resources protected under the Wild and Scenic Rivers Act, 16 U.S.C. §§ 1271-1287, and rivers or river segments listed on the Nationwide Rivers Inventory (NRI); and solid waste management;

(5) A division or disruption of an established community, or 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;

(6) An increase in congestion from surface transportation (by causing decrease in level of service below acceptable levels determined by appropriate transportation agency, such as a highway agency);

(7) An impact on noise levels of noise sensitive areas;

(8) An impact on air quality or violation of Federal, state, tribal, or local air quality standards under the Clean Air Act, 42 U.S.C. §§ 7401-7671q;

(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, 33 U.S.C. §§ 1251-1387, and the Safe Drinking Water Act, 42 U.S.C. §§ 300f-300j-26;

(10) Impacts 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;

(11) Likelihood to be inconsistent with any Federal, state, tribal, or local law relating to the environmental aspects of the proposed action; or

(12) Likelihood to directly, indirectly, or cumulatively create 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.

5-3. Categorical Exclusion Documentation.

a. Simple Documentation. Some of the CATEXs listed in Paragraph 5-6 cover actions for which there are no reasonable expectations of any changes in use or other changes that could cause an environmental impact. These are designated with an asterisk (*). Many of the other CATEXs cover actions that have little or no potential for extraordinary circumstances. When using a CATEX for these actions, a LOB/SO may prepare a simple written record (which may already be included in documentation prepared during the course of normal project development) that a specific CATEX was determined to apply to a proposed action.

b. Additional Documentation. Some actions involve greater potential for one or more extraordinary circumstances or otherwise warrant additional CATEX documentation, as described in Paragraph d, below. Factors that may warrant the preparation of additional documentation include actions:

(1) Likely to affect sensitive resources sufficiently to heighten concerns regarding the potential for extraordinary circumstances;

(2) That would result in changes to the routine routing of aircraft that have the potential to result in significant increases in noise over noise sensitive areas;

(3) Involving situations in which the applicability of a CATEX is not intuitively clear;

(4) Involving known controversy or public opposition; or

(5) For which litigation is anticipated.

c. Other Situations. FAA LOB/SOs are responsible for identifying proposed actions within their purview that warrant CATEX documentation. LOB/SOs may additionally exercise professional judgment to document a project-specific CATEX that is not included in Paragraph 5-3.b above. A determination that a proposed action qualifies for a CATEX is not considered deficient due to lack of documentation provided that extraordinary circumstances have been considered.

d. Documentation. Documentation prepared for a CATEX determination in accordance with Paragraph 5-3 should be concise. The extent of documentation should be tailored to the type of action involved and the potential for extraordinary circumstances. There is no prescribed format; however, the documentation should cite the CATEX(s) used, describe how the proposed action fits within the category of actions described in the CATEX, and explain that there are no extraordinary circumstances that would preclude the proposed action from being categorically excluded. The documentation of compliance with special purpose laws and requirements may either be included in a documented CATEX or may be documented separately (see Paragraph 5-5). A CATEX determination that warrants the preparation of additional documentation in accordance with Paragraph 5-3.b should be signed by the responsible FAA official.

e. Record of Decision. The preparation of a ROD for a CATEX determination is not required and is uncommon. There may be instances where it would be advantageous for the FAA to prepare a separate formal decision document (i.e., a "CATEX/ROD") in connection with a CATEX determination. A CATEX/ROD might be advisable, for example, where there is substantial controversy regarding the applicability of a CATEX and/or the existence of extraordinary circumstances. When there is doubt whether a CATEX/ROD is appropriate, the responsible FAA official should consult with AGC-600 or Regional Counsel.

5-4. Public Notification. There is no requirement to notify the public when a CATEX is used. However, CEQ encourages agencies to determine circumstances in which the public should be engaged or notified before a CATEX is used. The FAA, as a regulatory agency, normally notifies the public when a CATEX is applied to a proposed rulemaking action. Other appropriate circumstances may be determined on a case-by-case basis.

5-5. Other Environmental Requirements. In addition to NEPA, a proposed action may be subject to special purpose laws and requirements that must be complied with before the action can be approved. The responsible FAA official must ensure, to the fullest extent possible, that the proposed action is in compliance with such requirements in addition to making the appropriate determination regarding use of a CATEX. To the extent that these other requirements are relevant to a determination of extraordinary circumstances, they must be addressed before a CATEX is used. The responsible FAA official must document compliance with applicable requirements, including any required consultations, findings, or determinations. The documentation of compliance with special purpose laws and requirements may either be included in a documented CATEX or may be documented separately from a CATEX. Special purpose laws and requirements may also have public notification requirements. Information on other environmental requirements that may apply to proposed actions is provided in the 1050.1F Desk Reference.

5-6. The Federal Aviation Administration's Categorical Exclusions. The FAA has determined that the actions listed in this paragraph normally do not individually or cumulatively have a significant effect on the human environment.

The CATEXs are organized by the following functions:

- Administrative/General: Actions that are administrative or general in nature;
- Certification: Actions concerning issuance of certificates or compliance with certification programs;
- Equipment and Instrumentation: Actions involving installation, repair, or upgrade of equipment or instruments necessary for operations and safety;
- Facility Siting, Construction, and Maintenance: Actions involving acquisition, repair, replacement, maintenance, or upgrading of grounds, infrastructure, buildings, structures, or facilities that generally are minor in nature;
- Procedural: Actions involving establishment, modification, or application of airspace and air traffic procedures; and
- Regulatory: Actions involving establishment of, compliance with, or exemptions to, regulatory programs or requirements.

To assist the responsible FAA official in identifying the applicable CATEX for a proposed action, the FAA LOB/SO that most commonly uses a CATEX is provided in parentheses following the description of the CATEX. For example, if ATO and the AST are the two LOB/SOs that most commonly use a CATEX, the parenthetical reference (ATO, AST) will follow the description of the CATEX. If a given CATEX is used with equal frequency by all FAA LOB/SOs, the parenthetical reference "(All)" will follow the description of the CATEX. This information is presented for reference only, and must not be construed to limit the use of a CATEX to only the listed LOB/SO.

5-6.1. Categorical Exclusions for Administrative/General Actions. This category includes the list of CATEXs for FAA actions that are administrative or general in nature. *An action included within this list of categorically excluded actions is not automatically exempted from environmental review under NEPA. The responsible FAA official must also review Paragraph 5-2, Extraordinary Circumstances, before deciding to categorically exclude a proposed action.*

a. Implementation of measures to respond to emergency air or ground safety needs, accidents, or natural events with no reasonably foreseeable significant long-term adverse impacts. (All)

b. Release of an airport sponsor from Federal obligations incurred when the sponsor accepted: (1) an Airport Improvement Grant; or (2) Federal surplus property for airport purposes. (NOTE: FAA consent to long-term leases (i.e., those exceeding 20 years) converting airport-dedicated property to non-aeronautical, revenue-producing purposes (e.g., convenience concessions such as food or personal services) has the same effect as a release and is part of this CATEX provided that the proposed and reasonably foreseeable uses of the property do not trigger extraordinary circumstances as described in Paragraph 5-2, Extraordinary Circumstances). (ARP, AST)

c. An FAA action responding to a request for conveying federally owned land, including surplus Federal property and/or joint-use facilities, provided the proposed use of the conveyed land is either unchanged or for a use that is categorically excluded. (ARP, ATO)

d. Federal funding and approval of amendments to Airport Layout Plans (ALPs) to carry out FAA-approved noise compatibility programs pursuant to 14 CFR part 150. (ARP)

e. Issuance of Notices to Airmen (NOTAMS), which notify pilots and other interested parties of interim or temporary conditions. (AVS, ATO)

f. Mandatory actions required under implementing regulation for any treaty or international agreement to which the United States is a party, or required by the decisions of international organizations or authorities in which the United States is a member or participant except when the United States has discretion over implementation of such requirements. (AGC, ARP, APL, ATO, AST, AVS)

g. Issuance of airport policy and planning documents including the National Plan of Integrated Airport Systems (NPIAS), Airport Improvement Program (AIP) priority

system, and advisory circulars on planning, design, and development that are issued as administrative and technical guidance. (ARP, AST)*

h. Approval of an airport sponsor's request solely to impose Passenger Facility Charges (PFC) or approval to impose and use PFCs for planning studies. (ARP)*

i. Actions that are tentative, conditional, and clearly taken as a preliminary action to establish eligibility under an FAA program, for example, Airport Improvement Program (AIP) actions that are tentative and conditional and clearly taken as a preliminary action to establish an airport sponsor's eligibility under the AIP. (All)*

j. Administrative and agency operating actions, such as procurement documentation, organizational changes, personnel actions, and legislative proposals not originating in the FAA. (All)*

k. Agreements with foreign governments, foreign civil aviation authorities, international organizations, or U.S. Government departments calling for cooperative activities or the provision of technical assistance, advice, equipment, or services to those parties, and the implementation of such agreements; negotiations and agreements to establish and define bilateral aviation safety relationships with foreign governments and the implementation of such agreements; attendance at international conferences and the meetings of international organizations, including participation in votes and other similar actions. (All)*

l. All delegations of authority to designated examiners, designated engineering representatives, or airmen under Section 314 of the FAA Act (49 U.S.C. §§ 44702(d) and 45303). (ATO, AVS) *

m. FAA administrative actions associated with transfer of ownership or operation of an existing airport, by acquisition or long-term lease, as long as the transfer is limited to ownership, right of possession, and/or operating responsibility. (ARP)*

n. Issuance of grants to prepare noise exposure maps and noise compatibility programs (NCPs) under 49 U.S.C. §§ 47503(2) and 47504, and FAA determinations to accept noise exposure maps and approve NCPs under 14 CFR part 150. (ARP)*

o. Issuance of grants that do not imply a project commitment, such as airport planning grants, and grants to states participating in the state block grant program. (ARP, AST)*

p. Conditional approval of an Airport Layout Plan (ALP). (ARP)*

q. Planning and development of training, personnel efficiency, and performance projects and programs. (All) *

r. Issuance of policy and planning documents and legislative proposals not intended for, or that do not cause direct implementation of, project or system actions. (All)*

s. Project amendments (for example, increases in costs) that do not alter the environmental impact of the action. (All)*

* See Paragraph 5-3.a.

* See Paragraph 5-3.a.

t. Actions related to the retirement of the principal of bond or other indebtedness for terminal development. (ARP)*

u. Approval under 14 CFR part 161, *Notice and Approval of Airport Noise and Access Restrictions*, of a restriction on the operations of Stage 3 aircraft that does not have the potential to significantly increase noise at the airport submitting the restriction proposal or at other airports to which restricted aircraft may divert. (ARP)

5-6.2. Categorical Exclusions for Certification Actions. This category includes the list of CATEXs for FAA actions concerning issuance of certificates or compliance with certification programs. *An action included within this list of categorically excluded actions is not automatically exempted from environmental review under NEPA. The responsible FAA official must also review Paragraph 5-2, Extraordinary Circumstances, before deciding to categorically exclude a proposed action.*

a. Approvals and findings pursuant to 14 CFR part 36, *Noise Standards: Aircraft Type and Airworthiness Certification*, and acoustical change provisions under 14 CFR § 21.93. (ATO, AVS, APL)

b. Approvals of repairs, parts, and alterations of aircraft, commercial space launch vehicles, and engines not affecting noise, emissions, or wastes. (All)

c. Issuance of certificates such as the following: (1) new, amended, or supplemental aircraft types that meet environmental regulations; (2) new, amended, or supplemental engine types that meet emission regulations; (3) new, amended, or supplemental engine types that have been excluded by the EPA (see 14 CFR § 34.7, *Exemptions*); (4) medical, airmen, export, manned free balloon type, glider type, propeller type, supplemental type certificates not affecting noise, emission, or waste; (5) mechanic schools, agricultural aircraft operations, repair stations, and other air agency ratings; and (6) operating certificates. (ATO, AVS)

d. Operating specifications and amendments that do not significantly change the operating environment of the airport. "That do not significantly change the operating environment of the airport" refers to minor operational changes at an airport that do not have the potential to cause significant impacts to noise, air quality, or other environmental impact categories. These would include, but are not limited to, authorizing use of an alternate airport, administrative revisions to operations specifications, or use of an airport on a one-time basis. The use of an airport on a one-time basis means the operator will not have scheduled operations at the airport, or will not use the aircraft for which the operator requests an amended operations specification, on a scheduled basis. (ATO, AVS)

e. Issuance of certificates and related actions under the Airport Certification Program (see 14 CFR part 139). (ARP)

f. Issuance of Airworthiness Directives (ADs) to ensure aircraft safety. (ATO, AVS)*

* See Paragraph 5-3.a.

5-6.3. Categorical Exclusions for Equipment and Instrumentation. This category includes the list of CATEXs for FAA actions involving installation, repair, or upgrade of equipment or instruments necessary for operations and safety. *An action included within this list of categorically excluded actions is not automatically exempted from environmental review under NEPA. The responsible FAA official must also review Paragraph 5-2, Extraordinary Circumstances, before deciding to categorically exclude a proposed action.*

a. Construction of the following facilities on designated airport property or commercial space launch sites, co-located with other FAA facilities, co-located at a location currently used for similar facilities or equipment, or replacement with essentially similar facilities or equipment: Remote Communications Outlet (RCO), Remote Transmitter/Receiver (RT/R), or Remote Center-Air Ground Communication Facility (RCAG), or essentially similar facilities or equipment identified in, and designed and constructed in accordance with FAA Order 6580.3, *The Remote Communications Facilities Installation Standards Handbook*. These facilities are typically located within a 150 feet by 150 feet parcel with antenna towers reaching approximately 40 feet in height. (ATO)

b. Establishment, installation, upgrade, or relocation of any of the following on designated airport or FAA property: airfield or approach lighting systems, visual approach aids, beacons, and electrical distribution systems as described in FAA Order 6850.2, *Visual Guidance Lighting Systems*, and other related facilities. (ATO, ARP)

c. Federal financial assistance for, or Airport Layout Plan (ALP) approval of, or FAA installation or upgrade of facilities and equipment, other than radars, on designated airport or FAA property or commercial space launch sites. Facilities and equipment means FAA communications, navigation, surveillance, and weather systems. Weather systems include hygrothermometers, Automated Weather Observing System (AWOS), Automatic Surface Observation System (ASOS), Stand Alone Weather Sensors (SAWS), Runway Visual Range (RVR), and other essentially similar facilities and equipment that provide for modernization or enhancement of the service provided by these facilities. Navigational aids include Very High Frequency Omnidirectional Range (VOR), VOR Test facility (VOT), co-located VORs and Tactical Aircraft Control and Navigation (TACAN) (VORTAC), Low Power TACAN, Instrument Landing System (ILS) equipment or components of ILS equipment (establishment or relocation of an ILS is not included; an EA is normally required; see Paragraph 3-1.2.b(8)), Wide Area Augmentation System (WAAS), Local Area Augmentation System (LAAS), other essentially similar facilities and equipment, and equipment that provides for modernization or enhancement of the service provided by that facility, such as conversion of VOR to VORTAC, conversion to Doppler VOR (DVOR), or conversion of ILS to category II or III standards. FAA Order 6820.10, *VOR, VOR/DME and VORTAC Siting Criteria* governs the installation of VOR/VOT/VORTAC-type equipment. These facilities are typically located within a 150 feet by 150 feet parcel, with a total structure height reaching approximately 50 feet in height. (ATO, ARP, AST)

d. Federal financial assistance for, or Airport Layout Plan (ALP) approval of, or FAA installation, repair, replacement, relocation, or upgrade of radar facilities and equipment on designated airport or FAA property or commercial space launch sites, that conform to the current American National Standards Institute/Institute of Electrical and Electronic

Engineers (ANSI/IEEE) guidelines for maximum permissible exposure to electromagnetic fields. Radar facilities and equipment include Terminal Doppler Weather Radar (TDWR), Next Generation Weather Radar (NEXRAD), Precision Runway Monitor (PRM), Airport Surface Detection Equipment (ASDE), Air Route Surveillance Radar (ARSR), Airport Surveillance Radar (ASR), Air Traffic Control Beacon Interrogator (ATCBI), and other essentially similar facilities and equipment. In addition, this includes equipment that provides for modernization or enhancement of the service provided by these facilities, such as Radar Bright Display Equipment (RBDE) with Plan View Displays (PVD), Direct Access Radar Channel (DARC), adding a beacon system onto existing radar, and calibration equipment. (ATO, ARP)

e. Federal financial assistance for, Airport Layout Plan (ALP) approval of, or FAA installation, repair, relocation, replacement, removal, or upgrade of minor miscellaneous items such as Low Level Wind Shear Alert System (LLWAS), wind indicators, wind measuring devices, landing directional equipment, segmented circles (visual indicators providing traffic pattern information at airports without airport traffic control towers (ATCTs)), mobile ATCTs, Mobile Emergency Radar Facilities (MERF), and associated fencing and calibration equipment. (ARP, ATO)

f. Installation or replacement of engine generators used in emergencies. (ATO, AST)

g. Replacement or upgrade of power and control cables for existing facilities and equipment, such as airfield or approach lighting systems (ALS), commercial space launch site lighting systems, visual approach aids, beacons, and electrical distribution systems as described in FAA Order 6850.2, *Visual Guidance Lighting Systems*, or airport surveillance radar (ASR), commercial space launch site surveillance radar, Instrument Landing System (ILS), and Runway Visual Range (RVR). (ATO)

h. Acquisition of equipment required for the safety or security of personnel and property on the airport or commercial space launch site, including safety equipment required by rule or regulation for certification of an airport (see 14 CFR part 139, *Certification and Operation: Land Airports Serving Certain Air Carriers*), or licensing the operation of a commercial space launch site (see 14 CFR part 420, *License to Operate a Launch Site*) and acquisition of snow removal equipment. (ARP, AST)

i. Approval of an Airport Layout Plan (ALP), Federal financial assistance for, or FAA projects for: the installation of solar or wind-powered energy equipment, provided the installation does not involve more than three total acres of land (including the land needed for easements and rights-of-way associated with building and installing the equipment, and any trenching and cabling that would connect the installed solar or wind equipment to other parts of the airport or an existing electrical grid) and would not have the potential to cause significant impacts on bird or bat populations. Construction contracts or leases for this equipment must include requirements to control dust, sedimentation, storm water, and accidental spills. (ARP, ATO)

5-6.4. Categorical Exclusions for Facility Siting, Construction, and Maintenance. This category includes the list of CATEXs for FAA actions involving acquisition, repair, replacement, maintenance, or upgrading of grounds, infrastructure, buildings, structures, or facilities that generally are minor in nature. *An action included within this list of categorically excluded actions is not automatically exempted from environmental review under NEPA. The responsible FAA official must also review Paragraph 5-2, Extraordinary Circumstances, before finalizing a decision to categorically exclude a proposed action.*

a. Access road construction, and construction, relocation, or repair of entrance and service roadways that do not reduce the level of service on local traffic systems below acceptable levels. (ATO, ARP, AST)

b. Acquisition of land and relocation associated with a categorically excluded action. (ATO, ARP)

c. Installation, modification, or repair of radars at existing facilities that conform to the current American National Standards Institute/Institute of Electrical and Electronics Engineers (ANSI/IEEE) guidelines for maximum permissible exposures to electromagnetic fields and do not significantly change the impact on the environment of the facility. (All)

d. Federal financial assistance, Airport Layout Plan (ALP) approval, or FAA installation of de-icing/anti-icing facilities that comply with National Pollutant Discharge Elimination System (NPDES) permits or other permits protecting the quality of receiving waters, and for which related water detention or retention facilities are designed not to attract wildlife hazardous to aviation, as defined in FAA Advisory Circular 150/5200-33, *Hazardous Wildlife Attractants on or Near Airports*. (ATO, ARP)

e. Federal financial assistance, licensing, or Airport Layout Plan (ALP) approval for the following actions, provided the action would not result in significant erosion or sedimentation, and will not result in a significant noise increase over noise sensitive areas or result in significant impacts on air quality.

- Construction, repair, reconstruction, resurfacing, extending, strengthening, or widening of a taxiway, apron, loading ramp, or runway safety area (RSA), including an RSA using Engineered Material Arresting System (EMAS); or
- Reconstruction, resurfacing, extending, strengthening, or widening of an existing runway.

This CATEX includes marking, grooving, fillets and jet blast facilities associated with any of the above facilities. (ARP, AST)

f. Federal financial assistance, licensing, Airport Layout Plan (ALP) approval, or FAA construction or limited expansion of accessory on-site structures, including storage buildings, garages, hangars, t-hangars, small parking areas, signs, fences, and other essentially similar minor development items. (ATO, ARP, AST)

g. Construction of Remote Transmitter/Receiver (RT/R), or other essentially similar facilities and equipment, to supplement existing communications channels installed in the Airport Traffic Control Tower (ATCT) or Flight Service Station (FSS). (ATO)

h. Federal financial assistance, licensing, or Airport Layout Plan (ALP) approval for construction or expansion of facilities—such as terminal passenger handling and parking facilities or cargo buildings, or facilities for non-aeronautical uses at existing airports and commercial space launch sites—that do not substantially expand those facilities (see the FAA's presumed to conform list (72 *Federal Register* 41565 (July 30, 2007))). (All)

i. Demolition and removal of FAA buildings and structures, or financial assistance for or approval of an Airport Layout Plan (ALP) for the demolition or removal of non-FAA owned, on-airport buildings and structures, provided no hazardous substances or contaminated equipment are present on the site of the existing facility. This CATEX does not apply to buildings and structures of historic, archaeological, or architectural significance as officially designated by Federal, state, tribal or local governments. (ATO, AST, ARP)

j. Removal or extension of water, sewage, electrical, gas, or other utilities of temporary duration to serve construction. (ATO, AST)

k. Placing earthen fill into previously excavated land with material compatible with the natural features of the site, provided the land is not delineated as a wetland; or minor dredging or filling of wetlands or navigable waters for any categorically excluded action, provided the fill is of material compatible with the natural features of the site, and the dredging and filling qualifies for an U.S. Army Corps of Engineers nationwide or a regional general permit. (ATO, AST, ARP)

l. Federal financial assistance for, licensing or approval of the grading of land, the removal of obstructions to air navigation, or erosion control measures, provided those activities occur on and only affect airport property, a commercial space launch site, or FAA-owned or leased property. (ATO, ARP, AST)

m. Lease of space in buildings or towers. (ATO, AST)

n. Minor expansion of facilities, including the addition of equipment such as telecommunications equipment, on an existing facility where no additional land is required, or when expansion is due to remodeling of space in current quarters or existing buildings. Additions may include antennas, concrete pad, and minor trenching for cable. (ATO, AST)

o. Minor trenching and backfilling where the surface is restored and the excavated material is protected against erosion and run-off during the construction period. (ATO, ARP, AST)

p. New gardening, landscaping, and/or maintenance of existing landscaping that does not cause or promote the introduction or spread of invasive species that would harm the native ecosystem; use of landscape practices that reflect recommendations provided in *Guidance for Presidential Memorandum on Environmentally and Economically Beneficial Landscape Practices on Federal Landscaped Grounds*, 60 *Federal Register* 40837 (August 10, 1995); and that do not attract wildlife that is hazardous to aviation. (ATO, ARP, AST)

q. Construction and installation, on airports or commercial space launch sites, of noise abatement measures, such as noise barriers to diminish aircraft and commercial space

launch vehicle engine exhaust blast or noise, and installation of noise control materials. (All)

r. Purchase, lease, or acquisition of three acres or less of land with associated easements and rights-of-way for new facilities. (ATO)

s. Repairs and resurfacing of existing access to remote facilities and equipment such as Air Route Surveillance Radar (ARSR), Remote Center Air/Ground Communications Facility (RCAG), Remote Communications Outlet (RCO), and VHF Omnidirectional Range (VOR) with Ultra-High Frequency Tactical Air Navigation Aid (VORTAC). (ATO)

t. Federal financial assistance for, or Airport Layout Plan (ALP) approval of, a new heliport on an existing airport or commercial space launch site that would not significantly increase noise over noise sensitive areas. (ARP, AST)

u. Approval of an Airport Layout Plan (ALP) for installation of on-airport, aboveground storage tanks or underground storage tanks (USTs) on airport property or FAA installation, repair, or replacement of USTs and aboveground storage tanks at FAA facilities. These actions must comply with FAA Order 1050.15, *Fuel Storage Tanks at FAA Facilities*, and EPA regulations, 40 CFR parts 112, 280, and 281, as applicable. This CATEX includes the closure and removal of a fuel storage tank, and remediation of contaminants resulting from a fuel storage tank at an FAA facility or on an airport, provided those actions occur in accordance with the order and the regulations noted above. The establishment of bulk fuel storage and associated distribution systems is not within the scope of this CATEX. Those actions are subject to Paragraph 3-1.2.b.(5) of this Order. (ATO, ARP)

v. Replacement or reconstruction of a terminal, structure, or facility with a new one of similar size and purpose, where location will be on the same site as the existing building or facility. (ATO, ARP, AST)

w. Repair and maintenance of existing roads, rights-of-way, trails, grounds, parking areas, and utilities, including, for example, snow removal, vegetation control, and erosion control work. (All)

x. Routine facility decommissioning, exclusive of disposal. (ATO, AST)

y. Takeover of non-Federal facilities by the FAA. (ATO)

z. Federal financial assistance, licensing, Airport Layout Plan (ALP) approval, or FAA action related to topping or trimming trees to meet 14 CFR part 77, *Safe, Efficient Use, and Preservation of the Navigable Airspace*, standards for removing obstructions which can adversely affect navigable airspace. (All)

aa. Upgrading of building electrical systems or maintenance of existing facilities, such as painting, replacement of siding, roof rehabilitation, resurfacing, or reconstruction of paved areas, and replacement of underground facilities. (ATO, AST)

bb. Airport Layout Plan (ALP) approval and/or Federal financial assistance for actions related to a fee-simple purchase of land or the purchase of an avigation easement to establish a runway protection zone (RPZ) or for other aeronautical purposes provided

there is no land disturbance and does not require extensive business or residential relocations. (ARP)

cc. Approval of an Airport Layout Plan (ALP) and/or Federal financial assistance to permanently close a runway and use it as a taxiway at small, low-activity airports, provided any changes to lights or pavement would be on previously developed airport land. (ARP)

dd. FAA construction, reconstruction, or relocation of a non-Radar, Level 1 airport traffic control tower (a tower that does not use radar) at an existing visual flight rule airport, or FAA approval of an Airport Layout Plan (ALP) and/or Federal funding to do so, provided the action would occur on a previously disturbed area of the airport and not: (1) cause an increase in the number of aircraft operations, a change in the time of aircraft operations, or a change in the type of aircraft operating at the airport; (2) cause a significant noise increase in noise sensitive areas; or (3) cause significant air quality impacts. (ARP, ATO)

ee. Environmental investigation of hazardous waste or hazardous substance contamination on previously developed airport or FAA-owned, leased, or operated sites including temporary activities such as minor excavation, soil test borings, and installation of groundwater testing and monitoring wells, piezometers and other groundwater well monitoring devices impacting approximately one acre in aggregate surface area. The work plan or Sampling and Analysis Plan (SAP) for the project must integrate current industry best practices and address, as applicable, surface restoration, well and soil boring decommissioning, and the collection, storage, handling, transportation, minimization, and disposal of investigation-derived wastes. The work plan or SAP must also address these matters for other Federal or state regulated wastes generated by the investigation. The work plan or SAP must be coordinated with and, if required, approved by the appropriate or relevant governmental agency or agencies prior to commencement of work. (ATO, ARP)

ff. Remediation of hazardous wastes or hazardous substances impacting approximately one acre or less in aggregate surface area, including siting, site preparation, construction, equipment repair or replacement, operation and maintenance, remote or on-site monitoring, and removal of remediation-related equipment and facilities, on previously developed FAA-owned, leased, or operated sites. Remedial or corrective actions must be performed in accordance with an approved work plan (i.e., remedial action plan, corrective action plan, or similar document) that documents applicable current industry best practices and addresses, as applicable, permitting requirements, surface restoration, well and soil boring decommissioning, and the minimization, collection, any necessary associated on-site treatment, storage, handling, transportation, and disposal of Federal or state regulated wastes. The work plan must be coordinated with, and if required, approved by, the appropriate governmental agency or agencies prior to the commencement of work. Examples of covered activities include:

- Minor excavation (less than one acre of surface area, or less than 25,000 cubic yards) for removal of contaminated soil or containers (drums, boxes, or other articles);

- Ongoing operation of remedial and removal on-site monitoring and cleanup systems in accordance with an approved work plan (i.e., remedial action plan, corrective action plan, or similar document); and
- Installation, operation and maintenance, and removal of in-situ remediation systems and appurtenances, including (1) groundwater wells for treatment and monitoring of soil and water contamination; or (2) on-site vapor extraction systems. (ATO)

5-6.5. Categorical Exclusions for Procedural Actions. This category includes the list of CATEXs for FAA actions involving establishment, modification, or application of airspace and air traffic procedures. *An action included within this list of categorically excluded actions is not automatically exempted from environmental review under NEPA. The responsible FAA official must also review Paragraph 5-2, Extraordinary Circumstances, before finalizing a decision to categorically exclude a proposed action.*

a. Rulemaking actions that designate or modify classes of airspace areas, airways, routes, and reporting points (see 14 CFR part 71, *Designation of Class A, B, C, D, and E Airspace Areas; Air Traffic Service Routes; and Reporting Points*). (ATO)

b. Actions regarding establishment of jet routes and Federal airways (see 14 CFR § 71.15, *Designation of jet routes and VOR Federal airways*); operation of civil aircraft in a defense area, or to, within, or out of the United States through a designated Air Defense Identification Zone (ADIZ) (14 CFR part 99, *Security Control of Air Traffic*); authorizations for operation of moored balloons, moored kites, amateur rockets, and unmanned free balloons (see 14 CFR part 101, *Moored Balloons, Kites, Amateur Rockets and Unmanned Free Balloons*); and, authorizations of parachute jumping and inspection of parachute equipment (see 14 CFR part 105, *Parachute Operations*). (ATO)

c. Actions to return all or part of special use airspace (SUA) to the National Airspace System (NAS), such as revocation of airspace, a decrease in dimensions, or a reduction in times of use (e.g., from continuous to intermittent, or use by a Notice to Airmen (NOTAM)). (ATO)

d. Modification of the technical description of special use airspace (SUA) that does not alter the dimensions, altitudes, or times of designation of the airspace (such as changes in designation of the controlling or using agency, or correction of typographical errors). (ATO)

e. Designation of controlled firing areas. (ATO)

f. Actions to increase the altitude of special use airspace. (ATO)

g. Establishment of Global Positioning System (GPS), Flight Management System (FMS), Area Navigation/Required Navigation Performance (RNAV/RNP), or essentially similar systems that use overlay of existing flight tracks. For these types of actions, the Noise Integrated Routing System (NIRS) Noise Screening Tool (NST) or other FAA-approved environmental screening methodology should be applied. (ATO, AVS)

h. Establishment or modification of helicopter routes that channel helicopter activity over major thoroughfares and do not have the potential to significantly increase noise over noise sensitive areas. (ATO, AVS)

i. Establishment of new or revised air traffic control procedures conducted at 3,000 feet or more above ground level (AGL); procedures conducted below 3,000 feet AGL that do not cause traffic to be routinely routed over noise sensitive areas; modifications to currently approved procedures conducted below 3,000 feet AGL that do not significantly increase noise over noise sensitive areas; and increases in minimum altitudes and landing minima. For modifications to air traffic procedures at or above 3,000 feet AGL, the Noise Screening Tool (NST) or other FAA-approved environmental screening methodology should be applied. (ATO, AVS)

j. Implementation of procedures to respond to emergency air or ground safety needs, accidents, or natural events with no reasonably foreseeable long-term adverse impacts. (ATO)

k. Publication of existing air traffic control procedures that do not essentially change existing tracks, create new tracks, change altitude, or change concentration of aircraft on these tracks. (ATO, AVS)

l. Federal financial assistance and/or Airport Layout Plan (ALP) approval or other FAA action to establish or remove a displaced threshold on an existing runway, provided the action does not require establishing or relocating an approach light system that is not on airport property (see Paragraph 3-1.2.b(9)) or an instrument landing system (see Paragraph 3-1.2.b(8)). This CATEX does not apply to displaced thresholds that require runway extensions. (ARP)

m. Short-term changes in air traffic control procedures, not to exceed six months, conducted under 3,000 feet above ground level (AGL) to accommodate airport construction. (ARP, ATO)

n. Tests of air traffic departure or arrival procedures conducted under 3,000 feet above ground level (AGL), provided that: (1) the duration of the test does not exceed six months; (2) the test is requested by an airport or launch operator in response to mitigating noise concerns, or initiated by the FAA for safety or efficiency of proposed procedures; and (3) the test data collected will be used to assess the operational and noise impacts of the test. (ATO)

o. Procedural actions requested by users on a test basis to determine the effectiveness of new technology and/or possible impacts to the environment. (ATO)

p. Establishment of new procedures that routinely route aircraft over non-noise sensitive areas. (ATO, AVS)

q. The following procedures taken in accordance with Section 213 of the *FAA Modernization and Reform Act of 2012*, conducted at, above, or below 3,000 feet above ground level (AGL), unless there is a determination that extraordinary circumstances exist: [8]

(1) Area Navigation/Required Navigation Performance (RNAV/RNP) procedures proposed for core airports and any medium or small hub airports located within the same metroplex area considered appropriate by the Administrator;[9] and

(2) RNP procedures proposed at 35 non-core airports selected by the Administrator.[10] (ATO)

r. Any navigation performance or other performance based navigation procedure that, in the determination of the Administrator, would result in measurable reductions in fuel consumption, carbon dioxide emissions, and noise, on a per flight basis, as compared to aircraft operations that follow existing instrument flight rules procedures in the same airspace. This CATEX may be used irrespective of the altitude of such procedures. [11] (ATO)

5-6.6. Categorical Exclusions for Regulatory Actions. This category includes the list of CATEXs for FAA actions involving compliance with, or exemptions to, regulatory programs or requirements. *An action included within this list of categorically excluded actions is not automatically exempted from environmental review under NEPA. The responsible FAA official must also review Paragraph 5-2, Extraordinary Circumstances, before finalizing a decision to categorically exclude a proposed action.*

a. All FAA actions to ensure compliance with Environmental Protection Agency aircraft emissions standards. (AEE)

b. Authorizations and waivers for infrequent[12] or one-time actions, such as an air show or aviation-related exposition (to include an aerobatic practice area containing one aerobatic practice box or aerobatic contest box) or parachuting or skydiving events, that may result in some temporary impacts that revert back to original conditions upon action completion. (ATO, AVS)

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[8] This is a legislative CATEX established in Section 213(c) of the *FAA Modernization and Reform Act of 2012*.

[9] See the Guidance Memorandum for this CATEX in the Order 1050.1F Desk Reference for review, notification, and approval processes that are required when utilizing this CATEX.

[10] See the Guidance Memorandum for this CATEX in the Order 1050.1F Desk Reference for review notification, and approval processes when utilizing this CATEX.

[11] This is a legislative CATEX established in Section 213(c) of the *FAA Modernization and Reform Act of 2012*.

[12] See the guidance memo on Aerobatic Practice Areas in the Order 1050.1F Desk Reference titled "Clarification of FAA Order 1050.1 CATEX 312b for Aerobatic Actions" when utilizing this CATEX. For low-weight pistons, mid-weight pistons, high-weight pistons and high weight radials, "infrequent" is defined as 18,000 or fewer annual operations. For aircraft that are categorized as mid-power jets and high-power radials ("warbirds"), "infrequent" is defined as 1,800 or fewer annual operations. Finally, for high-power jets, "infrequent" is defined as 300 or fewer annual operations. In circumstance in which an aerobatic practice box or the aerobatic contest box will be used by more than one aircraft group (i.e., mixed use).

c. Denials of routine petitions for: (1) exemption; (2) reconsideration of a denial of exemption; (3) rulemaking; (4) reconsideration of a denial of a petition for rulemaking; and (5) exemptions to technical standard orders (TSOs). (AEE, AVS, AST, ATO)

d. Issuance of regulatory documents (e.g., Notices of Proposed Rulemaking and issuance of Final Rules) covering administrative or procedural requirements. (Does not include air traffic procedures; specific air traffic procedures that are categorically excluded are identified under Paragraph 5-6.5 of this Order). (All)

e. Issuance of special flight authorizations controlled by operating limitations, specified in the following: 14 CFR § 21.199, *Issue of Special Flight Permits*; 14 CFR § 91.319, *Aircraft Having Experimental Certificates: Operating Limitations*; 14 CFR § 91.611, *Authorization for Ferry Flight with One Engine Inoperative*; and 14 CFR § 91.859, *Modification to Meet Stage 3 or Stage 4 Noise Levels*. (ATO, AVS, AEE)

f. Regulations, standards, and exemptions (excluding those that if implemented may cause a significant impact on the human environment). (All)

5-7. -5-50. Reserved.

1050.1F Desk Reference

Federal Aviation Administration
Office of Environment and Energy

July 2015

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Acronyms and Abbreviations

AAD	Average Annual Day
ACHP	Advisory Council on Historic Preservation
AEDT	Aviation Environmental Design Tool
AEE	Office of Environment and Energy
AEM	Area Equivalent Method
AFE	Above Field Elevation
AGC-600	Office of the Chief Counsel, Airports and Environmental Law Division
AGL	Above Ground Level
AIP	Airport Improvement Program
AIRFA	American Indian Religious Freedom Act
ANSI	American National Standards Institute
APA	Aerobatic Practice Area
APE	Area of Potential Effects
ATO	Air Traffic Organization
BLM	Bureau of Land Management
BTUs	British Thermal Units
CAA	Clean Air Act
CATEX	Categorical Exclusion
CBRA	Coastal Barrier Resources Act
CBRS	Coastal Barrier Resources System
CCAFS	Cape Canaveral Air Force Station
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CFR	Code of Federal Regulations
CH_4	Methane
CMPA	Coastal Management Program Agency
CNEL	Community Noise Equivalent Level
CO	Carbon monoxide

CO_2	Carbon dioxide
CoRIS	NOAA's Coral Reef Information System
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
dB	Decibel
dBA	A-weighted sound level
DNL	Day Night Average Sound Level
DOD	U.S. Department of Defense
DOE	U.S. Department of Energy
DOI	U.S. Department of the Interior
DOJ	U.S. Department of Justice
DOT	U.S. Department of Transportation
EA	Environmental Assessment
EDDA	Environmental Due Diligence Audit
EIS	Environmental Impact Statement
EISA	Energy Independence and Security Act
EPA	U.S. Environmental Protection Agency
EPAct	Energy Policy Act
EPCRA	Emergency Planning and Community Right to Know Act
EPR	Engine Pressure Ratio
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FHBM	Flood Hazard Boundary Map
FHWA	Federal Highway Administration
FICAN	Federal Interagency Committee on Aviation Noise
FICON	Federal Interagency Committee on Noise
FIP	Federal Implementation Plan
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
FPO	Federal Preservation Officer
FPPM	Flight Path Performance Module
FSDO	Flight Standards District Office

FSEP	Facility Service and Equipment Profile
FTA	Federal Transit Administration
FY	Fiscal Year
GHG	Greenhouse Gases
GIS	Geographic Information System
GSA	Government Services Administration
HAPs	Hazardous Air Pollutants
HFCs	Hydrofluorocarbons
HUD	U.S. Department of Housing and Urban Development
ICAO	International Civil Aviation Organization
ID	RCRA Hazardous Waste Generator Identification
IHA	Incidental Harassment Authorization
IPaC	Information, Planning, and Conservation System
IPCC	Intergovernmental Panel on Climate Change
ISR	Indirect Source Review
LC	Launch Complex
L_{eq}	Equivalent sound level
L_{max}	Maximum sound level
LOA	Letter of Authorization
LOB/SOs	Lines of Business/Staff Offices
LTO	Landing-Takeoff cycle
mg/m^3	milligram per cubic meter
MLW	Maximum Landing Weight
MMPA	Marine Mammal Protection Act
MOA	Memorandum of Agreement
MOAs	Military Operating Areas
MOU	Memorandum of Understanding
MR_NMAP	Military Operating Area and Range Noise Model
MSL	Mean Sea Level
MT CO_2	Metric Tonnes of CO_2
MT CO_2e	Metric Tonnes of CO_2 equivalent
MTOW	Maximum Take-off Weight
MTRs	Military Training Routes

N1	Low-pressure Compressor
N_2O	Nitrous Oxide
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NAR	National Airspace Redesign
NAVAID	Air Navigation Facilities
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHL	National Historic Landmarks
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NMFS OPR	National Marine Fisheries Service Office of Protected Resources
NO	Nitrogen monoxide
NO_2	Nitrogen dioxide
NOA	Notice of Availability
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NO_x	Nitrogen oxides
NPD	Noise-Power-Distance
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NPS	National Park Service
NRC	National Response Center
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NRI	Nationwide River Inventory
NST	Noise Screening Tool
NWI	National Wetlands Inventory
O_3	Ozone
OCRM	NOAA's Office of Ocean and Coastal Resource Management
ODS	Ozone-Depleting Substances
OFEE	Office of the Federal Environmental Executive
OMB	Office of Management and Budget

PA	Programmatic Agreement
Pb	Lead
PCBs	Polychlorinated Biphenyls
PFCs	Perfluorocarbons
PM	Particulate Matter
PM_{10}	Particulate Matter, coarse particles
$PM_{2.5}$	Particulate Matter, fine particles
PMAD	Peak Month Average Day
ppb	part per billion
ppm	part per million
RCRA	Resource Conservation and Recovery Act
RECO	Real Estate Contracting Officer
ROD	Record of Decision
RPM	Revolutions per Minute
RPZ	Runway Protection Zone
SAE	Society of Automotive Engineers
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SDWA	Safe Drinking Water Act
SEL	Sound Exposure Level
SEMS	Superfund Enterprise Management SystemSF_6 Sulfur hexafluoride
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
SWMU	Solid Waste Management Units
SWPPP	Storm Water Pollution Prevention Plan
TA	Time Above
TARGETS	Terminal Area Routing Generation, Evaluation, and Traffic Simulation
TCP	Traditional Cultural Property
THPO	Tribal Historic Preservation Officer
TIGER	Topologically Integrated Geographic Encoding and Referencing
TSCA	Toxic Substances Control Act
TSD	RCRA Hazardous Waste Treatment, Storage, and Disposal

USACE	U.S. Army Corps of Engineers
U.S.C.	United States Code
USCG	United States Coast Guard
USDA	United States Department of Agriculture
USFS	U.S. Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VALE	Voluntary Airport Low Emissions
VOC	Volatile Organic Compound
$\mu g/m^3$	microgram per cubic meter

Introduction

This Desk Reference provides explanatory guidance for environmental impact analysis performed to comply with Council on Environmental Quality (CEQ) *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act* (CEQ Regulations) (40 Code of Federal Regulations (CFR) parts 1500-1508), U.S. Department of Transportation (DOT) Order 5610.1C, *Procedures for Considering Environmental Impacts*, and Federal Aviation Administration (FAA) Order 1050.1F *Environmental Impacts: Policies and Procedures*.

This Desk Reference is designed to complement FAA Order 1050.1F and should therefore be used in conjunction with the Order. FAA Order 1050.1F defines basic terms that are used throughout the Order and this Desk Reference. In addition, FAA Order 1050.1F outlines the requirements under the FAA's National Environmental Policy Act (NEPA) implementing procedures. When citing requirements from laws, regulations (including the CEQ Regulations), DOT Order 5610.1C, FAA Order 1050.1F, or other authorities, cite the original source authority and not this Desk Reference. **This Desk Reference may be cited only as a reference for the guidance it contains, and may not be cited as the source of requirements under laws, regulations, Executive Orders, DOT or FAA directives, or other authorities.**

This Desk Reference can be used for guidance to help integrate applicable special purpose laws and requirements when preparing NEPA documents.

As shown in Exhibit i-1 below, a discussion of the impact analysis process specific to each impact category is presented in Chapters 1 through 14. A discussion of cumulative impact analysis is presented in Chapter 15, and a discussion of impact analysis related to irreversible and irretrievable commitment of resources is presented in Chapter 16.

The Desk Reference also includes Chapter 17 that includes guidance on implementation of specific Categorical Exclusions (CATEXs).

Exhibit i-1. Location of Impact Category Discussion in this Desk Reference

Chapter	Impact Category
1	Air Quality
2	Biological Resources
3	Climate
4	Coastal Resources
5	Department of Transportation Act, Section 4(f)
6	Farmlands
7	Hazardous Materials, Solid Waste, and Pollution Prevention

Chapter	Impact Category
8	Historical, Architectural, Archeological, and Cultural Resources
9	Land Use
10	Natural Resources and Energy Supply
11	Noise and Noise-Compatible Land Use
12	Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks
13	Visual Effects
14	Water Resources
15	Cumulative Impacts
16	Irreversible and Irretrievable Commitment of Resources

Within each impact category chapter, there are generally four sections: Regulatory Setting, Affected Environment, Environmental Consequences, and Mitigation. Some impact categories have additional sections, as appropriate. To effectively use this Desk Reference, first become familiar with the material contained in each impact category chapter.

The Regulatory Setting section presents applicable Federal statute(s), regulations, orders, and other relevant guidance. Additional details on these statutes, regulations, orders, and other guidance can be found in Appendix B. Should a proposed Federal action have a potential air quality impact, for example, review the Air Quality chapter of this Desk Reference and the appropriate portion of Appendix B to identify the legal requirements for air quality impacts. These requirements are summarized for ease of use; however, if further information is required, the statute, associated implementing regulations, and FAA policy should be reviewed with the Office of the Chief Counsel, Environmental Law Division (AGC-600) and/or Regional Counsel, and through coordination with appropriate Federal and state agency personnel.

The Affected Environment section provides guidance on the documentation of existing environmental conditions of the potentially affected geographic area or areas (i.e., the study area). The study area varies based on the impact category being analyzed; thus, this section describes how to define the existing or baseline environmental conditions in the study area for each impact category.

The Environmental Consequences section provides guidance on the analysis and documentation of impacts. Once the standards and relationship of the requirements to a project are understood, the Significance Determination subsection should be reviewed. This section summarizes the impact thresholds identified in Exhibit 4-1 of FAA Order 1050.1F that are used by the FAA to determine the significance of the impacts of the proposed action and alternative(s) where such thresholds have been established. For example, the FAA has issued guidance in determining the scope and context of potential noise impacts, and thus, whether noise increases are significant and require preparation of an Environmental Impact Statement (EIS). This section also

summarizes the factors to consider when evaluating the significance of potential impacts. The final section, Mitigation, provides guidance on types of mitigation that may be used to reduce the potential impact of the proposed action and alternative(s).

As stated in Paragraph of 4-2.c of FAA Order 1050.1F, "[i]f an environmental impact category is not relevant to the proposed action or any of the reasonable alternatives identified (i.e., the resources included in the category are not present or the category is not otherwise applicable to the proposed action and alternative(s)), this should be briefly noted and no further analysis is required." Those impact categories that are minimally affected by a project need not be described in detail, but instead should be briefly discussed and dismissed early in the NEPA review. An explanation as to why these impact categories are being dismissed should be provided.

Direct and Indirect Impacts. For all environmental impact categories, both direct and indirect impacts must be considered. Direct impacts are those which are caused by the action and occur at the same time and place (see 40 CFR § 1508.8(a)). Examples of direct impacts include:

- construction of a facility or runway in a wetland which results in the loss of a portion of the wetland; or
- noise generated by the proposed action or alternative(s) which adversely affects noise-sensitive land uses.

Indirect impacts are those impacts which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable (see 40 CFR § 1508.8(b)). Indirect impacts may include growth-inducing impacts and other effects related to induced changes in the pattern of land use, population density or growth rate, and related impacts on air and water and other natural systems, including ecosystems (see 40 CFR § 1508.8(b)). Major airport development proposals may involve the potential for growth-inducing impacts on surrounding communities. Growth-inducing impacts will normally not be significant except where there are also significant impacts in other categories, especially noise, land use, or direct social impacts. In such circumstances, an EIS may be needed. When such potential exists, the NEPA document should describe in general terms such factors.

Short-term/Temporary Impacts and Long-term/Permanent Impacts. The impact analysis should distinguish between impacts that would be short-term/temporary, and those that would be long-term/permanent. For example, noise generated as a result of airport construction would constitute a short-term noise impact. In contrast, the operation of a newly constructed runway would have a long-term noise impact on the study area due to ongoing noise from aircraft operations.

1. Air Quality

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Air quality is the measure of the condition of the air expressed in terms of ambient pollutant concentrations and their temporal and spatial distribution. Air quality regulations in the United States are based on concerns that high concentrations of air pollutants can harm human health, especially for children, the elderly, and people with compromised health conditions; as well as adversely affect public welfare by damage to crops, vegetation, buildings, and other property.

1.1. Regulatory Setting

Under the Clean Air Act (CAA) the U.S. Environmental Protection Agency (EPA) developed the National Ambient Air Quality Standards (NAAQS) for six common air pollutants. These criteria air pollutants are carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM), sulfur dioxide (SO_2), and lead (Pb).[1] The EPA determined that these criteria air pollutants

[1] EPA regulates particulate matter (PM) in two categories, particles with aerodynamic diameters of 10 micrometers or less (PM_{10}) and particles with aerodynamic diameters of 2.5 micrometers or less ($PM_{2.5}$).

may harm human health and the environment, and cause property damage. The EPA regulates these pollutants to permissible levels through human health-based (primary standards) and environmental-based (secondary standards) criteria. Exhibit 1-1 lists the primary statute, the CAA, related to air quality. Additional information on the CAA can be found in Appendix B.1. Related topics are covered as well, including designation of areas by air quality status and Conformity.

Exhibit 1-1. Statute Related to the Protection of Air Quality

Statute	Location in U.S. Code	Implementing Regulation(s)	Oversight Agency[a]	Summary[a]
Clean Air Act[2]	42 U.S.C. §§ 7401-7671q	40 CFR parts 6, 9, 50-53, 60, 61, 63, 66, 67, 81, 82, and 93	EPA	Regulates air pollutant emissions from stationary and mobile sources; authorizes EPA to establish NAAQS for criteria pollutants and to regulate HAPs.

[a] U.S.C. = United States Code; CFR = Code of Federal Regulations: EPA = U.S. Environmental Protection Agency; HAPs = Hazardous Air Pollutants

According to the CAA, the NAAQS are applicable to all areas of the United States and associated territories. For the poor air quality regions that have ambient concentrations of criteria pollutants above the NAAQS, the EPA has designated these areas as not being in attainment of the NAAQS, or "nonattainment areas." Each nonattainment area is required to have an applicable State Implementation Plan (SIP) that prescribes mitigation measures and timelines necessary to bring ambient concentrations of criteria pollutants below the NAAQS. When a nonattainment area attains the NAAQS, EPA designates the area as a "maintenance area" because the applicable SIP ensures that the ambient concentrations of criteria pollutants do not increase above the NAAQS again. For aviation-related Federal actions planned to occur in a nonattainment or maintenance area, the proposed impacts to air quality must conform to the conditions of the applicable SIP, also known as General Conformity. The steps of General Conformity are addressed later in this chapter, and further detail is provided in Appendix B.1.

1.1.1. Permits

To be in compliance with Federal or state requirements, a project may be required to obtain certain permits or approvals before the project can be implemented. For example, airport projects, particularly those that involve stationary air pollutant sources (e.g., boilers or power plants at airports), may be subject to permitting, certification, or approval under other provisions of the CAA and/or state and/or local regulations. A list of all required permits and licenses should be included in a NEPA document along with an indication of their issuance date. For additional information on the EPA's Air Permit Programs, see the EPA's Air Quality Planning and Standards, Air Permit Programs website at: http://www.epa.gov/airquality/permjmp.html.

Nitrogen oxides (NOx) are defined as the combination of nitrogen dioxide (NO_2) and nitrogen monoxide (NO). Both NOx and volatile organic compounds (VOC) are precursors of O_3.

[2] http://www.epa.gov/lawsregs/laws/caa.html.

1.1.2. State/Local Air Quality Requirements

In addition to Federal requirements, there often are state and/or local air quality requirements that are applicable to a project. These requirements vary widely from location to location, and should be addressed on a project-by-project basis. Examples of state or local air quality requirements that may be applicable are more stringent state and local ambient air quality standards, Federally-approved state general conformity rules, and indirect source thresholds. Applicable state and local requirements should be identified as early as possible during the NEPA scoping process and described in the NEPA documentation.

1.1.3. Indirect Source Review

Each project should assess whether additional investigation of indirect sources is required by state or local regulations. The definition of indirect source may vary from state to state. Indirect sources may include airports and commercial space launch sites as well as highways, parking facilities, sports and entertainment facilities, and office buildings. Any applicable indirect source requirements should be identified as early as possible during the NEPA scoping process and described in the NEPA documentation.

Some states require indirect source review (ISR) as part of their SIP when proposed Federal actions are located in nonattainment or maintenance areas. States that require ISR generally establish thresholds for property, road, or parking areas that attract motor vehicle traffic and, indirectly, causes pollution. For example, a state may require ISR for all projects that increase total airport passengers at an airport by more than 100,000 passengers per year, add 1,000 new parking spaces, or increase aircraft operations by 1,000 per year. Projects that exceed the thresholds could be required to complete an indirect source analysis and obtain an indirect source permit.

1.1.4. Consultation Processes

Consultation with state or local air quality agencies, as well as EPA regional offices, may be necessary when conducting the air quality analysis. For example, as mentioned below in Section 1.3.5.3, if the FAA needs to make a General Conformity determination, the FAA may need to consult with the EPA regional office and/or the state or tribal air permitting agency early in the environmental review process to discuss which General Conformity determination criteria to use and to identify the most up-to-date models and emissions data for a conformity analysis. Typically this type of consultation is provided in an air quality modeling protocol document, which outlines to the reviewing agencies the proposed approach to demonstrate compliance with all applicable air quality rules and requirements.

1.2. Affected Environment

The study area for air quality should be defined as the entire geographic area that could be either directly or indirectly affected by the proposed project. For example, air quality impacts from construction may be limited to a project site and immediate adjacent areas. However, air quality impacts from operations (e.g., aircraft flight) may extend beyond a project site and immediate adjacent areas, and extend vertically up to the mixing height. Dispersion of air pollutants can be

affected by meteorology, topography, the type of pollutant, and other factors. In addition, a Federal action can lead to air pollutant emissions that may occur at some distance from a project site, such as exhaust from project-generated vehicle traffic on the surrounding road network. Therefore, the study area for a project's air quality analysis could encompass many square miles and/or multiple air basins.

When discussing the existing conditions in the study area, refer to the following:

- The current NAAQS;
- Applicable state ambient air quality standards;
- The attainment status(es) of the study area;
- A summary of recent measured air pollutant concentrations, if there are any monitoring sites in the region that are representative of conditions in the study area;
- A brief description of the meteorological and topographical conditions of the study area and an indication of whether these conditions could hinder the dispersal of air pollutant emissions in the study area;
- Other conditions in the study area if relevant to air quality, e.g., local land use or large emission sources nearby. For many Federal actions, discussion of such other conditions may not be needed; and
- List or table of existing permits;
- List or table of new permits that may be required by the action;
- For commercial space launch actions, a brief description of the affected layers of the atmosphere (e.g., troposphere, stratosphere, mesosphere, ionosphere).[3]

See Appendix B.1 for electronic sources that may be useful when describing the affected environment for air quality.

1.3. Environmental Consequences

The FAA has a responsibility under NEPA to include in its Environmental Assessment's (EA's), Environmental Impact Statements (EIS's), and, when appropriate, Categorical Exclusion's (CATEXs), sufficient analysis to disclose the extent of a project's impact on the attainment and maintenance of the NAAQS and any applicable state air quality standards. Thus, a project's impact on air quality is assessed by evaluating whether it would cause a new violation of a NAAQS or contribute to a new violation in a manner that would increase the frequency or severity of the new violation.

The Environmental Consequences section of a NEPA document is where the potential impacts of the Federal action on air quality are disclosed. Very small projects sometimes can be evaluated qualitatively or by comparison to a previous project for which a quantitative air quality analysis is available. However, if a project requires the preparation of an EA or EIS, it is likely that a quantitative, project-specific air quality assessment would be needed. This can be accomplished by first identifying the emissions sources associated with a project, and then estimating the

[3] Note: There are no air quality standards for impacts above the mixing height.

emissions for each reasonable alternative. Knowing the emissions may help to characterize a project's impact for the EA or EIS. Larger or more complex projects may require further modeling analysis to estimate changes in ambient pollutant concentrations that would result from the Federal action emissions. From the pollutant concentrations analysis, compare the emissions (or model output) of a project directly to the NAAQS. Additionally, emissions and air quality impacts may be relevant to other impact categories due to mechanisms such as deposition of emitted pollutants to soil or surface water. The air quality analysis should be coordinated with other impact categories to account for such potential impacts as necessary.

1.3.1. Applicable Guidance References

The FAA's Air Quality Handbook provides information on how to conduct an air quality analysis at: http://www.faa.gov/regulations_policies/policy_guidance/envir_policy/airquality_handbook/. Additional guidance materials that may be useful include:

- For Hazardous Air Pollutants (HAPs), FAA's "Guidance for Quantifying Speciated Organic Gas Emissions from Airport Sources" at: http://www.faa.gov/regulations_policies/policy_guidance/envir_policy/media/Guidance%20for%20Quantifying%20Speciated%20Organic%20Gas%20Emissions%20from%20Airport%20Sources.pdf;
- For airport projects, the FAA *Airports Desk Reference*, *Chapter 1, Air Quality* at: http://www.faa.gov/airports/environmental/environmental_desk_ref/media/desk_ref_chap1.pdf;
- Information provided on the website of the EPA Office of Transportation and Air Quality at: http://www.epa.gov/otaq/index.htm; and
- The Transportation Research Board's Airport Cooperative Research Program documents may not represent official FAA guidance. Consult the FAA's Office of Environment and Energy (AEE) before relying on these materials and referring to handbooks, guidance, and research results issued by the National Academy of Sciences' Transportation Research Board, *Airport Cooperative Research Program* at: http://www.trb.org/ACRP.

1.3.2. Emissions Inventory

An emissions inventory provides a first indication of the magnitude of the action's potential air quality impact. The emission inventory provides the total amount or mass of pollutants generated by all sources affected by the action during a specified period of time (e.g., tons per year [tpy]). The inventory should start by evaluating the types of criteria pollutants and HAPs that could be emitted from all aspects of a project. Then, provide data on a project's criteria pollutant emissions (and HAPs, and ozone-depleting substances [ODS], if state requires) for each reasonable alternative. An inventory should include both direct and indirect emissions that are reasonably foreseeable which could include construction as well as operational emissions. Direct and indirect emissions are further defined in Section B.1.1.4 of Appendix B. The emissions (or the net emissions for a general conformity analysis) of an action alternative is the difference between the emissions under that alternative and the emissions under the no action alternative for that same calendar year.

The emissions inventory usually is calculated for the year(s) of project implementation, the planning horizon year(s) in the EA or EIS, and sometimes for intermediate years, if appropriate due to project phasing or if requested by a reviewing agency. Emission inventories must be generated for all project alternatives using an FAA-approved model.

Commercial space launch actions may involve commercial space launch vehicle emissions that can affect the atmosphere in specific altitude ranges. Emissions inventories for commercial space launches may need to include calculation of emissions by atmospheric layer (troposphere below 3,000 feet, troposphere above 3,000 feet, stratosphere, mesosphere, and ionosphere, or other classification as appropriate) to define such impacts.

See Section 1.3.5 for emission inventory requirements pertaining to Federal actions located in nonattainment or maintenance areas for General Conformity purposes.

1.3.3. Ambient Pollutant Concentrations Analysis

There is no single, universal criterion for deciding whether an ambient pollutant concentrations analysis (or "NAAQS analysis") is necessary for Federal actions. However, a review of a project to identify any unusual circumstances, such as intense emission sources in close proximity to areas where the public has access, might indicate a need for further analysis. In addition, reviewing agencies may specifically request a NAAQS analysis if concerns exist regarding sensitive receptors surrounding the Federal action or if measured ambient concentrations of regulated pollutants are very close to violating a NAAQS in the immediate vicinity of the Federal action. Based on the nature of a project and consultation with state and local air quality agencies, additional analysis may be appropriate.

If a NAAQS analysis is conducted, calculate the estimated pollutant concentration for a project using the emissions inventory data and an FAA-approved dispersion model. Depending on the project, this step can require extensive data and computation. This should include collection of the latest available input data early in the environmental process. Assistance from AEE is available on a case-by-case basis by request through the respective headquarters program office. After performing dispersion modeling of the project emissions sources, add the modeled pollutant concentrations to the background (existing) pollutant concentrations and compare to the NAAQS. If modeled concentrations combined with background concentrations do not result in projected exceedances of the NAAQS, then the analysis is complete. If modeled concentrations and background concentrations combine to exceed the NAAQS in an attainment area, emissions should be mitigated or offset, or the action redesigned to reduce concentrations below the NAAQS, to the extent possible. The FAA *Air Quality Handbook*[4] provides further information on air quality dispersion modeling.

See Section 1.3.5 for ambient pollutant concentration analysis requirements pertaining to Federal actions located in nonattainment or maintenance areas for General Conformity purposes.

1.3.4. Modeling Requirements

As per FAA Order 1050.1F, when conducting an air quality analysis for the purposes of complying with NEPA or General Conformity, the FAA requires use of an FAA-approved

[4] Avaialable at *http://www.faa.gov/regulations_policies/policy_guidance/envir_policy/airquality_handbook*

model. For air quality, the approved model is Aviation Environmental Design Tool (AEDT) . The Guidance on the use of AEDT can be found in Appendix C, Using AEDT to Conduct Environmental Modeling for FAA Actions Subject to NEPA, of this Desk Reference.

Per FAA Order 1050.1F, air quality analyses must use the most recent version of the FAA-approved model available at the start of the environmental analysis process. In the event that the FAA-approved model is updated after the environmental analysis process is underway, the use of an updated version of the model is acceptable but is not required. Consultation with the appropriate FAA program office is recommended to help decide whether to use an updated version of the FAA-approved model after the environmental analysis process is underway. A complete description of all inputs, particularly the specification of custom values if the model's default values are not used, should be included in the documentation of the air quality analysis. Per FAA Order 1050.1F, if the analysis is conducted by a contractor or applicant, the FAA must be provided with one copy of the input files used in the analysis and the corresponding output files on media specified by the FAA.

HAPs inventory

If a HAPs inventory is required by the state, the FAA-approved AEDT model must be used. If the state or local air quality agencies request to supplement the analysis with other HAPs methodology(s) and/or model(s), then the HAPs inventory should be conducted in consultation with the appropriate Line of Business/Staff Office (LOB/SO) and AEE.

Supplemental methodologies or models

Use of supplemental methodology and models for analysis of non-aviation sources is also permitted in consultation with the appropriate LOB/SO and AEE.

For further guidance on air quality procedures, see the FAA *Air Quality Handbook*.

1.3.5. General Conformity

The General Conformity Rule establishes the procedures and criteria for determining whether certain Federal actions conform to state or Federal (EPA) air quality implementation plans (SIPs/FIPs). Hence, the General Conformity Rule is only considered when a Federal action is proposed to occur in an EPA-designated nonattainment or maintenance area. To determine whether conformity requirements apply to a proposed Federal action, consider the following:

- The nonattainment or maintenance status of the area;
- Emissions budget[5] ;
- Exemptions from conformity;
- FAA-specific activities that are presumed to conform (72 *Federal Register* 41565-41580 (July 30, 2007)); and
- Response to emergency or disaster.

[5] See Air Quality handbook Section 8.1.1. available at http://www.faa.gov/regulations_policies/policy_guidance/envir_policy/airquality_handbook

If the Federal action is subject to EPA's General Conformity Rule (see 40 CFR part 93), then the general conformity requirements should be integrated into the NEPA process. General conformity requirements are distinct from NEPA requirements. For example, NEPA may require the FAA to analyze several alternatives in detail. If a general conformity determination is required, only the proposed action scenario must be assessed for conformance to the applicable SIP/Federal Implementation Plan (FIP).

The General Conformity Rule has public review requirements independent of NEPA's requirements. However as an efficiency step, the NEPA process could include the issuance of the draft general conformity determination along with any NEPA document for public comment[6]. While for some decisions there may be valid reasons to address general conformity separately rather than concurrently, when general conformity analysis provides information that is essential to a reasoned choice among alternatives, then a complete general conformity analysis should be performed and the final general conformity determination should be issued along with the final NEPA document. The practitioner should be mindful that the general conformity analysis can supplement the NEPA air quality analysis but usually does not, by itself, provide a fully NEPA-compliant air quality analysis[7].

The general conformity process is conducted in three phases: applicability, evaluation, and determination. The applicability phase has two parts. First, determine if the proposed Federal action is located in an EPA-designated nonattainment or maintenance area for one or more of the regulated criteria pollutants. If it is not, then the general conformity rule does not apply. If it is, then the next part is to determine whether the Federal action is exempt from the general conformity rule or otherwise does not require further analysis to demonstrate conformity. Actions that require further analysis to demonstrate conformity proceed to the evaluation phase. The evaluation phase requires estimating the changes in emissions caused by the action and comparing them to the *de minimis* thresholds. The change in emissions is the "proposed action emission levels" minus the "no action emission levels," also known as the "net emissions" for a specific calendar year in tpy. If the net emissions due to the action exceed the *de minimis* threshold, and are not otherwise exempt or PTC, then the determination phase must be applied and a formal conformity determination must be prepared.

The General Conformity Rule establishes the *de minimis* levels to identify those actions with the potential to have air quality impacts large enough to require a conformity determination. If a project's net emissions are less than the *de minimis* levels, then the Federal action is considered to be too small to adversely affect the air quality status of the area and is automatically considered to conform with the applicable SIP/FIP, therefore the general conformity requirements have been complied with and the process is complete.

1.3.5.1. Applicability

For areas that have violated the NAAQS, the CAA requires each state to adopt a plan to achieve the NAAQS for each pollutant within the established timeframes. These air quality plans, known

[6] For more information refer to Section 8.1.3 Interagency and Public Review subsection for General Conformity of the FAA's *Aviation Emissions and Air Quality Handbook Version 3*

[7] For more information refer to Section 8.1 General Conformity of the FAA's *Aviation Emissions and Air Quality Handbook Version 3*

as SIPs, are subject to EPA approval to be deemed as the "applicable SIP" for the nonattainment or maintenance area. In default of an approved SIP, the EPA is required to promulgate a FIP. Section 176(c) of the CAA, as amended in 1990, requires that Federal actions conform to the appropriate FIPs or SIPs in order to attain the CAA's air quality goals. Section 176(c) states: "No department, agency, or instrumentality of the Federal Government shall engage in, support in any way or provide financial assistance for, license or permit, or approve, any activity which does not conform to an implementation plan."

The first phase of the general conformity process, *applicability,* evaluates whether the conformity regulations would apply to a proposed Federal action. Before the FAA can fund, support, or approve an activity in any way, it must address the conformity of the action with the applicable SIP, FIP, or Tribal Implementation Plan using the criteria and procedures prescribed in the General Conformity Rule. Details on conformity applicability can be found in Section 8.1.1 General Conformity – Applicability Analysis of the FAA's *Aviation Emissions and Air Quality Handbook Version 3.*

1.3.5.2. Evaluation and Analysis Thresholds

In the second phase, estimate the total annual emissions of the pollutant(s) of concern from the proposed action or alternative(s) and from the no action alternative. In other words, if a Federal action is not exempt or presumed to conform, a project's emissions must be analyzed with regard to conformity applicability emission levels. The rule established the threshold emission levels (annual threshold levels) to identify those actions with the potential to have significant air quality impacts. Include both direct and indirect emissions, and account for construction emissions in determining whether emission threshold levels are exceeded (EPA General Conformity Questions and Answers, November 1994).

If there are parts of a project that are exempt from conformity requirements or are presumed to conform, do not include those parts in the analysis. Subtract the proposed action emissions from the no action emissions to derive the difference in emissions, or net emissions, due to the action. Compare the net emissions to the *de minimis* thresholds that apply to the nonattainment or maintenance area. If the estimated net emissions are less than the applicable *de minimis* thresholds, the conformity determination requirements do not apply to a project.

The conformity determination process can be resource-intensive. If the net emissions exceed the *de minimis* thresholds, then before proceeding with a conformity determination, review the emissions analysis to identify any assumptions or data that might be overly conservative (tending to overestimate emissions). More refined analysis may show that the net emissions would not exceed the *de minimis* thresholds. If after refinement the net emissions still exceed the thresholds, investigate whether there are opportunities to redesign the project for lower emissions or to include measures that would reduce emissions increases to less than the *de minimis* levels (for example, consider the mitigation measures listed below in Section 1.4). If these measures are incorporated into the project design and a project commits to their implementation, they can then be included in the emissions analysis to show that the net emissions would not exceed the *de minimis* thresholds, and a formal conformity determination would not be required. If after consideration of emission reductions and design changes, the net emissions still exceed the thresholds, then a conformity determination must be prepared.

Conformity Determination

If a conformity determination is required, it need be conducted for the proposed action only, in contrast to the NEPA review which must be conducted for all alternatives. EPA's conformity guidance[8] reflects the requirement to conduct a conformity determination for the proposed action only, stating that when needed, a conformity determination is required for "only the one [alternative] that the Federal agency ultimately approves, permits, or funds." In some cases the FAA's proposed action may differ from the alternative that an airport or commercial space launch site has identified as its preferred alternative. In such cases consult with the appropriate FAA program office to confirm the alternative(s) for which the conformity evaluation should be performed. When a proposed Federal action is not exempt, presumed to conform, or exceeds *de minimis* emission threshold, the agency must prepare a conformity determination based on analysis using criteria stated in EPA's General Conformity Rule (40 CFR part 93, 58 *Federal Register* 63250, (November 30, 1993)). A proposed action cannot be approved or initiated unless conformity does not apply, if the action is presumed to conform, or if emissions are less than the *de minimis* thresholds. If initial analysis does not indicate a positive conformity determination, alternative actions (including mitigation measures as part of the action) should be considered and further consultation, analysis, and documentation would be necessary.

To begin the third phase, identify which approaches, or criteria, could be used to demonstrate that the proposed action conforms to the applicable implementation plan. Consult with AEE and the EPA regional office and/or the state or tribal air permitting agency, as appropriate, early in the process to discuss which conformity determination criteria to use and to identify the most up-to-date models and data for the conformity analysis.

1.1.1.1.1 Approaches to Demonstrating General Conformity

The General Conformity Rule provides eight basic approaches or criteria for demonstrating conformity with the applicable implementation plan:

1. Document that the emissions from the action are specifically identified and accounted for in the implementation plan (see 40 CFR § 93.158(a)).
2. Obtain a statement from the applicable state, tribal, or local air quality agency that the emissions from the action along with all other emissions in the area do not exceed the budget for those emissions in the implementation plan (see 40 CFR § 93.158(a)).
3. Have the state or tribe agree to revise the implementation plan to include the emissions from the Federal action (see 40 CFR § 93.158(a)).
4. Have the local Metropolitan Planning Organization provide a statement that the emissions are included in the modeling for a conforming transportation plan and program (see 40 CFR § 93.158(a)).
5. Conduct air quality modeling to demonstrate that the emissions will not cause or contribute to a violation of the NAAQS (see 40 CFR § 93.158(a)). This modeling option is allowed for demonstrating general conformity of directly-emitted pollutants only. The EPA does not believe that current models are adequate to reasonably predict a project-level impact of

[8] "General Conformity Guidance: Question and Answers," issued by the Office of Air Quality Planning and Standards, U.S. EPA, July 13, 1994.

individual sources of precursors of O_3 or the volatile portion of $PM_{2.5}$ (see the preamble to the 2010 conformity rule amendments, 75 *Federal Register* 17254, (April 5, 2010)).

6. Fully mitigate or offset[9] the increase in emissions (see 40 CFR §§ 93.158(a) and 93.160).
7. Develop and implement a facility-wide emission budget. This approach requires a revision to the applicable implementation plan as in approach 4 above. If the net emissions from the Federal action along with the other emissions from the facility do not exceed the budget, then the Federal action is presumed to conform (see 40 CFR § 93.161).
8. Create and apply emission reduction credits. Credits must meet several requirements in order to be eligible for use in a conformity determination (see 40 CFR § 93.165).

The general conformity analysis procedures contain detailed technical requirements for demonstrating how an action would conform to the applicable implementation plan under these approaches (see 40 CFR § 93.159). Additional guidance can be found at the following locations:

- EPA's interpretation of the General Conformity Rule and answers to common general conformity questions, including a training module, is provided on EPA's General Conformity website at: http://www.epa.gov/oar/genconform/faq.html;
- On EPA's Office of Air and Radiation website, *General Conformity Guidance for Airports: Questions and Answers*, dated September 25, 2002 at: http://www.epa.gov/ttn/caaa/conform/airport_qa.pdf; and
- Guidance documents also can be obtained from the appropriate EPA Regional Office.

1.1.1.1.2 Draft General Conformity Documentation

After conducting the conformity analysis, prepare a draft general conformity determination. The EPA general conformity regulations require the FAA to distribute a description of the proposed action and the draft general conformity determination, in the form of a 30-day notice to the appropriate EPA Regional Office(s), state and local air quality agencies, tribes, and, when applicable, affected Federal land managers, and the agencies designated under Section 174 of the CAA to develop the applicable implementation plan(s). In addition, the draft general conformity determination and supporting materials that describe the analytical methods and assumptions must be made available to any person upon request. To coordinate the general conformity requirement with the NEPA process, for both a draft EIS or a draft EA issued for public comment, include the draft general conformity determination in an appendix to the NEPA review and consider expanding the NEPA distribution to include the agencies indicated above and any members of the public who request copies of the draft general conformity determination.

- For an EIS, if the need for a general conformity determination is identified before the Notice of Intent (NOI) to prepare an EIS is issued, state in the NOI that preparation of the EIS and general conformity determination will be coordinated. This will alert the public to consider conformity issues with the applicable implementation plan in the public scoping process for the EIS.

[9] FAA's *Aviation Emissions and Air Quality Handbook Version 3, Section 8.1.2.2 General Conformity – Emissions Mitigation and Offsetting*

- For an EA that will be issued for public comment, if the need for a general conformity determination is identified before notifying the host state(s) and tribe(s), potentially affected state(s) and tribe(s), and other stakeholders of the FAA's determination to prepare an EA, state in the notice that preparation of the EA and the CAA general conformity determination will be coordinated.

The EPA general conformity regulation also requires the FAA to announce the availability of the draft conformity determination for public review and comment by placing a prominent advertisement in a daily newspaper in the affected area of the proposed action. In all public notices inviting comment on a draft general conformity determination, also specifically invite comment on the draft EIS or EA, and vice versa.

As mentioned above, the EPA general conformity regulations require a minimum 30-day public comment period on a draft general conformity determination.

- For an EIS, the comment period for the draft general conformity determination can readily fit within the minimum 45-day public comment period for the draft EIS. Therefore, to the extent practicable, establish the public comment periods for the draft EIS and draft general conformity determination to occur concurrently. If the FAA publishes a Notice of Availability (NOA) for the draft EIS in the *Federal Register*, the FAA should announce the availability of the draft general conformity determination in the notice.
- For an EA that is being provided to the public for comment, set the review period for at least 30 days. If an EA is not being provided to the public for review, establish, to the extent possible, concurrent periods for public comment on the draft conformity determination and a state and tribal review period for the EA, as applicable.

1.1.1.1.3 Final General Conformity Documentation

After the public comment period, prepare a final general conformity determination. The final general conformity determination documents the FAA's finding that an action would conform to the applicable implementation plan. The determination describes how the conformity determination criteria would be met, the results of any conformity analysis conducted, and any mitigation measures, offsets, or emission reduction credits needed to demonstrate conformity with the applicable implementation plan. Any statements that the action's emissions are or will be included in the applicable implementation plan must be documented. Any mitigation measures, offsets, or credits must be identified and the process for their implementation and enforcement must be described, including an implementation schedule. Prior to determining that the Federal action is in conformity, the FAA must obtain written commitments to implement any measures that have been identified as conditions in order for making the general conformity determination. Written commitments could come in the form of a NEPA Record of Decision (ROD) or by a separate commitment document. Reference 40 CFR § 93.160 for further details on mitigation and documentation requirements.

The EPA general conformity regulations require the FAA to notify, within 30 days after a final general conformity determination, the appropriate EPA Regional Office(s), state and local air quality agencies, tribes, and, when applicable, affected Federal land managers, the agencies designated under Section 174 of the CAA to develop the applicable implementation plan(s), and the Metropolitan Planning Organization. In addition, the general conformity regulations require that the FAA make comments and responses on the draft general conformity determination

available, upon request by any person, within 30 days of the final general conformity determination. For a final EIS and an approved EA and Finding of No Significant Impact (FONSI), provide copies of the NEPA review to the Federal, state, and local agencies that require copies of the final general conformity determination, and any persons who requested copies of the draft general conformity determination.

The EPA general conformity regulations also require that the FAA make public its final general conformity determination by placing a prominent advertisement in a daily newspaper in the area affected by the action, within 30 days of the final general conformity determination. For both a final EIS and an approved EA and FONSI, publish an announcement of the availability of the NEPA review and final general conformity determination in the local newspaper within 30 days after a final general conformity determination. In addition, if the FAA publishes an NOA for the final EIS in the *Federal Register*, the notice also should announce the availability of the general conformity determination.

The NEPA document should include information concerning the general conformity review. Maintain documentation of the consultation process as part of the official administrative record for a project.

1.3.6. Significance Determination

Exhibit 4-1 of FAA Order 1050.1F provides the FAA's significance threshold for air quality:

The action would cause pollutant concentrations to exceed one or more of the National Ambient Air Quality Standards (NAAQS), as established by the Environmental Protection Agency under the Clean Air Act, for any of the time periods analyzed,or to increase the frequency or severity of any such existing violations.

1.4. Mitigation

Some examples of potential measures to mitigate air quality impacts from the proposed action or alternative(s) include but are not limited to the following:

- Implementing single or reduced engine taxiing (to the extent not already implemented) to reduce emissions;
- For airport project sponsors in nonattainment and maintenance areas, participating in the FAA Voluntary Airport Low Emissions (VALE) program;
- Providing 400 Hz power and preconditioned air at gates to minimize or eliminate the use of auxiliary power units when an aircraft is parked;
- Replacing ground support equipment that operates on conventional fuels with equipment that operates on alternative fuels with lower emissions (e.g., natural gas) or that operates on electricity;
- Implementing dust abatement techniques (e.g., water application) on unpaved or unvegetated surfaces to minimize airborne dust during construction;
- Revegetating disturbed areas as soon as possible after disturbance. This could include interim revegetation along road beds, once heavy construction is completed; and
- Covering construction materials and stockpiled soils if they are a source of fugitive dust.

Section 8 of the FAA *Air Quality Handbook* provides additional mitigation measures that may be considered to mitigate air quality impacts.

In addition, during the NEPA process agencies having jurisdiction or special expertise regarding air quality might provide letters addressing air quality impacts. These letters may include recommended measures to mitigate air quality impacts under NEPA (beyond those required to comply with applicable substantive requirements under the CAA) that may be considered for incorporation into a proposed project.

Factors to consider that may be applicable to socioeconomic resources, if they are interrelated with natural or physical environmental impacts (see 40 CFR § 1508.14), include, but are not limited to, situations in which the proposed action or alternative(s) would have the potential to:

- Induce substantial economic growth in an area, either directly or indirectly (e.g., through establishing projects in an undeveloped area);
- Disrupt or divide the physical arrangement of an established community;
- Cause extensive relocation when sufficient replacement housing is unavailable;
- Cause extensive relocation of community businesses that would cause severe economic hardship for affected communities;
- Disrupt local traffic patterns and substantially reduce the levels of service of roads serving an airport and its surrounding communities; or
- Produce a substantial change in the community tax base.

12.1.4. Mitigation

Examples of potential measures to mitigate socioeconomic impacts that may be appropriate for the alternatives include the following:

- Try to compensate for or reduce any detrimental impacts the proposed action or alternative(s) may have caused to the economic health of the study area. This could include providing relocation assistance to local business owners in accordance with the Uniform Relocation Act; and
- Provide a financial payment and/or relocation assistance to renters and people who are displaced from their homes as required by the Uniform Relocation Assistance and Real Property Acquisition Policies Act.

12.2. Environmental Justice

Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. *Fair treatment* means that no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental, and commercial operations or policies. *Meaningful Involvement* means that:

- people have an opportunity to participate in decisions about activities that may affect their environment and/or health;
- the public's contribution can influence the regulatory agency's decision;
- their concerns will be considered in the decision making process; and
- the decision makers seek out and facilitate the involvement of those potentially affected.

Requirements for meaningful public involvement by minority and low-income populations are addressed in Paragraph 2-5.2.b of FAA Order 1050.1F. As stated in the Order, the FAA must provide for meaningful public involvement by minority and low-income populations. In accordance with DOT Order 5610.2(a), this public involvement must provide an opportunity for

minority and low income populations to provide input on the analysis, including demographic analysis, that identifies and addresses potential impacts on these populations that may be disproportionately high and adverse. The public involvement process can also provide information on subsistence patterns of consumption of fish, vegetation, or wildlife. This information should be disclosed to potentially affected populations for proposed actions and alternative(s) that are likely to have a substantial effect and for Comprehensive Environmental Response, Compensation, and Liability Act sites.

12.2.1. Regulatory Setting

Exhibit 12-3 lists the primary statutes, Executive Orders, and other guidance related to environmental justice impacts. See Appendix B.9 for more detail on these requirements.

Exhibit 12-3. Statutes, Executive Orders, and Other Guidance Related to Environmental Justice

Statute or Executive Order	Location in U.S. Code or *Federal Register*	Implementing Regulation(s)	Oversight Agency[a]	Summary[a]
Title VI of the Civil Rights Act of 1964, as amended	42 U.S.C §§ 2000d-2000d-7	28 CFR § 42.401	DOJ	Title VI of the Civil Right Act of 1964 states that "No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." Title VI explicitly prohibits any discrimination in Federally funded programs and projects, including those sponsored by the FAA.
Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations	59 *Federal Register* 7629, (February 11, 1994)	Not applicable	EPA	Requires Federal agencies to incorporate environmental justice into their planning processes.
Memorandum of Understanding on Environmental Justice and Executive Order 12898 (August 4, 2011)	Not applicable	Not applicable	Not applicable	The participating Federal agencies (which includes the FAA) agree to declare the continued importance of identifying and addressing environmental justice considerations in their programs, policies, and activities as provided in Executive Order 12898.

Statute or Executive Order	Location in U.S. Code or *Federal Register*	Implementing Regulation(s)	Oversight Agency[a]	Summary[a]
DOT Order 5610.2(a), Environmental Justice in Minority and Low-Income Populations	77 *Federal Register* 27534, (May 10, 2012)	Not applicable	DOT	Establishes principles for integrating environmental justice into current policies and practices.
CEQ Guidance: "Environmental Justice: Guidance Under the National Environmental Policy Act" (December 10, 1997)	Not applicable	Not applicable	CEQ	Outlines how environmental justice could be considered in NEPA documents.
Revised Department of Transportation Environmental Justice Strategy	77 *Federal Register* 18879 (March 28, 2012)	Not applicable	DOT	This Strategy responds to the requirements of the MOU on Environmental Justice and Executive Order 12898 discussed above.

[a] U.S.C. = United States Code; CFR = Code of Federal Regulations; EPA= U.S. Environmental Protection Agency; DOJ= U.S. Department of Justice; MOU = Memorandum of Understanding

12.2.1.1. Consultations, Permits, and Other Approvals

Executive Order 12898 and DOT Order 5610.2(a)

Executive Order 12898 encourages the consideration of environmental justice impacts in EAs, especially to determine whether a disproportionately high and adverse impact may occur. When the FAA determines that a project has significant impacts in any environmental impact category, the potential for disproportionately high and adverse effects on minority or low-income populations must be examined pursuant to DOT Order 5610.2(a). Even in the absence of a finding of significant impact in another environmental impact category, further inquiry into the potential for disproportionately high and adverse effects on minority or low-income populations may be warranted based upon the demographics of the study area and the nature of environmental impacts associated with the proposed project. If there are disproportionately high and adverse effects on minority or low-income populations, DOT Order 5610.2(a) requires that certain procedures be followed for analyzing the proposed action's potential impacts, offsetting benefits, potential alternatives, and substantial need. The FAA reflects its adherence to the requirements of DOT Order 5610.2(a) in its NEPA document.

Title VI of the Civil Rights Act

Under Title VI, the FAA is required to ensure that no person, on the ground of race, color, or national origin, is excluded from participation in, denied the benefits of, or subjected to discrimination under any program or activity receiving Federal financial assistance. The Title VI requirements are broader in scope than environmental justice and apply to all Federally-funded

projects and activities, not solely those which may have adverse human health or environmental effects on communities.

12.2.2. Affected Environment

The combination of all study areas for the other relevant impact categories represents the potential impact area for environmental justice, because environmental justice impacts may be realized in conjunction with impacts to any other impact category.

The description of the affected environment for the NEPA document should describe the minority and low-income populations located within the identified study area. The environmental document should include demographic information about the affected populations and include information about the populations that have an established use for the significantly affected resource, or to whom that resource is important (i.e., subsistence fishing).

Exhibit 12-4 presents the definitions from DOT Order 5610.2(a) that may be used to help identify potential environmental justice populations in the study area.

Exhibit 12-4. Definitions from DOT Order 5610.2(a) to Identify Status of Environmental Justice Populations

Term	Definition
Minority	A person who is: 1. Black: a person having origins in any of the black racial groups of Africa; 2. Hispanic or Latino: a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race; 3. Asian American: a person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent; 4. American Indian and Alaskan Native: a person having origins in any of the original people of North America, South America (including Central America) and who maintains cultural identification through tribal affiliation or community recognition; or 5. Native Hawaiian and Other Pacific Islander: people having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.
Minority Population	Any readily identifiable group of minority persons who live in geographic proximity, and if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who will be similarly affected by a proposed DOT program, policy or activity.
Low-Income	A person whose median household income is at or below the Department of Health and Human Services poverty guidelines.[a]
Low-Income Population	Any readily identifiable group of low-income persons who live in geographic proximity, and, if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who will be similarly affected by a proposed DOT program, policy or activity.

Source: DOT Order 5610.2(a)

[a] These guidelines can be found on the U.S. Department of Health and Human Services website located at http://www.hhs.gov/.

The following methods may be used to help find information about potential environmental justice populations in the study area:

- To calculate the total **minority population** in an area, determine the population of non-Hispanic Whites through the Census Bureau's American Community Survey website at: http://www.census.gov/acs/www/ and then subtract that population from the total population for the study area. The populations of different minority groups cannot simply be added together because they could inadvertently count an individual twice. For example, people may choose to report more than one race to indicate their racial mixture, such as "American Indian" and "White."
- To determine the total **low-income population** in the study area, consider the percentage of individuals in the study area whose median household income is at or below the Department of Health and Human Services poverty guidelines (to access these guidelines, refer to the Department's homepage at: http://aspe.hhs.gov/poverty/index.cfm. Additionally, transient or temporary workers that may not have been captured in the Department of Health and Human Services data in this calculation should be considered. This data can be found through sources such as the Department of Labor's National Agricultural Worker's Survey, and through data collected by town, city, and county governments in the vicinity of the proposed action and alternative(s).

Although DOT Order 5610.2(a) directs DOT agencies, including the FAA, to identify low-income populations using the Department of Health and Human Services poverty guidelines, CEQ and U.S. EPA guidance references the U.S. Census Bureau's annual statistical poverty thresholds on income and poverty (Series P-60) to define low income. The Department of Health and Human Services poverty guidelines and the Census Bureau's poverty threshold differ slightly. The responsible FAA official should use the Department of Health and Human Services poverty guidelines as directed in DOT Order 5610.2(a). CEQ's environmental justice guidance may be drawn upon, as appropriate, after the requirements of DOT Order 5610.2(a) have been met.

12.2.3. Environmental Consequences

An environmental justice analysis considers the potential of Federal actions to cause disproportionately high and adverse effects on low-income or minority populations.

DOT Order 5610.2(a) provides the following definition for the types of adverse impacts that should be considered when assessing impacts to environmental justice populations:

> Adverse effects means the totality of significant individual or cumulative human health or environmental effects, including interrelated social and economic effects, which may include, but are not limited to: bodily impairment, infirmity, illness, or death; air, noise, and water pollution and soil contamination; destruction or disruption of man-made or natural resources; destruction or diminution of aesthetic values; destruction or disruption of community cohesion or a community's economic vitality; destruction or disruption of the availability of public and private facilities and services; vibration; adverse employment effects; displacement of persons, businesses, farms, or nonprofit organizations; increased traffic congestion, isolation, exclusion, or separation of minority or low-income individuals within a given community or from the broader community;

and the denial of, reduction in, or significant delay in the receipt of, benefits of DOT programs, policies, or activities.

12.2.3.1. Determining Disproportionately High and Adverse Effects

The NEPA document should clearly describe the methodology used to determine if there are adverse impacts that disproportionately affect environmental justice populations. This includes providing results of analysis to determine if a low income or minority population using a resource sustains more of the impact than any other population segment.

DOT Order 5610.2(a) provides the following definition for a "disproportionately high and adverse impact" that should be used when assessing impacts to environmental justice populations:

Disproportionately high and adverse effect on minority and low-income populations means an adverse effect that:

1. Is predominately borne by a minority population and/or a low-income population; or
2. Will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or non-low-income population.

DOT Order 5610.2(a) indicates that mitigation and enhancement measures and offsetting benefits can be taken into consideration when determining if there are disproportionately high and adverse effects from a project.

12.2.3.2. Significance Determination

The FAA has not established a significance threshold for environmental justice in FAA Order 1050.1F; however, the FAA has identified factors to consider when evaluating the context and intensity of potential environmental impacts for environmental justice (see Exhibit 4-1 of FAA Order 1050.1F). Please note that these factors are not intended to be a threshold. If these factors exist, there is not necessarily a significant impact; rather, the FAA must evaluate these factors in light of context and intensity to determine if there are significant impacts. The factors to consider that may be applicable to environmental justice include, but are not limited, to a situation in which the proposed action or alternative(s) would have the potential to lead to a disproportionately high and adverse impact to an environmental justice population, i.e., a low-income or minority population, due to:

- Significant impacts in other environmental impact categories; or
- Impacts on the physical or natural environment that affect an environmental justice population in a way that the FAA determines is unique to the environmental justice population and significant to that population.

Note that not all "adverse impacts" within the meaning of DOT Order 5610.2(a) will meet or exceed a significance threshold in another environmental impact category. Some adverse impacts may not be significant impacts in another environmental impact category as defined by Exhibit 4-1 in FAA Order 1050.1F, yet they may be a significant impact when examined in the context of their effects on minority or low-income populations. As a result, the responsible FAA official must undertake a case-by-case analysis of an action's unique facts. The responsible FAA

official does this to determine if impacts not otherwise rising to a level of significance for NEPA purposes nonetheless represent disproportionately high and adverse effects, and/or a significant impact for environmental justice purposes. Examples of impacts that may not be significant impacts in another environmental impact category, but may be considered significant impacts when examined in the context of environmental justice include:

- Water resource impacts and/or biological resource impacts that are not considered significant standing alone, but may be significant when considered in the context of subsistence fishing or game consumption by environmental justice communities.
- Special cultural traditions associated with traditional cultural sites of Indian tribes increase sensitivity to aircraft overflights. In such locations, overflights may produce levels of noise that represent disproportionately high and adverse effects and significant impacts under NEPA even though noise levels associated with such overflights would not otherwise be considered significant.

12.2.4. Mitigation

Any potential adverse impacts that affect minority or low-income populations should be identified early in the planning process so action can be taken to prevent them. Environmental justice impacts may be avoided or minimized through early and consistent communication with the public and allowing ample time for public coordination. In addition to including public outreach efforts as part of the NEPA process, it may also be beneficial to include the public in identifying possible mitigation measures. In *"Environmental Justice: Guidance Under the National Environmental Policy Act,"* CEQ emphasizes the community's role in mitigation efforts, stating that efforts should reflect the needs of affected low-income, minority, or tribal populations.

In cases where the FAA finds a significant impact, but determines that mitigation would reduce that impact below the applicable significance threshold, the environmental document should describe how mitigation would reduce the impact to less than significant levels and verify that a project would not result in disproportionately high and adverse effects on low income and minority populations.

12.3. Children's Environmental Health and Safety Risks

Pursuant to Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks* 62 *Federal Register* 19885, (April 21, 1997), Federal agencies are directed, as appropriate and consistent with the agency's mission, to make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children. The FAA is encouraged to identify and assess environmental health risks and safety risks that the agency has reason to believe could disproportionately affect children. Environmental health risks and safety risks include risks to health or to safety that are attributable to products or substances that a child is likely to come in contact with or ingest, such as air, food, drinking water, recreational waters, soil, or products they might use or be exposed to.

15. Cumulative Impacts

15.1. Past, Present, and Reasonably Foreseeable Future Actions 15-1
15.2. Defining the Study Area 15-2
15.3. Significance Determination 15-2
15.4. Mitigation 15-2
15.5. Presentation of the Analysis Results 15-3

The Council on Environmental Quality (CEQ) Regulations define a *cumulative impact* as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions" (see 40 CFR § 1508.7). Cumulative impacts can be viewed as the total combined impacts on the environment of the proposed action or alternative(s) and other known or reasonably foreseeable actions.

Cumulative impacts should be considered as early as possible in the project development process, as early identification of potential cumulative impacts may help in the design of alternatives or mitigation measures that minimize a project's impacts on the environment. If it is determined that there would be no cumulative impacts, clearly document the basis for that conclusion.

The depth of a cumulative impacts analysis should be commensurate with the potential for significant impacts. The scope and extent of the analysis will vary by project type, geographic location, potential to impact resources, and other factors such as the current condition of potentially affected impact categories. While significant impacts of FAA actions tend to be primarily in the airport vicinity, the consideration of cumulative impacts is not limited to the airport or near the airport. The analysis should focus on impacts that are truly meaningful to decision-makers.

For more information on cumulative impacts analysis, see CEQ's *Considering Cumulative Effects Under the National Environmental Policy Act* (January 1997), available on CEQ's NEPA website at: http://energy.gov/sites/prod/files/nepapub/nepa_documents/RedDont/G-CEQ-ConsidCumulEffects.pdf.

15.1. Past, Present, and Reasonably Foreseeable Future Actions

Past, present, and reasonably foreseeable future actions must be considered in determining whether there are potential cumulative impacts. Actions can be initiated by any entity (i.e., other Federal agencies, state, tribal, or local governments, or private entities).

Past actions are actions that occurred in the past and may warrant consideration in determining the environmental impacts of an action. The FAA has discretion to determine whether, and to what extent, information about the specific nature, design, or present impacts of a past action are useful for the analysis of the impacts of the proposed action and alternative(s). Present impacts of past actions that are relevant and useful are those that may have a significant cause-and-effect relationship with the direct and indirect impacts of the proposed action and alternative(s). For example, past industrial or military activities may have contaminated portions of a project site.

See CEQ's *Guidance on the Consideration of Past Actions in Cumulative Effects Analysis* (June 2005) at: http://energy.gov/sites/prod/files/nepapub/nepa_documents/RedDont/G-CEQ-PastActsCumulEffects.pdf.

Present actions are any other actions that are occurring in the same general time frame as the proposal. Examples include: 1) new approach procedures proposed at an airport where a terminal expansion project is underway; or 2) a state transportation department implementing roadwork on a nearby thoroughfare. Such actions may have traffic, noise, or other environmental concerns that should be considered in conjunction with those that would be generated by the FAA proposed action and alternative(s) under consideration.

Reasonably foreseeable future actions are actions that may affect projected impacts of a proposal and are not remote or speculative. Reasonably foreseeable future actions should be considered for each future time frame evaluated in the NEPA document. An action may be reasonably foreseeable even in the absence of a specific proposal. Coordination with other agencies and local governments and review of planning documents, if available, can be helpful in identifying reasonably foreseeable future actions. For example, the local government may have plans describing future actions for developing a property adjacent to where new aviation infrastructure is proposed. Future actions not grounded in planning documents, projected development trends, or regional or local plans would typically be considered remote and speculative, and thus need not be analyzed. In addition, future actions may be considered improbable or remote even though they have been mentioned in planning documents (e.g., general statements about future growth opportunities and unrefined lists of potential projects). Such actions should be mentioned in the NEPA document with an indication that they are not reasonably foreseeable.

15.2. Defining the Study Area

The study area for cumulative impacts analysis is the same area defined for a project's direct and indirect impact analysis (see the Introduction and the Affected Environment sections of Chapter 1 to 14 of this Desk Reference). Thus, the study area will be different for each impact category.

15.3. Significance Determination

The significance of cumulative impacts should be determined in the same manner as the significance of direct and indirect impacts (see the Significance Determinations sections of Chapter 1 to 14 of this Desk Reference). In some cases, cumulative impacts from other proposed or implemented project(s) in conjunction with the direct and indirect impacts from the proposed action or alternative(s) may together yield significant impacts and lead to a finding of significance, even though the direct and indirect impacts from the proposed action or alternative(s) alone are not significant. Consultation with agencies having special expertise or jurisdiction regarding a specific impact category can also assist in determining the significance of cumulative impacts.

15.4. Mitigation

Cumulative impacts may influence the mitigation considered for the proposed action. The FAA's consideration of mitigation would not extend to mitigating impacts of non-FAA actions.

15.5. Presentation of the Analysis Results

The best location(s) for the cumulative impacts analysis in a NEPA document will vary by project. In some cases, presentation of the cumulative impacts analysis may be clearest and most effective in an independent section or chapter that details all cumulative impacts by impact category and alternative and describes how they are interrelated. In other circumstances, the cumulative impacts analysis may be easier for the decision-maker to understand when included within the discussion of each individual impact category.

CERTIFICATE OF SERVICE - CM/ECF

I certify that on November 30, 2018, I electronically filed the **PETITIONER'S EXCERPTS OF RECORD, VOLUME 2** with the Clerk of the Court for the United States Court of Appeals for the Ninth Circuit by using the appellate CM/ECF system. Counsel for all parties are registered to use that system and, to my knowledge, will receive copies of this document upon its filing.

/s/Matthew G. Adams
Matthew G. Adams

Case No. 18-71705

IN THE UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

CITY OF BURIEN, WASHINGTON

Petitioner,

v.

FEDERAL AVIATION ADMINISTRATION and
MICHAEL HUERTA,

Respondents.

PETITIONER'S MOTION TO CORRECT THE RECORD, OR IN THE ALTERNATIVE, FOR CONSIDERATION OF EXTRA-RECORD EVIDENCE

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ARGUMENT

Petitioner the City of Burien, Washington, hereby moves this Court, pursuant to Circuit Rule 17-1 and Federal Rules of Appellate Procedure 16, 17 and 27, for an Order directing that seven documents be added to the Administrative Record in this Petition for Review of Federal Aviation Administration ("FAA") action to approve a new departure route (the "New Route") at Seattle-Tacoma International Airport ("Sea-Tac"). True and correct copies of the documents are attached to this Motion as Exhibits 1 through 7.

The record on review of an agency order consists of: (1) the order involved; (2) any findings or report on which it is based; and (3) the pleadings, evidence and other parts of the proceedings before the agency. Fed. R. App. Proc. 16(a). All parts of the record retained by the agency are a part of the administrative record on review for all purposes. Fed. R. App. Proc. 17(b)(3). "A reviewing court must review the administrative record before the agency at the time the agency made its decision." *National Wildlife Federation v. U. S. Army Corps of Engineers*, 384 F.3d 1163; 1170 (9th Cir. 2004), *citing Southwest Ctr. for Biological Diversity v United States Forest Serv*., 100 F.3d 1443, 1450 (9th Cir. 1996).

Federal Courts, including this Court, may allow supplementation of an agency-prepared administrative record if the record inadequate, incomplete or insufficient to explain the agency's decision. *Midwater Trawlers Coop. v. Dep't of*

Commerce, 393 F.3d 994, 1007 (9th Cir. 2004) ("judicial review of an agency decision may be expanded beyond the [administrative] record if necessary to explain agency decisions")

Courts may also rely on "extra-record" materials: (1) if necessary to determine whether the agency has considered all relevant factors and has explained its decision; (2) when the agency has relied on documents not in the record; (3) when supplementing the record is necessary to explain technical terms or complex subject matter, or (4) when plaintiffs make a showing of agency bad faith. *Ctr. for Biological Diversity v. U. S. Fish & Wildlife Serv.*, 450 F.3d 930, 943 (9th Cir. 2006) (citations omitted.) "These limited exceptions operate to identify and plug holes in the administrative record." *Lands Council v. Powell*, 379 F.3d 738, 747 (9th Cir. 2004), *citing Camp v. Pitts*, 411 U.S. 138, 142-43 (1973) (reviewing court may require supplementation of the administrative record if it is incomplete).

Consistent with these general principles governing administrative record review, Petitioner respectfully requests that this Court supplement FAA's

Administrative Record with the following seven documents, or, in the alternative, consider those seven documents as extra-record evidence.[1]

1. **Seattle-Tacoma International Airport Part 150 Noise Compatibility Study, dated October 2013**

The FAA claims to have reviewed this document as part of the National Environmental Policy Act ("NEPA") process at issue in this case (*see* AR 37 at 39), but it does not appear in the agency's Administrative Record.

2. **Letter from Regional Administrator KC Yanamura to Mayor Lucy Krakowiak regarding "North Flow Departures from Sea-Tac Airport over the City of Burien", dated April 10, 2017**

This document is an official communication of the FAA announcing the commencement of the NEPA process at issue in this case, but it does not appear in the agency's Administrative Record.

3. **Letter from Burien City Attorney Lisa Marshall to Acting Regional Administrator David Suomi requesting additional discussions, dated November 15, 2017**

This document is an official communication from Petitioner City of Burien to the FAA addressing the NEPA process at issue in this case, but it does not appear in the agency's Administrative Record.

[1] Counsel for the Petitioner has notified counsel for the FAA of Petitioner's intent to file this Motion. Counsel for the FAA has advised that she intends to file a response, but will review the Motion before stating whether that response states an objection.

4. **Exchange of emails between Burien City Attorney Lisa Marshall and Acting Regional Administrator David Suomi regarding status of FAA decision-making, dated November 22, 2017; January 29, 2018; and February 6, 2018**

These documents are official communications between the FAA and the City addressing the NEPA process at issue in this case, but they do not appear in the agency's Administrative Record.

5. **Seattle-Tacoma International Airport Sustainable Airport Master Plan Technical Memoranda 1 and 7, dated July, 2015, and May, 2018**

These are official documents prepared as part of a planning process funded by the FAA and occurring at Sea-Tac during the same timeframe as the NEPA process at issue in this case. Under NEPA, the FAA had an obligation to identify and evaluate the cumulative impact of the New Route together with all past, present, and reasonably foreseeable future actions. 40 C.F.R. §1508.7. These documents are therefore necessary to determine "whether the agency has considered all relevant factors and has explained its decision." *See Ctr. for Biological Diversity*, 450 F.3d at 943.

6. **E-mail from E. Kranz to M. Adams regarding publication of Categorical Exclusion to FAA website, dated April 12, 2018**

This document is an official communication from a representative of the FAA to a representative of the Petitioner regarding the agency decision-making process at issue in this case, but it does not appear in the agency's Administrative

Record. The document also confirms the date of the FAA's final order, and is therefore necessary for effective judicial review.

7. **E-mails between M. Adams and E. Kranz regarding filing of new petition for review, dated May 8 and 9, 2018**

This document confirms the positions of the Parties with respect to the filing of the Petition for Review in this case, and is therefore necessary for effective judicial review.

CONCLUSION

The seven documents discussed above address issues that go to the core of the substance and judiciability of this case. For these reasons and the others set forth above, the City respectfully requests that its Motion be granted.

Dated: November 29, 2018

Respectfully submitted,

DENTONS US LLP

By */s/ Matthew G. Adams*
Matthew G. Adams
Jessica L. Duggan
Attorneys for Petitioners

Exhibit 1

CHAPTER ONE
INVENTORY

Seattle-Tacoma International Airport (Sea-Tac Airport) is the primary air transportation hub of Washington State and the Northwest United States. The Airport is located within King County and the City of SeaTac, approximately 12 miles south of downtown Seattle and approximately 20 miles north of the City of Tacoma. As of May 2012, Sea-Tac Airport was served by 25 commercial passenger airlines with scheduled passenger service. There are also several scheduled all-cargo carriers serving Sea-Tac Airport. Sea-Tac Airport provides non-stop air service to 71 cities within the United States and 17 additional cities worldwide. In terms of passenger activity, in 2011 Sea-Tac Airport was the 16th busiest airport in the United States and is the primary commercial service airport for the Pacific Northwest. In terms of operations, it was the 23th busiest airport in the United States in 2011. It is the only airport that provides primary scheduled commercial service in the Puget Sound Region. The generalized location of Sea-Tac Airport is illustrated on **Exhibit 1-1, *Airport Location Map***.

Sea-Tac Airport is owned and operated by the Port of Seattle (Port), which is led by a five-member governing body called the Port of Seattle Commission (Commission). The Commission is elected at large to direct Port policy. The Port district boundaries are contiguous with those of King County. The Managing Director of the Aviation Division is responsible for the day-to-day operations of Sea-Tac Airport. While state enabling legislation provides the Port with a broad range of municipal powers over Sea-Tac Airport property and operations, the Port does not have jurisdiction over land use and zoning requirements to ensure compatible development in the noise-affected areas around Sea-Tac Airport. The Port, as operator of Sea-Tac Airport, has enacted a comprehensive program of noise abatement and mitigation measures through Port Commission Resolutions. These Resolutions are outlined in subsequent sections of this chapter.

This 14 CFR Part I50 Study will evaluate traditional Part 150 elements and time frames, which generally includes evaluating aircraft noise exposure and noise abatement measures within the five-year time frame dictated by Title 14, Part 150 of the Code of Federal Regulations (14 CFR Part 150).

1.1 14 CFR PART 150

Part 150 is a section of the Code of Federal Regulations (CFR) that sets forth rules and guidelines for airports desiring to undertake airport noise compatibility planning. The regulations were promulgated by the Federal Aviation Administration (FAA) pursuant to the Aviation Safety and Noise Abatement Act (ASNA) of 1979, Public Law 96-193. ASNA was enacted to "… provide and carry out noise compatibility programs, to improve assistance to assure continued safety in aviation and for other purposes." The FAA was vested with the authority to implement and

administer this act. This legislation required the establishment of a single system for measuring aircraft noise, determining noise exposure, and identifying land uses, which are normally compatible with various noise exposure levels.

Through 14 CFR Part 150, the FAA established regulations governing the technical aspects of aircraft noise analysis and the public participation process for airports choosing to prepare airport noise compatibility plans.

1.1.1 PURPOSE OF CONDUCTING A PART 150 STUDY

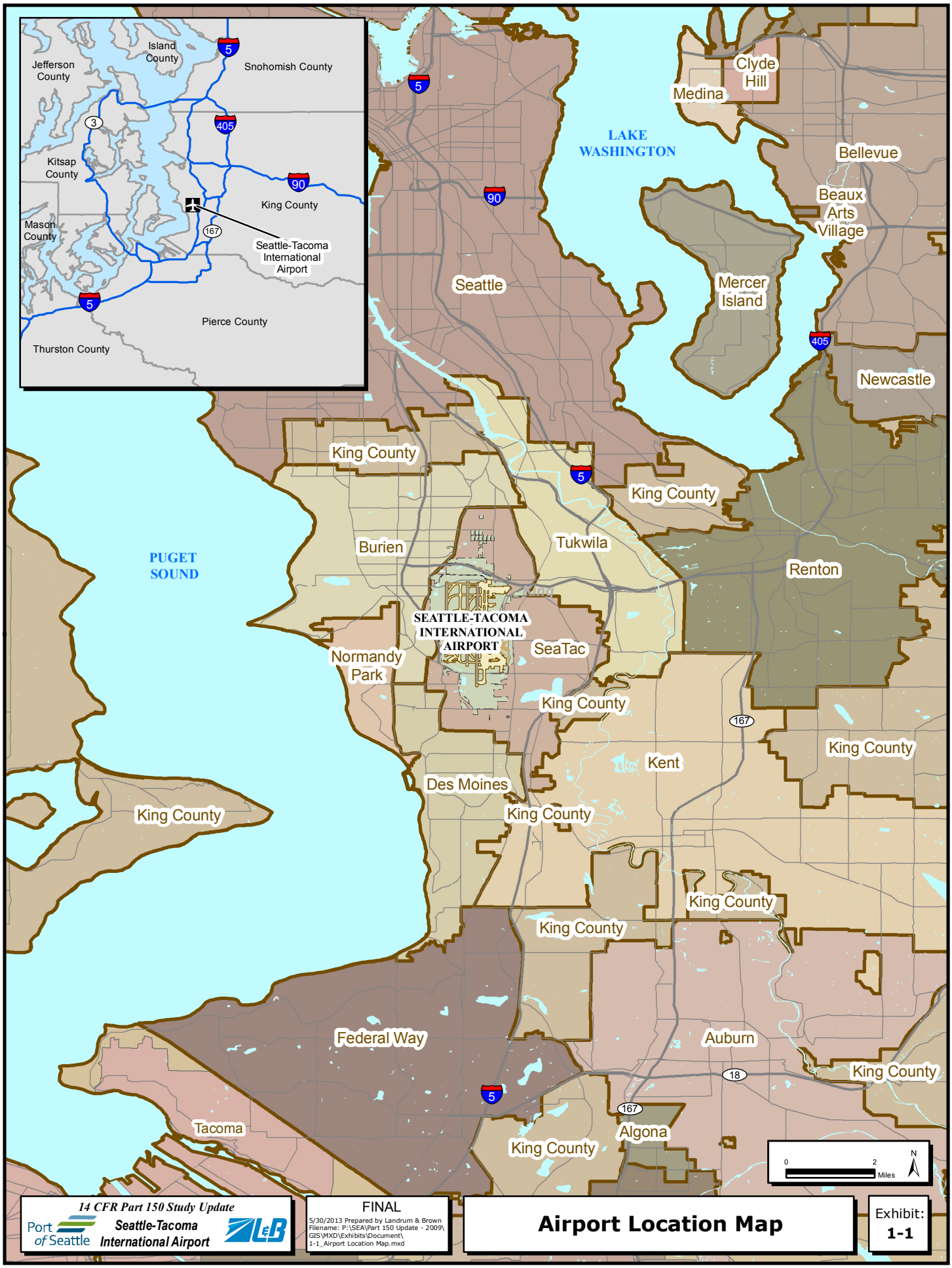
The purpose for conducting a Part 150 Study at an airport is to develop a balanced and cost-effective plan for reducing current noise impacts from an airport's operations, where practical, and to limit additional impacts in the future. By following the process, the airport operator is assured of the FAA's cooperation through the involvement of air traffic control professionals in the study and the FAA's review of the recommended Noise Compatibility Program (NCP). An airport with an FAA-approved NCP also becomes eligible for funding assistance for the implementation of measures in the NCP.

Among the general goals and objectives addressed by a Part 150 Study are the following:

- To reduce, where feasible, existing and forecasted noise levels over existing noise-sensitive land uses;
- To reduce new noise-sensitive developments near the airport;
- To mitigate, where feasible, adverse impacts in accordance with Federal guidelines;
- To provide mitigation measures that are sensitive to the needs of the community and its stability;
- To minimize the impact of mitigation measures on local tax bases; and
- To be consistent, where feasible, with local land use planning and development policies.

The previous Noise Compatibility Study for Sea-Tac Airport was approved by the FAA in June 2002. The following describes the reasons for updating the 2002 Part 150 Study. The FAA also issued acceptance of the Existing 1998 and Future 2004 Noise Exposure Maps (NEMs) prepared for that study.

- Typically, airports revise their Noise Exposure Maps (NEMs) and NCP every five years.
- Since the 2002 Part 150 Study, the third parallel runway (designated Runway 16R/34L) was opened (in November 2008).
- Through the Record of Decision (ROD) issued by the FAA for the third runway at Sea-Tac Airport, the Port committed to additional noise evaluations after the opening of the runway.


Island County
Jefferson County
Snohomish County
Kitsap County
King County
Mason County
Seattle-Tacoma International Airport
Pierce County
Thurston County
LAKE WASHINGTON
Clyde Hill
Medina
Bellevue
Beaux Arts Village
Seattle
Mercer Island
Newcastle
King County
Burien
Tukwila
Renton
PUGET SOUND
SEATTLE-TACOMA INTERNATIONAL AIRPORT
SeaTac
Normandy Park
Kent
Des Moines
Federal Way
Auburn
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Algona
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14 CFR Part 150 Study Update
Port of Seattle
Seattle-Tacoma International Airport
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Airport Location Map
Exhibit: 1-1

1.1.2 PART 150 PLANNING PROCESS

The Part 150 planning process involves the methods and procedures an airport operator must follow when preparing NEMs and developing an NCP. The decision to undertake noise compatibility planning is entirely voluntary on the part of the airport operator. If an airport operator chooses to prepare an NCP, the FAA will provide funding assistance to conduct the study if the operator follows the regulations of 14 CFR Part 150. As a further encouragement to undertake noise compatibility planning, an airport operator becomes eligible to apply for Federal funding assistance for the implementation of measures in an FAA-approved NCP. See **Exhibit 1-2**, ***Noise Compatibility Planning Process***, for a flowchart showing the planning process.

A Part 150 Study involves six major steps:

- Data collection, including existing land use patterns, existing aircraft operations from radar data and other sources, and forecast development;
- Definition of existing and future noise exposure patterns and preparation of NEMs;
- Evaluation of alternative measures for abating noise, including noise abatement, land use mitigation, and program management measures;
- Development of a NCP including an implementation and monitoring plan;
- Conducting public consultation, including publishing a draft report and holding a public hearing; and
- FAA review and approval of the recommended NCP, including the analysis of alternatives, the compatibility plan, and the implementation and monitoring plan.

The Part 150 Study process is designed to identify noise incompatibilities surrounding an airport, and to recommend measures to both correct existing incompatibilities and to prevent future incompatibilities. For Part 150 Study purposes, noise incompatibilities are generally defined as residences or public use noise-sensitive facilities (churches, schools, libraries, nursing homes, and hospitals) within the Day-Night Average Sound Level (DNL) 65 dBA noise contour.

The process to update the 2002 NCP was designed to accomplish two goals:

- Update the status of the measures included in the 2002 NCP
  - Each previously approved measure was evaluated to determine if it should be continued, withdrawn, or modified, based on operational and land use changes that have occurred since the completion of the 2002 NCP.
- Identify, analyze, and recommend new measures
  - Potential new noise abatement, land use compatibility, and program management measures were evaluated, based on the existing conditions at Sea-Tac Airport and conditions expected to occur within the next five years.

The planning process has both technical and procedural components. The first component involves the preparation of NEMs, which requires the use of specific technical criteria and methods to complete analyses of aircraft noise exposure, potential noise abatement, and land use mitigation measures. NEMs show the official noise contours for an airport and are prepared for existing conditions and for five years in the future. For this Part 150 Study, 2013 is the existing year and 2018 is the future year. The NEMs must be prepared according to 14 CFR Part 150 guidelines with regard to methodology, noise metrics, identification of incompatible land uses, and public participation. More detailed information regarding the NEM process is included in **Section 1.1.3** of this chapter.

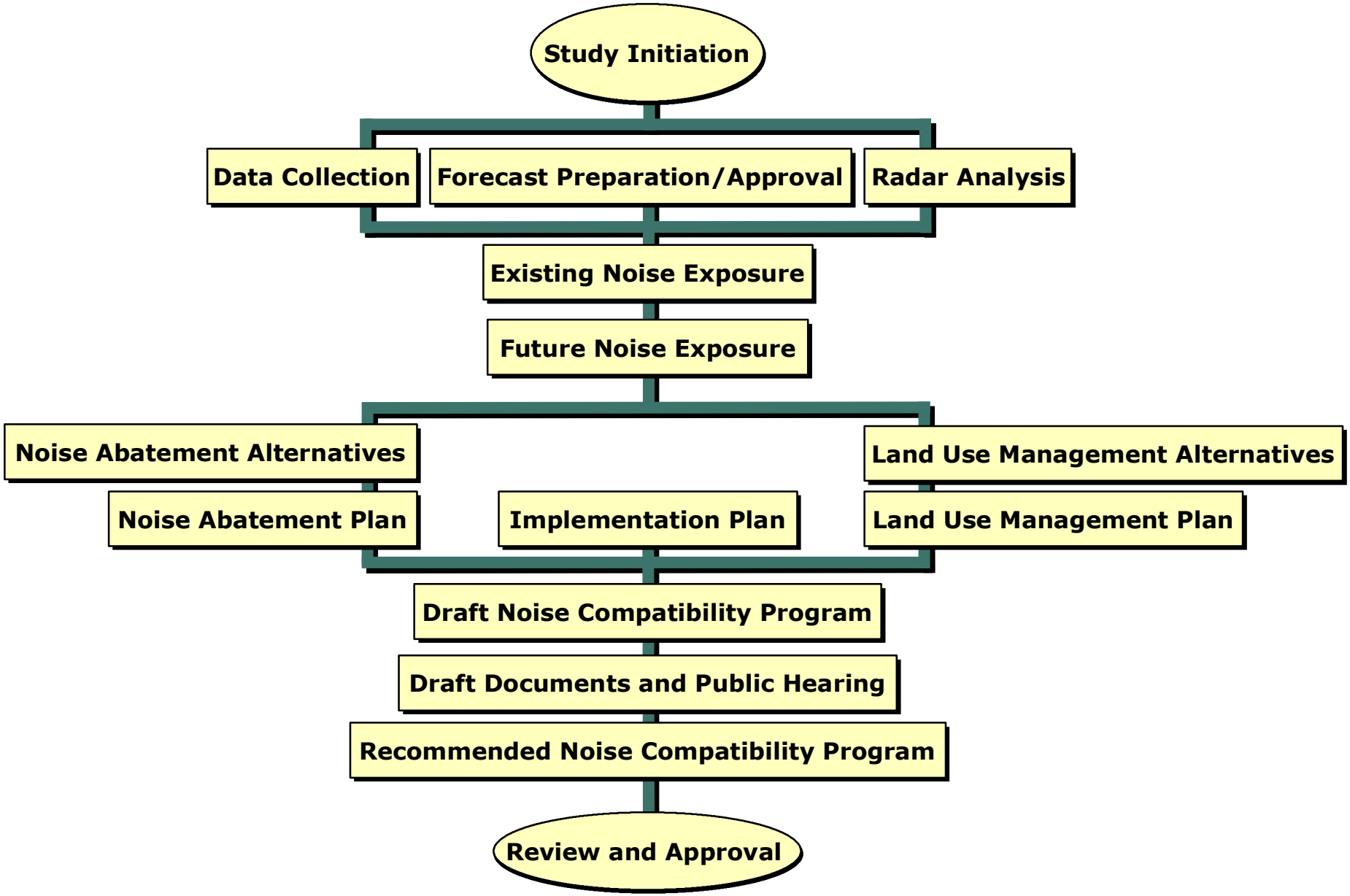
The second component of the planning process involves the development of an NCP. The NCP sets forth measures intended to mitigate the impacts of significant noise exposure on residential areas near an airport, and to limit, to the extent possible, the introduction of new incompatible land uses into locations exposed to significant noise levels. Per 14 CFR Part 150, all land uses are considered compatible with aircraft noise below DNL 65 dBA. Noise sensitive land uses, defined as residential, schools, churches, hospitals, and nursing homes, are considered incompatible at or above DNL 65 dBA without mitigation.

Part 150 regulations require that potentially affected airport users, local governments, and the public be consulted during the study, with the process culminating in the opportunity for a public hearing on the recommended NCP. More detailed information regarding the NCP process is included in **Section 1.1.4** of this chapter. Information regarding the public participation component of this Study is included in **Section 1.1.5** of this chapter and **Chapter Seven, *Consultation***.

1.1.3 NOISE EXPOSURE MAPS (NEMs)

The NEM component of a Part 150 Study presents airport noise exposure contours for the existing condition and a forecast condition five years from the date of submission of the maps for FAA review. The current year NEM is dated 2013 and is representative of 2013 conditions at Sea-Tac Airport. The data collection and analysis for this Part 150 Study Update began in 2008 and continued through May 2012. The total annual operations on which the Existing (2013) NEM is based is 313,352. The future year NEM is dated 2018 because it is five years from the date of submission.

The 2018 NEM is representative of future conditions forecasted at the Sea-Tac Airport. The NEM noise contours are superimposed on a land use map to show areas of incompatible land use. (Per 14 CFR Part 150, incompatible land uses are defined as residences, schools, churches, nursing homes, hospitals, and libraries.) **Chapter Three, *Noise Analysis***, contains detailed information on the inputs and methodology for preparing the noise exposure contours. The official (full-size printed) NEMs are located at the back of the printed version of this document. Small-scale representations of the official NEMs are located at the front of this document with the NEM and NCP checklist.



Port of Seattle — *14 CFR Part 150 Study* — *Seattle-Tacoma International Airport* — LEB

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5/30/2013 Prepared by Landrum & Brown
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Noise Compatibility Planning Process

Exhibit: **1-2**

14 CFR Part 150 requires the use of standard methodologies and metrics for analyzing and describing noise. It also establishes guidelines for the identification of land uses that are incompatible with noise of different levels. Section 150.21(d) of 14 CFR Part 150 states that airport proprietors are required to update NEMs when changes in the operation of the airport would create any new, substantial incompatible use. This is considered to be an increase or decrease in DNL noise levels of 1.5 decibels (dB) over incompatible land uses when the aircraft noise level exceeds DNL 65 dBA. Of course, the airport operator may update the NEMs at any time based on their own needs and concerns.

Congress has provided airport proprietors that prepare, submit, and publish FAA accepted NEMs with protection from liability for claims based on noise allegedly attributable to the airport. *See* ASNA, 49 U.S.C. §47506 (limitations on recovering damages for noise).

The FAA has defined "significant" for purposes of ASNA's safe harbor from liability for airport noise claims to mean a change in one of the four specified factors that results in an increase at a particular property in the yearly day-night average sound level of 1.5 dB DNL or greater. 14 C.F.R. Part 150, Section 150.21(d), (g). Under ASNA, the person asserting the claim must prove this increase as to the allegedly affected property. FAA officials consider the term "area surrounding an airport" to mean an area within the DNL 65 dBA contour shown on the NEM. See 14 CFR Part 150, Section 150.21(b), (d), (f), and (g). Sea-Tac Airport has previously published FAA-accepted NEMs in July 1993 and December 2001 and will publish new NEMs in a newspaper of general circulation at the conclusion of this study.

An acceptance of the NEMs by the FAA is required before the FAA will approve an NCP for the airport.

1.1.4 NOISE COMPATIBILITY PROGRAM (NCP)

An NCP includes provisions for the abatement of aircraft noise through aircraft operating procedures, air traffic control procedures, or airport facility modifications. It also includes provisions for land use compatibility planning and may include actions to mitigate the impact of noise on incompatible land uses. **Chapter Six, *Noise Compatibility Program***, includes detailed information for the Sea-Tac Airport NCP recommendations. The NCP must also contain provisions for updating and periodic revision.

14 CFR Part 150 establishes procedures and criteria for FAA evaluation of the NCP. Two criteria are of particular importance: the airport proprietor may not take any action that imposes an undue burden on interstate or foreign commerce; nor may the proprietor unjustly discriminate between different categories of airport users.

The FAA also reviews changes in flight procedures proposed for noise abatement for potential effects on flight safety, safe and efficient use of the navigable airspace, management and control of the national airspace and traffic control systems, security and national defense, and compliance with applicable laws and regulations. Because the FAA has the ultimate authority over air traffic control and flight

procedures related to air traffic control requirements, any measures relating to these subjects that are recommended in an NCP must be explicitly approved by the FAA and may not be implemented unilaterally by the airport proprietor.

The FAA reviews the NCP and may approve or disapprove each measure on its merits and adherence to the national aviation policy. The approval or disapproval of each recommended measure is documented in the FAA Record of Approval (ROA). Additionally measures that require FAA action prior to implementation must be environmentally reviewed per the National Environmental Policy Act (NEPA) and measures that may affect safety must undergo a safety assessment per FAA Order 5200.11, FAA Airports Safety Management System. Following these steps, the FAA is able to participate in actions over which it has primary implementation responsibility (e.g., air traffic modifications). With an approved NCP, an airport proprietor becomes eligible for Federal funding to implement the eligible items of the program. Approval by the FAA does not, however, commit the Agency to either a specific schedule of implementation or guarantee the allocation of Federal funds for implementation of any measure.

The culmination of a Part 150 Study is the development of NCP measures intended to reduce the impact of aircraft noise. Typically, recommended NCP measures fall into three categories:

1. **Abatement** measures – these measures are applied at the airfield or to aircraft operations and include changes in runway use or changes in flight-track location.
2. **Mitigation** measures – these measures are applied to land use to and can be further classified into two types:
   - **Preventive** measures – land use control measures to prevent the new noise-sensitive land uses from occurring in the existing and future airport noise contours; such measures include compatible land use zoning or noise overlay zoning within off-airport noise exposure areas.
   - **Corrective (Remedial)** measures – mitigation measures applied to existing incompatible land uses; such measures include acquisition or sound insulation of noise-sensitive property. (Noise-sensitive property is defined as houses, schools, churches, nursing homes, hospitals, and libraries.)
3. **Program Management** measures – address administrative and management actions to enhance the program.

1.1.5 PUBLIC INVOLVEMENT

As discussed previously, a key element in the Part 150 process is public involvement, which is designed to inform and gather input from the public regarding the data and findings of the Part 150 Study. Additional information on the public involvement process is included in Chapter Seven of this document.

1.2 AIRPORT PHYSICAL FACILITIES

Sea-Tac Airport currently consists of three parallel runways: Runways 16L/34R, 16C/34C, and 16R/34L. Runway 16L/34R is the longest runway on the airfield, at 11,901 feet in length and 150 feet in width. Runway 16C/34C is 800 feet to the west of Runway 16L/34R and is 9,426 feet in length and 150 feet in width. Runway 16R/34L is approximately 1,700 feet to the west of Runway 16C/34C and is 8,500 feet in length and 150 feet wide. There are instrument approaches installed on all six runway ends. There are dual parallel taxiways to the east of Runway 16L/34R, west of the terminal, Taxiway A and Taxiway B. Taxiway B extends the full length of Runway 16L/34R, while Taxiway A ends approximately 1,200 feet short of the south end the runway (Runway 34R). There is a full-length parallel taxiway (Taxiway T) between Runway 16C/34C and Runway 16R/34L. A series of high-speed taxiway exits connects the runways and the ramp areas. Aircraft using Runway 16C/34C must cross Runway 16L/34R and aircraft using Runway 16R/34L must cross both other runways in either an approach or departure operation.

Most ancillary landside facilities are located on the east side of Sea-Tac Airport, with the passenger terminal complex located approximately to the center and east of Runway 16L/34R. Existing cargo and other support facilities are located north of the terminal. The terminal itself consists of one main central terminal building with four attached concourses, designated A, B, C, and D. There are two satellite concourses, referred to as the north and south satellites. The existing facilities at Sea-Tac Airport are graphically presented in **Exhibit 1-3, *Existing Airport Layout***.

Major ground access to/from Sea-Tac Airport is provided by International Boulevard (Highway 99) or State Highway 518 from the north. State Highway 518 connects to Interstates 5 and 405 and State Route 509. Sea-Tac Airport is connected to the Sound Transit Link light rail via the SeaTac / Airport Station, which is connected to the fourth floor of the Airport Garage. King County Metro Transit and Sound Transit provide bus service to and from Sea-Tac Airport.

1.3 AIR TRAFFIC OPERATIONS ACTIVITY

Like many airports nationwide, Sea-Tac Airport has seen a decrease in total operations over the past several years. As shown in the **Table 1-1, *Summary of Historical Operations, 1999-2011***, total operations (an operation is either a takeoff or a landing) have decreased from 433,646 in 1999 to 313,954 in 2010; however, total operations increased slightly to 314,944 in 2011.

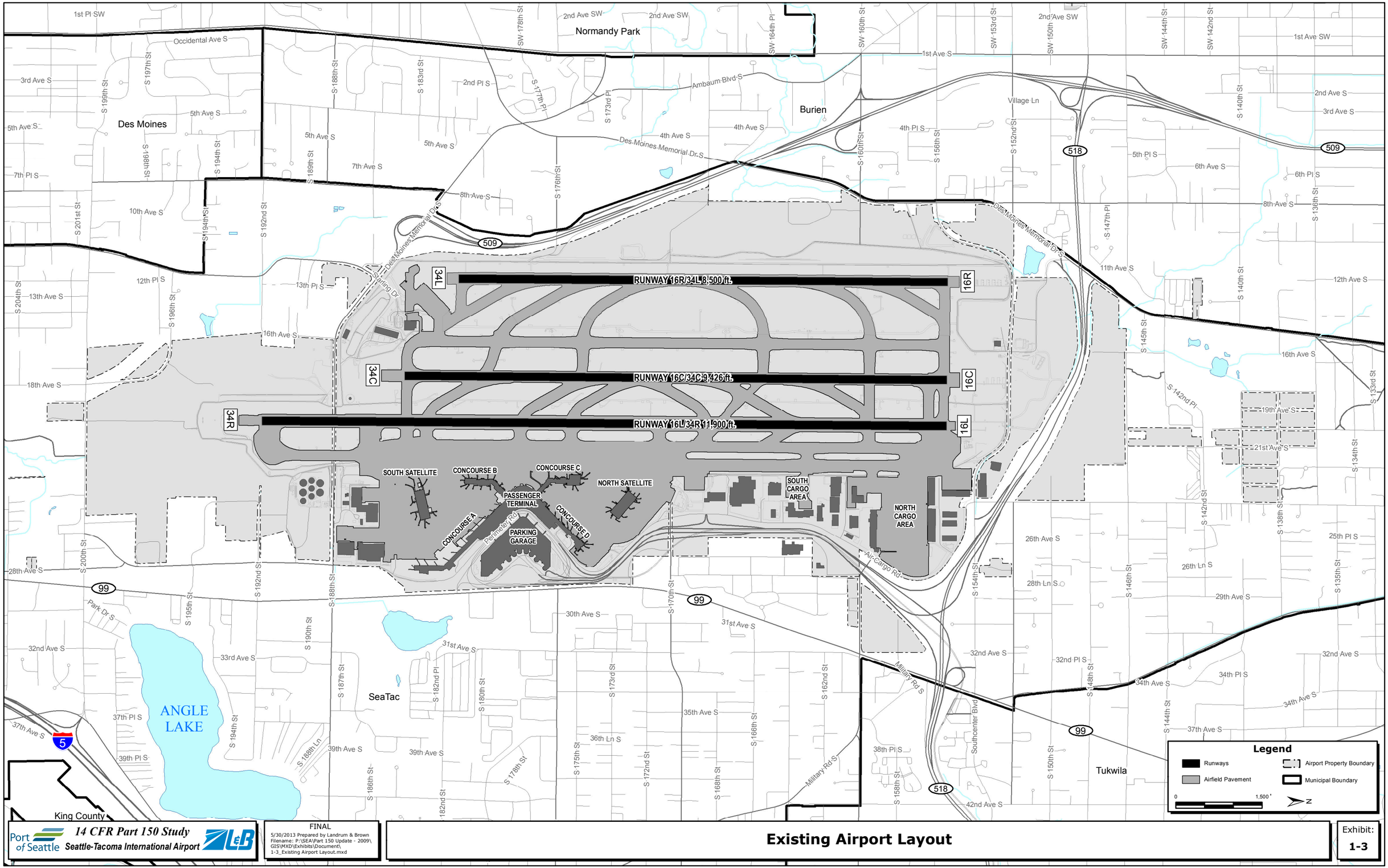
In terms of overall operations, Sea-Tac Airport was the 25th busiest airport in the United States in 2010. The airlines with the largest percentage of overall landings at Sea-Tac Airport during 2010 were: Alaska (29.3%), Horizon (25.0%), Southwest (9.1%), United (7.7% including United Express/Skywest), Delta (7.0%), American (3.1%), Continental (2.9%), US Airways (2.3%) and Virgin America (1.8%). The remainder of the airlines accounted for 11.7 percent of overall landings in 2011.

The aircraft that accounted for greatest number of operations at Sea-Tac Airport in 2011 were: Boeing 737 models (45.8%), de Havilland Dash 8 (25.5%), Airbus A320 Series (7.5%), Boeing 757 (5.6%), Embraer EMB-120 (2.0%), Bombardier CRJ-700 (1.9%), Boeing 767 (1.7%), Airbus A319 (1.4%), and Airbus A330 (1.2%). All other aircraft types comprised the remaining 7.5 percent of operations.

Table 1-1
SUMMARY OF HISTORICAL OPERATIONS, 1999-2011
Seattle-Tacoma International Airport

YEAR	AIR CARRIER	AIR TAXI	GENERAL AVIATION	MILITARY	TOTAL
1999	233,914	194,352	5,335	59	433,660
2000	236,355	203,723	5,504	95	445,677
2001	227,589	168,322	4,684	75	400,670
2002	220,733	139,793	4,086	59	364,671
2003	210,603	140,777	3,385	54	354,819
2004	250,605	105,377	2,788	124	358,894
2005	254,829	83,928	2,938	67	341,762
2006	253,507	82,147	4,296	108	340,058
2007	276,954	64,745	5,240	107	347,046
2008	306,425	34,453	4,059	120	345,057
2009	297,621	17,133	3,046	73	317,873
2010	292,016	18,562	3,262	114	313,954
2011	295,763	15,324	3,708	149	314,944

Source: Federal Aviation Administration, Air Traffic Activity Data System (ATADS), 2012.



Port of Seattle — *14 CFR Part 150 Study* — *Seattle-Tacoma International Airport* — LeB

FINAL
5/30/2013 Prepared by Landrum & Brown
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Existing Airport Layout

Exhibit: **1-3**

Operations are further broken down by the time of day they occurred. Based on a review of and radar data from February 2011 through January 2012, approximately 86 percent of total operations occur between 7:00 a.m. and 10:00 p.m., as shown in **Table 1-2, *Summary of Operations by Time of Day (in Percent)***. This ratio of daytime to nighttime operations is expected to continue at Sea-Tac Airport for the duration of the planning horizon of this Part 150 Study.

Table 1-2
SUMMARY OF OPERATIONS BY TIME OF DAY (IN PERCENT)
Seattle-Tacoma International Airport

TYPE OF AIRCRAFT	DAYTIME (7:00 A.M. TO 9:59 P.M.)	NIGHTTIME (10:00 P.M. TO 6:59 A.M.)
Large Jet (Passenger)	84.6%	15.4%
Commuter / General Aviation Jet	93.5%	6.5%
All Cargo Jet	60.9%	39.1%
Propeller Aircraft	89.3%	10.7%
Total	85.9%	14.1%

Source: FAA Radar Data, Landrum & Brown analysis.

In 2011, 32,823,220 total passengers were accommodated (enplaned and deplaned) at Sea-Tac Airport. This compares to 31,553,166 total passengers in 2010. The 2011 passenger figures include 29,838,192 domestic passengers and 2,985,028 international passengers. The number of passengers at Sea-Tac Airport has increased since 2004 when there were 28,804,553 total passengers. Sea-Tac Airport was ranked the 16th busiest airport in the United States for total passengers in 2011. The total passengers that were accommodated at Sea-Tac Airport between 2004 and 2011 is shown in **Table 1-3, *Summary of Total Passengers***.

The domestic passenger market, which accounted for approximately 90.3 percent of the total scheduled seats in 2011, was dominated by the contiguous United States, which accounted for 88.1 percent of the domestic seats available (79.6% of all seats). Alaska accounted for 8.4 percent of domestic seats (7.6 % of total seats) and Hawaii accounted for the remaining 3.5 percent of the domestic seats (3.1 percent of total seats). The top five domestic destination markets in terms of available seats were the San Francisco Bay Area (10.5%), the Los Angeles Area (10.0%), Anchorage, (45.4%), Chicago (5.0%) and Denver (4.9%).

Table 1-3
SUMMARY OF TOTAL PASSENGERS
Seattle-Tacoma International Airport

YEAR	DOMESTIC PASSENGERS	INTERNATIONAL PASSENGERS	TOTAL PASSENGERS
2004	26,368,448	2,436,106	28,804,554
2005	26,817,991	2,471,035	29,289,026
2006	27,517,599	2,478,825	29,996,424
2007	28,585,819	2,710,003	31,295,822
2008	29,274,094	2,922,434	32,196,528
2009	28,593,782	2,633,730	31,227,512
2010	28,745,014	2,808,152	31,553,166
2011	29,838,192	2,985,028	32,823,220

Note: Includes enplaned and deplaned passengers.
Source: Port of Seattle, 2012.

The international passenger market, which accounted for 9.1 percent of the total passengers at Sea-Tac Airport in 2011, was divided between Canada (3.0%), Asia (3.1%), Europe (2.4%), and Mexico (0.6%). The top five international destination markets were Vancouver, British Columbia (1.4%); Tokyo, Japan (1.1%:); Seoul, South Korea (0.9%); Victoria, British Columbia (0.7%); and Amsterdam, Netherlands (0.7%).

In 2011, Sea-Tac Airport provided for the transportation of 234,129 metric tons of cargo. Approximately 65.0 percent of this cargo, 152,211 metric tons, was domestic freight, and approximately 35.0 percent, 81,918 metric tons, was international freight. Federal Express accounted for 40.8 percent of all the air freight, Alaska Airlines accounted for 10.5 percent, Delta Airlines handled 10.1 percent, Korean Air accounted for 5.0 percent, and China Airlines accounted for 4.3 percent. The remaining cargo airlines all account for less than four percent each. **Table 1-4, *Summary of Total Cargo*,** shows the total cargo that was shipped to/from Sea-Tac Airport between 2004 and 2011.

Table 1-4
SUMMARY OF TOTAL CARGO
Seattle-Tacoma International Airport

YEAR	TOTAL CARGO IN METRIC TONS
2004	347,517
2005	338,590
2006	341,981
2007	319,013
2008	290,768
2009	270,142
2010	283,425
2011	279,625

Source: Port of Seattle, 2012.

1.4 AIRSPACE/AIR TRAFFIC CONTROL

The FAA is responsible for the safe and efficient use of the national air space. This airspace is divided into three specific types; enroute, terminal, and tower, within which air traffic controllers work to maintain separation between airborne aircraft. When an aircraft departs an airport, it is located in the airspace being handled by air traffic controllers working in an airport traffic control tower (ATCT). ATCT facilities control aircraft on the ground and within that airport's airspace.

Upon departure, when the aircraft is approximately one mile away from the airport, the aircraft is handed off to controllers working the Terminal Radar Approach Control Facility (TRACON). These controllers are responsible for the airspace extending out approximately 25 to 30 miles from the airport in all directions. TRACON facilities sequence and separate aircraft as they approach or depart the facility's airspace.

Once a departing aircraft exits TRACON airspace, it then enters the third type of airspace and becomes the responsibility of enroute controllers working in an Air Route Traffic Control Center (ARTCC). The enroute controllers retain control and continue to sequence and ensure separation of aircraft until the aircraft nears its intended destination. The Seattle ARTCC provides enroute control of the state of Washington and part of California, Idaho, Nevada, and Oregon. The air-traffic control process is then reversed for approaches.

At Sea-Tac Airport, the Seattle TRACON facility is located on the west side of the Airport and the ATCT is located on the north end of the airfield. There are several airports located in the Seattle area that are under the control of Seattle TRACON. Although Sea-Tac Airport accounts for a significant percentage of all area aircraft operations, the cumulative number of aircraft operations at the other airports also adds a significant workload for controllers at the Seattle TRACON. There are also other general aviation airports without operational control towers or published instrument procedures that contribute to the total number of area-wide aircraft operations. While aircraft using these other general aviation airports operate under visual flight rules (VFR), they must utilize the Seattle terminal airspace, and aircraft using Sea-Tac Airport must be separated from them. Seattle TRACON provides full arrival and departure services for Sea-Tac Airport, as well as the following airports:

- King County International Airport/Boeing Field (BFI),
- Gray Army Air Field (GRF)/McChord Air Force Base (TCM),
- Olympia Regional Airport (OLM),
- Renton Municipal Airport (RNT),
- Tacoma Narrows Airport (TIW),
- Bremerton National Airport (PWT),
- Auburn Municipal Airport (S50),
- Shelton/Sanderson Field (SHN), and
- Snohomish County Airport (Paine Field) (PAE).

Sea-Tac Airport has a 24-hour, continuously operating ATCT that has a designated Airport Traffic Area (ATA). Aircraft which operate within an ATA must be in contact, at all times, with the tower controllers, especially to receive approval for take-offs and landings. Standard ATAs are designated to include all airspace within five miles of an airport from the surface of the ground up to (but not including) 3,000 feet. Because of its proximity to other airports in the area, especially BFI, the Sea-Tac ATA is not completely circular. Airspace operational activities are explained in greater detail in the following paragraphs.

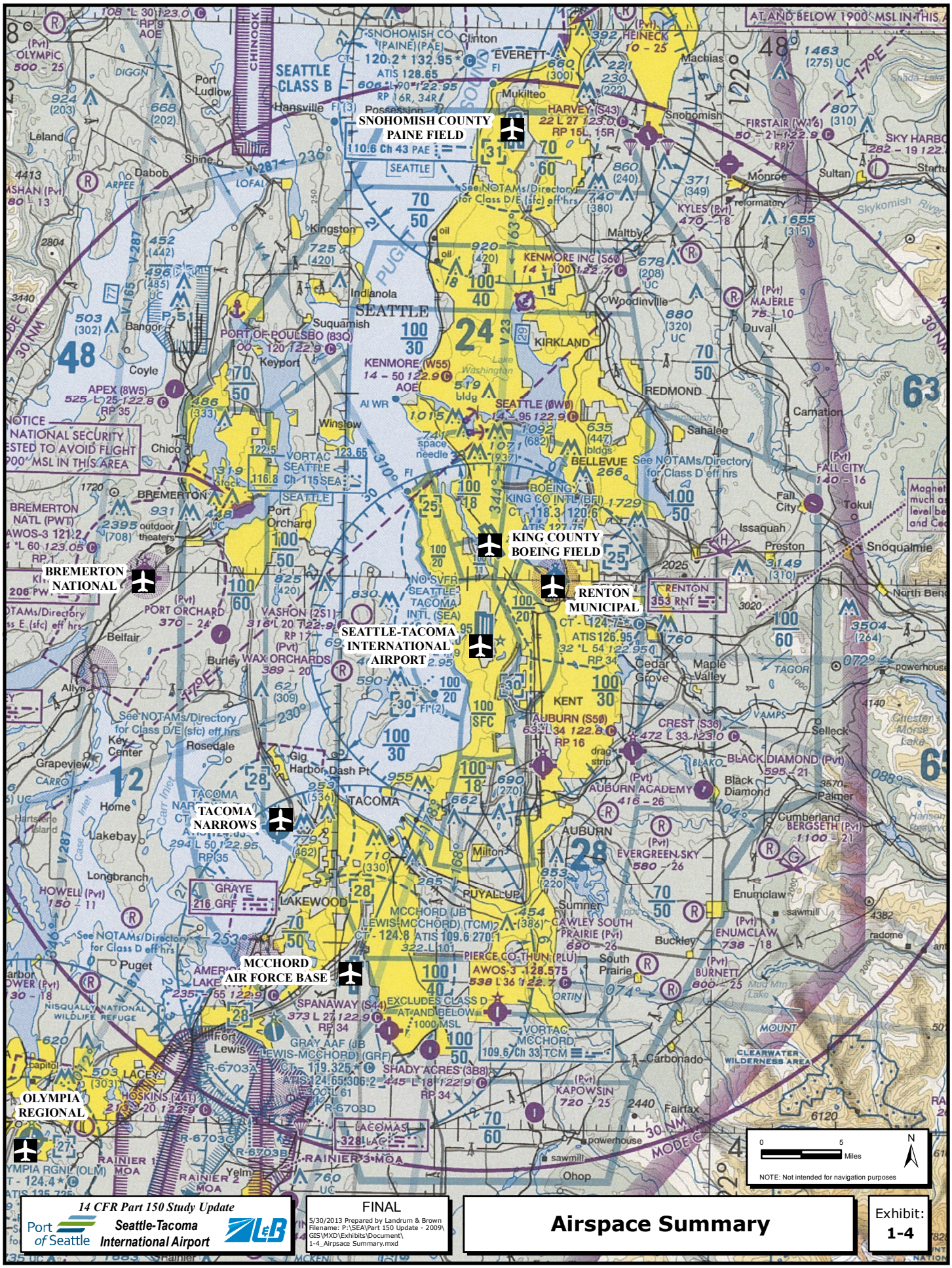
1.4.1 AIR SPACE CONFIGURATION

The Seattle TRACON area airspace is shown in **Exhibit 1-4, *Airspace Summary***. The Seattle ARTCC provides Air Traffic Control (ATC) services to aircraft between TRACON areas. The Seattle TRACON provides approach/departure control services within its delegated airspace. Seven of the busiest airports within the Seattle TRACON's airspace have ATCTs or "towers." These towers provide control within the TRACON's airspace. These seven airports are: BFI, GRF, OLM, RNT, SEA, TIW, and Snohomish County Airport/Paine Field (PAE).

The ARTCC and TRACON provide control primarily to aircraft operating under instrument flight rules (IFR). In addition, TRACON provides control or service to aircraft operating under VFR within the Seattle Class B Airspace, (Formerly TCA). An ATC clearance and control is mandatory for VFR aircraft operating within Class B airspace. The Seattle Class B Airspace Area is depicted on Exhibit 1-4.

All aircraft, both IFR and VFR, in Class B airspace are subject to positive control from ATC. Class B airspace exists at 29 high-density airports in the United States as a means of managing air traffic activity around the airport. It is designed to regulate the flow of air traffic above, around, and below the arrival and departure routes used by air carrier aircraft at major airports. Class B airspace generally includes all airspace from an airport's established elevation up to 12,000 feet MSL, and, at varying altitudes, out to a distance of about 30 nautical miles from the center of the airport. Aircraft operating in Class B airspace must have specific radio and navigation equipment, including an altitude encoding transponder, and must obtain ATC clearance.

Published instrument approach procedures exist for seven airports within the Seattle TRACON airspace as listed in **Table 1-5, *Published IFR Approach Procedures At Nearby Airports***. Table 1-5 differentiates between precision and non-precision approaches. A precision approach, by definition, provides electronic vertical guidance to the pilot as well as horizontal (azimuth) guidance. A non-precision approach provides horizontal guidance only. Generally the azimuth guidance for a precision approach is more precise. For an Instrument Landing System (ILS) approach procedure, a localizer transmitter provides the azimuth guidance and a glide-slope transmitter provides the vertical guidance.



14 CFR Part 150 Study Update
Port of Seattle
Seattle-Tacoma International Airport

FINAL
5/30/2013 Prepared by Landrum & Brown
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Airspace Summary

Exhibit: **1-4**

Table 1-5
PUBLISHED IFR APPROACH PROCEDURES AT NEARBY AIRPORTS
Seattle-Tacoma International Airport

AIRPORT	RUNWAY(S)	PROCEDURE
Bremerton National Airport (PWT)	19	ILS or LOC
	01	RNAV (GPS)
	19	RNAV (GPS)
	01	NDB
Gray Army Air Field (GRF)/McChord Air Force Base (TCM)	16	ILS or LOC
	34	ILS or LOC
	34	ILS
	16	TACAN
	34	TACAN
King County International Airport/Boeing Field (BFI)	31L	ILS or LOC
	13R	ILS RWY
	13R	RNAV (GPS)
	13R	RNAV (RNP)
	13R	LOC/DME
Olympia Regional Airport (OLM)	17	ILS or LOC
	17	RNAV (GPS)
	35	RNAV (GPS)
	35	VOR/DME
Renton Municipal Airport (RNT)	16	RNAV (GPS)
	16	NDB
Sea-Tac Airport (SAE)	16L/C/R	ILS or LOC
	34L/C/R	ILS or LOC
	16R	ILS (SA CAT I)
	34L/C/R	ILS (CAT II)
	16L/C/R	ILS (CAT II)
	16L/C/R	ILS (CAT III)
	16L/C/R	RNAV (GPS)
	34L/C/R	RNAV (GPS)
	16L/C	VOR/DME
	34C	VOR/DME
Snohomish County Airport (Paine Field) (PAE)	16R	ILS OR LOC/DME
	16R	ILS (SA CAT I)
	16R	RNAV (GPS)
	34L	RNAV (GPS)
	16R	VOR/DME
Tacoma Narrows Airport (TIW)	17	ILS RWY
	17	RNAV (GPS)
	35	RNAV (GPS)
	35	NDB

Abbreviations: DME=Distance Measuring Equipment; GPS=Global Positioning System; ILS=Instrument Landing System; LOC=Localizer; NDB=Nondirectional (radio) Beacon; RNAV=Area Navigation; RNP=Required Navigation Performance; TACAN=Tactical Air Navigation; VOR=Very High Frequency Omnidirectional Range.

Source: AirNav, 2013.

1.4.2 AIRSPACE USAGE

All aircraft flights are governed by either VFR or IFR. Definitions are contained in 14 CFR Part 91 and summarized below. The basic difference between VFR and IFR is that the pilot maintains spatial orientation of an aircraft by reference to the earth's surface for VFR and by reference to aircraft instruments for IFR. Under IFR rules, a pilot can operate in poor visibility conditions within controlled airspace. Flight under VFR rules requires good visibility and maintenance of specified distances from clouds.

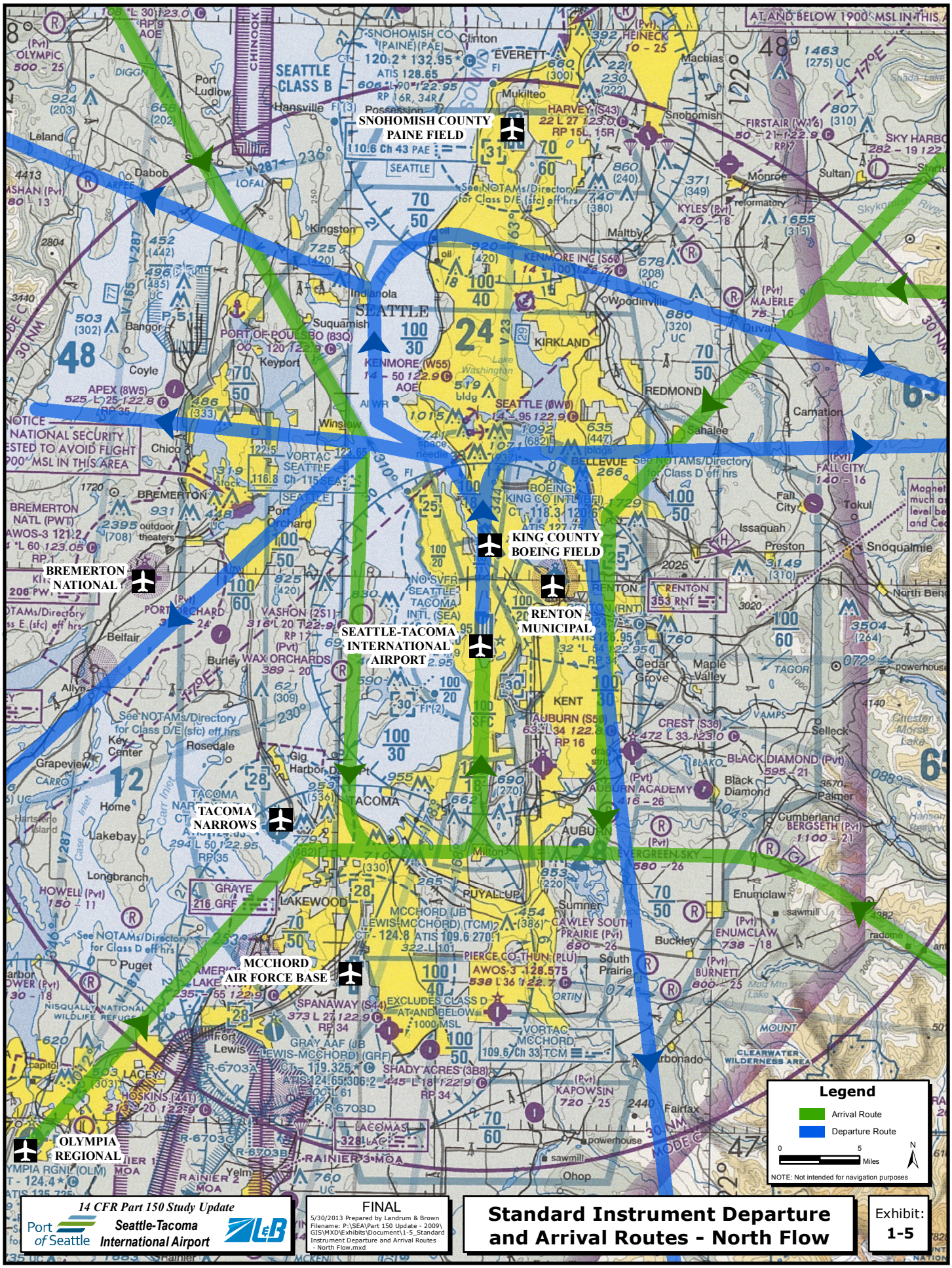
With the opening of Runway 16R/34L, during low visibility conditions, Sea-Tac Airport is restricted to dual arrival streams to Runways 16L/34R and 16R/34L. This is because of the proximity of the parallel runways. FAA Air Traffic Control guidelines require a separation of at least 2,500 feet for dual parallel approaches, which is the separation of Runways 16L/34R and 16R/34L. Sea-Tac Airport operates with a dual arrival stream approximately 44 percent of the time.

The Seattle Terminal Airspace area includes nine IFR airports and approximately 30 VFR airports. Two of the IFR airports are military (McChord AFB and Gray AAF), and 10 of the VFR airports are private or restricted and generally are not available to the public.

IFR Operations

Air carrier and many turbojet general aviation and military aircraft operating to or from Sea-Tac Airport under IFR, are reassigned coded flight routes and procedures referred to as Standard Instrument Departures (SIDS) and Standard Terminal Arrival Routes (STARS). These SID and STAR routes are depicted on **Exhibit 1-5, *Standard Instrument Departure and Arrival Routes – North Flow*,** for north flow and on **Exhibit 1-6, *Standard Instrument Departure and Arrival Routes – South Flow,*** for south flow. These figures also depict arrival and departure gates. Navigation of IFR aircraft within the Seattle TRACON airspace is generally provided by radar vectors to achieve efficient sequencing, spacing, and separation between aircraft. Therefore, actual aircraft flight tracks, particularly closer in to the airport, will not conform exactly to the SIDS, and STARS depicted.

In general, however, IFR arrival aircraft are cleared to Sea-Tac Airport by the Seattle ARTCC via these STARS while descending from enroute altitudes. These aircraft arrivals are "handed off' via radar from the Seattle ARTCC to the Seattle TRACON at various entry points, referred to as "gates". In other words, there are established arrival routes that aircraft utilize and the pilots are in contact with different controllers as they approach Sea-Tac Airport.


SNOHOMISH COUNTY
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KING COUNTY
BOEING FIELD
BREMERTON
NATIONAL
RENTON
MUNICIPAL
SEATTLE-TACOMA
INTERNATIONAL
AIRPORT
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NARROWS
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Standard Instrument Departure and Arrival Routes - North Flow
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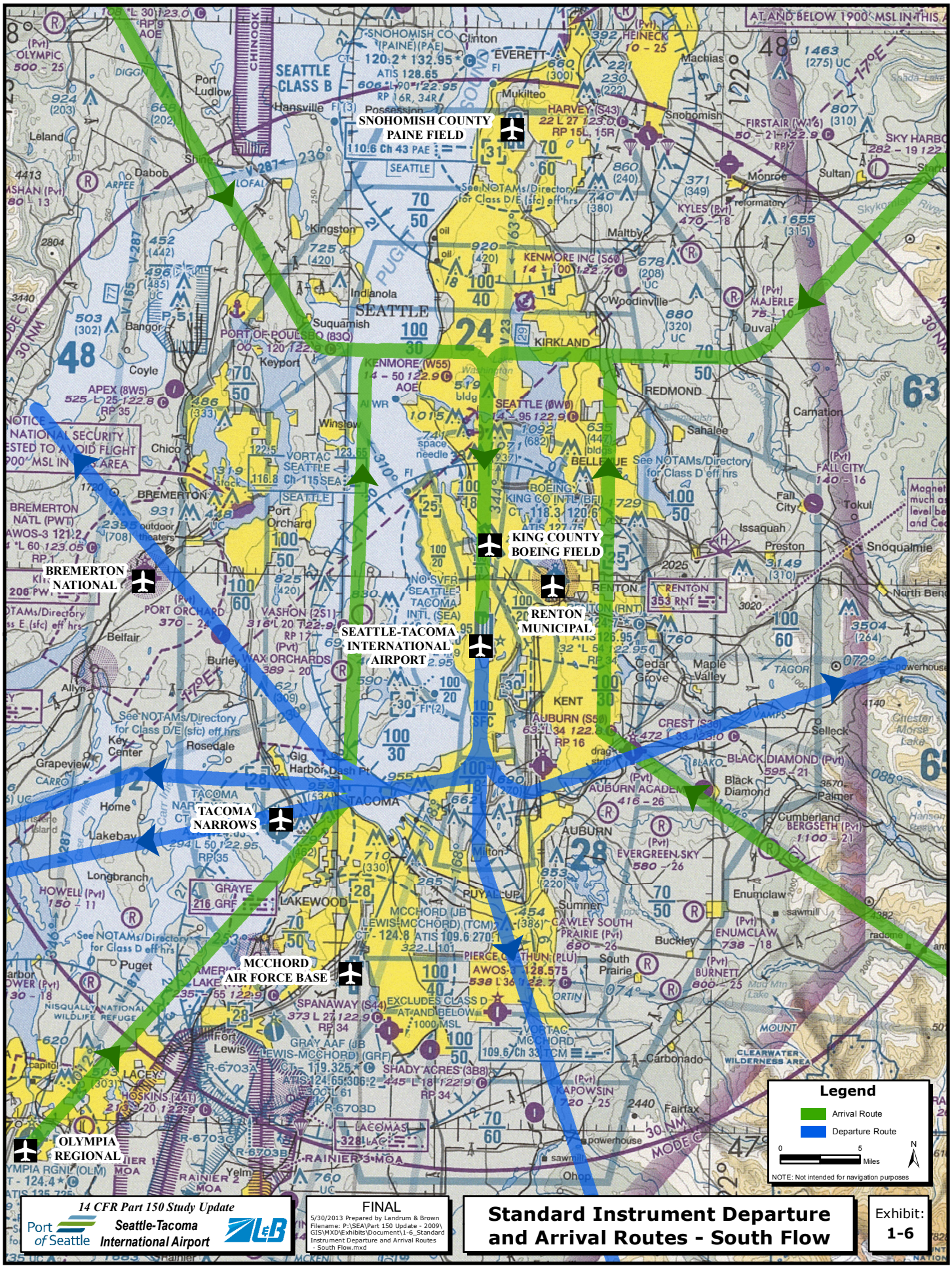
1-5


SNOHOMISH COUNTY
PAINE FIELD
KING COUNTY
BOEING FIELD
BREMERTON
NATIONAL
RENTON
MUNICIPAL
SEATTLE-TACOMA
INTERNATIONAL
AIRPORT
TACOMA
NARROWS
MCCHORD
AIR FORCE BASE
OLYMPIA
REGIONAL
SEATTLE
CLASS B
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Arrival Route
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NOTE: Not intended for navigation purposes
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5/30/2013 Prepared by Landrum & Brown
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Standard Instrument Departure and Arrival Routes - South Flow
Exhibit:
1-6

In April 1990 the FAA standardized the air traffic patterns for jet aircraft flying in and out of Sea-Tac Airport. The new air traffic plan, referred to as the "4-Post Plan," changed the arrival and departure procedures used by the air-traffic controllers to transfer the aircraft from the enroute to the terminal environment. The FAA determined that safety and efficiency could be improved if the procedures used to route air traffic to the terminal airspace area were designed to be the same regardless of the direction of traffic flow. Depending on the city of origin, aircraft enter the terminal airspace from one of the four "posts," or corners of the terminal airspace area. These procedures helped to alleviate difficulties associated with having two different sets of patterns that were wind dependent.

The TRACON assumes responsibility for guiding the arrival aircraft to the final approach course at the destination airport and for separating it from other aircraft. Lower performance aircraft, and some commuter/air-taxi aircraft, operate at lower altitudes allowing separation from the jet aircraft routes. The lower performance (i.e. propeller aircraft) aircraft are "placed" into the arrival routes closer in to Sea-Tac Airport to minimize the effects of the speed differentials.

When arrival aircraft are in the vicinity of their destination airport they are given descent instructions by the TRACON until they are approximately 1,500 feet above the destination airport and approximately five nautical miles from the runway threshold on the final approach. The TRACON then clears them for the approach and instructs the pilot to contact the destination airport's tower.

Similarly, departing IFR aircraft are guided by the Seattle TRACON through its delegated airspace and separated from other aircraft. Shortly after departure aircraft are airborne, the tower clears the aircraft to contact the TRACON for departure control. The TRACON then directs departing aircraft toward the departure "gates". As soon as departing aircraft either pass the departure "gate" or climb out of the TRACON airspace, they are transferred to ARTCC for enroute control.

Unless visual separation is applied, the TRACON provides all IFR aircraft with a radar separation of at least three nautical miles longitudinally, or 1,000 feet of vertical separation, throughout their terminal airspace. Additional longitudinal separation[1] to avoid wake turbulence is provided for various combinations of aircraft sizes. The minimum longitudinal separation in terminal airspace is listed below:

[1] Note: longitudinal separation refers to the longitudinal (horizontal) spacing of aircraft at the same altitude expressed in terms of distance or time. For example, an aircraft trailing another aircraft at the same altitude may have a longitudinal separation of 4, 5, or 6 miles depending on the types of aircraft.

Leading Aircraft	Trailing Aircraft	Longitudinal Separation (Nautical Miles)
Heavy	Heavy	4
Boeing 757	Large/Heavy	4
Large	Small	4
Boeing 757	Small	5
Heavy	Large	5
Heavy	Small	6

Source: FAA Order JO 7110.65U, *Air Traffic Control*, February 9, 2012

For the purpose of wake turbulence separation minimums, FAA classifies aircraft as Heavy, Large and Small as follows:

- **Heavy**: Aircraft capable of take-off weights of 300,000 pounds or more whether or not they are operating at this weight during a particular phase of flight (Examples: B-747, B-777, DC-10).
- **Large**: Aircraft of more than 41,000 pounds, maximum certified takeoff weight, up to 300,000 pounds (Examples: B-737, MD-80, Business jets).
- **Small**: Aircraft of 41,000 pounds or less maximum certified take-off weight (Twin and single piston/turboprops).

Within the Seattle Class B airspace, the Seattle TRACON provides all VFR aircraft a radar separation of one-half nautical mile longitudinally, or 500 feet of vertical separation, from all other IFR and VFR aircraft.

VFR Operations

Flights conducted under VFR, unlike IFR flights, are not always under ATC jurisdiction. Under VFR, pilots may normally operate without an ATC clearance, except when operating within Class B airspace. When operating in visual meteorological conditions, all pilots, regardless of type of airspace flight plan or ATC clearance, are ultimately responsible to see and avoid other aircraft.

The lower altitudes of airspace to the east and west of the Seattle area are restricted by the Cascade and Olympic Mountains. These mountains and the Class B Airspace tend to channel north-south VFR traffic. One north-south channel or VFR flyway exists at approximately five-to-six miles east of Sea-Tac Airport and below 4,000 or 5,000 feet above mean sea level (MSL). The other north/south VFR flyway is somewhat wider and close to the Olympic Mountains. Those transiting under Class B Airspace in the vicinity of Sea-Tac Airport and over the Puget Sound are below 3,000 feet. Some VFR aircraft fly over the tops of Class B Airspace. The top of the Class B Airspace is at 10,000 feet above MSL.

1.4.3 FLOW CONTROL

In general, Flow Control refers to a procedure allowing TRACON to determine the maximum hourly rate of arrivals to Sea-Tac Airport. The Seattle TRACON advises Seattle ARTCC so that adjustments can be made to the rate of entries into TRACON airspace. This hourly rate of arrivals is known as the Airport Acceptance Rate (AAR). The AAR varies according to several conditions including number of runways available for landings, weather conditions, direction of traffic flow, types of approach in use, and runway operational conditions.

1.4.4 INTERACTIONS

Interactions are situations requiring special controller and/or pilot attention to ensure that adequate separation or sequencing is accomplished. Although this broad definition could include random occurrences that do not affect capacity, there are two interactions which affect capacity at Sea-Tac Airport that occur regularly during IFR weather conditions and one that occurs regularly when visual approaches are in progress. These three interactions occur during: (1) IFR south-flow conditions; (2) IFR north-flow conditions; and (3) visual approaches in south-flow conditions.

IFR Weather Conditions-South Flow

During IFR weather conditions, when Sea-Tac Airport and BFI are operating with south flows, interactions exist between the arrivals to the two airports. Although a minimum of 1,000 feet of altitude separation exists between the published ILS approaches, a need exists to protect BFI missed approach possibilities. In weather conditions that allow BFI air traffic controllers to see aircraft arriving to Sea-Tac Airport, visual separation is provided by the controllers and no loss in capacity is experienced. This operating arrangement is known as Plan Alpha. Cloud ceilings at BFI must be at least 2,500 feet for BFI ATC personnel to see aircraft arriving to Sea-Tac Airport. Based on historic weather observations, the yearly frequency of occurrence of south flow conditions, with ceilings below 2,500 feet (no Plan Alpha) is approximately 14.9 percent. This is estimated to drop to about 4.8 percent during the busiest part of the day (7:00 a.m. to 9:00 p.m.). Additionally, weather conditions below minimums (closed conditions) at Sea-Tac Airport would reduce the occurrence of the interaction by another 1 or 2 percent.

The actual time of this impact to capacity due to this interaction is decreased by special ATC procedures. Under these procedures, during certain weather conditions and with pilots who are familiar with BFI, aircraft approaching Sea-Tac Airport will be advised to maintain 3,000 feet Mean Sea Level (MSL) until BFI Tower advises TRACON that the landing of the other aircraft at BFI is assured. At this point, the pilot of the aircraft on approach to Sea-Tac Airport is given a final approach clearance and authorization to land. If the pilot approaching BFI executes a missed approach, TRACON will vector the aircraft on approach to Sea-Tac Airport back into the arrival stream and one arrival interval or slot is lost in arrival capacity at Sea-Tac Airport. However, this situation occurs very rarely.

Weather Conditions - North Flow

During north-flow IFR conditions, interactions exist between the arrivals to BFI and departures from Sea-Tac Airport. Departures from Sea-Tac are held on the ground from the time a BFI arrival nears the final approach fix located just east of Sea-Tac Airport until the BFI Tower reports the landing is assured or until visual separation can be provided. This situation can affect the departure capacity at Sea-Tac Airport. If an arrival to Sea-Tac Airport is within two nautical miles of the Runway 34R threshold, a departure from Sea-Tac Airport, in certain IFR conditions, cannot be released. As a result one to three intervals could be lost.

When SeaTac Airport and BFI are both in north flow, the TRACON typically initiates Plan Charlie, in which departures from SeaTac Airport are issued an initial heading of 20 degrees to ensure separation between the SeaTac departure and traffic on final approach to BFI.

Visual Approaches - South Flow

Visual approaches can normally be conducted to Sea-Tac Airport when the cloud ceiling is at least 5,000 feet over the Puget Sound and pilots have visual contact with the preceding aircraft or Sea-Tac Airport.

When visual approaches are being conducted, the TRACON will radar vector aircraft on three arrival routes and sequence them into a common arrival stream over Elliott Bay. This activity occurs over the top of straight-in arrivals to BFI.

During peak periods, both Runways 16L and 16R at Sea-Tac Airport are used if visual approach conditions exist. Two common arrival streams are formed over Elliott Bay. This situation requires special attention on the part of both controllers and pilots. When pilots are making the turns into Elliott Bay from the north and south, visibility from the cockpit is reduced. If two aircraft are about to make the turn at about the same time onto different arrival streams, one pilot often tends to reduce speed and fall back, in order to keep the other aircraft in sight. This reduction of speed will increase the longitudinal spacing in the arrival stream and reduce the arrival rate.

1.4.5 ANOMS RADAR DATA

The Port's Noise Abatement Office has a flight track data collection and analysis program called the Airport Noise and Operational Monitoring System (ANOMS). This program collects and processes radar data from the FAA's STARS aircraft radar tracking system. Once collected, the ANOMS program performs a number of processes, including determining if the track is a departure or arrival and assigning a runway to the track. With this system, the Port is able to analyze adherence with the Port's noise abatement program and investigate particular incidents concerning aircraft operations.

The ANOMS program exports a file that includes flight information about the aircraft that is operating on each track as well as position information regarding the location and altitude of the flight. The flight information includes data such as the aircraft type, airline code, flight number, and type of operation and runway. The position information includes the X and Y position of each radar record for the flight track for every four seconds of the flight as well as the altitude of the aircraft at each point and the time of day that the aircraft was at that point. The position information is given in distance relative to the STARS radar antenna that is on airport property.

These files have been successfully exported for analysis in this Part 150 Study. Note that the data used is based upon the information from ANOMS, which is derived from the FAA's radar system. There is always the possibility that some data are lost in these radar systems; however, every possible step is taken to ensure this does not occur. When data are lost or when gaps occur in the data, the data are typically not recoverable.

1.5 CURRENT NOISE COMPATIBILITY PROGRAM

The Port has a long history of implementing noise abatement programs at Sea-Tac Airport. These programs include both physical and operational programs. In 1976, the Port prepared the Sea-Tac Community Plan, which addressed for the first time the relationship of aircraft noise to land use development and contained recommendations for land use compatibility. This Plan was updated in 1985 when the Port completed its first Part 150 Study. This Study recommended many of the existing noise mitigation programs currently adopted by the Port and established the Noise Remedy Program Boundary. That Part 150 Study was updated in 1993 and again in 2002. Each Updated Part 150 Study produced an updated set of NEMs and updated existing measures and developed new measures included in the NCP that was adopted in the first study. This Part 150 Study Update is the fourth Part 150 Study that the Port has undertaken.

Following the first Part 150 Study, in 1985 the Port undertook a new and innovative process to address the aircraft noise issue at Sea-Tac Airport. This was called the Sea-Tac Noise Mediation process, which was a consensus-based approach that was used to address aircraft noise issues. Through that process, several measures for noise abatement and noise mitigation were recommended and adopted, resulting in a package of noise-reduction measures for Sea-Tac Airport. Many diverse interests were represented in this process, including airport users, tenants, citizens from throughout the area, the FAA, and pilots. The package contained both short-term and long-term measures to reduce aircraft noise by at least 50 percent by 2001. In 1990, the Port Commission adopted these recommendations contained in the package.

The "package" contained many elements for noise reduction, including:

- Implement a "noise budget" or allocation of noise for Sea-Tac Airport and airlines that will decrease over time. The budget limits and controls aircraft noise and accelerates the use of the new Stage III aircraft.

- Restrict nighttime use of Stage II aircraft. For the first two years of the program, no new Stage II aircraft flights were introduced between midnight and 6:00 a.m. On October 1, 1995, the restriction became fully implemented with no Stage II flights between 10:00 p.m. and 7:00 a.m.
- Double the rate of the Port's existing sound-insulation program (The Noise Remedy Program) and changing the "cost-share" insulation area to 100-percent Port funded.
- Control of aircraft ground noise by restricting use of engine power for backing aircraft away from gates, improving run-up regulations, investigating the reduction of reverse thrusts, limiting use of auxiliary power units, and erecting a "hush" facility if a maintenance base is built at Sea-Tac Airport.
- Implement a state-of-the-art flight track monitoring system to better monitor compliance with noise abatement flight track procedures.
- Improve flight procedures through the Elliott Bay corridor and over Puget Sound to minimize jet noise to adjacent residential areas, with special attention to nighttime flights.
- Control noise from "single-event" aircraft operations that are particularly annoying by improving the Port's complaint hotline and flight track monitoring system.
- Establish a Noise Abatement Committee to ensure implementation of the agreement.

Many of the elements of these recommendations have been incorporated into the approved NCP; while other elements are beyond the scope of 14 CFR Part 150 and are implemented by Sea-Tac independently of the NCP.

The NCP measures, as outlined in the previous Part 150 studies, and the current implementation status of each measure is listed in the following sections.

1.5.1 ABATEMENT MEASURES

Measure A-1: Explore Limited Rescheduling of Nighttime Flights

Description: This measure involves the voluntary rescheduling of the flight times (earlier or later) of nighttime short-haul flights by jet aircraft. This measure primarily addresses those short-haul flights that currently are scheduled to operate between 10:00 p.m. and 12:00 a.m. or between 5:00 a.m. and 7:00 a.m. to reduce the number of operations of jet aircraft during periods of low ambient noise. Since the adoption of this measure, the Federal Government issued 14 CFR Part 161, which limits the ability of airports to enact airport use restrictions that are not voluntary.

Status: This measure is ongoing. Airlines operating at Sea-Tac Airport were sent letters requesting that they voluntarily limit nighttime flights. All startup airlines are sent letters requesting that they limit nighttime flights if possible. Also prior to the year 2000, Sea-Tac Airport had restrictions on Stage 2 aircraft over 75,000 lbs. during the nighttime hours (prior to the Federally-mandated Stage 2 phase-out).

Measure A-2: Eliminate Training Activity

Description: This measure was intended to limit the use of Sea-Tac Airport for training activities (primarily practice instrument approaches by military aircraft).

Status: This measure is complete. No training activity is allowed at Sea-Tac Airport.

Measure A-3: Use VOR Radials to Curb Aircraft Drifting from Noise Abatement Track

Description: This measure uses very high frequency omnidirectional range (VOR) radials to curb departing aircraft from drifting off the runway heading tracks as specified in the Tower Order.
Status: This measure has been implemented and adherence to this measure is ongoing.

Measure A-4: Expand Noise Monitoring System

Description: This measure expanded the existing noise monitoring system at Sea-Tac Airport by adding two additional permanent noise monitors.

Status: This measure has been implemented. The Port has a state-of-the-art noise and operations monitoring system. The Port has periodically expanded and upgraded this system. The system collects and stores flight data from the FAA's automated radar terminal system, which enables staff to regularly monitor noise abatement procedures and investigate citizen inquiries. In addition to this system, the Port also provides WebTrak, which enables the public to investigate flights via the Web. The Port owns and operates 25 permanent noise monitors. The noise monitoring system measures noise levels from individual aircraft and keeps track of operations over time. As data from the monitors is accumulated and analyzed, a history of noise levels is maintained so changes can be noted and trends identified.

Measure A-5: Establish Noise Abatement Office

Description: This measure established a noise abatement office to initiate, implement, and monitor the various noise abatement actions included in the NCP.

Status: This measure has been implemented.

Measure A-6: Establish Follow-Up Public Committee

Description: This measure recommended the establishment of a committee to monitor programs implemented as a result of the Part 150 Study after its completion; and help develop and evaluate the Fly Quiet Program described in Measure A-12.

Status: This measure was approved by the FAA in the 2002 ROA. This measure is complete. The Follow-Up Committee assisted in the development of the Fly Quiet Program, which is currently in effect at Sea-Tac Airport. Committee disbanded after recommended programs were implemented.

Measure A-7: Establish Noise Barriers/Run-up Enclosure

Description: The 1985 Part 150 recommended the use of airport facilities for buffering ground noise. This measure was amended in the 2002 Part 150 Study Update to include the construction of a noise barrier in the North Cargo Area and conduct a siting/feasibility study for a Ground Run-up Enclosure (GRE).

Status: Not implemented – This measure was approved in part by the FAA in the 2002 ROA. The FAA approved the conduct of a siting/feasibility study, but noted that "…placement of any future GRE will be subject to additional FAA review determined by the results of the study." The Port completed a feasibility study in 2001, but since then a recommended site could not be finalized because of some serious airfield planning issues adjacent to the area that was designated for a future GRE. A GRE should be located in close proximity to the aircraft maintenance facilities of an airport's primary air carriers. The GRE is currently being reviewed again as part of the current Part 150 Study. The construction of a noise barrier in the North Cargo Area was disapproved by the FAA in the 2002 ROA pending submission of additional information regarding non-compatible land uses impacted and benefits to those non-compatible land uses from construction of the noise barrier.

Measure A-8: Restrict Taxiing of Aircraft to/from Maintenance Areas during Nighttime Hours

Description: This measure requires that airlines tow aircraft to and from the maintenance area or when repositioning aircraft from one gate to another during nighttime hours.
Status: This measure was not implemented. Current airport rules and regulations do not prohibit taxiing aircraft for maintenance activity because it would reduce operational efficiency below acceptable levels.

Measure A-9: Encourage Voluntary Phase-out of Stage 2 Jet Aircraft under 75,000 Lbs.

Description: The 1985 Part 150 Study recommended compliance with 14 CFR Part 36 standards related to the phase-out of Stage 2 aircraft weighing over 75,000 lbs. Jet aircraft weighing less than 75,000 lbs. were exempt from the Stage 2 phase-out mandated under the Airport Noise and Capacity Act (ANCA) of 1990. This measure was amended in the 2002 Part 150 Study Update to include a voluntary phase-out of Stage 2 commercial and business jets weighing less than 75,000 lbs.

Status: This measure was disapproved by the FAA in the 2002 ROA pending submission of additional information to document the contribution Stage 2 aircraft had on the overall noise environment at Sea-Tac Airport. However, this measure is complete. Horizon Airlines has phased-out the F-28 commercial jet, which met the Stage 2 criteria and was less than 75,000 lbs.

Measure A-10: Maintenance Run-up Regulations

Description: This measure addressed maintenance run-ups and recommended several limitations to run-up related activities and fines for violations. These include:

- Prohibit run-ups during the overnight hours of 12:00 a.m. to 6:00 a.m.
- Include language that allows run-ups during the shoulder hours of 10:00 p.m. to 12:00 a.m. and 6:00 A.M. to 7:00 A.M. only if it is necessary for a departure within two-and-a-half hours of the scheduled run-up.
- Increase fines for violations to the run-up regulations to $1,000 for the first offense, doubling each time thereafter, within a 12-month timeframe, to a maximum of $8,000 per occurrence.
- Implement new fine structure once new noise monitoring system has been installed and tested for reliability.
- Include run-up monitoring in Fly Quiet Program (See Measure A-12)
- Work with airlines to restrict run-ups on weekend mornings before 9:00 a.m. unless needed for a departure within two-and-a-half hours of the scheduled run-up.

Status: This measure was disapproved by the FAA in the 2002 ROA. This measure has been implemented by the Port independent of the NCP. The Port of Seattle has established a period that restricts engine run-ups from 10:00 p.m. to 7:00 a.m. If absolutely necessary, run-ups may be conducted during these hours with the airport's permission and may not exceed two minutes in duration. Aircraft operators may conduct longer run-ups from 6:00 a.m. to 7:00 a.m. only if the aircraft is scheduled for a flight that departs between the hours of 7:00 a.m. to 8:30 a.m. and has the airport's permission. Violations to these time restrictions will result in the following tariffs being applied to the aircraft operator:

- First offense – Letter of Admonishment
- Second offense in a calendar year - $1,000
- Third offense within a calendar year from the first offense - $2,000
- Maximum fine within a calendar year from first offense - $8,000

Measure A-11: Preferential Runway Use

Description: This measure implemented a preferential runway system, during the nighttime hours, for operations through the North Flow Nighttime Noise Abatement Corridor. This would be operational when traffic and other conditions permit as determined by the FAA. When conditions permit, during nighttime hours, departures can be shifted from south to north, thus utilizing the established noise abatement corridor.

Status: This measure was approved as voluntary by the FAA in the 2002 ROA. This measure has been implemented and adherence to this measure is ongoing.

Measure A-12: Development/Implementation of a Fly Quiet Program

Description: This measure is intended to encourage greater compliance with the noise abatement procedures, work with operators to reduce single event noise levels, and continue to raise awareness of citizens' noise concerns with the FAA and aircraft operators. The Fly Quiet Program was recommended to:

- Monitor adherence to ideal noise abatement flight tracks
- Evaluate success of airlines, aircraft types, and other variables
- Establish goals and track level of improvement over time
- Offer incentives for improvement

The Fly Quiet Program was recommended to include the following elements:

- Aircraft noise should be related to its effects on people including such factors as annoyance, speech interference and sleep disturbance;
- Comparative fleet quality between airlines should also be included;
- The program should utilize measured data from the Airport's noise monitoring system;
- A method of normalizing data to account for airlines that most efficiently serve the region's air transportation needs should be developed;
- Incentives of sufficient importance that airlines will take notice of the results; and
- Pilots and air traffic controllers should be included, if possible.

Status: This measure was approved as voluntary by the FAA in the 2002 ROA. This measure has been implemented. The Fly Quiet Program was implemented in 2004 and remains in place for the foreseeable future. Airline operations are carefully monitored and airlines compete to be designated as the "quietest" at Sea-Tac Airport. Winning airlines are rewarded with extensive publicity regarding their Fly Quiet efforts. Airlines are evaluated on their performance in complying with flight tracks, as well as their compliance with ground run-up regulations. An advisory committee worked in 2003 to assist the Port in developing the program, and served as the "follow-up committee" per the 2002 recommendation.

Measure A-13: Evaluate Increased Use of the Duwamish/Elliott Bay Corridor with FMS

Description: Through this measure, the Port encouraged the FAA to pursue options for determining the feasibility of increased use of the Duwamish/Elliott Bay Corridor. Increasing the use of Flight Management Systems (FMS) technology ensures that the rate of adherence to an optimum flight track will increase over time.

Status: This measure was disapproved by the FAA in the 2002 ROA. According to the 2002 FAA Record of Approval, implementing this action would greatly impact the efficiency of the air traffic system in the region and degrade safety, which would not be consistent with 14 C.F.R. part 150, section 150.35(b)(3)(iii).

Measure A-14: Nighttime Use of Commencement Bay Departure

Description: This measure recommended that the FAA study the use of the nighttime (12:00 A.M. to 5:00 A.M.) use of the Commencement Bay corridor.

Status: This item was studied during the 2002 Part 150. Port staff coordinated/consulted with the cities of Fife, Milton, and Tacoma who firmly objected to the recommendation. Since no agreement could be made between the various cities involved, no FAA action was taken in the 2002 ROA and the recommendation was not implemented.

Measure A-15: Use of FMS Procedures

Description: This measure is designed to encourage the use of FMS procedures over non-populated areas, to discourage the development of new FMS procedures over populated areas, and to support development of FMS procedures for all north flow departures turning west to improve compliance with the identified noise abatement corridor. FMS flight tracks have the potential to become very narrow on straight portions of the flight tracks. When turning, however, the differing operating characteristics of the aircraft will cause dispersion.

Status: This measure was approved by the FAA in the 2002 ROA. This measure has been implemented and is ongoing. Following the 2002 Part 150, FMS departure procedures have been developed by the FAA for use of the Elliott Bay corridor and are routinely assigned to pilots.

Measure A-16: Use of Ground Equipment

Description: This measure recommended the installation of power and conditioned air in existing and newly constructed gates to minimize the use of auxiliary power units (APUs)/ground power units (GPUs). Once power and conditioned air are installed at gates, airlines should be required to use these services. This reduces noise from the operation of APUs/GPUs when aircraft are parked at the gate.

Status: This measure was disapproved by the FAA in the 2002 ROA; however, has been implemented by the Port independently of the NCP. The project is underway - 73 gates are anticipated to be equipped with central pre-conditioned air by April 2013 As of October 2012 there were 30 diesel/electric point of use units being utilized.

Measure A-17: Raise Altitude Where Aircraft Intercept Glide Slope

Description: Through the Fly Quiet Program, the subsequent Follow-On Committee will work with the operators and the FAA toward a goal of having aircraft on the glide slope as far out as possible while not adversely impacting capacity. When aircraft are on arrival to Sea-Tac Airport, they are utilizing the glide slope and the angle of the glide slope to line up on the runway and descend at the proper rate of speed and angle to touch down on the runway. This is usually done under instrument flying conditions, but almost all-commercial service aircraft and cargo aircraft fly the glide slope even during clear weather conditions (VFR). All glide slope angles at Sea-Tac Airport are at three degrees. This is consistent with almost every other airport in the country. Aircraft are designed to operate at an approximate three-degree glide slope for safety, efficiency of aircraft movement, performance of the aircraft, and comfort to the passengers.

Status: This measure was disapproved by the FAA. As noted in the 2002 ROA, moving aircraft further out on the glide slope would negatively impact airspace capacity and efficiency. The current procedures are needed to maintain operational efficiency at Sea-Tac Airport.

1.5.2 MITIGATION MEASURES

Measure M-1: Outright Acquisition

Description: Single-Family homes located within high noise exposure areas were recommended for outright acquisition. Acquisition programs have been in effect at Sea-Tac Airport since 1972. This NCP measure, which was included in the 1985 NCP, was intended to focus on acquisition of single-family residences exposed to aircraft noise levels of 75 DNL or higher.

Status: This measure is complete. Approximately 1,400 single-family residences were acquired and residents were relocated, including 388 units that were acquired for construction of the new third parallel runway.

Measure M-2: Sound Insulation

Description: Install sound insulation in single-family residential units within the Noise Remedy boundary established in the 1985 Part 150 Study. This measure was amended in the 1993 NCP Update by Measures M-2a, M-2b, M-2c, and M-2d described below.

Measure M-2a: Standard Insulation

Description: Continuation of original Measure M-2 for sound insulation of eligible single-family residences. This measure was again amended in the 2002 NCP Update to focus efforts on residences more highly impacted residential uses; although, overall Remedy Program Boundary set in 1985 was not changed. Completion of the single family sound insulation program was also an element of the July 3, 1997 Record of Decision for the Master Plan Update for the inclusion of the new third runway.[2]

Status: This measure was approved by the FAA in the 2002 ROA and is ongoing. As of August 2012, over 9,300 single-family homes have been sound insulated.

Measure M-2b: Insulation of Schools

Description: This measure includes a sound insulation program for eligible schools. A pilot program was initiated according to the original measure from the 1993 NCP Update to determine the feasibility, procedural requirements, and costs, for sound insulating four public buildings based on the Building Committee recommendations. Following the pilot program, several private schools and classrooms at Highline Community College were insulated within the noise contour. This measure was amended in the 2002 NCP Update to develop a program to insulate schools within the Highline School District that fall within the DNL 65 dBA.

Status: This measure was approved by the FAA in the 2002 ROA and is ongoing. As of August 2012, sound insulation has been installed in seven schools within the Highline School District, with eight schools remaining. Thirteen of the eligible 22 buildings on the Highline Community College Campus have been sound insulated.

Measure M-2c: Multi-Family Developments

Description: This measure includes a sound insulation program for eligible multi-family residences. The 1993 NCP Update recommended a pilot project to sound insulate one multi-family unit similar to the criteria outlined in measure M-2. That pilot project was and the measure was amended in the

[2] United States Department of Transportation, Federal Aviation Administration, Record of Decision for the Master Plan Update Development Actions SEA-TAC International Airport, Seattle, Washington, July 3, 1997.

2002 NCP Update to include sound insulation for approximately 300 owner-occupied multi-family units within the 70+ DNL of the 1998 noise contour. Owner-occupied units (e.g. condominiums) were considered differently than renter-occupied units (e.g. apartments) for two major reasons: 1) apartments are considered a business because the units are rented for a profit and 2) they are typically not a permanent residence and the residents are generally more mobile, and the owner-occupied multi-family residents typically have more monetary investment in their residence. Structures must meet the same eligibility requirements as single-family homes within the noise remedy boundary.

Status: This measure was approved by the FAA in the 2002 ROA. This measure is complete. Approximately 246 units within five condominium complexes have been sound insulated.

Measure M-2d: Mobile Homes

Description: The 1993 NCP Update recommended that the Port offer financial assistance for the removal of mobile homes for residents within a manufactured/mobile home park (MMHP) in which the owner has decided to close. In exchange for this assistance, the MMHP owner would sign an avigation easement to ensure that a noise compatible use would be developed to replace the MMHP. This measure was amended in the 2002 NCP Update in two ways: 1) the Port will purchase MMHPs within the 70+ DNL of the 1998 noise contour and provide relocation assistance to the residents in accordance with the Uniform Relocation and Property Acquisition Policies Act, as amended; and 2) the Port will continue to offer financial assistance for the removal of mobile homes for residents residing in parks, where the park owner has decided to close the park, located in the 65 to 70 DNL of the 1998 noise contour.

Status: This measure was approved by the FAA in the 2002 ROA. This measure is complete. The Port acquired five mobile home parks with a total of 359 mobile homes units. Owners of those homes were relocated with financial and advisory assistance from the Port.

Measure M-3: Transaction Assistance

Description: Formerly referred to as "purchase assurance" this measure is now termed transaction assistance in keeping with its primary function. The intent of the measure is to provide financial and technical assistance to owner-occupants of single-family residences who desire to sell and move away from areas of relatively high noise exposure. If the various forms of assistance to be made available do not result in an acceptable sales transaction, the Port could acquire the property at fair market value as a "buyer of last resort." Following necessary improvements (which could include sound insulation), the Port would resell the property to a willing buyer with an avigation easement attached to the deed.

Status: This measure is ongoing. It was approved in the 1985 NCP and amended in the 1993 NCP (see Measures M-3a and M-3b).

Measure M-3a: Special Purchase Option

Description: This measure modified the Transaction Assistance program to include a Special Purchase Option (SPO) for residents who have owned their home for more than five years and are adjacent to Port property have the option to sell their property to the Port based on fair market value. The Port will then insulate the residence and offer it for resale. This SPO can occur only once per property.

Status: Due to the lack of community response for this program it was discontinued.

Measure M-3b: Insulation Requirement

Description: This measure modified the Transaction Assistance program to require that to be eligible for the program, a homeowner must first have the property sound insulated. If, after sound insulation is completed, the homeowner still wishes to relocate, they will be eligible for transaction assistance.

Status: Due to the lack of community response for this program it was discontinued.

Measure M-4: Easement Acquisition

Description: The Port should obtain avigation easements in return for sound insulation or transaction assistance, as well as for situations of specialized nature. For some residences, the Port could purchase an avigation easement from an eligible owner of an owner-occupied residence who desires to continue living in the same location, even though the home cannot be satisfactorily sound insulated. Other situations in which avigation easements may be appropriate include churches. The easement fee paid by the Port could be used to provide some measure of sound insulation of noise-sensitive areas of church structures.

Status: This measure is ongoing, but has been modified from the original description. The Port does not purchase avigation easements for owner-occupied homes that cannot be effectively sound insulated. [3]

[3] Note that this provision differs from completed Measure M-2d in which the Port would offer an avigation easement to owners of mobile home lots in return for removing the mobile home.

Measure M-5: Property Advisory Service

Description: This measure provides residents and property owners within the Airport Environs with access to timely and factual information concerning 1) what noise remedies they may be eligible for, 2) assistance with making decisions when they are eligible for multiple options, 3) information regarding rumors about the mitigation program (either good or bad), and 4) assurances that the various programs are indeed aimed at improving the living, working and leisure-time environment. This two-way communication can also provide the Port with information about the concerns of residents/property owners and can provide a means by which the success or failure of programs can be monitored.

Status: This measure is ongoing.

Measure M-6: Local Government Remedy Support

Description: By insulating homes and assisting with real estate transactions, the Port can participate in making Sea-Tac Airport and surrounding residents better neighbors. However, the Port alone cannot accomplish all program goals. Local governments, with land use jurisdiction must also participate if the program is to be a success, especially in the long term. Under this measure, the Port will encourage local jurisdictions to undertake projects, provide services, and adopt laws that reinforce neighborhoods and make them compatible with Sea-Tac Airport. The Port will also work with jurisdictions in coordinating activities and exchanging information.

Status: This measure is ongoing.

Measure M-7: Funding for Land Use / Noise Compatibility Planning

Description: This measure enables public agencies (defined as a state, municipality or other political subdivision, or Native American Tribe) having planning authority within the DNL 65 dBA noise contour to be able to apply for reimbursable funding of specific off-airport land use/noise compatibility planning efforts which are consistent with the principles and guidelines of 14 CFR Part 150 and the Port noise compatibility goals.

Status: This measure is ongoing.

Measure M-8 was previously considered but not recommended for inclusion in the NCP.

Measure M-9: Community Planners Forum

Description: The Port will initiate the formation of a committee to allow planning representatives from all jurisdictions within the DNL 65 dBA noise contour, or other invited jurisdictions with interest, to meet on a regular basis to share information pertaining to comprehensive planning, community and airport planning, land use issues, and noise mitigation efforts.

Status: The Planning Committee was formed and met for several years but has since disbanded due to lack of interest by the forum.

Measure M-10: Operations Review and NEM Updates

Description: The Part 150 Study is a five-year program recommended to be reevaluated at the end of the five-year period. In addition, if there is a significant change in either aircraft types or numbers of operations, or significant new facilities, then it is recommended that the Study will be reevaluated prior to the end of the five-year time frame.

Status: This measure was approved by the FAA in the 2002 ROA. This measure is ongoing. This Part 150 Study Update represents the continuation of this measure, which is occurring at this time due to the recent opening of the third parallel runway.

Measure M-11: Approach Transition Zone Acquisition

Description: This measure recommended that the Port purchase residential properties experiencing noise levels of DNL 65 dBA or greater, and located within the Approach Transition Zones (ATZ) of Runway 16R/34L.

Status: This measure was approved by the FAA in the 2002 ROA"…with respect to those areas located within the most recent official Part 150 NEMs." This measure is ongoing. A total of 69 residential parcels and two mobile home parks within the North ATZ have been purchased and residents relocated and the program is complete in this area. A reevaluation of the third runway's South Approach Transition Zone will be conducted as part of the current Part 150 Update. There are 16 single-family residences and six apartment buildings remaining in the south ATZ.

Measure M-12: Prepare Cooperative Development Agreements

Description: The Port and the surrounding jurisdictions should work towards development of cooperative development agreements concerning land use, redevelopment, and infrastructure of the ATZ, as well of other redevelopment areas as necessary.

Status: This measure was approved by the FAA in the 2002 ROA and is ongoing. As of March 2011, the Port has worked with Burien on the North East Redevelopment Area north of Runway 16R/34L and has signed a Development Agreement with the City of Des Moines on the Des Moines Creek Business Park.

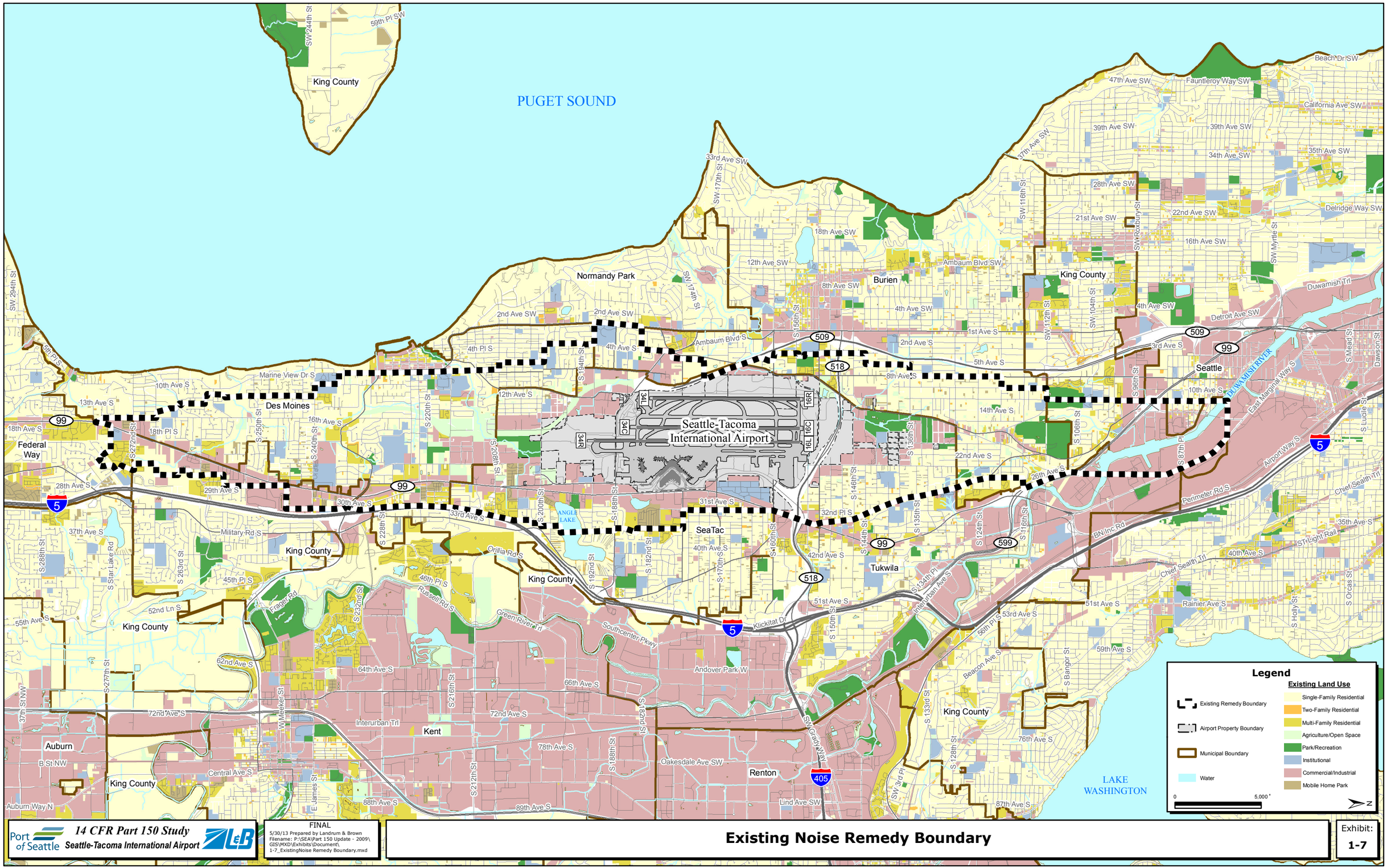
Measure M-13: Amend Community Plans and Zoning Ordinances

Description: The Port will work with the jurisdictions to amend zoning Maps, as necessary to reflect ATZ and mobile/manufactured home park recommendations that may not be consistent with existing Maps and to take into consideration 14 CFR Part 77 height requirements. Such changes shall work towards discouraging the location of additional mobile/manufactured homes that cannot be insulated within 1998 DNL 65 dBA contour.

Status: This measure was approved by the FAA in the 2002 ROA. This measure is complete. All of the residential parcels purchased by the Port have been re-zoned as "airport noise compatible," which means that if and when they are redeveloped they can only be used for industrial/commercial purposes, not residential. The Port also evaluated residential building code requirements for all jurisdictions within the 1998 DNL contour and found that they either met or exceeded the FAA's noise reduction standards.

Since the adoption of the Noise Mediation recommendations and the 2002 Part 150 Update, the Noise Acquisition Program, now completed, has resulted in the acquisition of approximately 1,328 homes and 103 vacant lots at a cost of approximately $119 million. As recommended by the 2002 Part 150 Update, more than 60 homes within the North Approach Transition Zone located in Burien were acquired and approximately 100 units within the Town & Country Mobile Home Park in the City of SeaTac were acquired and the residents relocated. An additional 388 homes were acquired for the construction of the third parallel runway.

The Noise Remedy Program offers soundproofing to approximately 10,000 homes within the existing program boundaries. By the end of 2009, 9,319 homes had been insulated for a cost of approximately $227 million. Sound insulation and other related improvements are ongoing at 15 eligible schools within the Highline School District. Building #19 at Highline Community College was sound insulated and other buildings on the campus are being evaluated for eligibility. The Noise Remedy Boundary Map is shown on **Exhibit 1-7, *Existing Generalized Noise Remedy Boundary***.



Port of Seattle — *14 CFR Part 150 Study* — Seattle-Tacoma International Airport — LEB

FINAL
5/30/13 Prepared by Landrum & Brown
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Existing Noise Remedy Boundary

Exhibit: **1-7**

1.6 NOISE COMPLAINT HISTORY

The Sea-Tac Airport Noise Abatement Office receives airport noise complaints and other inquiries from residents in communities around Sea-Tac Airport. These complaints/inquiries are received in the form of phone calls, letters, e-mails, or in person and are logged and compiled in the ANOMS database. Complaint data generally includes the name and address of the person who reports the complaint or makes an inquiry, time of the occurrence and reason for the complaint/inquiry. However, in some cases, a full household address is not provided, and therefore, the specific location cannot be found.

Table 1-6, Noise Complaints and Inquiries, lists the total annual complaints/inquiries and the number of complaints/inquiries per household from January 1, 2005 through June 1, 2012. During this timeframe, the Noise Abatement Office received 17,330 aircraft noise complaints or inquiry. **Exhibit 1-8, *Noise Complaints/Inquiries by Location***, shows the noise complaint/inquiry locations (households), by total number of complaints per household, within the Airport Environs.

In 2009, the first full year in which Runway 16R/34L was open, Sea-Tac Airport received 5,383 airport noise complaints from 869 different households. Eighty-four of these complaints/inquiries did not have a known address because either the individual did not provide an address or the address provided could not be verified. Of the 869 households that reported at least one noise complaint, 799 households reported one to five noise complaints, 59 households reported six to 50 noise complaints, 10 households reported 51 to 502 noise complaints, and one household reported 2,050 noise complaints. The average number of noise complaints reported per complaining household was approximately six. Exhibit 1-8 shows the total number of complaints/inquiries by location. **Exhibit 1-9, *Noise Complaints/Inquiries – Study Area***, graphically depicts the mapped locations of noise complaints/inquiries within the Study Area (SA).

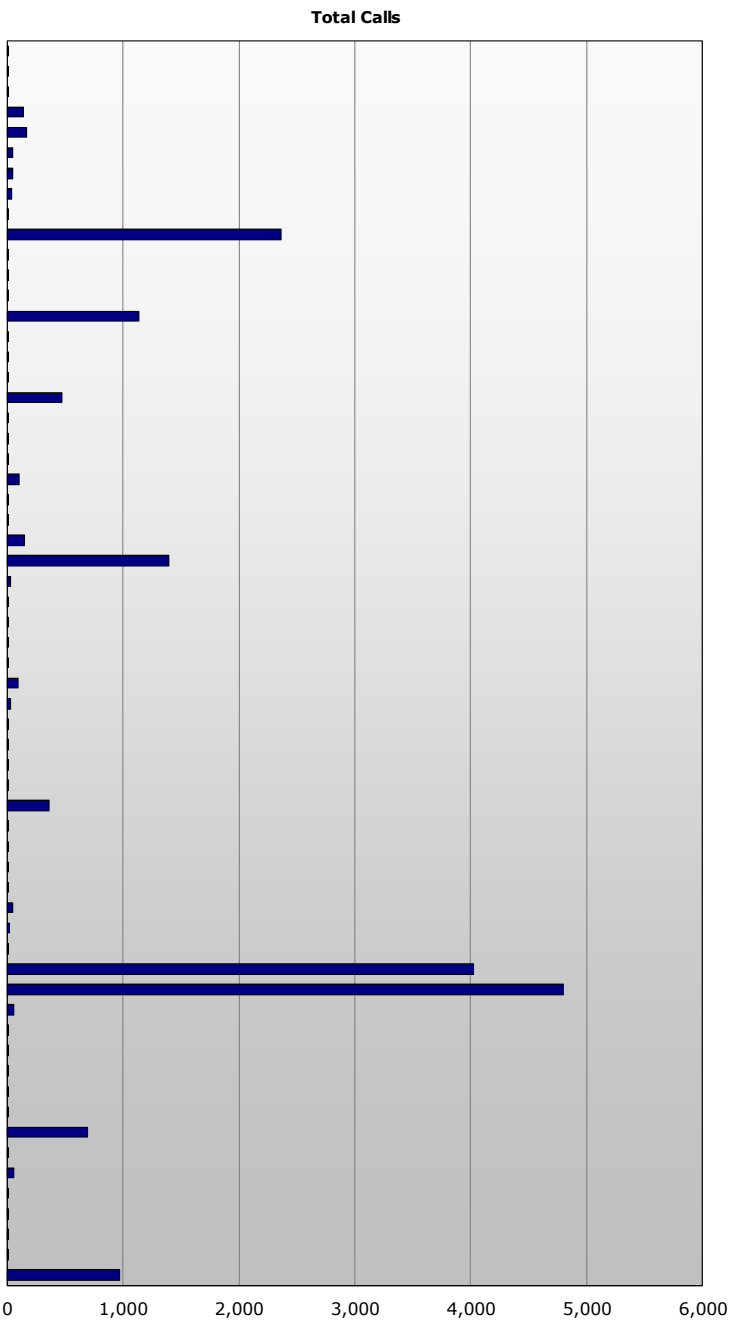
Table 1-6
NOISE COMPLAINTS AND INQUIRIES
Seattle-Tacoma International Airport

YEAR	NUMBER OF COMPLAINTS/ INQUIRIES	NUMBER OF HOUSEHOLDS THAT LOGGED COMPLAINTS[1]	COMPLAINTS FROM UNKNOWN LOCATIONS	MAXIMUM COMPLAINTS PER HOUSEHOLD
2005	1,459	215	533	222
2006	1,273	175	317	321
2007	2,170	379	291	738
2008	1,929	472	318	328
2009	5,383	869	84	2,050
2010	2,489	500	65	682
2011	1,788	117	23	484
2012	839	215	3	222

Note: Includes complaints/inquiries from January 1, 2005 through June 1, 2012.
[1/] Includes only households with known address.
Source: Seattle-Tacoma International Airport Noise Abatement Office, 2012.

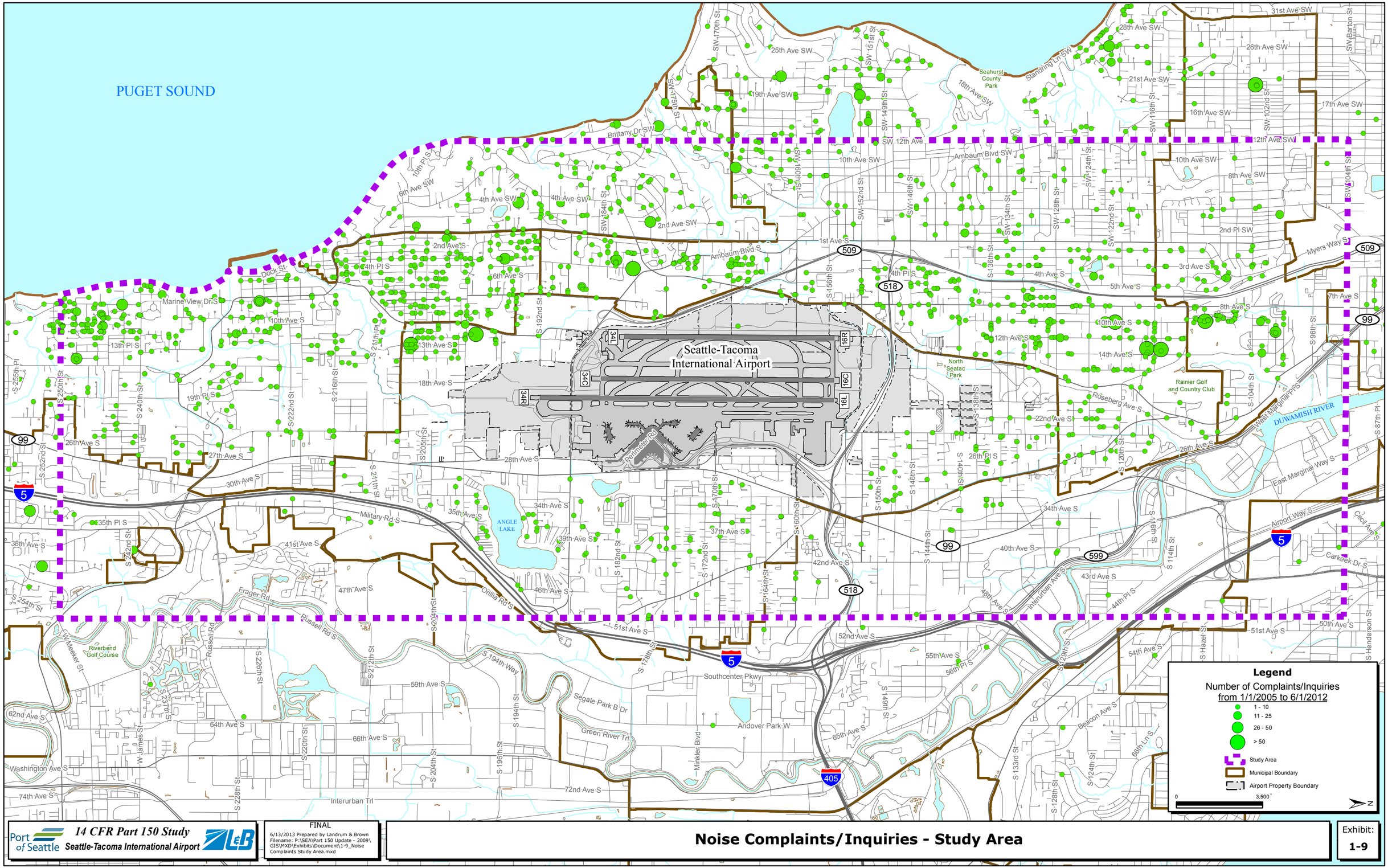
Exhibit 1-8
NOISE COMPLAINTS/INQUIRIES BY LOCATION
Seattle-Tacoma International Airport

Location	Number of Callers	Total Calls
Alderwood Manor	1	1
Allyn-Grapeview	3	3
Arlington	1	1
Artondale	129	138
Auburn	93	166
Bainbridge Island	39	43
Bellevue	49	51
Black Diamond	35	37
Bremerton	1	1
Burien	1,609	2,359
Carnation	1	1
Clyde Hill	5	5
Covington	9	9
Des Moines	999	1,132
Duvall	2	2
Edgewood	3	3
Enumclaw	2	2
Federal Way	400	468
Gig Harbor	1	1
Indianola	1	2
Island County	1	2
Issaquah	76	100
John Sam Lake	3	3
Kenmore	8	9
Kent	114	152
King County	721	1,391
Kirkland	21	28
Kitsap County	6	6
Lake Forest Park	12	14
Maltby	7	9
Maple Valley	4	5
Medina	89	94
Mercer Island	30	31
Milton	1	1
Mountlake Terrace	1	1
Mukilteo	1	1
Newcastle	3	3
Normandy Park	316	361
Paine Field-Lake Stickney	1	1
Picnic Point-North Lynnwood	1	1
Pierce County	7	7
Port Orchard	1	1
Redmond	44	44
Renton	19	23
Sammamish	3	4
SeaTac	491	4,024
Seattle	3,036	4,797
Shoreline	44	58
Silverdale	2	2
Snohomish County	2	2
South Hill	2	2
Sumner	1	1
Suquamish	1	1
Tacoma	606	696
Thurston County	3	3
Tukwila	51	56
West Lake Stevens	1	1
Whatcom County	1	1
Woodinville	1	1
Yarrow Point	2	2
Other/Unknown	914	966



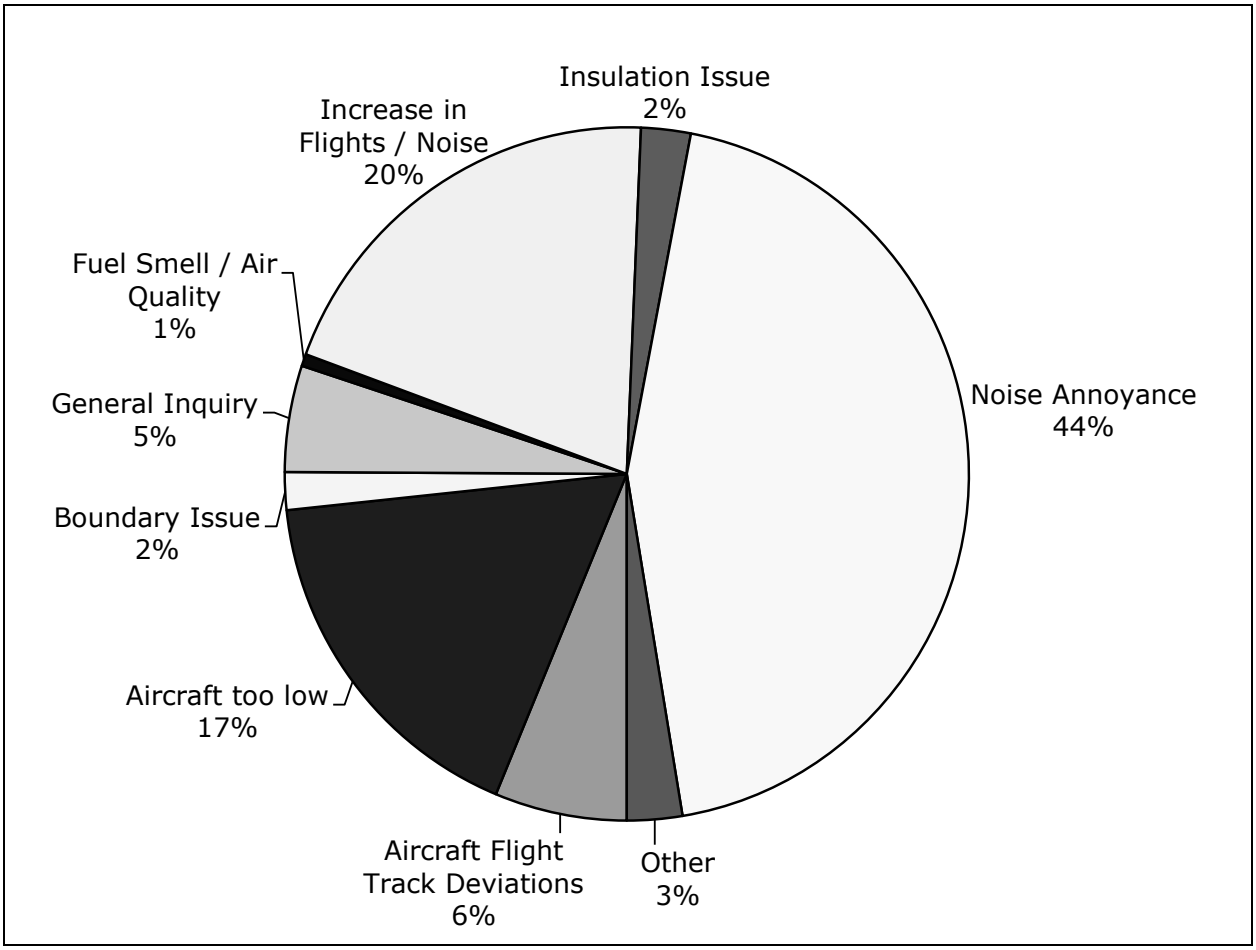
Note: Includes complaints/inquiries from January 1, 2005 through June 1, 2012.

Source: Sea-Tac Airport Noise Abatement Office; Landrum & Brown analysis, 2012.


PUGET SOUND
Seattle-Tacoma International Airport
Penmeter Rd
ANGLE LAKE
Seahurst County Park
North Seatac Park
Rainier Golf and Country Club
Riverbend Golf Course
Southcenter Pkwy
Andover Park W
DUWAMISH RIVER
Interurban Trl
Green River Trl
Segale Park B Dr
Minkler Blvd
Marine View Dr S
Dock St
Brittany Dr SW
Ambaum Blvd SW
Ambaum Blvd S
Myers Way S
East Marginal Way S
West Marginal Pl S
Roseberg Ave S
Standing Ln SW
Military Rd S
Frager Rd
Russell Rd S
Orillia Rd S
Airport Way S
Cecil Ave S
Carkeek Dr S
Interurban Ave S
S Hazel St
S Henderson St
Beacon Ave S
Roseberg Ave S
Legend
Number of Complaints/Inquiries
from 1/1/2005 to 6/1/2012
1 - 10
11 - 25
26 - 50
> 50
Study Area
Municipal Boundary
Airport Property Boundary
0
3,500 '
N
14 CFR Part 150 Study
Seattle-Tacoma International Airport
FINAL
6/13/2013 Prepared by Landrum & Brown
Filename: P:\SEA\Part 150 Update - 2009\GIS\MXD\Exhibits\Document\1-9_Noise Complaints Study Area.mxd
Noise Complaints/Inquiries - Study Area
Exhibit:
1-9

Not all communication with the Noise Abatement Office is regarding noise complaints. In some cases the communication is an inquiry of some kind, such as a request for information about the airport operations or the noise remedy program or a program boundary issue. **Exhibit 1-10, *Noise Complaints/Inquiries by Type***, shows the nature of each complaint/inquiry from January 1, 2005 through June 1, 2012. The majority of the communication (44 percent) is regarding noise annoyance issues, while another 20 percent is due to concern over an increase in noise and/or aircraft operations. Concerns about aircraft at low altitude and flight track deviations comprise 17 percent and six percent of the complaints/inquiries, respectively. Other communications were related to air quality issues, sound insulation and mitigation boundary issues and other general inquiries.

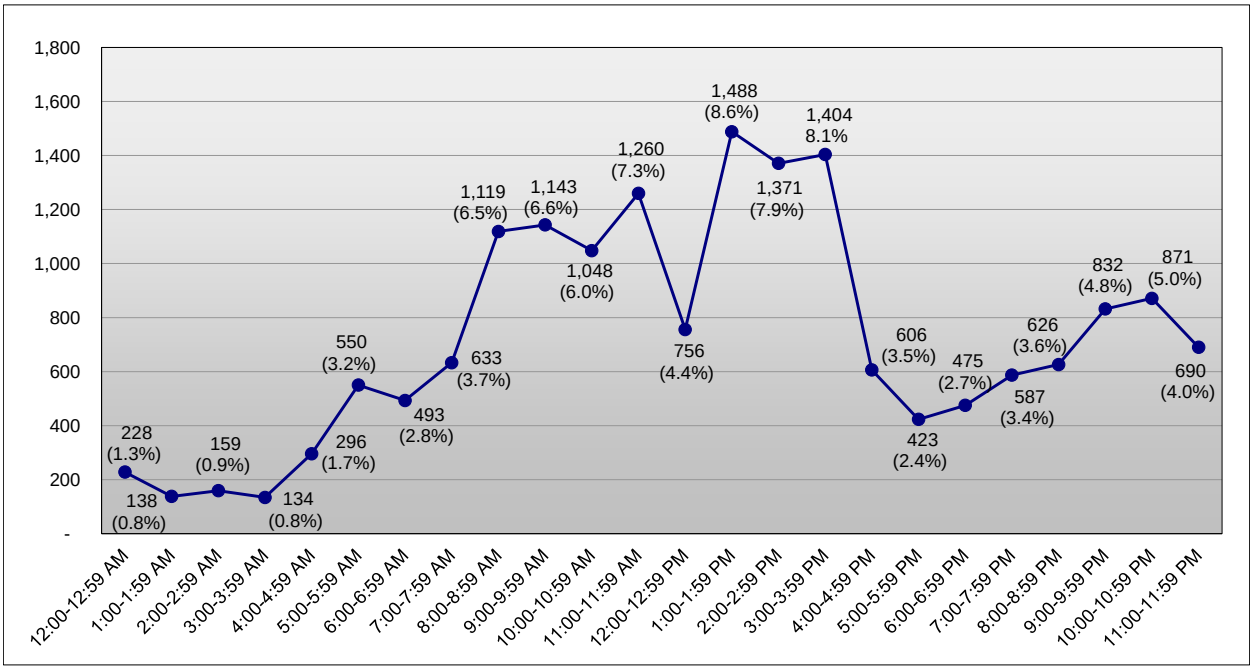
Exhibit 1-10
NOISE COMPLAINTS/INQUIRIES BY TYPE
Seattle-Tacoma International Airport



Note: Includes complaints/inquiries from January 1, 2005 through June 1, 2012.
Source: Sea-Tac Airport Noise Abatement Office; Landrum & Brown analysis, 2012.

Exhibit 1-11, *Noise Complaints/Inquiries by Time of Day*, shows times of day when people have made noise complaints and/or inquiries from January 1, 2005 through June 1, 2012. During this timeframe, the highest number of complaints/inquiries occurred in the early to mid-afternoon. A total of 1,488 complaints/inquiries (8.6%) were logged between 1:00 p.m. and 1:59 p.m. The lowest number of complaints/inquiries occurred in the early morning hours when people are typically asleep and limited aircraft activity occurs. It should be noted that in some cases the time of the complaint may not directly correspond to the time of the event that triggered the complaint. In some cases, time may pass between the event that triggered the complaint and when the person actually called the noise abatement office or submitted their complaint/inquiry.

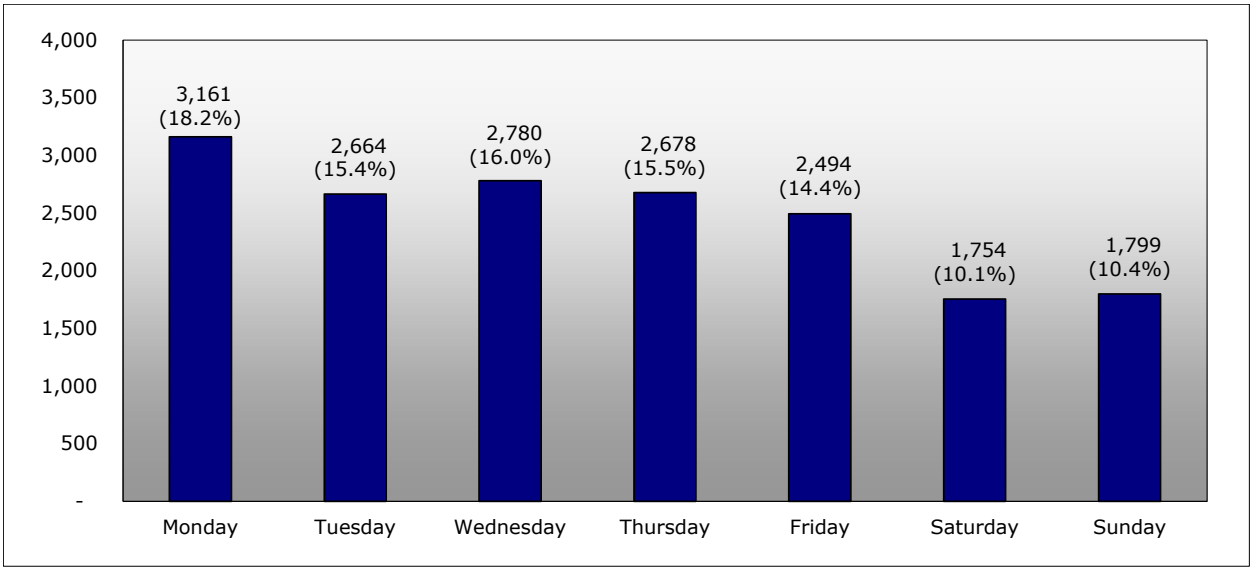
Exhibit 1-11
NOISE COMPLAINTS/INQUIRIES BY TIME OF DAY
Seattle-Tacoma International Airport



Note: Includes complaints/inquiries from January 1, 2005 through June 1, 2012.
Source: Sea-Tac Airport Noise Abatement Office; Landrum & Brown analysis, 2012.

Exhibit 1-12, *Noise Complaints/Inquiries by Day of the Week*, shows the distribution of complaints/inquiries by day of the week from January 1, 2005 through June 1, 2012. During this timeframe, more complaints/inquiries occurred on weekdays (Monday through Friday) than on weekends (Saturday and Sunday).

Exhibit 1-12
NOISE COMPLAINTS/INQUIRIES BY DAY OF THE WEEK
Seattle-Tacoma International Airport

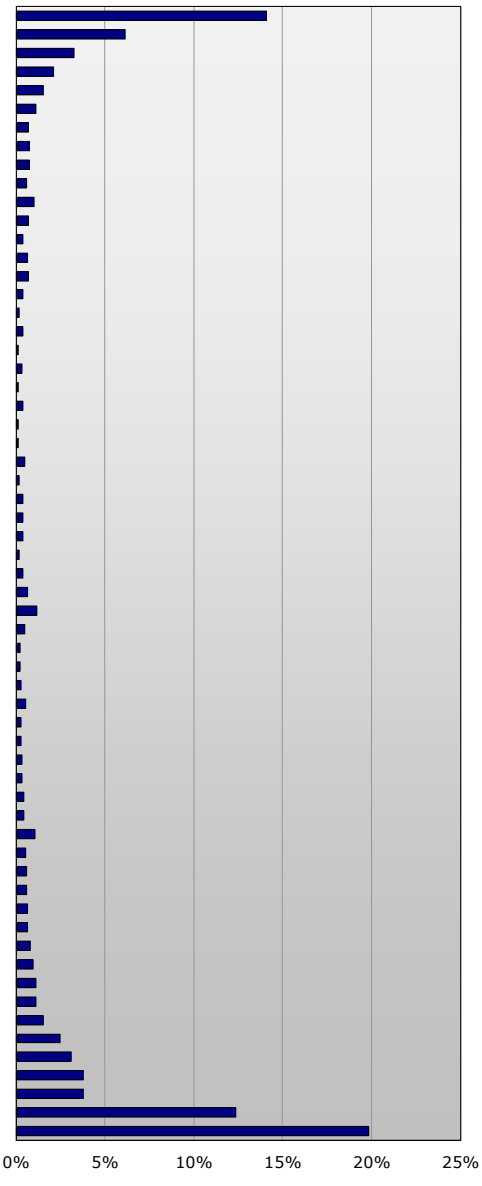


Source: Sea-Tac Airport Noise Abatement Office; Landrum & Brown analysis, 2012.

Exhibit 1-13, *Noise Complaints/Inquiries by Individual*, shows the total number of complaints/inquiries per individual. A total of 3,525 individuals have logged 17,330 complaints/inquiries from January 1, 2005 through June 1, 2012. A total of 2,446 individuals made only one complaint/inquiry (approximately 14 percent of the total 17,330 complaints/inquiries). Conversely, a small number of individuals logged repeated complaints/inquiries, including one individual who logged 3,441 total complaints/inquiries (approximately 20 percent of the total).

Exhibit 1-13
NOISE COMPLAINTS/INQUIRIES BY INDIVIDUAL
Seattle-Tacoma International Airport

Complaints/ Inquiries per Individual	Total Individuals	Total Complaints/ Inquiries	Percent of Individuals	Percent of Complaints/ Inquiries
1	2,446	2,446	69%	14%
2	534	1,068	15%	6%
3	189	567	5%	3%
4	92	368	3%	2%
5	54	270	2%	2%
6	33	198	<1%	1%
7	17	119	<1%	<1%
8	16	128	<1%	<1%
9	15	135	<1%	<1%
10	10	100	<1%	<1%
11	16	176	<1%	1%
12	10	120	<1%	<1%
13	5	65	<1%	<1%
14	8	112	<1%	<1%
15	8	120	<1%	<1%
16	4	64	<1%	<1%
17	2	34	<1%	<1%
18	4	72	<1%	<1%
19	1	19	<1%	<1%
20	3	60	<1%	<1%
21	1	21	<1%	<1%
22	3	66	<1%	<1%
25	1	25	<1%	<1%
26	1	26	<1%	<1%
28	3	84	<1%	<1%
31	1	31	<1%	<1%
32	2	64	<1%	<1%
33	2	66	<1%	<1%
34	2	68	<1%	<1%
35	1	35	<1%	<1%
36	2	72	<1%	<1%
37	3	111	<1%	<1%
40	5	200	<1%	1%
41	2	82	<1%	<1%
43	1	43	<1%	<1%
45	1	45	<1%	<1%
47	1	47	<1%	<1%
49	2	98	<1%	<1%
50	1	50	<1%	<1%
53	1	53	<1%	<1%
56	1	56	<1%	<1%
61	1	61	<1%	<1%
76	1	76	<1%	<1%
80	1	80	<1%	<1%
92	2	184	<1%	1%
99	1	99	<1%	<1%
102	1	102	<1%	<1%
103	1	103	<1%	<1%
112	1	112	<1%	<1%
113	1	113	<1%	<1%
136	1	136	<1%	<1%
165	1	165	<1%	<1%
192	1	192	<1%	1%
193	1	193	<1%	1%
269	1	269	<1%	2%
433	1	433	<1%	2%
536	1	536	<1%	3%
653	1	653	<1%	4%
655	1	655	<1%	4%
2,143	1	2,143	<1%	12%
3,441	1	3,441	<1%	20%
Total	**3,525**	**17,330**	**100%**	**100%**



Source: Sea-Tac Airport Noise Abatement Office; Landrum & Brown analysis, 2012.

1.7 AIRPORT ENVIRONS

Sea-Tac Airport is located in the City of SeaTac in King County, Washington. The Airport Environs refers to the regional area that may experience broader effects from the noise of aircraft operations beyond the DNL 65 dBA noise exposure contour. Within the Airport Environs, a Part 150 Study Area has been established as described below.

1.7.1 STUDY AREA (SA)

The SA is defined as the area that experiences direct overflights of aircraft at lower altitudes. The SA was determined by examining the boundaries of previous DNL 65 dBA noise exposure contours (the FAA-defined threshold for significant noise impacts), and by reviewing flight tracks of aircraft operating in the airport vicinity and/or under the control of the Sea-Tac ATCT. The SA, as shown in Exhibit 1-8, is the area in which detailed land use analysis will be conducted. The SA includes the all or parts of the cities of Burien, Des Moines, Kent, Normandy Park, Seattle, Tukwila, and portions of unincorporated King County.[4]

The SA is depicted on **Exhibit 1-14, *Study Area – Generalized Existing Land Use***. To the north of Sea-Tac Airport, the SA extends approximately four miles from the ends of Runways 16L/16R/16C to 104th Street in Seattle. To the west, the SA extends approximately 1.5 miles from the centerline of Runway 16R/34L to 12th Avenue in Burien and to the Puget Sound. To the east, the SA extends approximately 1.6 miles from the centerline of Runway 16L/34R almost to 51st Avenue in SeaTac and Tukwila. To the south, the SA extends approximately 3.7 miles from the end of Runway 34R to 250th Street in Kent and Des Moines.

1.7.2 EXISTING LAND USE

Existing land use within the Airport Environs is shown on **Exhibit 1-15, *Existing Noise-Sensitive Public Facilities***. Existing land use immediately north of Sea-Tac Airport is a mixture of airport-related development, commercial, and single- and multi-family residential development. To the south of Sea-Tac Airport there is open space, single-family residential, a number of large areas of multi-family residential, and public facilities uses. Immediately east of Sea-Tac Airport, specifically along International Boulevard, there is commercial development with a mixture of multi-family residential, further east the land use is primarily single-family residential with a mixture of multi-family residential, commercial, and institutional land uses. West of Sea-Tac Airport is predominantly single-family residential development with commercial and institutional uses to the northeast and southwest.

[4] Representatives of these communities are participating members of the Technical Review Committee (TRC) for the Sea-Tac Airport Part 150 Study. The Highline Forum, which is also a participant in this update to the Sea-Tac Airport Part 150 Study, includes a number of these same communities; Des Moines, Burien, Normandy Park, SeaTac, Tukwila and Federal Way and the Highline School District and Port of Seattle. More information regarding the public consultation process is included in Chapter Six, *Consultation*.

In summary, significant areas of potential existing incompatible land uses occur within the immediate proximity to Sea-Tac Airport and areas of aircraft overflight. These incompatible land uses are primarily residential. Off each of the runway ends and along the eastern and western airport property boundary there is a buffer area of commercial and park/recreational land uses followed by large expanses of residential land use. Many of the residential structures are included in the existing Sea-Tac Airport Noise Remedy Program.[5]

1.7.3 NOISE-SENSITIVE PUBLIC FACILITIES

Noise-sensitive public facilities, as defined by 14 CFR Part 150, include schools, churches, libraries, hospitals, and nursing homes. The number and location of noise-sensitive public facilities within the SA were derived from a number of different sources, including Port records and local jurisdictions. Noise-sensitive public facilities are shown on Exhibit 1-15. The noise-sensitive public facilities within the SA are identified in **Table 1-7, *Noise-Sensitive Public Facilities***.

1.7.4 HISTORIC SITES

Sites of historic significance within the SA are identified through a search of the National Register of Historic Places (NRHP). The NRHP is the official list of properties recognized by the Federal government as worthy of preservation for their local, state, or national significance in American history, architecture, archaeology, engineering, or culture. Although the National Register is a program of the National Park Service, it is administered at the state level by each respective state. In Washington, the National Register program is administered by the State Department of Archaeology and Historic Preservation. The location of historic sites is shown on **Exhibit 1-16, *Existing Historic Sites*** and the sites are listed in **Table 1-8, *Historic Sites***.

[5] More information on the ongoing noise remedy program is included in Section 1.5 of this chapter.

PUGET SOUND

STUDY AREA

Normandy Park

Burien

King County

Des Moines

Seattle-Tacoma International Airport

SeaTac

Kent

King County

Tukwila

King County

Renton

Seattle

ANGLE LAKE

DUWAMISH RIVER

Seahurst County Park

North Seatac Park

Rainier Golf and Country Club

Riverbend Golf Course

Legend

Existing Land Use

- Study Area
- Airport Property Boundary
- Municipal Boundary
- Water
- Single-Family Residential
- Two-Family Residential
- Multi-Family Residential
- Agriculture/Open Space
- Park/Recreation
- Institutional
- Commercial/Industrial
- Mobile Home Park

0 3,500 '

Port of Seattle — 14 CFR Part 150 Study — Seattle-Tacoma International Airport — L&B

FINAL
5/30/2013 Prepared by Landrum & Brown
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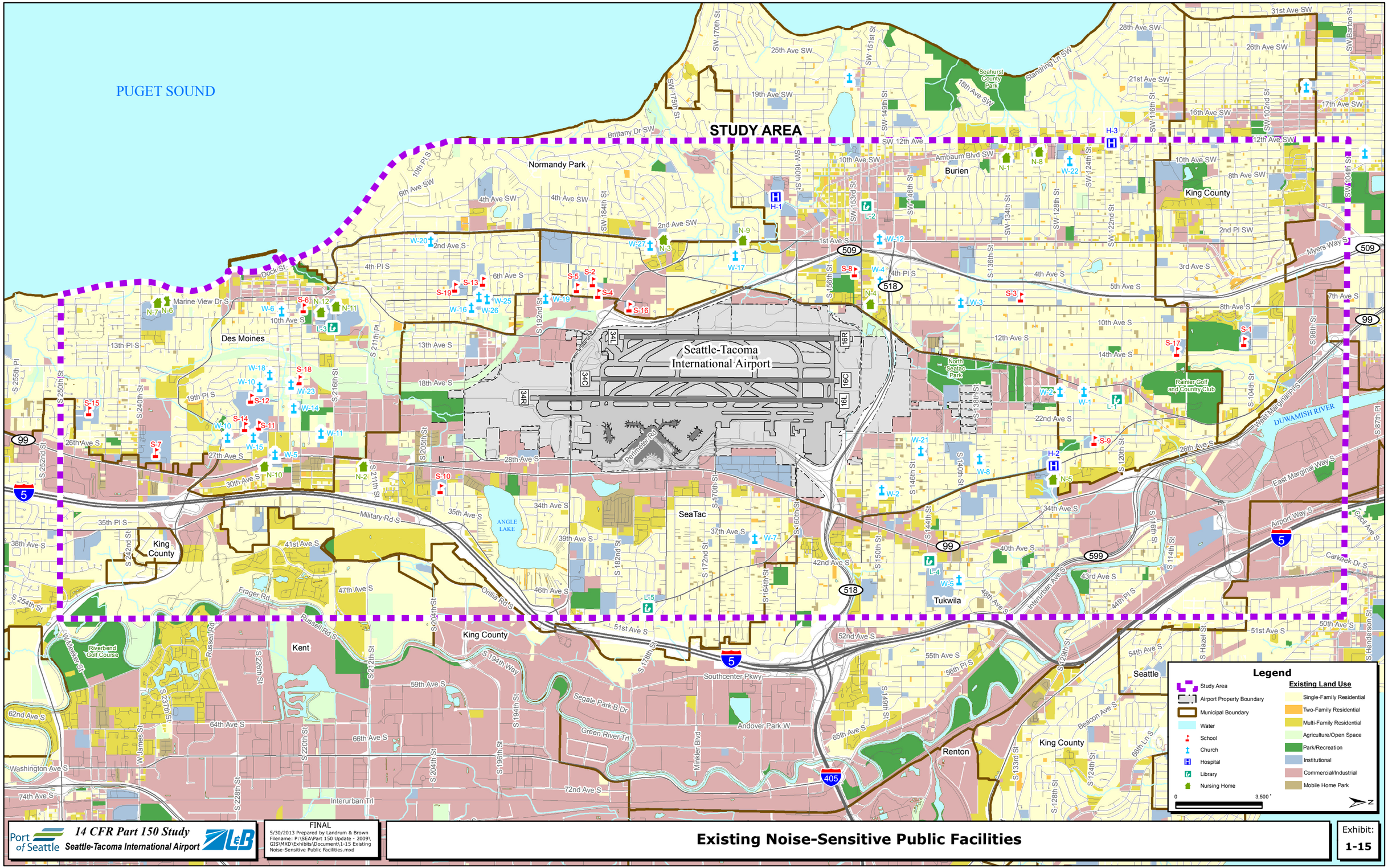
Study Area - Generalized Existing Land Use

Exhibit: 1-14



Port of Seattle — *14 CFR Part 150 Study* — *Seattle-Tacoma International Airport* — LEB

FINAL
5/30/2013 Prepared by Landrum & Brown
Filename: P:\SEA\Part 150 Update - 2009\GIS\MXD\Exhibits\Document\1-15 Existing Noise-Sensitive Public Facilities.mxd

Existing Noise-Sensitive Public Facilities

Exhibit: **1-15**

Table 1-7
NOISE-SENSITIVE PUBLIC FACILITIES
Seattle-Tacoma International Airport

MAP ID	FACILITY NAME	JURISDICTION	SOUND INSULATED
SCHOOLS			
S-1	Beverly Park Elementary	King County	Scheduled
S-2	Bow Lake Elementary	Burien	
S-3	Cedarhurst Elementary	Burien	Completed
S-4	Choice Academy - Homeschool Center	Burien	
S-5	Community Chapel Christian School	Burien	
S-6	Des Moines Elementary	Des Moines	Scheduled
S-7	Highline Community College	Des Moines	
S-8	Highline High School	Burien	Scheduled
S-9	Hilltop Elementary	King County	Scheduled
S-10	Madrona Elementary	SeaTac	Completed
S-11	Midway Elementary	Des Moines	Completed
S-12	Mt Rainier High School	Des Moines	Completed
S-13	North Hill Primary	Des Moines	Completed
S-14	Pacific Middle School	Des Moines	Scheduled
S-15	Parkside Primary	Des Moines	Completed
S-16	Sea-Tac Occupational Skills Center	Burien	Scheduled
S-17	Southern Heights Elementary	King County	Scheduled
S-18	St. Philomena Primary	Des Moines	
S-19	Aviation High School (scheduled for relocation)	Des Moines	
LIBRARIES			
L-1	Boulevard Public Library	Seattle	n/a
L-2	Burien Library	Burien	n/a
L-3	Des Moines Library	Des Moines	n/a
L-4	Foster Library	Tukwila	n/a
L-5	Valley View Library	SeaTac	n/a
HOSPITALS			
H-1	Highline Medical Center	Burien	n/a
H-2	Regional Hospital Respiratory-Complex Care	Tukwila	n/a
H-3	Schick Shadel Hospital	Seattle	n/a
NURSING HOMES			
N-1	El Dorado West Retirement Community	Burien	n/a
N-2	Falcon Ridge Assisted Living	SeaTac	n/a
N-3	Fernwood at The Park	Normandy Park	n/a
N-4	High West Residence	Burien	n/a
N-5	Highline Physical Rehab Center	Tukwila	n/a
N-6	Judson Park Retirement Center	Des Moines	n/a
N-7	Landmark on The Sound	Des Moines	n/a
N-8	Life Care Center of Burien	Burien	n/a
N-9	Normandy Park Senior Living	Burien	n/a
N-10	Stafford Healthcare	Des Moines	n/a
N-11	Wesley Holmes	Des Moines	n/a
N-12	Wesley Homes Health Center	Des Moines	n/a

Table 1-7, *Continued*
NOISE-SENSITIVE PUBLIC FACILITIES
Seattle-Tacoma International Airport

MAP ID	FACILITY NAME	JURISDICTION	SOUND INSULATED
PLACES OF WORSHIP			
W-1	Apostolic Bible Church Of Jesus Christ	Burien	n/a
W-2	Boulevard Park Presbyterian	Burien	n/a
W-3	Burien Church Of Christ	Burien	n/a
W-4	Burien Free Methodist Church	Burien	n/a
W-5	Citadel Church	Des Moines	n/a
W-6	Des Moines United Methodist Church	Des Moines	n/a
W-7	Ethiopian Muslim Association Of Seattle	Seatac	n/a
W-8	Faith Deliverance Assembly	Seatac	n/a
W-9	First Baptist Church	Des Moines	n/a
W-10	Grace Lutheran Church	Des Moines	n/a
W-11	Highline 7th Day Adventist Church	Des Moines	n/a
W-12	Highline Christian Church	Burien	n/a
W-13	Islamic Center Of Seattle	Seatac	n/a
W-14	Lifepoint Foursquare Church	Des Moines	n/a
W-15	Midway Community Covenant Church	Des Moines	n/a
W-16	Normandy Christian Church	Des Moines	n/a
W-17	Our Savior's Lutheran Church	Burien	n/a
W-18	Primera Iglesia Bautista	Des Moines	n/a
W-19	Prince Of Peace Lutheran Church	SeaTac	n/a
W-20	Resurrection Lutheran Church	Des Moines	n/a
W-21	Riverton Heights Baptist Church	Seatac	n/a
W-22	Saint Bernadette Church	Burien	n/a
W-23	Saint Philomena Church	Des Moines	n/a
W-24	Saint Thomas Church	Tukwila	n/a
W-25	Samoan Christian Fellowship	Des Moines	n/a
W-26	Southminster Presbyterian Church	Des Moines	n/a
W-27	The Evergreen Church	Burien	n/a

Note: n/a = land use type was not identified as eligible for sound insulation.
Source: Port of Seattle, King County, Landrum & Brown, 2013.

PUGET SOUND

STUDY AREA

Tracy House

Covenant Beach Bible Camp

Normandy Park

Des Moines

Burien

King County

SeaTac

Tukwila

Kent

Renton

Seattle

Seattle-Tacoma International Airport

Tukwila School

Building No. 105, Boeing Airplane Company

ANGLE LAKE

DUWAMISH RIVER

Seahurst County Park

North Seatac Park

Rainier Golf and Country Club

Riverbend Golf Course

Brittany Dr SW

Ambaum Blvd SW

Ambaum Blvd S

Marine View Dr S

Military Rd S

Orillia Rd S

Frager Rd

Russell Rd

Southcenter Pkwy

Segale Park B Dr

Green River Trl

Andover Park W

Minkler Blvd

Interurban Trl

Perimeter Rd

Roseberg Ave S

Beacon Ave S

East Marginal Way S

Airport Way S

Carkeek Dr S

Myers Way S

West Marginal Pl S

Interurban Ave S

Dock St

Standring Ln SW

Legend

Study Area

Airport Property Boundary

Municipal Boundary

Water

Historic Site Listed on National Register of of Historic Places (NRHP)

Existing Land Use

Single-Family Residential

Two-Family Residential

Multi-Family Residential

Agriculture/Open Space

Park/Recreation

Institutional

Commercial/Industrial

Mobile Home Park

0 3,500 '

N

Port of Seattle

14 CFR Part 150 Study

Seattle-Tacoma International Airport

LeB

FINAL

5/30/2013 Prepared by Landrum & Brown

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Existing Historic Sites

Exhibit: 1-16

Table 1-8
HISTORIC SITES
Seattle-Tacoma International Airport

FACILITY NAME	CURRENT USE
Building No. 105, Boeing Airplane Company	Museum
Covenant Beach Bible Camp	Outdoor recreation facility
Tracy House	Single-family residence
Tukwila School	Museum and Cultural Center

Source: National Park Service, U.S. Department of Interior, 2011.

1.7.5 LOCAL COMPATIBLE LAND USE PLANNING

In 1990, the Washington State Legislature passed the Growth Management Act (GMA), RCW 36.70A, to create a method for comprehensive land use planning involving citizens, communities, counties, cities, and the private sector to prevent uncoordinated and unplanned growth. The GMA requires that King County, and all cities within King County prepare a comprehensive plan. According to the Washington Administrative Code (WAC) 365-196-400, a comprehensive plan must include a Comprehensive Plan (Future Land Use) Map.

Many of the jurisdictions surrounding Sea-Tac Airport have included goals and policies related to the Airport and noise/land use compatibility in their comprehensive plans. The following sections describe the comprehensive planning efforts of the jurisdictions within the SA. Where applicable, goals and policies related to Sea-Tac Airport from each jurisdiction's most recent comprehensive plan are included. The format and numbering and use of acronyms is that of each individual plan, and therefore does not necessarily follow the format of this document. For example, some jurisdictions refer to the Seattle-Tacoma International Airport as STIA.

1.7.5.1 City of SeaTac

The City of SeaTac surrounds Sea-Tac Airport and is approximately 3 square miles in area. The City adopted its Comprehensive Plan in December 1994. The Comprehensive Plan includes a Comprehensive Plan Map that shows recommended land uses within the City. Each year the City updates its Plan to meet changing conditions, and invites the public to participate in this process. At the same time, the City accepts proposals from the public for changes to the City's development regulations. Development regulations are the controls placed on development and use of land. These include the Zoning Code, the Subdivision Code, and related procedures (see Section 1.8.2.1). Updating the zoning code involves a two-step process. First, the zoning change must be consistent with the Comprehensive Plan Map. If the proposed zoning change is inconsistent, the Comprehensive Plan Map must be updated before the zone change can occur.

The *City of SeaTac Comprehensive Plan* was most recently updated by ordinance on November 22, 2011.[6] The existing Plan includes the discussion and map exhibit showing the 65+ DNL[7] noise exposure contours from the *Seattle-Tacoma International Airport FAR Part 150 Study Update (dated July 2002).* The Plan includes policies that identify land uses which are compatible or incompatible within the 65 to 75 DNL noise exposure contours and applicable construction standards for interior noise attenuation (see Goal 1.6 and Policies 1.6A and 1.6B). The Plan identifies Sea-Tac Airport as an essential public facility and contains land use and transportation policies for the area immediately surrounding the Airport. The Plan contains the following Airport-Related Land Use goals and policies:

GOAL 1.6

To achieve a reasonable level of compatibility between airport activities and adjacent land uses.

Policy 1.6A

Encourage land uses adjacent to Sea-Tac International Airport that are compatible with Airport operations.

Discussion: The FAA standards under the Part 150 identify compatible land uses for areas immediately adjacent to an airport. Improving land use compatibility in areas near the Airport enables the City to take better advantage of the job and tax revenue benefits of the Airport, maintain and enhance the Airport's role as an essential public facility, and help reduce the negative impacts to City residents.

Land uses essential to the aviation function of an airport are considered an Essential Public Facility (EPF), (*see* Goal 1.7), and are subject to provisions of the Interlocal Agreement (ILA) between the City and the Port of Seattle for Seattle-Tacoma International Airport originally signed 9/4/97 and updated and reauthorized in 2005. The parties of the ILA adopted the listed of Airport Master Plan projects and uses to settle their dispute over Airport expansion. The ILA does not determine whether the listed uses are EPFs under the Growth Management Act.[8] The ILA reserves the City's rights under prescribed circumstances to challenge whether a proposed development at the Airport is an EPF.

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6 *City of SeaTac Comprehensive Plan*, Fifteenth Seventeenth Annual Update, City of SeaTac Department of Planning and Community Development, November 22, 2011, Ordinance No. 1011-10131020.

7 The *Seattle-Tacoma International Airport FAR Part 150 Study Update* (dated July 2002) used the acronym Ldn which is the symbol for day-night average sound level (DNL). DNL is the acronym use in this study update. DNL "means the 24-hour average sound level in decibels, for the period from midnight to midnight, obtained after the addition of ten decibels to sound levels for the period between midnight and 7:00 a.m. and between 10:00 p.m. and midnight, local time." Source: 14 CFR Part 150 §150.7, *Definition of Day-Night Average Sound Level*.

8 The Washington Growth Management Act (GMA) requires cities to prepare comprehensive plans that contain, at a minimum, elements pertaining to land use, housing, transportation, capital facilities, and utilities. It also requires local plans to address 13 State goals: urban growth, reduce sprawl, transportation, housing, economic development, property rights, permits, natural resource industries, open space and recreation, environment, citizen participation, public facilities and services, and historic preservation.

Policy 1.6B

Encourage the development of Airport-compatible activities in the Aviation Business Center (ABC) area.

Discussion: The ABC district, created in 1991, encourages a wide mix of Airport-related businesses southeast of the Airport. This district provides needed space for Airport-related activities, which play a key role in the City's economy. The land uses within the ABC district are intended to be compatible with Airport operations.

Policy 1.6C

Work with the Port of Seattle to implement the Interlocal Agreement (ILA) between the City and the Port of Seattle for the Airport, adopted 9/4/97.

Discussion: The City of SeaTac and Port of Seattle entered into the ILA to establish a mutually satisfactory process and set of development standards for Port projects and mitigation for the Airport Master Plan. The ILA resolves land use jurisdictional issues and establishes a basis for working toward compatibility between City and Airport land uses.

GOAL 1.7

To address the siting of essential public facilities.

Policy 1.7A

Administer a process consistent with both the Washington Growth Management Act and the Countywide Planning Policies to address the siting of essential public facilities (EPF). Any EPF facility must be consistent with the City's goals and policies.

Discussion: The Washington Growth Management Act defines essential public facilities as being "those facilities that are typically difficult to site..." King County's Comprehensive Plan defines an essential public facility as a facility that either: (a) meets the Washington Growth Management Act definition of an essential public facility; (b) is on a State, County or local community list of essential public facilities; (c) serves a significant portion of the County or metropolitan region or is part of a Countywide service system; or (d) is difficult to site or expand.

The Washington Growth Management authorizes municipalities to have some input into the siting process, but does not grant cities the right to prohibit essential public facilities. A few essential public facilities identified in the *City of SeaTac Comprehensive Plan* include: airports and State/regional transportation facilities. Differing levels of review and City involvement will be applied to different types of essential public facilities.

GOAL 2.1

To preserve SeaTac's existing residential neighborhoods and foster a high degree of pride in residency or ownership.

Policy 2.1C

Encourage the insulation of noise impacted housing units through the Port of Seattle/FAA Noise Remedy Program.

- Discussion: Homes within noise impacted areas may be eligible for insulation.

GOAL 2.3

To increase housing opportunities for all economic segments of the community.

Policy 2.3A

Identify, maintain and enhance the existing affordable housing stock in SeaTac.

Discussion: SeaTac's existing housing stock serves as one of the most affordable housing alternatives in the greater Seattle area, and its preservation is an appropriate affordable housing mechanism. This policy is particularly important since some loss of affordable stock may occur because certain residential areas of the City that are impacted by Airport noise may transition to other uses.

1.7.5.2 City of Des Moines

The City of Des Moines is located on the Puget Sound just north of Federal Way, south of Normandy Park and Burien, southwest of the City of SeaTac and south of Sea-Tac Airport. The City amended the *City of Des Moines Comprehensive Plan* on January 5, 2012.[9] The Plan identifies goals, background/context, policies, and strategies for the following elements:

1. General Planning
2. Land Use
3. Transportation
4. Conservation
5. Capital Facilities, Utilities, and Public Services
6. Parks, Recreation, and Open Space
7. Housing
8. Community Character

[9] The City of Des Moines Comprehensive Plan was adopted in 1995 and was entitled the *Greater Des Moines Planning Area Comprehensive Plan*. The original plan has been amended 12 times, most recently on January 5, 20122010 by Ordinance No. 15321499). Since 1995, the majority of potential annexation areas surrounding the City have been annexed by Des Moines and surrounding cities. To reflect this change in conditions, the name of the plan document was changed to the *City of Des Moines Comprehensive Plan*.

The Plan recognizes that "growth and development within Des Moines are influenced by activities outside the city, including: Seattle-Tacoma International Airport, regional economic trends, regional transportation systems and commuting patterns, regional development plans, development within bordering jurisdictions and state regulations." The following goals, background/context, policies, and strategies are related to ensuring compatibility with Airport operations.

General Planning Background and Context 1-02-03

Growth and development within Des Moines are influenced by activities outside the city, including: Seattle-Tacoma International Airport (STIA), regional economic trends, regional transportation systems and commuting patterns, regional development plans, development within bordering jurisdictions and state regulations.

Land Use Policy 2-03-11

Regulate the siting of incompatible uses adjacent to Sea-Tac Airport, as defined in Revised Code of Washington (RCW) 36.70.547 and the Washington State Department of Transportation's *Airports and compatible land Use Volume 1* (1999).

Capital Facilities Strategy 5-04-04

Utilize the plans of public facility and utility providers, and the Des Moines Capital Improvement Plan, to identify lands useful for public facility or utility purposes. Essential Public Facilities as defined by RCW 36.70A.200 are processed as Unclassified Use Permits (UUP) unless the use is permitted outright in a given zoning classification. Cooperatively work with surrounding municipalities and King County during the siting and development of facilities of regional significance. As permitted by state and federal law, including the lawful exercise by the City of its SEPA authority pursuant to RCW 43.21C.060, City approvals related to facilities, operations and activities within the City of Des Moines associated with Sea-Tac International Airport, including but not limited to, necessary support activities, connected-actions and projects, may include conditions which are necessary to mitigate specific adverse environmental impacts on the City of Des Moines identified in environmental documents prepared pursuant to SEPA. The City may decide not to approve such facilities or operations if the City finds: (a) the proposal would likely result in a significant adverse environmental impact(s) identified in a final or supplemental environmental impact statement prepared under SEPA, and (b) reasonable mitigation measures capable of being accomplished are insufficient to mitigate the identified impact(s).

Housing Background and Context 7-02-08

Much of Des Moines is impacted by aircraft noise related to Sea-Tac International Airport (STIA). Virtually all of the City of Des Moines is within the 65 Ldn noise contour, and large portions of the City are within the 70 or 75 Ldn noise contour (STIA Existing Noise Exposure Map, 1991).[10] Existing and projected noise contours constrain the amount of land appropriate for residential use. As part of the Port of Seattle (POS) Noise Remedy Program, hundreds of dwellings in Des Moines have been purchased and relocated outside Des Moines by the POS. While land uses within the City of Des Moines will be urban in nature as directed by Adopted Nov. 12, 2009 by Ordinance No. 1469 7-3 2009 City of Des Moines Comprehensive Plan Housing Element GMA and the Countywide Planning Policies, residential densities will be less than would occur in the absence of STIA.

Housing Background and Context 7-02-09

Environmental noise levels generated by STIA operations necessitated that Des Moines adopt Sound Transmission Control requirements (Chapter 14.08 Des Moines Municipal Code (DMMC)[11], International Building Code). These construction standards, which require interior noise reduction levels of 30-35 dBA, contribute to housing construction costs within Des Moines. As a result, opportunities to provide housing affordable to all segments of the community may be constrained by existing noise levels.

Housing Policy 7-03-07

In order to protect new dwellings from existing noise impacts associated with STIA, ensure that new residential construction includes Sound Transmission Control Requirements.

Community Character Background and Context 8-02-01: Residential Neighborhood Preservation

(3) The Environmental Protection Agency (EPA) has found environmental sound exposure levels in excess of Ldn of 55 dBA may be incompatible with residential land uses.

Community Character Background and Context 8-02-02: Historic Preservation

(6) Average noise levels above 65 dBA are incompatible with the preservation and enjoyment of historic properties and archeological sites.

[10] Housing Policy 7-02-08 of the *City of Des Moines Comprehensive Plan* should be amended upon the FAA approval of this Part 150 update to include the updated noise exposure map for existing and future conditions.

[11] City of Des Moines Municipal Code: Building Code Chapter 14.08, Article I. Sound Control Requirements.

Community Character Background and Context 8-02-04: Noise

(1) Noise can be generated from numerous sources -- sounds from musical instruments, audio sound systems, band sessions, social gatherings, motor vehicles, aircraft, industrial and construction activities, and other sources.

(2) Noise can interrupt and degrade sleep, cause stress-related psychological and physiological disorders, interfere with speech, interrupt and degrade education, reduce residential and commercial property values, reduce the use, enjoyment, and value of public recreational facilities, and reduce the use, enjoyment and value of historic and other cultural resources.

(3) Federal regulations establish that the responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise levels rests solely with the City of Des Moines.

***Community Character Policy 8-03-01*: Residential Neighborhood Preservation**

(3) To the extent permitted by state and federal law, maintain appropriate plans, zoning, development and building regulations and review procedures to ensure that designated residential neighborhoods will not be exposed to environmental noise levels that exceed an Ldn of 55 dBA, or existing noise levels as of April 20, 1995, whichever is greater. To the extent permitted by state and federal law, a reduction in the environmental noise level (greater than 55 Ldn) that existed as of April 20, 1995 should become the new maximum environmental level.

***Community Character Policy 8-03-02*: Historic Preservation**

(3) To the extent permitted by state and federal law, in order to minimize adverse impacts related to noise, protect historic properties and archeological sites of local significance from environmental noise exposure levels that exceed an Ldn of 55 dBA, or existing levels as of April 20, 1995, whichever is greater. To the extent permitted by state and federal law, a reduction in the environmental noise level (greater than 55 Ldn) that existed as of April 20, 1995 should become the new maximum environmental level.

***Community Character Policy 8-03-03*: Property Acquisition Areas**

(1) Continue to require that all land within Des Moines acquired by public entities be subject to the City's zoning and planning jurisdiction.

***Community Character Policy 8-03-04*: Noise**

(1) Discourage the introduction of noise levels that are incompatible with current or planned land uses. Encourage the reduction of incompatible noise levels, and discourage the introduction of new land uses into areas where existing noise levels are incompatible with such land uses.

(2) Encourage the reduction of noise from Seattle-Tacoma International Airport.

(3) Campaign aggressively for the development of new and quieter aircraft engines as well as modifications and/or retrofitting programs that promote the greatest reductions possible in aircraft noise emission levels.

(4) Require that noise levels generated from all land uses be restricted to the most stringent standard allowed by federal, state, or local standards.

(7) Within the North Central Neighborhood, encourage land uses and construction techniques that are tolerant of and compatible with the high noise and vibration levels generated by aircraft.

Community Character Strategy 8-04-01: Residential Neighborhood Protection

(1)(b) To the extent permitted by state and federal law, ensuring that land use changes and infrastructure improvements do not subject residential neighborhoods to environmental noise exposure levels which exceed an Ldn of 55 dBA, or existing levels as of April 20, 1995 or the date of this plan, whichever is greater.

(1)(c) To the extent permitted by state and federal law, ensuring that land use changes and infrastructure improvements do not subject residential neighborhoods to environmental noise exposure levels which exceed an Ldn of 55 dBA, or existing levels as of April 20, 1995, or the date of this plan, whichever is later.

Community Character Strategy 8-04-02: Historic Preservation

(1)(d) To the extent permitted by state and federal law, ensuring that land use and transportation proposals do not subject historic and archeological sites of local significance to environmental noise exposure levels of Ldn of 65 dBA, or existing levels as of April 20, 1995, whichever is higher. To the extent permitted by state and federal law, a reduction in the environmental noise level (greater than 65 Ldn) that existed as of April 20, 1995 or the date of this plan, whichever is later, should become the maximum environmental noise level.

(1)(e) To the extent permitted by state and federal law, requiring sponsors of any land use or transportation proposal that would expose historic and archeological properties of local significance to environmental noise levels of an Ldn of between 55 dBA and 65 dBA to submit a site-specific study addressing the uses of the particular resource, its historic or cultural significance, and the direct and indirect effect which noise may have upon the resource.

***Community Character Strategy 8-04-04*: Noise**

(1)(a) Enacting city-wide land use compatibility guidelines and criteria for the consideration of noise impacts in all planning and zoning decisions.

(1)(b) Taking appropriate legislative and regulatory action to ensure that environmental noise levels not exceed the most stringent of federal, state, and local standards.

(1)(e) Taking advantage of every opportunity to work with the Port of Seattle and the Federal Aviation Administration to promote the development and implementation of airport operational procedures that will decrease the adverse noise effects of airport operations on the City and its residents.

(1)(f) Maintaining a noise attenuation program through the incorporation of structural modifications to reduce sound transmissions from both inside and outside sources.

(1)(g) Maintaining an ordinance requiring insulation and other noise reducing construction techniques as part of the building permit process.

1.7.5.3 City of Normandy Park

The City of Normandy Park is located on the Puget Sound south of Burien, west of the City of SeaTac and Sea-Tac Airport, and north of the City of Des Moines. The City adopted the City of Normandy Park Comprehensive Plan in December 1995. It was amended and readopted as the *City of Normandy Park 2004 Comprehensive Plan* on November 9, 2004 (Ordinance No. 742). Normandy Park worked closely with neighboring jurisdictions Burien and Des Moines to coordinate planning efforts.

According to the Plan, the city has a responsibility to exercise its influence, when warranted, to protect its residents from potential impacts of land use planning and development activities in jurisdictions surrounding and adjacent to the City of Normandy Park. County-wide Planning Policy LU-35 allows jurisdictions to identify Potential Impact Areas (PIA) in other jurisdictions. In identifying PIAs, Normandy Park provides other local governments and decision makers an opportunity to review and comment on the potential impacts of the City's pending land use planning and permitting decisions. One of the City of Normandy Park PIA's is the airport related lands under the jurisdiction of the Port.

Normandy Park is a mature community in terms of land use. Most of the buildable land within the city limits has been developed and the majority of land is devoted to single-family detached housing. Due to its proximity to Sea-Tac Airport, the City has identified that unwanted noise sources can interrupt and degrade sleep, cause stress related psychological and physiological disorders, interfere with speech, interrupt and degrade education, reduce residential and commercial property values, reduce the use, enjoyment and value of public recreational facilities, and reduce the use, enjoyment and value of historic and other cultural resources. Therefore, the City has determined that the mitigation of noise should be considered for all land development.[12]

The Plan contains goals, objectives, and policies that address Sea-Tac Airport as part of the regional community. The goals, policies, and objectives related to the Airport and noise compatibility are listed below:

[12] The *City of Normandy Park 2004 Comprehensive Plan,* Land Use Element, II. INVENTORY AND ANALYSIS, G. Noise, p. 1-12. November 9, 2004.

Objective 1.7: Historic Preservation

The Washington State Growth Management Act (RCW 36.70A.020(13)) states that local jurisdictions are to develop comprehensive plans which "identify and encourage the preservation of lands, sites, and structures that have historical or archaeological significance." The King County Countywide Planning Policy Framework-26 states that "significant historic, archaeological, cultural, architectural and environmental features shall be respected and preserved."

As it is in the public interest to protect historic properties and sites from incompatible land uses and associated activities, and average noise levels above 55 dBA are incompatible with the preservation and enjoyment of historic properties and sites, the city should continue to identify historic properties and sites, and continue to enforce noise regulations.

> Policy 1.7.3: Protect historic properties and sites of local significance from exterior noise exposure levels which exceed an Ldn of 55 dBA, or the levels existing at the date of adoption of relevant plans or regulations, whichever is greater.

Objective 1.9: Noise

As federal regulations establish that the responsibility for determining acceptable and permissible land uses and the relationship between specific properties and specific noise levels rests with city government, the city should continue to monitor and regulate noise issues.

Policy 1.9.1: Discourage the introduction of noise levels that are incompatible with current or planned land uses, encourage the reduction of incompatible noise levels, and discourage the introduction of new land uses into areas where existing noise levels are incompatible with those land uses.

Policy 1.9.2: Encourage the reduction of noise from Seattle-Tacoma International Airport.

Policy 1.9.3: Aggressively campaign for the development of new and quieter aircraft engines as well as modifications or retrofitting programs that promote the greatest reductions possible in aircraft noise emission levels.

Policy 1.9.4: Take advantage of every opportunity to work with the Port of Seattle and the Federal Aviation Administration to promote the development and implementation of airport operational procedures that will decrease the adverse noise effects of airport operations on the city and its residents.

Policy 1.9.5: Continue to enforce noise level regulations.

Policy 1.9.6: Require buffering from noise-generating land uses through substantial berming, landscaping, setbacks, tree planting, and building construction and siting methods.

1.7.5.4 City of Burien

The City of Burien is bordered on the west by several miles of Puget Sound shoreline, bordered on the north by unincorporated King County, on the east by the City of SeaTac and Sea-Tac Airport, and on the south by Normandy Park and Des Moines. The City's first Comprehensive Plan was adopted in November 1997 and it is amended annually. Requests for amendments must be submitted by June 1 and the Planning Commission makes its recommendations on the amendments in July for City Council's consideration. The Plan was last revised in December 2010. The City of Burien is currently updating its Comprehensive Plan, which should be complete by the end of 2012.

The Burien Plan—The Comprehensive Plan for the City of Burien, Washington contains policies that address Sea-Tac Airport and some of the policies presented in the Burien Plan are very similar to the policies of the City of Des Moines and the City of Normandy Park. The 2010 Burien Plan states "…the airport expansion is both ill-advised and inconsistent with the requirements of the Washington State Growth Management and State Environmental Policy Acts,…" The airport expansion has occurred with the opening of Runway 16R/34L in November 2008. Some sections of the Burien Plan have not been updated to reflect the opening of Runway 16R/34L, referred to as "the third runway".

The goals and policies of the Burien Plan that are related to Sea-Tac Airport include the following:

Land Use

Goal LU.1: Establish a development pattern that is true to the vision for Burien by supporting the neighborhoods and preserving the character of the well-established neighborhoods as defined by the Neighborhood Plans, enhancing the attractiveness and vitality of the downtown core, and preserving the City's small town character.

> **Policy LU 1.9:** The City is aware that under the Growth Management Act the City may not preclude the siting of the third runway if the runway is determined by the courts to be an "essential public facility." The City also notes that the Growth Management Act, the Central Puget Sound Growth Management Hearings Board, the Countywide Planning Policies, the State Environmental Policy Act and other policies, laws and regulations authorize that there be appropriate and reasonable mitigation for communities and elements of the environment adversely impacted by the siting of an essential public facility. Under certain circumstances, permit applications can be conditioned or denied if significant adverse environmental impacts are not mitigated. If the third runway is constructed, significant adverse impacts should be mitigated to the maximum extent allowed by law.

Residential Neighborhoods

Goal RE.1: Provide a variety of attractive, well-designed housing choices that reinforce the character of the neighborhoods and meet the needs of existing and future City residents.

Policy RE 1.2: The planned densities for single family development should encourage a lower development potential in areas with development constraints.

Discussion: Within the City, potential development constraints include, but are not limited to, critical areas, such as areas along the coastline that are susceptible to landslides, areas with wetlands or areas prone to flooding; areas with stormwater drainage problems; exposure to exterior noise levels that exceed an Ldn of 55 dBA; or deficiencies in the type or level of services necessary for urban development, such as transportation facilities (roadway and pedestrian), sewer, or water.

Pol. RE 1.5 The Low Density Residential Neighborhood designation will provide for low-density residential development. Development within this designation includes existing neighborhoods that are zoned for four units per acre or less.

Allowed Uses and Description: The Low Density Residential Neighborhood designation allows single family residential uses and their accessory uses at a density of 4 units per acre or less, due to the constraints posed by critical areas. This policy may be implemented by more than one zoning category, based on the ability of the land and public facilities to support development. Development standards, for such items as impervious surfaces, streetscapes, sidewalks and stormwater drainage, may vary within each zoning category based on the existing character of the area.

Designation Criteria: Properties designated Low Density Residential Neighborhood should reflect the following criteria:

1. The area is already generally characterized by single family residential development at four units per acre or less; and
2. Relative to other residential areas within the City, the area is characterized by lower intensity development as shown on Map LU-2.
3. The land is designated as a potential landslide hazard area, steep slope area, or wetland on the City of Burien's Critical Areas Map,
4. The existing and planned public facilities for the area cannot adequately support a higher density.
5. The area is subject to existing impacts from high levels of airport-related noise.

Industrial & Manufacturing Uses

Goal IN.1: Provide opportunities for the development of attractive Business Park, Warehouse, Manufacturing and Airport-Related uses in the northeast part of the City where impacts on the surrounding environment can be minimized.

Policy IN 1.1: The Northeast Special Planning Area identified on Map LU-1 is an overlay land use designation that recognizes a potential opportunity for economic development in the northeastern part of the City, in areas affected by aircraft noise from Sea-Tac International Airport. Development of Uses in the Northeast Special Planning Area should be low scale, landscaped and buffered, have access to Des Moines Memorial Drive, meet the designation criteria under this policy and meet the performance criteria set forth in policies IN 1.3 and 1.4.

Allowed Uses and Description: Business Park, Warehouse, Manufacturing uses are storage within a building, production, light industrial, processing and distribution-related businesses with minimal environmental and land use impacts. Since the area is in close proximity to Sea-Tac International Airport, the uses in this classification could be airport-oriented. In addition, studio space for artists is also encouraged as a part of these developments, to the extent allowed by FAA restrictions.

Character: Uses in the Northeast Special Planning Area should be contained entirely within a structure. Only limited outside storage, or other external activity is appropriate. Developments should be clustered together and sited so that they have internal circulation, minimizing the number of access points to Des Moines Memorial Drive. Sites should be designed and located in a way that minimizes traffic, congestion, visual, noise or other impacts on adjacent residential uses or environmentally critical areas.

Designation Criteria: Properties designated for the Northeast Special Planning Area shall reflect the following criteria:

1. The area is located in the northeastern corner of Burien, and is currently or anticipated to be subjected to high levels of noise from airport-related activities, and therefore, less suitable for residential development.
2. The area must be a minimum of 2 acres in size, although smaller lots may be aggregated to meet this requirement.
3. The area shall be located near major transportation corridors with adequate highway access.
4. The area should be free of or able to appropriately accommodate significant amounts of environmentally critical areas.
5. The existing or planned public facilities are or will be adequate to support the level and intensity of proposed development.

Special Planning Areas

Goal SE.1: Designate Special Planning Areas to provide the City with the ability to support, encourage and achieve the community vision for specific areas of the downtown. These areas have distinctive geographic characteristics that the City's existing land use designations cannot adequately address.

Discussion: Special Planning Areas are used as a planning tool to create policies, regulations and criteria for development within defined geographic areas of the City that have special characteristics. These characteristics could include special design elements, gateways, large-lot public or semi-public facilities, or master-planned areas. A Special Planning Area can be established when the City's traditional Plan designations and zoning regulations are inadequate to address the development of an area. Within Special Planning Areas, special regulations are designed to ensure that development supports and achieves the desired character and stated goals and policies for the area.

Policy SE 1.5: The Northeast Redevelopment Area (NERA) is an approximately 158 acre area located in the northeastern part of Burien that has been affected by Sea-Tac International Airport operations. The NERA provides near and long term opportunities for economic development. Allowed Uses and Description: The NERA has been divided into two land use designations: Airport Industrial (AI) and Professional Residential (PR).

Airport Industrial: The purpose of this designation is to facilitate economic development and provide flexibility for airport-compatible uses in a campus-like setting with internal circulation to minimize the number of access points to Des Moines Memorial Drive. Allowed uses include, but are not limited to flex-tech, professional offices, light manufacturing, production, processing and distribution-related businesses; warehousing, utilities, retail, and new car auto sales developed in an auto mall configuration in designated locations. New residential uses are not allowed.

Professional Residential: The purpose of this designation is to provide flexibility by allowing both single-family homes and small businesses in an area near but not directly under Sea-Tac International Airport's third runway. Allowed uses include, but are not limited to moderate density residential, small office, small scale retail, art studios, and other similar uses that would be compatible with single-family homes.

Natural Environment

Goal EV.4: Conserve fish and wildlife resources and maintain bio-diversity.

Policy EV 4.10: In order to minimize adverse impacts related to noise, unless prohibited by federal or state law, fish and wildlife habitat conservation areas within the City should be protected from exterior noise levels which exceed 55 dBA Ldn.

Noise

Goal NO.1: Prevent community and environmental degradation by limiting noise levels, and to safeguard the health and safety of the residents of the City by ensuring that the City's physical and human environments are protected and enhanced as progress and change take place within and outside of its municipal boundaries.

Policy NO 1.1: The City shall;

1. Discourage the introduction of noise levels which are incompatible with current or planned land uses;
2. Encourage the reduction incompatible noise levels; and
3. Discourage the introduction of new land uses into areas where existing noise levels are incompatible with such land uses.

Policy NO 1.2: The City shall work with other jurisdictions and agencies to, encourage the reduction of noise from Seattle-Tacoma International Airport.

Policy NO 1.3: The City shall aggressively campaign for the development of new and quieter aircraft engines as well as modifications and/or retrofitting programs which promote the greatest reductions possible in aircraft noise emission levels.

Policy NO 1.4: The City shall take advantage of every opportunity to work with the Port of Seattle and the Federal Aviation Administration to promote the development and implementation of airport operational procedures that will decrease the adverse noise effects of airport operations on the City and its residents.

Housing

Goal HS.1: Encourage the provision of a variety of attractive, well-designed housing types and densities that reinforce and retain the character of the neighborhoods and meet the needs of existing and future City residents, while recognizing the need for a range of affordable housing.

Policy HS 1.8: The City's affordable housing strategy shall place a high priority on conserving and improving the City's existing housing stock. The City should accomplish this through code enforcement, appropriate zoning, and participation in housing rehabilitation programs.

Discussion: The comprehensive plan recognizes the existing housing stock as the most affordable form of housing within the community. Burien's existing housing stock is some of the most affordable in the Greater Seattle region, and its preservation is an appropriate mechanism for pursuing affordable housing choices for residents. This policy is particularly important because certain residential areas could transition to other uses due to airport noise, disinvestment, or other impacts.

Policy HS 1.12: Existing mobile home parks in the City provide an important affordable housing choice for low-income residents and should be protected from closures without adequate relocation plans. The City should ensure that sufficient relocation plans are in place prior to closure of any housing that serves low-income residents.

Discussion: Within Burien, mobile home parks could be closed in the future due to airport noise or redevelopment. In such cases, mobile home park residents must either sell their home or relocate it. The costs of relocating a mobile home can be prohibitive for many low and moderate income residents. By state law, mobile home park owners must give a year's notice before closing their park.

The City will require mobile home park owners to prepare a relocation plan that outlines the options available to each tenant, and includes information on locations and phone numbers of mobile home parks with vacancies, apartment complexes with rent levels equivalent to monthly housing payments in mobile home parks, and data on any available state or regional relocation funding programs. In cases where the mobile home park is noise impacted, and the park owner requests a rezone, the City will require cooperation with the Port's Noise 150 program that passes relocation funding assistance to tenants before a rezone is granted.

Historic Preservation

Goal HT 1: Ensure that historic properties and sites are identified, protected from undue adverse impacts associated with incompatible land uses or transportation facilities, and protected from detrimental exterior noise levels.

Policy HT. 1.5: In order to minimize adverse impacts related to noise, unless prohibited by federal or state law, historic properties and sites of local significance should be protected from exterior noise exposure levels that exceed a Ldn (DNL) of 55 dBA.

Neighborhood Preservation

Goal NP.1: Continue to provide the residents of the City with stable and quiet residential neighborhoods by maintaining an adequate residential tax base and assuring that:

- Residential neighborhoods are protected from undue adverse impacts associated with incompatible land uses or transportation facilities, including, but not limited to, noise, air and water pollution, glare, excessive traffic and inadequate on-street parking;
- Residential neighborhoods are identified and protected from detrimental exterior noise levels;
- Residential streets are protected from heavy commercial traffic that inhibits the free flow of traffic or that exceeds prescribed weight limits.

Policy NP 1.3: The City shall adopt appropriate plans, zoning, development and building regulations and review procedures to ensure that residential neighborhoods, to the extent allowed by federal and state law, will not be exposed to exterior noise levels which exceed an Ldn of 55 dBA at the property line.

Parks Recreation and Open Space

Goal PRO.4: Ensure that park, recreation and open space areas of local or regional significance are identified and protected. Also, ensure that existing and planned park, recreation and open space areas are protected from adverse impacts associated with incompatible land uses and/or transportation activities. Such adverse impacts may include traffic congestion, inadequate parking, surface water runoff, vibration, air and water pollution, noise among others.

Policy PRO 4.4: In order to minimize adverse impacts related to noise, unless prohibited by federal or state law, Burien's park, recreation and open space areas of local or regional significance should be protected from exterior noise exposure levels which exceed an Ldn of 55 dBA, except that outdoor amphitheaters and music shells should be protected from exterior noise exposure levels which exceed an Ldn of 50, unless prohibited by federal or state law, and except that golf courses, ball fields, outdoor spectator sports areas, amusement areas, riding stables, nature trails, wildlife refuges, auditoriums and concert halls should be protected from exterior noise exposure levels which exceed and Ldn of 60 dBA unless prohibited by federal or state law.

1.7.5.5 City of Tukwila

The City of Tukwila is located to the east/northeast of Sea-Tac Airport, north and east of the City of SeaTac, and is bisected by Interstate-5 and Interstate-405. The City adopted a Comprehensive Land Use Plan in December 1995 and updated that Plan in December 2008. The City has adopted several policies addressing aircraft noise, very similar to other communities surrounding Sea-Tac Airport. The goals, policies, and implementation strategies of the Tukwila Plan that are related to the airport operations include the following:

GOAL 7.2

Noise Abatement

Residential neighborhoods protected from undue noise impacts, in order to ensure for all residents the continued use, enjoyment and value of their homes, public facilities and recreation, and the outdoors.

Policies

7.2.1 Prevent community and environmental degradation by limiting noise levels.

7.2.2 Discourage noise levels which are incompatible with current or planned land uses, and discourage the introduction of new land uses into areas where existing noise levels are incompatible with such land uses.

7.2.3 Require building contractors to limit their construction activities to those hours of the day when nearby residents will not be unreasonably disturbed.

Implementation Strategy

- Noise regulations

7.2.4 Discourage noise levels incompatible with residential neighborhoods.

Implementation Strategies

- Coordinate with the Washington Department of Transportation
- Noise reduction and buffering regulations
- Berming, landscaping, setbacks, tree planting
- Building construction and siting methods
- Home occupations standards

7.2.5 Encourage the reduction of noise from Seattle-Tacoma International Airport and King County Airport, by promoting the development of new or the retrofit and modification of existing aircraft engines which are quieter, and operational procedures that help reduce aircraft noise emission levels.

7.2.6 Work with the Port of Seattle, King County Airport and the Federal Aviation Administration to promote the development and implementation of airport operational procedures that will decrease the adverse noise effects of airport operations on Tukwila and its residents.

Implementation Strategies

- Lobbying the Federal Aviation Administration to develop and implement airport operational procedures to reduce noise impacts.
- Coordinate with other jurisdictions surrounding airports to ensure common purpose and implementation strategies.
- Work with King County International Airport/Boeing Field to establish an appropriate noise monitoring system, including better identification of noisy flight events, counseling/education of pilots about quieter flying techniques, flight patterns that avoid noise-sensitive areas and other strategies.

7.2.7 Ensure that urbanization and development do not negatively impact current neighborhood noise levels or E.P.A. standards.

Implementation Strategy

- WSDOT coordination in advance of roadway improvements
- City-wide study on current noise levels
- Establish City program and standards

GOAL 9.2

Residential Areas

Unique residential neighborhoods and housing opportunities that serve a broad range of ages, family mixes, lifestyles and incomes.

9.2.1 Emphasize noise attenuation, pedestrian access and high quality building and landscape treatment in development review for residential uses.

1.7.5.6 City of Kent

The City of Kent adopted the City of Kent Comprehensive Plan in April 1995 by Ordinance Number 3222, with the most recent update in May 2006 (Ordinance Numbers 3794-3797). The Plan contains goals and policies for community development, and a Land Use Plan Map that depicts generalized future land uses. The Plan does not contain any goals or policies addressing Sea-Tac Airport or any noise-exposure contours associated with the Airport.

1.7.5.7 King County

King County adopted the King County Comprehensive Plan in 1964 and has updated it several times since the enactment of the Growth Management Act by the State of Washington in 1990. The Plan is typically updated annually with significant revisions being conducted every four years. The most recent significant revision occurred in 2008, with a minor update in 2010. The Plan contains the following policies pertaining to airport noise and land use compatibility:

Policy U-126: King County shall not support requests for residential density increases on lands located within the outer boundaries of the Noise Remedy Area as identified by Seattle-Tacoma International Airport.

Policy T-115: Recognizing that certain noise reduction measures are contingent on ongoing and future FAA funding, King County shall implement those actions, under its control and identified in the Part 150 Noise and Land Use Compatibility Plan. King County shall encourage other entities to implement those measures under their control and also identified in the Part 150 Noise and Land Use Compatibility Plan.

1.7.5.8 City of Seattle

The City of Seattle, the largest city in Washington State, is located north of the cities of Tukwila and Burien and Sea-Tac Airport. The City adopted the City of Seattle Comprehensive Plan, *Toward a Sustainable Seattle*, in July 1994 and has amended it annually, with major updates occurring every few years. The Plan includes goals and policies related to the protection of the environment, including noise pollution.

1.7.6 ZONING

All of the jurisdictions in the vicinity of Sea-Tac Airport have adopted traditional land use zoning ordinances to control the types of land uses within their jurisdiction. The ordinances divide a jurisdiction into zoning districts and prescribe certain requirements for allowable uses within those districts. The various elements of the zoning codes from each jurisdiction pertaining to airport-related activities are presented in the following paragraphs. **Exhibit 1-17, *Generalized Existing Zoning***, presents the zoning districts for the jurisdictions around Sea-Tac Airport, in terms of general zoning classification (e.g. residential, commercial, industrial, institutional, etc.).

The area to the immediate north of the runways at Sea-Tac Airport within the jurisdiction of the City of SeaTac is generally zoned commercial/industrial. The area to the northeast of the runways within the City of SeaTac is zoned residential. The area to the immediate east of Sea-Tac Airport, along the SR 99 corridor, is zoned commercial. The areas further east, generally east of 32nd Avenue, are zoned residential. To the south of the runways within the City of SeaTac, land is primarily zoned residential and commercial. Immediately west of the Airport, land within the City of SeaTac is zoned residential and commercial.

Burien has generally zoned the majority of its jurisdiction as single- and multi-family residential, with a commercial center generally bounded by State Route 509 to the east, SW 148th Street to the north, 10th Avenue to the west, and SW 152nd Street to the south. Land to the immediate west of the Airport within the City of Burien is primarily zoned residential, with some industrially-zoned areas located to the west and northwest of the Airport.

Des Moines is generally zoned for single-family housing except for the downtown and marina areas, and along Pacific Highway South (State Route 99), and arterial streets where commercial and multi-family development is permitted.

Tukwila permits a variety of business, industrial and residential development at various densities.

According to their 2004 Comprehensive Plan Future Land Use Map, the City of Normandy Park primarily permits residential land uses, with some areas of neighborhood commercial and mixed-use along 1st Avenue.

The zoning for each of these communities as it relates to airport operations and compatibility is discussed in the following sections.

1.7.6.1 City of SeaTac

The City of SeaTac adopted a zoning ordinance on October 17, 1992, which has been updated periodically and is included as Title 15 of the SeaTac Municipal Code. The ordinance contains two use zones that address the Airport directly, Airport Use Zone and Aviation Business Center Zone.

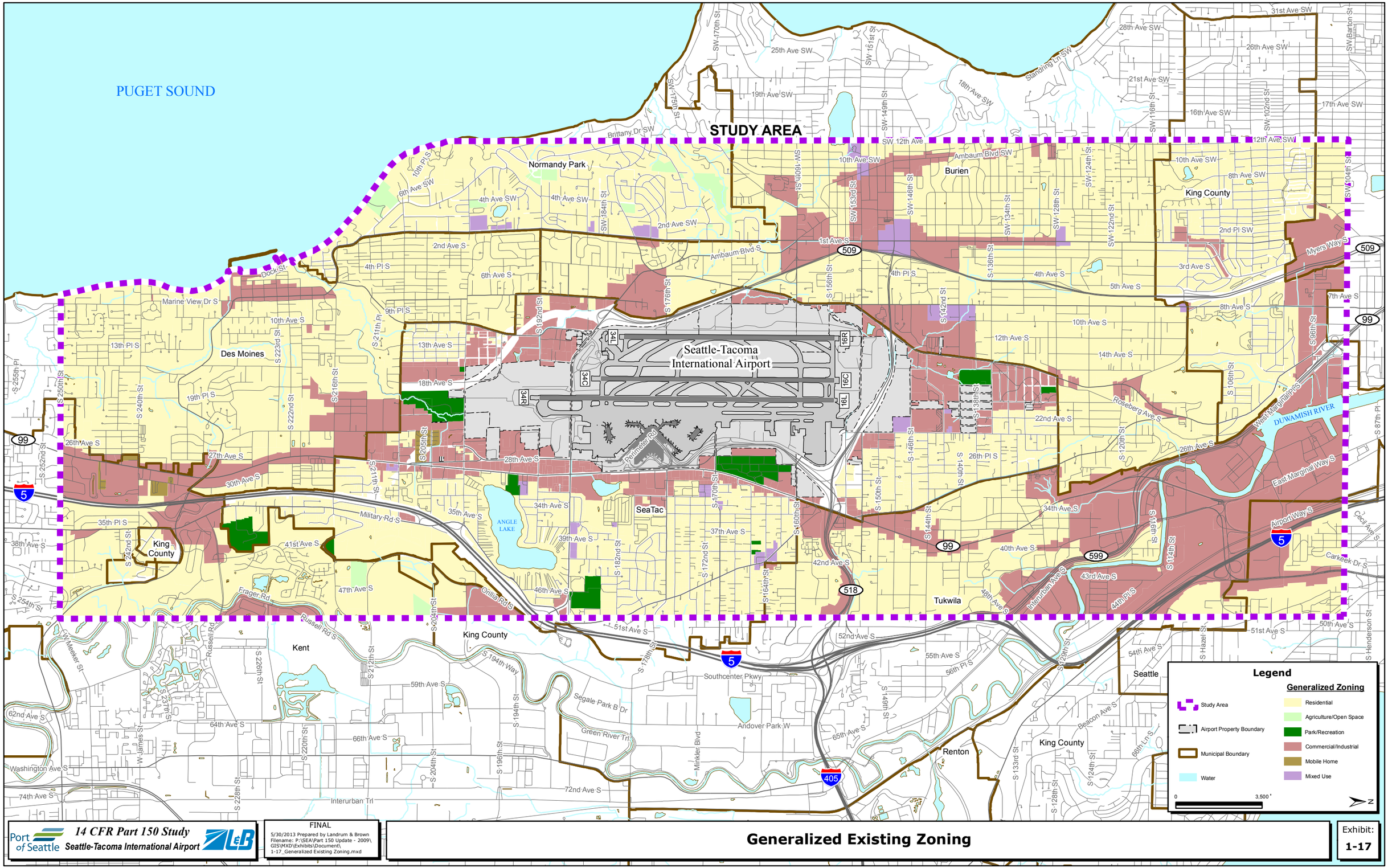
Aviation Operations (AVO): The purpose of this designation is to create a zone for development of the range of facilities that provide for safe and efficient commercial operations and support, together with security, access, the needs and convenience of the traveling public, and handling of air cargo.

Aviation Commercial (AVC): The purpose of this designation is to create a zone for development that provides support to operations of the airport, the traveling public, and air cargo, and for other development that provides economic benefit to the airport and community while maintaining compatibility with airport operations and activities.

These districts allow for and encourage aviation and aviation-related development such as aviation facilities, utilities, access roads, hotels and conference centers, and parking facilities.

The Code also contains the following General Performance Standard provision addressing noise.

Section 15.18.020(C): Due to the proximity of the Airport facilities, residential construction shall have sound attenuated or limited as consistent with adopted Port of Seattle/FAA noise remedy programs within significant DNL contours. (Ord. 92-1041 § 1)



14 CFR Part 150 Study
Seattle-Tacoma International Airport

FINAL
5/30/2013 Prepared by Landrum & Brown
Filename: P:\SEA\Part 150 Update - 2009\GIS\MXD\Exhibits\Document\1-17_Generalized Existing Zoning.mxd

Generalized Existing Zoning

Exhibit: 1-17

In addition to the above provisions, the City of SeaTac and the Port of Seattle entered into an Interlocal Agreement concerning several issues of importance to both entities, one of which was land use and zoning. The original Agreement was adopted on September 4, 1997 and has been amended several times. The 1997 Agreement included provisions for the inclusion of the zoning districts (listed above) in the City of SeaTac's zoning ordinance. A new Agreement was adopted on February 16, 2006. The following statement related to Land Use/Zoning is included in the Agreement:

> 2. Land Use/Zoning: The City and Port adopt the planning, land use and zoning provisions set forth in Exhibit A hereto and shall implement the same. Both parties acknowledge that the Airport's 2005 Comprehensive Development Plan (CDP) is under development, and that mitigation of environmental impacts of the CDP will be addressed in the programmatic and project-specific stages of the CDP environmental process. Both parties further acknowledge that it is important City concerns of CDP implementation be addressed in the earliest stages. The Port agrees to notify the City at least three months prior to the issuance of any environmental documents or determination about any planned construction of any CDP project, and agrees to collaboratively work with the City to identify and resolve City concerns. Where differences may remain regarding the approach to be used in the proposed CDP to minimize ramifications on the City, the Dispute Resolution process described in Section 13 shall apply-

1.7.6.2 City of Des Moines

The City of Des Moines has an adopted zoning ordinance, with the latest revision being in March 2011. The code contains a Noise Levels Chapter, 18.38 with two sections dealing with noise levels in residential neighborhoods.

18.38.020: *Limit on noise impacts on residential neighborhoods* - Residential neighborhoods shall not be subject to adverse land uses, activities or traffic that generate exterior noise exposure levels exceeding 55 Ldn dBA, or existing levels as of April 20, 1995, whichever is greater. A reduction in the exterior noise level (greater than 55 Ldn) that existed as of April 20, 1995 shall become the new maximum exterior noise level.

18.38.030: *Requirement for noise mitigation plan* - Proponents of projects that will increase exterior noise levels to which residential areas are exposed to levels exceeding those existing on April 20, 1995, or to levels exceeding an Ldn of 55 dBA, whichever is greater, must submit a noise mitigation plan to the community development department of the city for review and approval before required permits are issued to allow the project to proceed.

1.7.6.3 City of Normandy Park

Title 18 of the Normandy Park Municipal Code sets forth the City's zoning regulations. Similar to the City of Des Moines, Normandy Park has specific sections that address noise levels within residential neighborhoods. In addition, the zoning code addresses noise levels at parks and other landmarks. These sections of the zoning code are outlined below.

Chapter 18.68: Residential Neighborhoods – Noise Protection

Section 18.68.030: *Limit on noise impacts* – Residential neighborhoods shall not be subject to adverse land uses, activities or traffic which generate exterior noise exposure levels exceeding an Ldn of 55 dbA, or existing levels as of the effective date of the ordinance codified in this chapter, whichever is greater.

Section 18.68.040: *Requirement for noise mitigation plan* - Proponents of projects which will increase exterior noise levels to which residential areas are exposed above those existing on the effective date of the ordinance codified in this chapter, or above an Ldn of 55 dbA, whichever is higher, must submit a noise mitigation plan to the city planning department for review and approval before required permits are issued to allow the project to proceed.

Chapter 18.72: Landmark Protection and Preservation

18.72.040: *Limit on noise impacts to significant sites, districts, buildings, structures and objects* - Significant sites, districts, buildings, structures and objects shall not be subject to adverse land uses which generate exterior noise exposure levels exceeding an Ldn of 55dbA, or existing levels as of the effective date of the ordinance codified in this chapter, whichever is greater.

18.72.050: *Requirement for noise mitigation plan* - Proponents of projects that will increase exterior noise levels to which significant sites, districts, buildings, structures are exposed to levels exceeding those existing on the effective date of the ordinance codified in this chapter, or above an Ldn of 55 dBA, whichever is higher, must submit a noise mitigation plan to the city planning department for review and approval before required permits are issued to allow the project to proceed.

Chapter 18.76: Parks of Local Significance

Section 18.76.020 Exterior noise levels.

(1) Except for golf courses, ball fields, outdoor spectator sports areas, amusement areas, riding stables, nature trails and wildlife refuges, park and recreation areas designated as being of local significance as specified by the city shall not be subjected to adverse land uses which result in exterior noise level exposures which exceed an Ldn of 55 dBA, or the existing Ldn level as of the effective date of the ordinance codified in this chapter, whichever is greater.

(2) Golf courses, ball fields, outdoor spectator sports areas, amusement areas, riding stables, nature trails and wildlife refuges designated as being of local significance as specified by the city shall not be subjected to adverse land uses which result in exterior noise level exposures which exceed an Ldn of 60 dBA or the existing Ldn level as of the effective date of the ordinance codified in this chapter, whichever is greater.

(3) Proponents of projects which will increase noise levels to which park and recreation areas are exposed above those existing on the effective date of the ordinance codified in this chapter, or above an Ldn of 55 dBA (or 60 dBA for golf courses, ball fields, outdoor spectator sports areas, amusement areas, riding stables, nature trails and wildlife refuges), whichever is higher, must submit a noise mitigation plan to the city for review and approval before the required permits may be issued to allow the project to proceed.

1.7.6.4 City of Burien

The City of Burien last updated its zoning code in December 2010. The code contains provisions for Airport Industrial Zones, height limitations, and noise restrictions as described below:

Section 19.15.070: *Airport Industrial Zones* – The Airport Industrial (AI) zone implements the Airport Industrial Comprehensive Plan designation within the Northeast Redevelopment Area. The purpose and intent of this designation is to facilitate economic development and provide flexibility for airport-compatible uses in a campus-like setting with internal circulation to minimize the number of access points to Des Moines Memorial Drive.

Section 19.17.140: *Height Limits near major airports* – No building or structure shall be erected nor shall any tree be allowed to grow to a height in excess of the height limit established by the airport height maps for the Seattle-Tacoma International Airport.

Section 19.85.020: *Limit on noise impacts to significant sites, districts, buildings, structures, and objects* – Significant sites, districts, buildings, structures, and objects shall not be subject to adverse land uses which generate exterior noise exposure levels exceeding 55 dbA Ldn.

Section 19.85.030: *Requirement for noise mitigation plan* – Proponents of projects which will increase exterior noise levels to which significant sites, districts, buildings, structures, and objects are exposed above an Ldn of 55 dbA must submit a noise mitigation plan to the city of Burien department of community development for review and approval before required permits are issued to allow the project to proceed. The city manager, with the assistance of the director of the department of community development, is authorized and directed to develop criteria for such review and approval. Such criteria shall be available in writing to applicants and shall, at minimum, require that the best available technology be employed to achieve no more than the maximum allowable noise standard set forth in this section.

1.7.6.5 City of Tukwila

The City of Tukwila has adopted a zoning ordinance; however, it does not include provisions that address aircraft-related noise issues in relationship to land uses.

1.7.6.6 City of Kent

The City of Kent has an adopted zoning ordinance which addresses noise in general but does not specifically address aircraft noise levels.

1.7.6.7 King County

King County has an adopted zoning ordinance that addresses land use development within unincorporated areas of King County, which is included as Title 21A of the King County Code. The Code was last amended in December 2010. The Code contains the following provisions related to airports and land use compatibility.
21A.38.160: *Special District Overlay - Aviation Facilities*

A. The purpose of the aviation facilities special district overlay is to protect existing non-commercial airports from encroaching residential development. An aviation facilities special district overlay shall only be established in the area up to 1/4 mile around airports and shall be zoned UR or RA.

B. The following development standards shall apply to uses locating in aviation facilities special overlay districts:

   On the title of all properties within pending short subdivisions or subdivisions and binding site plans, the following statement shall be recorded and be shown to all prospective buyers of lots or homes:

   "This property is located near the (name of airport) which is recognized as a legitimate land use by King County. Air traffic in this area, whether at current or increased levels, is consistent with King County land use policies provided it conforms to all applicable state and federal laws."

21A.12.190: *Height limits near major airports* - No building or structure shall be erected nor shall any tree be allowed to grow to a height in excess of the height limit established by the Airport Height Maps for the Seattle-Tacoma International Airport and the King County Airport (Boeing Field).

21A.37.030: *Transfer of development rights (TDR) program - receiving sites*

D. Property located within the outer boundaries of the Noise Remedy Areas as identified by the Seattle-Tacoma International Airport may not accept development rights.

1.7.6.8 City of Seattle

The City of Seattle has an adopted zoning ordinance which addresses noise in general but does not specifically address aircraft noise levels.

1.7.7 SOUND ATTENUATION REQUIREMENTS

The Cities of Burien, Des Moines, and SeaTac, and King County have building code provisions for sound attenuation of new structures within the vicinity of Sea-Tac Airport. Copies of these provisions are in Appendix J, *Sound Reduction Codes*.

1.7.7.1 City SeaTac

The City of SeaTac enacted a Sound Transmission Code,[13] which establishes sound attenuation requirements for new construction and additions to existing structures within the Port's Noise Remedy Area Boundary. Within the Noise Remedy Boundary, two sub-areas have been established, a Neighborhood Reinforcement Area and a Standard Insulation Area. The requirements in the Neighborhood Reinforcement Area are for bedrooms to achieve a 35-decibel reduction and all other areas must achieve a 30-decibel reduction. In the Standard Insulation Area, bedrooms must achieve a 30-decibel reduction and all other areas must achieve a 25-decibel reduction. The code identifies specific construction methods and materials to achieve the prescribed interior sound attenuation requirements.

1.7.7.2 City of Des Moines

The City of Des Moines adopted sound control requirements for new construction or additions to existing structures intended for human occupancy.[14] The ordinance identifies two different sound transmission control areas. Area 1 includes all portions of the City north of S 252nd Street; and Area 2 includes all areas south of S 252nd Street. Area 1 requires a 35-decibel reduction and Area 2 requires a 30-decibel reduction of interior noise levels for new construction. The City has adopted specific requirements to achieve these reductions.

1.7.7.3 City of Normandy Park

The City of Normandy Park does not have provisions in its building code related to sound attenuation for aircraft noise compatibility.

1.7.7.4 City of Burien

The City of Burien adopted an aircraft noise reduction ordinance establishing minimum requirements regulating the design, construction, and/or setting on site of buildings for human occupancy in the vicinity of Sea-Tac Airport.[15] The code

[13] City of SeaTac Municipal Code, Chapter 13.240; (Ord. 04-1008 § 3).
[14] City of Des Moines Municipal Code, Chapter 14.08; (Ord. 1407 § 43, 2007)
[15] City of Burien Municipal Code, Chapter 15.12, *Aircraft Noise Reduction*; (Ordinance 408 § 1, 2004)

divides the City into three sections, in which new construction and additions of all inhabited structures must meet certain interior noise reduction standards. New construction within those portions of the city, east of First Avenue South extended from the northern to the southern city limits and to the eastern city limits must achieve a 35 dB interior noise level reduction. New construction within those portions of the City, between First Avenue South and 12th Avenue S.W. extending from the northern to the southern City limits must achieve a 30 dB interior noise level reduction. New construction within all remaining areas must achieve a 25 dB interior noise level reduction. The code contains specific construction materials and methods to meet the interior noise level reduction standards.

1.7.7.5 City of Tukwila

The City of Tukwila does not have provisions in its building code related to sound attenuation for aircraft noise compatibility.

1.7.7.6 City of Federal Way

The City of Federal Way does not have provisions in its building code related to sound attenuation for aircraft noise compatibility.

1.7.7.7 King County

King County requirements are similar to the City of SeaTac and reference the same Noise Remedy Boundary. Within the Noise Remedy boundary, the following requirements have been established:

(a) Neighborhood Reinforcement Area:

1) Bedrooms must comply with standards designed to achieve a noise reduction of 35 dB.

2) All other living and working areas must comply with standards designed to achieve a noise reduction level of 30 dB.

(b) Cost-Share Insulations Area:

1) Bedrooms must comply with standards designed to achieve a noise reduction of 30 dB.

2) All other living and working areas must comply with standards designed to achieve a noise reduction level of 25 dB.

1.7.7.8 City of Seattle

The City of Seattle does not have provisions in its building code related to sound attenuation for aircraft noise compatibility.

1.8 LAND USE CONTROLS EVALUATION

The evaluation of land use planning techniques is intended to address the potential for future development in areas located inside and in the vicinity of the DNL 65 dBA noise exposure contour where aircraft overflights continue.[16] The responsibility for controlling and managing the development and redevelopment of land outside the airport boundary is the responsibility of each community. Therefore, it is incumbent upon the local planning and elected officials to monitor and plan for new development in a manner that is compatible with aircraft operations.

According to an FAA land use guidance manual, *Land Use Compatibility and Airports*,[17] the FAA recognizes that aircraft noise does not stop at the DNL 65 dBA noise exposure contour.

> *"While the FAA can provide assistance and funding to encourage compatible land development around airports, it has no regulatory authority for controlling land uses that would protect airport capacity. The FAA recognizes that state and local governments are responsible for land use planning, zoning and regulation, including that necessary to provide land use compatibility with airport operations. However, pursuant to the Federal Airport and Airway Development Act, as a condition precedent to approval of an FAA-funded airport development project, the airport sponsor must provide the FAA with written assurances that "…appropriate action, including the adoption of zoning laws have been or will be taken, to the extent reasonable, to restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations including the landing and takeoff of aircraft…"*
>
> *FAA has required the phasing out of noisy Stage 1 and Stage 2 aircraft consequently, the aviation industry has spent substantial monies to meet this requirement. To assist in the compatible land use efforts, the FAA, local airport sponsors, and state aviation agencies have expended significant funds related to airport planning and off-airport noise and land use compatibility planning throughout the United States. Airport master plans have been prepared to identify the near-term and long-range projections for airport activity and the development necessary to meet these activity demands. In addition, noise and land use studies (Part 150 studies) have been conducted to evaluate ways to minimize impacts of aircraft noise, and the FAA and airport sponsors have financed land acquisitions and other noise compatibility measures throughout the United States."*

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[16] Note that per Part 150 regulations, all land uses are compatible with outdoor noise levels below DNL 65 dBA; however, local planning efforts may, at the discretion of local jurisdictions, consider noise below DNL 65 dBA independent of the Part 150 process.

[17] *Land Use Compatibility and Airports: A Guide for Effective Land Use Planning*, FAA Airports Division, Southern Region Office, Atlanta, Georgia, Jacqueline Sweatt-Essick, et al, July 1999. http://www.faa.gov/about/office_org/headquarters_offices/aep/planning_toolkit/media/III.B.pdf

Therefore, the FAA encourages airport sponsors and local governments to work together to establish local land use controls in areas adjacent to an airport and within the flight corridors that extend beyond the DNL 65 dBA contour.[18] A brief discussion of typical preventive land use management techniques, and their application by the jurisdictions within the Airport Environs, is provided in the following sections.

1.8.1 COMPREHENSIVE PLANNING

A comprehensive plan sets the land use and development policies and goals for a community and is the guide for land use policy implementation. King County and the communities surrounding Sea-Tac Airport have adopted future land use plans to guide development based on Washington Statutes.

Washington cities and counties have prepared comprehensive plans for many years. With the passage of the GMA by the Washington Legislature in 1990, growth management took on new meaning.[19] The GMA addresses the issues of rapid population growth and uncoordinated planning efforts throughout the state. The legislation seeks to ensure that population growth and planning for transportation, housing, open space, and other essential services and infrastructure make sense and are compatible. The Act provides a process for siting "Essential Public Facilities" including airports. Two principles of the Act are "consistency" and "concurrency." This means that not only consistent planning policies are required among various county and regional jurisdictions, but that the timing of such planning must occur in a manner that promotes the policies.

King County is one of 29 counties in the State of Washington that are either required to fully plan under the GMA or have chosen to do so. The GMA provides a framework for regional coordination and county-wide planning policies to establish urban growth areas. Local comprehensive plans must include the following elements: land use, housing, capital facilities, utilities, transportation, and, for counties, a rural element. Shoreline master program policies are also an element of local comprehensive plans.

The GMA establishes the primacy of the comprehensive plan. The comprehensive plan is the starting point for any planning process and the centerpiece of local planning. Development regulations (zoning, subdivision, and other controls) must be consistent with comprehensive plans. State agencies are required to comply with comprehensive plans and development regulations of jurisdictions planning

[18] Note that per Part 150 regulations, all land uses are compatible with outdoor noise levels below DNL 65 dBA; however, local planning efforts may, at the discretion of local jurisdictions, consider noise below DNL 65 dBA independent of the Part 150 process.

[19] Municipal Research and Services Center of Washington, *Comprehensive Planning and Growth Management*, website updated 05/09; Source: http://www.mrsc.org/subjects/planning/compplan.aspx

under the GMA. The Port participates as an ex-officio member of the King County Growth Management Policy Council to facilitate coordination of land use and transportation planning.[20]

A comprehensive plan in and of itself does not and cannot control development or relieve noise impacts/incompatibilities without implementing a development plan, but there are other tools available, which are discussed subsequently.

1.8.2 LAND USE PLANNING

The formal adoption of a local land use plan by the jurisdictions within the Airport Environs provides the basis for zoning determinations and evaluations regarding the suitability of various development proposals for implementation. The land use plan element of the comprehensive community plan should take into account the compatibility of proposed development and the identification of developable lands taking into account the existing and anticipated aircraft noise levels and plan future land uses accordingly. The land use plan should serve as the basis to guide the development of the community's Capital Improvement Program.

1.8.3 GENERAL PURPOSE ZONING

Zoning is one of the primary tools available to local communities to ensure land use compatibility. Zoning ordinances and regulations are intended to promote public health, safety, and welfare by regulating the use of the land within a jurisdiction based on factors such as land use compatibility and existing and expected socioeconomic conditions.

The regulation of land through a zoning ordinance is premised as part of the police power inherent in the state and delegated to the local jurisdiction through state enabling legislation. King County and various communities surrounding Sea-Tac Airport do have the statutory authority to adopt zoning ordinances and maps.[21] The communities surrounding Sea-Tac Airport have adopted zoning ordinances and do control the land use within their respective boundaries.

Zoning is useful for controlling land use development and promoting compatibility while supporting private land ownership. Zoning cannot be relied upon as a "corrective land use management measure" as it can only be applied prospectively and not retroactively. Also, because zoning is a creature of a political body and subject to changing conditions and situations, the zoning classification of any particular tract of land is always subject to change and its implementation and enforcement must be monitored to ensure continuing compatibility.

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[20] *King County Countywide Planning Policies*, King County Department of Development and Environmental Services, updated October, 2008. Source: http://your.kingcounty.gov/ddes/compplan/CPP-current.pdf

[21] Revised Code of Washington, Title 36 *Counties*, §36.70.010, §36.70A.040 and Title 35 *Cities and towns* §35.63.080; and Washington State Constitution, Article XI *County, City, and Township Organization* Section 5 County Government, Amendment 12—Article 11 Section 5 COUNTY GOVERNMENT.

Zoning can be used to regulate the height of objects around airports to prevent hazards to navigation. Washington Statutes specifically allow airport sponsors to implement height hazard zoning in certain designated areas within an airport's environs to prevent the establishment of hazards[22] and the Attorney General has stated that zoning of building heights near an airport is a proper use of police power.[23] The State of Washington has no specific enabling legislation to allow airports or airport sponsors to enact zoning ordinances based on aircraft noise or noise contours.

Master Planned Development District

A Master Planned Development (MPD) district is intended to accommodate development that may be difficult if not impossible to carry out under otherwise applicable zoning district standards. Examples of MPD include Enhanced Protection of Natural Resources Areas, in which a planned development offers enhanced protection of natural resources and sensitive environmental features, and Mixed-use Development Areas, in which developments contain a complementary mix of residential and nonresidential uses. The different types of MPDs are intended to promote different planning goals. In general MPDs are intended to promote flexibility and creativity in responding to changing social, economic, and market conditions and could results in greater public benefits than could be achieved using conventional zoning and development regulations. MPD zoning is typically for proposed developments that cannot be reasonably accommodated by other available regulations of a development ordinance, and would result in a greater benefit to the city as a whole than would development under conventional zoning district regulations. Such greater benefit may include the implementation of adopted planning policies, neighborhood/community amenities, urban design, natural resource preservation, or a general level of development quality.

Airport Overlay Zoning District

An Airport Noise Overlay Zone or District establishes a set of development guidelines on areas designated as highly sensitive to aircraft noise. Such a district would lie as an overlay of the underlying land use zoning and would impose various guidelines on the development of land within its boundaries. These constraints may include a requirement for the sound insulation of new or rehabilitated properties, disclosure of the susceptibility of the property to elevated aircraft noise levels, the dedication of an avigation easement for new development, the requirement of development densities for incompatible uses in concordance with the level of noise exposure, the coordinated review of development proposals, etc. The boundaries of the district may be established by the local jurisdiction having land use control at any level deemed to be appropriate to the management of the risk of adverse effects and incompatibility between aircraft and noise-sensitive development.

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[22] Revised Code of Washington, Title 14 *Aeronautics*, Chapter 14.12 Airport zoning.

[23] Washington State Office of the Attorney General, AGO 53-55 No. 298; Opinions—Don Eastvole—1953-1956—Attorney General of Washington; MUNICIPAL CORPORATIONS – ZONING – HEIGHT LIMITATIONS – AIRPORTS. Zoning of building heights near an airport is a proper exercise of the police power. Source: http://atg.wa.gov/AGOOpinions/Opinion.aspx?section=archive&id=11310

1.8.4 COORDINATED PROJECT REVIEW PROCESS (DISCRETIONARY REVIEW)

The coordinated review of proposals for zoning changes, subdivision development, or building permits may be activated as a means for consideration of the potential effects of aircraft noise on proposed development actions. The coordination assumes the review by both airport and land use management personnel of project compatibility, and may result in a report on each item under consideration which is attached to the project file and reported to the governing bodies as part of their consideration of the suitability of the project action for approval or denial. Such measures may be included in a NCP as separate measures or incorporated into a broader measure such as an Airport Overlay Zoning District.

1.8.5 FULL DISCLOSURE POLICY

A program can be developed to insure that the buyers of residential property within the airport environs receive full disclosure of the location of the property relative to the airport. This would require that the sellers of residential property in the airport environs deliver to buyers a purchase disclosure notice consisting of a copy of the Noise Overlay District Ordinance and Map with a statement that the property is located within the Airport Noise Overlay District. It may also require that all advertisements and listings for sale of residentially zoned or improved property in the Noise Overlay District include a statement about aircraft noise, such as, "Not recommended for persons who may easily be disturbed by aircraft noise." Finally, solicitation of the voluntary inclusion of the notice in the Multiple Listing Services by the real estate profession alerts potential buyers of property to aircraft noise conditions.

1.8.6 SUBDIVISION REGULATIONS

Subdivision regulations apply in cases where a parcel of land is proposed to be divided into lots or tracts. They are established to ensure the proper arrangement of streets, adequate and convenient open space, efficient movement of traffic, adequate and properly-located utilities, access for fire-fighting apparatus, avoidance of congestion, and the orderly and efficient layout and use of land.

Subdivision regulations can be used to enhance noise-compatible land development by requiring developers to plat and develop land so as to minimize noise impacts or reduce the noise sensitivity of new development. The regulations can also be used to protect the airport proprietor from litigation for noise impacts at a later date. The most common requirement is the dedication of a noise or avigation easement to the local government by the land subdivider as a condition of the development approval. The easement authorizes overflights of the property with the noise levels attendant to such operations. Subdivision regulations may also require the developer to disclose the aircraft noise levels over the property or to provide information on noise insulation criteria to be used in the construction of any building on the property.

Subdivision regulations for each of the jurisdictions within the Study Area for Sea-Tac Airport were examined. None of the jurisdictions require notice of any kind on subdivision plats that the subdivision is within the vicinity of an airport and may experience aircraft noise and/or overflight. In addition, there is no requirement to grant an avigation easement for aircraft overflights as a condition of approval for land subdivision/development in any of the subdivision regulations.

1.8.7 BUILDING CODES

Building codes regulate building construction and construction practices ensuring that all safety standards are met and resulting in the issuance of a building permit from the local governing body. (A building code is most easily enforced through a local building permit process.) Sound insulation may be required in new homes, offices, and institutional buildings to mitigate the effects of high aircraft noise levels. Building code requirements intended for energy efficiency may also provide acoustical insulation benefits. Caulking of joints, continuous sheathing, dead air spaces, ceiling and wall insulation, solid core doors, and double-pane windows can attenuate aircraft noise while conserving energy used for home heating and cooling.

Not all sound insulation needs are met by typical energy-conserving building methods. For example, field research has found that some modern and highly energy-efficient storm window designs are less efficient for sound insulation than some older designs that allow for larger dead air spaces. Other sound insulation measures that may not be justifiable for energy efficiency are vent baffling and year-round, closed-window ventilation systems.

Building codes apply to existing buildings only when remodeling or expansion is contemplated. Amendments to building codes do not help to correct noise problems in developed areas. Within the Study Area, the cities of Burien, SeaTac, and Des Moines, and King County have specific building code provisions addressing sound attenuation for airport noise compatibility.

1.8.8 TRANSFER OF DEVELOPMENT RIGHTS

The Transfer of Development Rights (TDR) is a land use regulatory tool under which development rights can be severed from a tract of land and sold in a market transaction. The parcel from which the rights are transferred is then permanently restricted as to future development, and the purchaser of the rights may assign them to a different parcel to gain additional density. A TDR program would allow landowners in a designated "sending" area to transfer the development rights assigned to their property to a landowner in a designated "receiving" area where the community would like to concentrate development. In this case, the designated "sending" district would be residentially-zoned land located in areas substantially affected by aircraft noise. The designated "receiving" district would be in a location not greatly affected by airport noise. The designated "receiving" area would be allowed to develop at a higher density than would be permitted by the underlying zoning. Though the community defines the requirements and parameters

associated with establishing the sending and receiving districts, any actual transfer is negotiated between the landowner in the sending district and landowner in the receiving district.

1.8.9 CAPITAL IMPROVEMENTS PROGRAMS

Capital improvements programs are multi-year plans typically covering five or six years that list major capital improvements planned to be undertaken during each year. Most capital improvements have no direct bearing on noise compatibility; few municipal capital improvements are noise-sensitive. The obvious exceptions to this are schools and, in certain circumstances, libraries, medical facilities, and cultural/ recreational facilities.

Some capital improvements may have an indirect, but more profound, relationship to noise compatibility. For instance, the development of new sewer and water facilities may open up large vacant areas for the private development of noise-sensitive residential uses.

In contrast, the same types of facilities, sized for industrial users, could commit to industrial development in a noise-impacted area that might otherwise be attractive for residential development.

1.8.10 GROWTH RISK ASSESSMENT

Before evaluating the impact of aircraft noise within the airport environs, it is important to understand the likelihood for the future development of residential and other noise-sensitive land uses, especially in the planning timeframe. Understanding development trends in the airport vicinity is of critical importance in noise compatibility planning, because future residential growth can potentially constrain airport operations, if that growth occurs beneath aircraft flight tracks and within areas subject to high noise levels.

The growth risk analysis focuses primarily on undeveloped land which is planned and zoned for residential use. It is recognized that additional development may occur through in-filling and redevelopment of currently developed areas.

The methodology for analyzing potential growth risk is as follows:

- Identify all vacant, unplatted tracts of land zoned for future residential development with the greatest potential for being developed within the next five years.
- Calculate the area of the tracts; apply a factor accounting for development inefficiencies and the platting of streets; multiply by dwelling unit densities specified in the zoning ordinance; and multiply by household size to obtain the population holding capacity of presently vacant, unplatted land.
- Sum the above population holding levels to determine the total population holding capacity of the study area.

The final step in the growth risk analysis is to estimate whether the development is likely to occur before or after the year for which future noise exposure has been calculated. This tends to be quite speculative and should be regarded only as a general indicator of the potential risk of increases in land use incompatibility.

1.8.11 STATE LEGISLATION

The following are State of Washington statutes included in the WAC that may affect land use planning and compatibility with aircraft operations and airports. It should be noted that the statute specifically notes that aircraft noise levels are exempt from these regulations; therefore, the following is provided for informational purposes only for use in future land use planning.

Maximum Permissible Environmental Noise Levels

LAND USE OF NOISE SOURCE	LAND USE OF RECEIVING PROPERTY		
	RESIDENTIAL	COMMERCIAL	INDUSTRIAL
Residential	55 dBA	57 dBA	60 dBA
Commercial	57 dBA	60 dBA	65 dBA
Industrial	60 dBA	65 dBA	70 dBA

Notes: The maximum permissible levels are:
- Reduced by 10 decibels at night (10 pm to 7 am) when the receiving land use is residential.
- Increased by 15 dBA for up to 1.5 minutes, 10 dBA for up to 5 minutes and 5 dBA for up to 15 minutes.

Sounds created by aircraft in flight are exempt.
Sounds from engine testing and maintenance are exempt between the hours of 7:00 a.m. and 10:00 p.m., provided that aircraft testing and maintenance shall be conducted at remote sites whenever possible.

Source: State of Washington, Chapter 173-60 WAC

State of Washington WAC 246-366-030: *Site Approval (Schools)*

1. Before a new school facility is constructed, an addition is made to an existing school facility, or an existing school facility is remodeled, the board of education shall obtain written approval from the health officer that the proposed development site presents no health problems. The board of education may request the health officer make a survey and submit a written health appraisal of any proposed school site.
2. School sites shall be of a size sufficient to provide for the health and safety of the school enrollment.
3. Noise from any source at a proposed site for a new school, an addition to an existing school, or a portable classroom shall not exceed an hourly average of 55 dBA (Leq 60 minutes) and shall not exceed an hourly maximum (Lmax) of 75 dBA during the time of day the school is in session; except sites exceeding these sound levels are acceptable if a plan for sound reduction is included in the new construction proposal and the plan for sound reduction is approved by the health officer.

CHAPTER TWO
FORECAST

A forecast of aviation activity was prepared for the purpose of developing noise exposure contours for projected future conditions for this Part 150 Noise Compatibility Study Update. This forecast projected activity levels through 2021 and was submitted to the Federal Aviation Administration (FAA) for approval in July 2010. The FAA approved the use of this forecast for this Part 150 Study in a letter dated August 19, 2010. A copy of this approval letter is included in Appendix N, *Forecast Approval*. The following sections include the information that was included in the forecast document that was submitted to the FAA in July 2010. This forecast was used to develop input data representative of 2018 conditions, which was used to prepare the noise exposure contour for the Future (2018) Noise Exposure Map (NEM).

2.1 INTRODUCTION

This document was prepared to provide a forecast of future aviation characteristics and operating levels to support the requirements of the Part 150 planning process for Seattle-Tacoma International Airport (Sea-Tac Airport). The year 2009 was used as the base year for forecast purposes. The key benchmark year for the forecast is 2018, which corresponds to the 5-year projection from the Existing (2013) NEM.

The aviation forecasts are presented for the following types of activity at Sea-Tac Airport:

1. Commercial Passenger
2. Air Cargo
3. Air Taxi and General Aviation
4. Military

2.2 COMMERCIAL PASSENGER

This section provides a summary of historical passenger enplanements at Sea-Tac Airport, an overview of current domestic and international air service offered at Sea-Tac Airport, passenger and operation forecasts and passenger aircraft fleet mix.

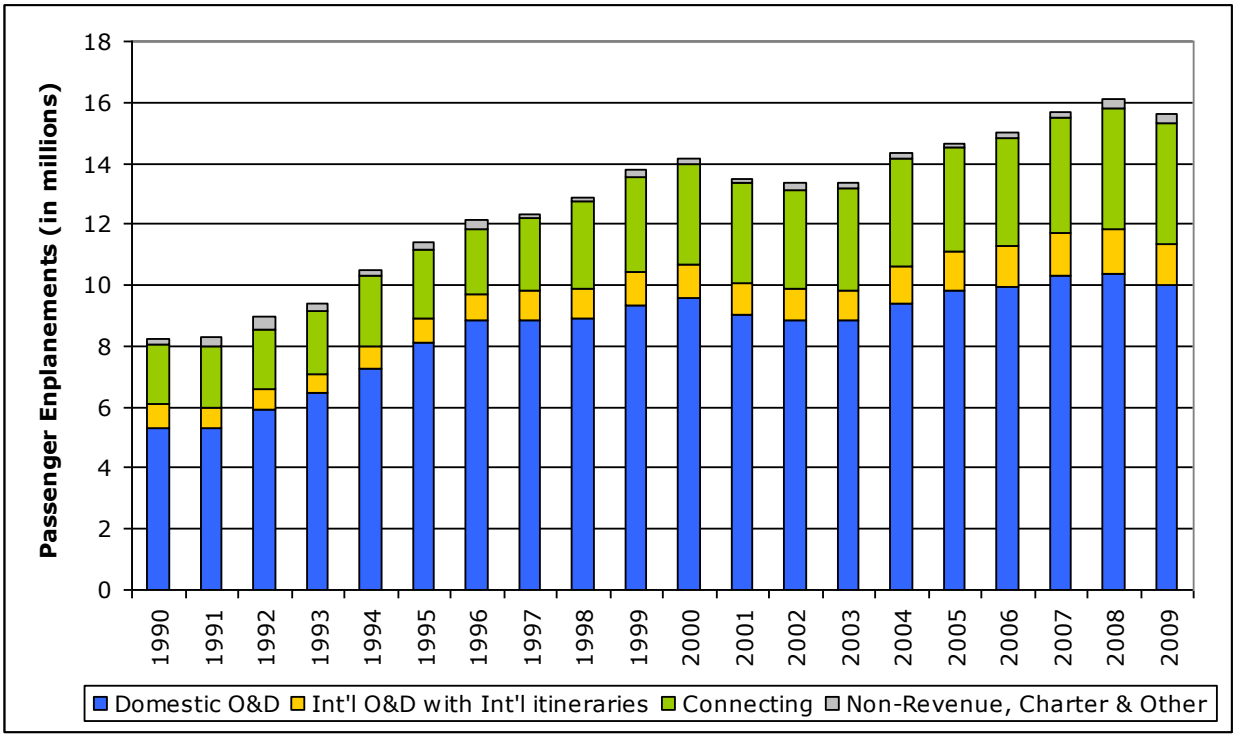
The purpose of reviewing historical enplanements and air service trends is to start building a context for the forecast. Historical data can answer questions such as who are the major airline operators from Sea-Tac Airport and what markets are served from Sea-Tac Airport? The past is not always a good predictor of the future; however, an analysis of historical data provides the opportunity to understand those factors which have caused traffic to increase or decrease and how those factors may change in the future, thus influencing the forecast. While the socio-economic base is one of the fundamental underpinnings of the forecast, demand

cannot be realized without air service at a price that induces demand. Ultimately, understanding the historical relationships between the economy and aviation activity at Sea-Tac Airport will form the building blocks of the forecast. The projected aircraft fleet mix will be used in the development of the noise exposure contours in the Part 150 study.

2.2.1 HISTORICAL ENPLANEMENT OVERVIEW

Sea-Tac Airport enjoys a relatively diverse base of passenger operations. According to the *Official Airline Guide* (OAG), in 2009, 28 scheduled airlines provided 421 daily departures to 104 airports from Sea-Tac Airport. Passenger enplanements at Sea-Tac Airport increased significantly from 8.2 million in 1990 to 14.2 million in 2000 representing an average annual growth rate of 5.6 percent. Between 2000 and 2009, passenger traffic increased at a slower rate of 1.1 percent per year reaching 15.6 million by 2009 (see **Exhibit 2-1, Historical Enplaned Passengers**). Components of passenger enplanements at Sea-Tac Airport remained relatively constant between 1990 and 2009. In 2009, domestic Origin & Destination (O&D[1]) accounted for 64.3 percent, international O&D with international itineraries accounted for 8.5 percent, connecting passengers accounted for 25.2 percent, and non-revenue, charter and other accounted for 2.1 percent.

Exhibit 2-1
HISTORICAL ENPLANED PASSENGERS
Seattle-Tacoma International Airport



Sources: Airport records; USDOT, Air Passenger Origin-Destination Survey; Landrum & Brown analysis

[1] Originating and destination passengers – passengers who start or end their trip at the airport.

2.2.2 HISTORICAL AIR SERVICE TRENDS

In order to provide a historical context for the forecast of aircraft operations, airline schedule filings published in the OAG as of February 5, 2010 were analyzed to understand changes in air service patterns at Sea-Tac Airport. **Table 2-1** and **Table 2-2** provide a summary of air service trends by carrier for domestic and international markets.

Domestic air service accounted for 91 percent of scheduled passenger operations at Sea-Tac Airport in 2009. Alaska Airlines has accounted for a dominant share of the traffic since 1995. Alaska Airlines accounted for 51.4 percent of scheduled domestic seats and provided service to 61 U.S. airports in 2009. In 2009, Southwest, United, and Delta accounted for 10.8 percent, 7.8 percent and 5.7 percent of total scheduled domestic seats, respectively.

Table 2-1
DOMESTIC AIR SERVICE TRENDS
Seattle-Tacoma International Airport

		Airports Served				Departing Flights				Departing Seats				AAG
Rank	Airline	1995	2000	2009	2010	1995	2000	2009	2010	1995	2000	2009	2010	95-09
1	Alaska	38	46	61	59	83,073	101,138	77,236	76,761	6,725,216	8,477,952	9,106,467	8,879,383	2.2%
2	Southwest	8	12	14	16	9,235	13,186	14,084	13,688	1,261,925	1,797,767	1,914,688	1,855,216	3.0%
3	United	15	16	8	8	32,689	37,325	12,738	13,622	2,820,119	2,756,930	1,383,366	1,333,792	-5.0%
4	Delta	11	7	6	9	7,362	6,979	6,673	7,749	1,374,198	1,262,637	1,007,475	1,160,872	-2.2%
5	Northwest	7	4	5	4	6,497	6,290	4,547	2,995	1,366,552	1,290,204	896,854	547,612	-3.0%
6	Continental	4	4	4	4	2,194	3,497	4,494	4,446	318,666	506,594	774,135	721,513	6.5%
7	American	5	9	4	4	5,799	8,075	5,190	5,143	902,750	1,177,382	764,844	744,958	-1.2%
8	US Airways	4	3	4	3	1,825	2,682	3,795	2,920	316,768	447,261	586,482	444,610	4.5%
9	Virgin America	-	-	2	2	-	-	2,593	1,808	-	-	361,112	246,523	n.a.
10	jetBlue	-	-	4	3	-	-	1,847	1,454	-	-	273,500	212,300	n.a.
11	Hawaiian	1	2	2	2	375	628	917	887	114,000	190,912	231,084	223,524	5.2%
12	Frontier	-	1	2	1	-	1,348	1,447	1,444	-	177,826	191,654	172,642	n.a.
13	AirTran	-	-	3	3	-	-	952	657	-	-	130,424	90,009	n.a.
14	Sun Country	-	1	2	1	-	365	255	158	-	66,230	40,608	25,518	n.a.
15	Midwest	-	-	1	1	-	-	365	365	-	-	36,076	35,770	n.a.
16	Kenmore Air	-	-	4	-	-	-	1,991	-	-	-	15,928	-	n.a.
	Other	20	12	-	-	10,433	5,592	-	-	1,519,259	850,569	-	-	-100.0%
	Total	**66**	**73**	**83**	**76**	**159,482**	**187,105**	**139,124**	**134,097**	**16,719,453**	**19,002,264**	**17,714,697**	**16,694,242**	**0.4%**

Source: *Official Airline Guide*

Alaska Airlines accounted for nearly 40 percent of international seats in 2009. Between 1995 and 2009, Alaska Airlines gained four additional markets and its scheduled seats increased at an average growth rate of 7.7 percent per year. Northwest[2], Air Canada, and British Airways accounted for 12.0 percent, 9.4 percent and 7.6 percent of scheduled international seats, respectively.

[2] Northwest was merged into Delta in April 2008. Northwest continued to operate as an independent carrier (as a Delta Air Lines subsidiary) until January 2010 (the completion of the merger). The combined airline now uses the Delta name and branding.

Table 2-2
INTERNATIONAL AIR SERVICE TRENDS
Seattle-Tacoma International Airport

Rank	Airline	Airports Served				Departing Flights				Departing Seats				AAG
		1995	2000	2009	2010	1995	2000	2009	2010	1995	2000	2009	2010	95-09
1	Alaska	5	8	9	9	6,113	13,055	8,061	7,929	236,560	584,096	668,956	643,061	7.7%
2	Northwest	3	3	3	4	714	1,003	735	691	264,212	321,399	209,290	189,286	-1.7%
3	Air Canada	1	2	3	3	3,439	2,492	2,930	3,040	127,243	151,593	164,818	171,178	1.9%
4	British Airways	1	1	1	1	364	363	511	365	98,826	106,662	133,139	97,885	2.2%
5	United	2	2	1	2	1,711	2,561	362	366	246,161	160,278	93,396	94,352	-6.7%
6	EVA	3	2	1	1	886	732	231	260	310,677	272,304	77,924	88,040	-9.4%
7	Korean Air	-	-	2	1	-	-	250	251	-	-	74,795	75,551	n.a.
8	Lufthansa	-	-	1	1	-	-	327	342	-	-	72,267	75,582	n.a.
9	Asiana	1	1	2	1	92	157	212	247	23,920	43,960	65,321	76,570	7.4%
10	Air France	-	-	1	1	-	-	288	309	-	-	63,337	69,844	n.a.
11	SAS	1	1	1	-	316	363	155	-	79,316	91,113	37,975	-	-5.1%
12	Hainan Airlines	-	-	1	1	-	-	169	162	-	-	37,518	35,964	n.a.
13	Aeromexico	-	-	2	1	-	-	205	10	-	-	25,550	1,240	n.a.
14	Icelandair	-	-	1	1	-	-	90	229	-	-	17,010	43,281	n.a.
15	Royal Air Maroc	-	-	1	-	-	-	23	-	-	-	3,519	-	n.a.
16	Delta	-	-	-	4	-	-	-	462	-	-	-	118,302	n.a.
	Other	7	4	-	-	1,927	501	-	-	255,970	119,828	-	-	-100.0%
	Total	**18**	**18**	**24**	**21**	**15,562**	**21,227**	**14,549**	**14,663**	**1,642,885**	**1,851,233**	**1,744,815**	**1,780,136**	**0.4%**

Source: *Official Airline Guide*

Table 2-3 presents top domestic and international markets from Sea-Tac Airport in 2009. The largest domestic destinations from Sea-Tac Airport were San Francisco accounting for 11.0 percent of total scheduled domestic seats in 2009, Los Angeles accounting for 9.7 percent, and Anchorage accounting for 5.7 percent. The top international markets from Sea-Tac Airport were Vancouver, Canada accounting for 17.4 percent of total scheduled international seats, Tokyo, Japan accounting for 11.3 percent, and Seoul, Korea accounting for 7.9 percent.

Table 2-3
2009 TOP MARKETS - SCHEDULED SEATS
Seattle-Tacoma International Airport

Rank	Domestic Market	Seats 2009	% Share	Rank	International Market	Seats 2009	% Share
1	San Francisco	1,956,842	11.0%	1	Vancouver, Canada	303,915	17.4%
2	Los Angeles	1,719,438	9.7%	2	Tokyo(Narita), Japan	197,486	11.3%
3	Anchorage	1,001,650	5.7%	3	Seoul, Korea	137,933	7.9%
4	Chicago	821,155	4.6%	4	Victoria, Canada	134,384	7.7%
5	Denver	815,279	4.6%	5	London(Heathrow), UK	134,354	7.7%
6	Spokane	698,116	3.9%	6	Calgary, Canada	109,500	6.3%
7	Phoenix	692,510	3.9%	7	Amsterdam, Netherlands	103,985	6.0%
8	Las Vegas	644,982	3.6%	8	Taipei	77,924	4.5%
9	Portland	635,016	3.6%	9	Kelowna, Canada	76,886	4.4%
10	New York	628,321	3.5%	10	Edmonton, Canada	72,520	4.2%
11	Minneapolis/St. Paul	627,921	3.5%	11	Frankfurt, Germany	72,267	4.1%
12	Dallas/Ft. Worth	561,447	3.2%	12	Paris, France	63,337	3.6%
13	Salt Lake City	480,670	2.7%	13	Los Cabos, Mexico	41,091	2.4%
14	Atlanta	456,459	2.6%	14	Toronto, Canada	39,618	2.3%
15	Sacramento	442,498	2.5%	15	Copenhagen, Denmark	37,975	2.2%
16	Houston	421,731	2.4%	16	Beijing, China	37,518	2.2%
17	San Diego	408,430	2.3%	17	Puerto Vallarta, Mexico	30,870	1.8%
18	Honolulu	363,688	2.1%	18	Cancun, Mexico	27,318	1.6%
19	Washington	324,130	1.8%	19	Reykjavik, Iceland	17,010	1.0%
20	Boise	273,117	1.5%	20	Mexico City, Mexico	15,304	0.9%
	Other	3,741,297	21.1%		Other	13,620	0.8%
	Total	**17,714,697**	**100.0%**		**Total**	**1,744,815**	**100.0%**

Source: *Official Airline Guide*

2.2.3 PASSENGER ENPLANEMENT FORECAST

The passenger enplanement forecast provides a critical path for the commercial passenger operations forecast which is derived based on assumptions related to average aircraft size and load factor. The passenger forecasts are presented for the key years 2018 and 2021, with 2009 as the base year.

Passenger traffic at Sea-Tac Airport was divided into five main segments for the purpose of developing the detailed forecast:

(1) domestic O&D passengers that travel on purely domestic itineraries,

(2) O&D passengers that board domestic flights at Sea-Tac Airport and travel to another U.S. gateway to connect with international flights (bound for international destinations),

(3) O&D passengers that board international flights at Sea-Tac Airport on purely international itineraries,

(4) connecting passengers, and

(5) non-revenue, charter, and other passengers.

2.2.3.1 Passenger Forecast Methodology

Table 2-4 summarizes the overall approach and methodology used to develop the passenger enplanement forecast. The domestic O&D and bound for international destinations forecasts were developed using an econometric approach which ties traffic volumes to historical and forecast economic data for the Seattle-Tacoma-Bellevue Metropolitan Statistical Areas (Seattle MSA). The international O&D forecast was developed based on analysis of existing bound for international traffic that could potentially become international O&D. The connecting traffic forecast was derived from the resulting domestic O&D enplanements forecast.

Table 2-4
ENPLANEMENT FORECAST METHODOLOGY
Seattle-Tacoma International Airport

Traffic Segment	Short-Term (2010-2013)	Long-Term (2014-2021)
Domestic O&D	✈ Incorporates recession impact and subsequent recovery	✈ Based on statistical relationship between historical traffic and personal income and yield
Bound for Int'l Destinations	✈ Initial decline, reflecting the state of the world economy	✈ Based on statistical relationship between historical traffic and GDP for each world region
International O&D	✈ Initial decline, reflecting the state of the world economy	✈ Reflects growth in bound for int'l destinations segment and new non-stop destinations
Connections	✈ Incorporates recession impact and subsequent recovery	✈ Derived from resulting domestic O&D

Source: Landrum & Brown analysis

Domestic Origin & Destination (O&D)

A short-term 3-year forecast (2010 through 2013) was developed for domestic O&D. This approach provided the opportunity to incorporate a more appropriate year-to-year estimate of the impact of the current economic crisis and subsequent recovery on passenger traffic levels. The short-term forecast takes into account current airline schedule filings for 2010, which are important indicators of anticipated near-term demand levels, as well as annual economic forecasts promulgated by the U.S. Federal Reserve Board.

A long-term forecast (2014 through 2021) was developed based on the statistical relationship between historical demographic data and economic activity in the Seattle MSA and domestic originating passenger traffic at Sea-Tac Airport.

Independent variables considered for use in the regression included population, employment, personal income, per capita personal income (PCPI), gross regional product (GRP), and yield[3] for the Seattle MSA. **Table 2-5** presents historical and future socio-economic variables for the Seattle MSA. All socio-economic variables are projected to grow at slower rates between 2009 and 2021 compared to the average annual growth rates during the 1990 to 2009 period.

According to the local forecasts provided by the Office of Financial Management (OFM), State of Washington, the socio-economic forecasts are generally in line with the Woods & Poole (W&P) forecasts. Population forecasts for the Seattle MSA are expected to grow at the same rate of 1.1 percent per year between 2009 and 2021. Over the same period, per capita personal income provided by the OFM for the State of Washington is projected to grow at a slightly higher rate of 1.8 percent per year versus 1.1 percent in the W&P forecast. The OFM projects employment in the State of Washington to grow at 1.0 percent annually versus 1.3 percent in the W&P forecast.

Table 2-5
SOCIO-ECONOMIC VARIABLES
Seattle MSA

Calendar Year	Population (in thousands)	Employment (in thousands)	Personal Income (millions; $2004)	PCPI (2004 $)	GRP (millions; $2004)
Historical					
1990	2,579	1,665	$78,460	$30,425	$101,826
1995	2,815	1,762	$89,972	$31,966	$115,956
2000	3,052	2,064	$124,871	$40,908	$163,697
2005	3,197	2,124	$132,948	$41,580	$174,004
2006	3,254	2,191	$141,648	$43,531	$180,882
2007	3,298	2,263	$150,102	$45,510	$189,659
2008	3,345	2,290	$151,098	$45,174	$191,882
2009	3,384	2,260	$150,968	$44,616	$189,461
Forecast					
2010	3,423	2,314	$154,717	$45,201	$193,913
2016	3,663	2,479	$176,633	$48,227	$218,945
2018	3,745	2,537	$184,720	$49,330	$228,018
2021	3,868	2,626	$197,643	$51,094	$242,351
Average Annual Growth Rates					
1990-1995	1.8%	1.1%	2.8%	1.0%	2.6%
1995-2000	1.6%	3.2%	6.8%	5.1%	7.1%
2000-2005	0.9%	0.6%	1.3%	0.3%	1.2%
2005-2009	1.4%	1.6%	3.2%	1.8%	2.2%
1990-2009	1.4%	1.6%	3.5%	2.0%	3.3%
2009-2016	1.1%	1.3%	2.3%	1.1%	2.1%
2016-2021	1.1%	1.2%	2.3%	1.2%	2.1%
2009-2021	1.1%	1.3%	2.3%	1.1%	2.1%

Source: Woods & Poole Economics, Inc. 2010
Note: Seattle-Tacoma-Bellevue MSA includes three counties which are King, Pierce, and Snohomish Counties.

[3] Yield is defined as the average revenue an airline obtains from carrying a passenger one mile. It reflects fare, length of haul, the level of competition, carrier costs, and other factors. Yield is a commonly accepted measure of the price of air travel.

In addition to these socio-economic variables, regression models oftentimes include dummy variables to consider unusual events that do not correlate to the independent variables. The only unusual event that had a noticeable impact on Sea-Tac Airport traffic was the September 11, 2001 terrorist attacks. This event had the effect of depressing traffic at U.S. airports and throughout the world for several years. The use of a dummy variable corrects for the downturn in traffic that is not reflected in the standard socio-economic variables used to forecast future aviation activity.

Several regressions of various combinations of these independent variables were tested but ultimately rejected for various reasons, such as:

- Inadequate test statistics (i.e. low r-squared values or other inadequate regression statistics) which indicates that the independent variables are not good predictors of Sea-Tac Airport traffic.
- Poor forecast results (Regression models produce "forecasts" of historical data. A satisfactory model will generate estimates that are close to actual values.)
- Theoretical contradictions (e.g. the model indicates that Gross Domestic Product (GDP) growth is negatively correlated with traffic growth).
- Overly aggressive or low forecast results that are incompatible with historical averages.

A 20-year history from 1990 to 2009 was used in the regression model. Different time periods (such as 1985-2009, 1995-2009) were also tested but these time periods resulted in inadequate regression statistics.

In the evaluation of the various regressions, a log regression using personal income, the average yield at Sea-Tac Airport, and a dummy variable to take into account the September 11, 2001 terrorist attacks proved to correlate best with the total domestic O&D traffic of the Seattle MSA. Average yield for 2009 was based on the 12 months ended September 2009. The forecast of average yield was based on the FAA's national yield forecast. Personal income for the Seattle MSA was projected by Puget Sound Economic Forecaster to grow at an average of 3.0 percent per annum between 2009 and 2021. The resulting econometric model statistics are presented in **Table 2-6**.

Table 2-6
DOMESTIC O&D ECONOMETRIC MODEL STATISTICS
Seattle-Tacoma International Airport

Time Period:
1990-2009

Independent Variables:
Yield, Personal Income, Dummy

Regression Equation:
Domestic O&D Enpax = $e^{14.12}$ + Yield$^{-0.56}$ + Personal Income$^{0.66}$ + Dummy*$e^{-0.09}$

Regression Statistics:

Adj. R^2 = 0.89	R^2 = 0.91
T-stat (constant) = 6.97	P-value (constant) = 0.00
T-stat (Yield) = -1.85	P-value (yield) = 0.08
T-stat (PI) = 2.46	P-value (PI) = 0.02
T-stat (Dummy) = -1.12	P-value (Dummy) = 0.28

Source: Landrum & Brown analysis

Table 2-7 provides the historical yield, personal income, and dummy variable data used in the regression as well as the resulting forecast values. Based on the short-term and long-term forecasts discussed above, domestic O&D enplanements are expected to decline initially by 1.6 percent in 2010 and recover to 2008 level by 2013 and then grow at an average annual rate of 2.7 percent from 2013 to 2021. Domestic O&D enplanements are forecast to total 12.9 million in 2021.

Table 2-7
DOMESTIC O&D ENPLANED PASSENGER FORECAST
Seattle MSA

		Independent Variable			
	Year	Adj. Yield ($2005)(cents)	Personal Income (billions; $2005)	Dummy Variable	Domestic O&D Enpax
Actual	1990	19.47	$86	0	5,269,650
	1995	13.16	$99	0	8,069,090
	2000	12.64	$136	0	9,533,350
	2001	11.01	$136	1	8,988,850
	2002	9.97	$137	1	8,815,900
	2003	9.94	$137	1	8,800,950
	2004	9.58	$146	0	9,387,760
	2005	9.89	$146	0	9,791,010
	2006	10.45	$155	0	9,936,230
	2007	10.12	$164	0	10,271,720
	2008	9.85	$165	0	10,354,990
	2009	8.71	$162	0	10,011,560
Forecast	2010	8.85	$165	0	9,850,700
	2016	8.42	$200	0	11,366,900
	2018	8.23	$211	0	11,959,200
	2021	7.97	$230	0	12,913,100
Average Annual Growth Rates:					
1990-2009		-4.1%	3.4%	n/a	3.4%
2009-2021		-0.7%	3.0%	n/a	2.1%

Sources: Puget Sound Economic Forecaster; U.S. DOT, *Air Passenger Origin-Destination Survey*; Federal Aviation Administration; Landrum & Brown analysis

Bound for International Destinations

The Bound for International Destinations category refers to passengers traveling to or from the Seattle local area that board a domestic flight at Sea-Tac Airport and fly to another U.S. gateway airport in order to make a connection to an international destination.

Nearly 1.4 million Sea-Tac Airport O&D enplaned passengers had an international itinerary in 2009. Forty-three percent of these passengers flew through another U.S. gateway prior to arriving at their final international destination (i.e. bound for an international destination). The forecast for the "bound for international destinations" category was developed using an econometric approach which correlated this traffic segment with anticipated growth in the world economy.

A number of regression analyses were developed that correlated growth in passengers "bound for international destinations" with world economic growth at the aggregate level and by world region using GDP forecasts[4] provided by the FAA. The world economic growth rates were weighted to take into account the historical market share of specific world regions for this traffic segment in the Seattle market. Based on this approach, traffic is expected to grow 2.9 percent annually from 452,600 enplanements in 2009 to 641,100 enplanements in 2021. Latin America is expected to be the fastest growing segment and a portion of the traffic is expected to become a new international O&D service to/from Sea-Tac Airport.

International O&D

The "international O&D enplanements" forecast was developed based on assumptions regarding growth in existing international services at the Airport and the potential for airlines to add new international service to certain international markets as demand reaches a critical mass to be served non-stop from Sea-Tac Airport. Indeed, the higher the level of "bound for international destinations" enplanements in a particular region, the greater the potential for non-stop service. Therefore, the forecast of international O&D enplanements was based on the following key considerations:

- Two additional weekly non-stop flights to Latin America are forecast to be in place by 2011 using narrow-body jet aircraft (157 seats) with an average load factor of 75 percent. This service is projected to increase to 18 weekly flights (2 daily- and 4 weekly- flights) by 2021.
- In addition to potential new markets from existing bound for international destinations, there will also be new service opportunities to Japan due to the new U.S.-Japan open-skies agreement that will provide U.S. carrier access to Haneda for the first time since 1978. With the location advantage of Sea-Tac Airport, it was assumed that Delta or other airlines will start a new daily flight to Asia using B767s (214 seats) with an average load factor of 80 percent in 2011. This service is projected to increase to 2 daily flights in 2012 and to 3 daily flights in 2015.

[4] *FAA Aerospace Forecasts* 2009-2025

International O&D enplanements initially declined in 2009, reflecting the state of the world economy. International O&D enplanements are expected to return to positive growth rates in 2010. Based on these assumptions about the new markets and a statistical regression of GRP[5] for Seattle MSA and international O&D at Sea-Tac Airport between 1990 and 2009, international O&D enplanements are forecast to grow by 3.5 percent per year from 866,700 enplanements in 2009 to 1,307,100 enplanements by 2021.

Connections

The volume of connecting passengers occurs largely as a result of airline network management strategies. Connecting enplanements have accounted for 18 to 25 percent share of total enplanements at Sea-Tac Airport over the historical period. The majority of the connecting traffic is from Alaska Airlines. It is assumed that Alaska Airlines will continue to operate a hub at the Airport over the forecast period, maintaining 24-26 percent connections at Sea-Tac Airport. Connecting enplanements are forecast to reach nearly 4.7 million in 2021, averaging an annual growth rate of 1.5 percent between 2009 and 2021.

Table 2-8
INTERNATIONAL O&D ENPLANEMENTS FORECAST
Seattle-Tacoma International Airport

	Year	GRP (millions; $2004)	Regression of International O&D Enplanements	New Air Service	International O&D Enplanements Forecast
Actual	1990	101,826	600,680		600,680
	1995	115,956	559,499		559,499
	2000	163,697	737,574		737,574
	2005	174,004	825,974		825,974
	2006	180,882	858,109		858,109
	2007	189,659	906,756		906,756
	2008	191,882	945,526		945,526
	2009	189,461	866,679		866,679
Forecast	2010	193,900	900,690		900,690
	2011	197,900	919,600	59,000	978,600
	2012	201,900	938,500	118,000	1,056,500
	2013	206,000	957,900	135,100	1,093,000
	2014	210,200	977,800	154,700	1,132,500
	2015	214,500	998,100	177,000	1,175,100
	2016	218,900	1,018,900	177,000	1,195,900
	2018	228,000	1,062,000	177,000	1,239,000
	2021	242,400	1,130,100	177,000	1,307,100
Average Annual Growth Rates:					
1990-2009		3.3%	1.9%	n.a.	1.9%
2009-2016		2.1%	2.3%	n.a.	4.7%
2016-2021		2.1%	2.1%	0.0%	1.8%
2009-2021		2.1%	2.2%	n.a.	3.5%

Notes: Adjusted R2 = 0.87; t-stat = 11.48; p-value = 0.000000001

Sources: Airport Records; Woods & Poole Economics, Inc. 2010; Landrum & Brown analysis

[5] Gross Regional Product (GRP) historical and forecast data from Woods & Poole Economics, Inc. 2010

Non-Revenue, Charter, & Other

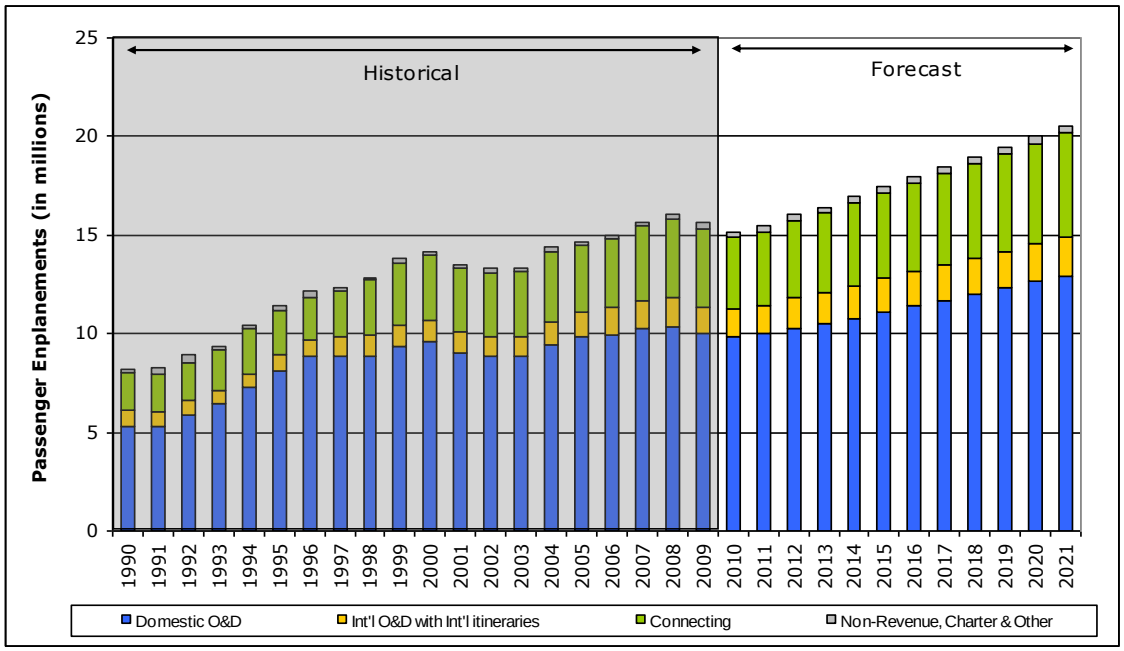
The airport reported total enplanements in 2008 that were 1.7 percent higher than the number of enplanements reported by the airlines to the U.S. Department of Transportation (DOT). This difference reflects non-scheduled charter and non-revenue traffic which is not reported to U.S. DOT. Non-revenue traffic includes airline employees and flight crew commuting to/from their assigned routes. It is assumed that this category of traffic is exclusively domestic in nature.

Since 1995, this traffic has accounted for between 1.0 and 3.4 percent of domestic O&D enplanements at Sea-Tac Airport. This category of traffic is forecast to maintain the same relationship at 2.9 percent of domestic O&D throughout the forecast period, resulting in 376,700 enplanements in 2021.

2.2.3.2 Enplanements Forecast Summary

A summary of the enplaned passenger forecast is shown on **Exhibit 2-2**. Total enplanements are forecast to increase from 15.6 million enplanements in 2009 to 20.5 million enplanements by 2021, an average annual growth rate of 2.3 percent. Domestic O&D enplanements are expected to continue to account for the largest share of passenger traffic throughout the forecast period, making up 66 percent of total enplanements in 2021. Passengers with international itineraries (either connecting through another gateway or flying non-stop from Sea-Tac Airport) will increase in share from 8.4 percent of total enplanements in 2009 to 9.5 percent in 2021.

Exhibit 2-2
ENPLANEMENTS FORECAST SUMMARY
Seattle-Tacoma International Airport



Source: Landrum & Brown analysis

For purposes of forecasting aircraft operations, the enplaned passenger forecast was segmented into air carrier and commuter categories for domestic and international traffic (see **Table 2-9**). The "bound for international destinations" segment is included in the domestic category because the immediate down line city on departure or up line city on arrival is in the continental U.S., Alaska, Hawaii, or a U.S. territory.

The forecast calls for domestic air carrier enplanements to grow at a rate of 2.1 percent annually over the forecast period and domestic commuter enplanements grow at a slightly higher rate of 2.6 percent. Air carrier enplanements made up about 85 percent of domestic activity in 2009; this split is expected to remain relatively unchanged through 2021.

Air carrier activity accounted for 68 percent of international activity in 2009. International air carrier enplanements are forecast to grow at a rate of 3.6 percent per annum through 2021 due to the expected introduction of new non-stop service to Latin America and Asia. The air carrier segment will make up 70 percent of international activity in 2021. International commuter enplanements are expected to average growth of 2.7 percent annually between 2009 and 2021.

Table 2-9
ENPLANEMENTS FORECAST BY AIR CARRIER AND COMMUTER
Seattle-Tacoma International Airport

	Domestic			International			Total		
Year	Air Carrier	Commuter	Total	Air Carrier	Commuter	Total	Air Carrier	Commuter	Total
Actual									
1995	9,266,842	1,303,830	10,570,672	511,958	307,891	819,849	9,778,800	1,611,721	11,390,521
2000	11,363,720	1,598,858	12,962,578	756,322	454,852	1,211,174	12,120,042	2,053,710	14,173,752
2005	11,845,337	1,562,596	13,407,933	844,329	379,835	1,224,164	12,689,666	1,942,431	14,632,097
2006	12,159,227	1,604,807	13,764,034	868,578	357,981	1,226,559	13,027,805	1,962,788	14,990,593
2007	12,433,289	1,880,038	14,313,327	918,231	429,625	1,347,856	13,351,520	2,309,663	15,661,183
2008	12,574,745	2,072,704	14,647,449	960,616	476,840	1,437,456	13,535,361	2,549,544	16,084,905
2009	12,251,188	2,044,830	14,296,018	891,808	422,361	1,314,169	13,142,996	2,467,191	15,610,187
Forecast									
2010	11,853,300	1,978,400	13,831,700	909,300	417,800	1,327,100	12,762,600	2,396,200	15,158,800
2016	13,825,800	2,379,600	16,205,400	1,235,300	546,590	1,781,890	15,061,100	2,926,190	17,987,290
2018	14,590,700	2,536,680	17,127,380	1,284,800	561,310	1,846,110	15,875,500	3,097,990	18,973,490
2021	15,802,600	2,788,640	18,591,240	1,363,300	584,280	1,947,580	17,165,900	3,372,920	20,538,820
Average Annual Growth Rates:									
1995-2009	2.0%	3.3%	2.2%	4.0%	2.3%	3.4%	2.1%	3.1%	2.3%
2009-2016	1.7%	2.2%	1.8%	4.8%	3.8%	4.4%	2.0%	2.5%	2.0%
2016-2021	2.7%	3.2%	2.8%	2.0%	1.3%	1.8%	2.7%	2.9%	2.7%
2009-2021	2.1%	2.6%	2.2%	3.6%	2.7%	3.3%	2.3%	2.6%	2.3%

Sources: Airport Records; Landrum & Brown analysis

In summary, domestic passenger traffic is forecast to increase at an average of 2.2 percent per year between 2009 and 2021. International passenger enplanements are forecast to increase at an average annual growth rate of 3.3 percent over the same period. Total enplanements are expected to increase from 15.6 million in 2009 to 20.5 million in 2021, an average annual growth rate of 2.3 percent.

2.2.4 COMMERCIAL PASSENGER OPERATION FORECAST

The aggregate number of commercial operations at an airport depends on three factors: total passengers, average aircraft size, and average load factor (percent of seats occupied). The relationship is shown in the equation below.

$$\text{Operations} = \frac{\text{Total Passengers}}{\text{Average Load Factor x Average Aircraft Size}}$$

After developing the enplanement projections, assumptions were developed for average aircraft size and load factor in order to develop operations counts at the air carrier and commuter level. Once the aggregate level operations forecasts were developed for air carrier and commuter activity, a top-down approach was employed to allocate these operations to aircraft groups and specific aircraft types The fleet mix was developed to match aggregate level average seats per flight targets for air carrier and commuter categories. The detailed fleet mix also allowed for the calibration of those assumptions and, where appropriate, modifications were made prior to finalizing the assumptions presented below. The air carrier and commuter assumptions related to aircraft size and load factor are shown in **Table 2-10.**

Table 2-10
AIRCRAFT GAUGE AND LOAD FACTOR ASSUMPTIONS
Seattle-Tacoma International Airport

	Gauge (Average Seats Per Departure)					
	Domestic			International		
Year	Air Carrier	Commuter	Total	Air Carrier	Commuter	Total
Actual						
1995	152	31	106	243	38	110
2000	148	37	102	261	41	91
2005	151	47	120	230	44	102
2006	152	47	121	235	46	102
2007	153	53	123	229	54	109
2008	153	57	125	221	63	116
2009	154	65	129	223	67	120
Forecast						
2010	150	68	127	227	67	122
2016	152	73	132	228	67	126
2018	153	73	132	228	67	127
2021	153	73	132	229	67	128
Average Annual Growth Rates:						
1995-2009	0.1%	5.4%	1.4%	-0.6%	4.2%	0.7%
2009-2016	-0.1%	1.6%	0.3%	0.3%	0.1%	0.6%
2016-2021	0.1%	0.0%	0.1%	0.1%	0.0%	0.4%
2009-2021	0.0%	0.9%	0.2%	0.2%	0.0%	0.5%
	Load Factor					
	Domestic			International		
Year	Air Carrier	Commuter	Total	Air Carrier	Commuter	Total
Actual						
1995	62.7%	68.9%	63.4%	38.2%	80.4%	47.6%
2000	70.6%	56.5%	68.5%	60.3%	68.3%	63.1%
2005	77.2%	77.2%	77.2%	72.8%	77.1%	74.1%
2006	77.9%	81.9%	78.3%	78.4%	70.4%	75.9%
2007	78.3%	79.9%	78.5%	79.6%	71.8%	77.0%
2008	77.8%	85.8%	78.8%	82.1%	72.9%	78.8%
2009	81.5%	80.3%	81.3%	82.1%	67.0%	76.5%
Forecast						
2010	82.0%	80.3%	81.8%	82.1%	67.0%	76.6%
2016	79.8%	80.3%	79.9%	80.7%	68.6%	76.5%
2018	79.1%	80.3%	79.3%	80.2%	69.2%	76.5%
2021	78.0%	80.3%	78.3%	79.5%	70.0%	76.4%
Average Annual Growth Rates:						
1995-2000	2.4%	-3.9%	1.6%	9.6%	-3.2%	5.8%
2000-2009	1.6%	4.0%	1.9%	3.5%	-0.2%	2.2%
1995-2009	1.9%	1.1%	1.8%	5.6%	-1.3%	3.4%
2009-2016	-0.3%	0.0%	-0.3%	-0.2%	0.3%	0.0%
2016-2021	-0.5%	0.0%	-0.4%	-0.3%	0.4%	0.0%
2009-2021	-0.4%	0.0%	-0.3%	-0.3%	0.4%	0.0%

Sources: Airport Records, *Official Airline Guide*; Landrum & Brown analysis.

Domestic Air Carrier Gauge and Load Factor Assumptions

Domestic air carrier gauge increased from 152 in 1995 to 154 seats per departure in 2009. This reflects the historical deployment of narrow-body jet aircraft in the mid-1990s at Sea-Tac Airport in the 120 to 160 seat range, such as the Boeing 737s by Alaska, Southwest, Delta, American and Continental. Alaska Airlines, which accounts for the largest proportion of the domestic air carrier operations at Sea-Tac Airport, currently operates five series of B737 aircraft. Similarly, Southwest, the second largest air carrier airline at Sea-Tac Airport, currently operates three series of B737 aircraft at the Airport and has no stated plans to diversify its fleet in the future. Indeed, the assumed evolution of the domestic air carrier fleet at Sea-Tac Airport is primarily towards similarly sized, next generation replacement aircraft (e.g. Boeing 737-700 replacing the Boeing 737-300 or Boeing 737-800 replacing MD80 aircraft) rather than wholesale fleet changes. The following assumptions were made as a basis for the domestic air carrier commercial passenger operations forecast at Sea-Tac Airport:

- Alaska Airlines will continue to replace its B737-400s with B737-800s.
- Southwest will continue to replace its B737-300s and B737-500s with B737-700s.
- United Airlines will focus its Sea-Tac Airport fleet on A319s and A320s. United is expected to replace B757-200s with A320s by 2018.
- Delta is expected to replace B757-200s with B787-800s and B737-800s. MD90 operated by Delta will be replaced with A320s by 2018.
- MD80 operated by American Airlines will be replaced with B737-800s by 2018.
- B767-300s operated by Hawaiian Airlines is expected to be replaced with A330-200s by 2021.

As a result of these assumptions, the domestic air carrier gauge is expected to decrease from 154 seats in 2009 to 150 in 2010 and forecast to increase to 153 seats by 2021.

Domestic air carrier load factors have increased from 62.7 percent in 1995 to 81.5 percent in 2009. The average domestic air carrier load factor is expected to increase slightly to 82.0 percent in 2010, reflecting a continued tightening of airline capacity and then decline slightly reaching 78.0 percent in 2021.

Domestic Commuter Gauge and Load Factor Assumptions

The domestic commuter gauge grew from 31 seats per departure in 1995 to 65 seats per departure in 2009 due to the increased deployment of regional jets at Sea-Tac Airport. In the mid-1990s, airlines used mainly small turboprop equipment (19-seat to 30-seat aircraft) such as Dash 8, British Aerospace Jetstream 31, Fairchild SA26 and Piper aircraft. By the beginning of the 21st century, the airlines had shifted from these small turboprop aircraft to larger 30-seat to 70-seat regional jet aircraft, such as the Q400 and CRJ7. In 2009, Horizon retired all of its Dash

8-100/200 (37-seat) aircraft and replaced them with the Q400 (74-seat). Horizon is planning to "transition to an all-Q400 fleet, but as market conditions have hindered the remarketing efforts on the CRJ-700 aircraft, Horizon is delaying the deliveries of Q400 until the market condition improved".[6] Therefore, over the forecast period, Horizon will continue to deploy both Q400 and CRJ-700 aircraft at Sea-Tac Airport. United Express (SkyWest) is expected to replace all EMB-120 at Sea-Tac Airport with CRJ-700 aircraft by 2013. Domestic commuter load factors increased dramatically from 68.9 percent in 1995 to 80.3 percent in 2009.

Larger regional jets/turboprops in the 69-seat to 90-seat range are increasingly being used by airlines in the U.S. As a result of these assumptions, the average domestic commuter aircraft gauge is expected to increase to 73 seats per departure in 2021. Over the forecast period, the average load factor for domestic commuter activity is forecast to remain at 80.3 percent.

International Air Carrier Gauge and Load Factor Assumptions

Since 1995, the international air carrier average seats per departure (ASPD) has varied significantly depending on the service offerings. International gauge has increased from 243 seats per departure in 1995 to 261 in 2000. This reflects the use of large aircraft such as B747, DC10 and MD11 in the mid-1990s, followed by a greater use of B737s by Alaska Airlines and B330s by Delta/Northwest and B777 by United and British Airways between 2000 and 2009. International air carrier load factors have increased from less than 50 percent in 1995 to 60.3 percent in 2000 and 82.1 percent in 2009.

International air carrier ASPD ratio is expected to increase from 223 seats in 2009 to 229 seats by 2021. International load factors are expected to decline slightly over the forecast period. The decline in international air carrier load factor is expected because the new services are assumed to have lower load factors than the existing service. The load factors for the new services include 75 percent load factor for service to Latin America and 80 percent load factor for service to Asia. The load factors for the existing international O&D service are expected to decline to 80.0 percent in 2021. As a result, International load factors are expected to decline to 79.5 percent in 2021.

International Commuter Gauge and Load Factor Assumptions

Alaska and Air Canada Jazz are currently providing international commuter service at Sea-Tac Airport. Alaska Airlines operates its international commuter flights mainly to Canada using CRJ7 and Q400. Air Canada Jazz is also serving Canada using Dash8-100 and CRJ 100/200. Over the forecast period, it is assumed that the two carriers will continue to operate using the same fleet at Sea-Tac Airport. As a result, the international commuter ASPD is expected to remain at 67 seats through 2021. International commuter load factors are expected to increase from 67 percent in 2009 to 70 percent by 2021. **Table 2-11** provides a summary of the commercial passenger operations forecast at Sea-Tac Airport.

[6] Alaska Airlines 10K SEC filing February 19, 2010

Table 2-11
COMMERCIAL PASSENGER OPERATIONS FORECAST
Seattle-Tacoma International Airport

	Domestic			International			Total		
Year	Air Carrier	Commuter	Total	Air Carrier	Commuter	Total	Air Carrier	Commuter	Total
Actual									
1995	194,400	120,600	315,000	11,000	20,400	31,400	205,400	141,000	346,400
2000	217,800	151,600	369,400	9,600	32,600	42,200	227,400	184,200	411,600
2005	203,170	85,332	288,502	10,076	22,332	32,408	213,246	107,664	320,910
2006	205,936	83,388	289,324	9,436	22,136	31,572	215,372	105,524	320,896
2007	207,570	88,292	295,862	10,086	22,018	32,104	217,656	110,310	327,966
2008	211,658	84,542	296,200	10,606	20,738	31,344	222,264	105,280	327,544
2009	195,540	77,796	273,336	9,742	18,792	28,534	205,282	96,588	301,870
Forecast									
2010	193,400	72,600	266,000	9,800	18,600	28,400	203,200	91,200	294,400
2016	227,400	81,000	308,400	13,400	23,600	37,000	240,800	104,600	345,400
2018	241,600	86,400	328,000	14,000	24,000	38,000	255,600	110,400	366,000
2021	264,400	95,000	359,400	15,000	24,800	39,800	279,400	119,800	399,200
Average Annual Growth Rates:									
1995-2000	2.3%	4.7%	3.2%	-2.7%	9.8%	6.1%	2.1%	5.5%	3.5%
2000-2009	-1.2%	-7.1%	-3.3%	0.2%	-5.9%	-4.3%	-1.1%	-6.9%	-3.4%
1995-2009	0.0%	-3.1%	-1.0%	-0.9%	-0.6%	-0.7%	0.0%	-2.7%	-1.0%
2009-2016	2.2%	0.6%	1.7%	4.7%	3.3%	3.8%	2.3%	1.1%	1.9%
2016-2021	3.1%	3.2%	3.1%	2.3%	1.0%	1.5%	3.0%	2.8%	2.9%
2009-2021	2.5%	1.7%	2.3%	3.7%	2.3%	2.8%	2.6%	1.8%	2.4%

Sources: Airport Records; Landrum & Brown analysis

The result of the foregoing assumptions regarding load factors and ASPD ratios is that domestic air carrier operations are forecast to grow from 195,540 operations in 2009 to 264,400 operations by 2021, representing average annual growth of 2.5 percent. Domestic commuter operations are expected to increase from 77,796 operations in 2009 to 95,000 operations by 2021 (average annual growth rate of 1.7 percent). International air carrier operations are expected to grow 3.7 percent per year from 9,742 operations to 15,000 operations by 2021 as a result of the expected introduction of Latin American and Asia services. International commuter operations are forecast to increase from 18,792 operations in 2009 to 24,800 operations by 2021. Total annual aircraft operations at Sea-Tac Airport are expected to increase from 301,870 in 2009 to 399,200 in 2021 averaging an average growth rate of 2.4 percent per year.

2.2.5 COMMERCIAL PASSENGER OPERATIONS FLEET MIX

Once the operations forecast was developed for domestic air carrier, domestic commuter, international air carrier, and international commuter activity, these operations were allocated to aircraft groups and specific aircraft types. The fleet mix was developed to match the ASPD targets for each of the four components of commercial passenger demand presented in the previous subsections. The process of developing the fleet mix allowed for the calibration of those assumptions and, where appropriate, modifications were made prior to finalizing the assumptions presented in the preceding subsections. The allocation of domestic commercial passenger operations by aircraft type is shown in **Table 2-12**.

Table 2-12
DOMESTIC PASSENGER OPERATION FLEET MIX
Seattle-Tacoma International Airport

Aircraft Type	Acft. Gauge	Aircraft Operations 2000	2009	2010	2016	2018	2021	% of Domestic Operations 2000	2009	2010	2016	2018	2021
Domestic Total		**369,400**	**273,336**	**266,000**	**308,400**	**328,000**	**359,400**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Air Carrier		**217,800**	**195,540**	**193,400**	**227,400**	**241,600**	**264,400**	**59.0%**	**71.5%**	**72.7%**	**73.7%**	**73.7%**	**73.6%**
Wide Body Jet		**12,570**	**2,777**	**2,790**	**3,080**	**3,150**	**3,240**	**3.4%**	**1.0%**	**1.0%**	**1.0%**	**1.0%**	**0.9%**
B747-400	373	6	-	-	-	-	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
B747	372	727	-	-	-	-	-	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
A330-200	305	-	-	-	-	796	2,048	0.0%	0.0%	0.0%	0.0%	0.2%	0.6%
A330-300	298	-	-	2	-	-	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
DC10	279	5,877	-	-	-	-	-	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%
B777	258	1,179	-	-	-	-	-	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
B767-400	246	-	4	2	-	-	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
B767-300	240	4,115	2,621	2,699	2,997	2,303	-	1.1%	1.0%	1.0%	1.0%	0.7%	0.0%
B767	214	664	152	87	83	51	-	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%
B787	202	-	-	-	-	-	1,192	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%
B767-200	168	2	-	-	-	-	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Narrow Body Jet		**205,230**	**192,763**	**190,610**	**224,320**	**238,450**	**261,160**	**55.6%**	**70.5%**	**71.7%**	**72.7%**	**72.7%**	**72.7%**
B757-300	226	-	6,179	3,570	6,843	7,287	8,002	0.0%	2.3%	1.3%	2.2%	2.2%	2.2%
B757	183	28,559	9,363	6,915	793	-	-	7.7%	3.4%	2.6%	0.3%	0.0%	0.0%
A321	183	-	2,116	1,053	2,619	2,789	3,062	0.0%	0.8%	0.4%	0.8%	0.9%	0.9%
B757-200	182	-	9,067	6,264	-	-	-	0.0%	3.3%	2.4%	0.0%	0.0%	0.0%
B737-900	172	-	15,161	7,882	18,689	19,901	21,855	0.0%	5.5%	3.0%	6.1%	6.1%	6.1%
B727	170	680	-	-	-	-	-	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
B737-800 (Winglets)	157	-	42,417	32,811	61,148	76,453	88,469	0.0%	15.5%	12.3%	19.8%	23.3%	24.6%
B737-800	155	5,716	7,336	9,919	20,335	22,510	24,970	1.5%	2.7%	3.7%	6.6%	6.9%	6.9%
MD90	150	8	977	612	-	-	-	0.0%	0.4%	0.2%	0.0%	0.0%	0.0%
B727-200	149	4,509	-	-	-	-	-	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%
B737-400 (Mixed Config)	148	-	1,408	1,490	812	-	-	0.0%	0.5%	0.6%	0.3%	0.0%	0.0%
A320	146	10,194	14,922	17,350	38,537	41,036	45,064	2.8%	5.5%	6.5%	12.5%	12.5%	12.5%
B737-400	144	40,001	21,757	38,530	12,548	3,577	-	10.8%	8.0%	14.5%	4.1%	1.1%	0.0%
MD83	140	-	8,044	5,430	-	-	-	0.0%	2.9%	2.0%	0.0%	0.0%	0.0%
MD80	140	53,951	-	2,771	-	-	-	14.6%	0.0%	1.0%	0.0%	0.0%	0.0%
A319/320	132	-	136	-	-	-	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
B737-300	137	34,689	10,137	10,254	5,470	2,385	-	9.4%	3.7%	3.9%	1.8%	0.7%	0.0%
B737-700	131	14,519	32,299	33,071	43,603	49,968	55,962	3.9%	11.8%	12.4%	14.1%	15.2%	15.6%
A319	124	5,221	8,016	7,529	10,177	10,837	11,901	1.4%	2.9%	2.8%	3.3%	3.3%	3.3%
B737-700 (Winglets)	124	-	2	-	-	-	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
B737-500	122	5,288	2,108	2,779	1,143	-	-	1.4%	0.8%	1.0%	0.4%	0.0%	0.0%
A318	120	-	295	137	-	-	-	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%
B737 (Advanced)	114	753	-	-	-	-	-	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
B737 (Mixed Config)	111	1,142	-	-	-	-	-	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
B717	99	-	614	-	-	-	-	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%
E190	98	-	409	2,243	1,603	1,707	1,875	0.0%	0.1%	0.8%	0.5%	0.5%	0.5%
Commuter		**151,600**	**77,796**	**72,600**	**81,000**	**86,400**	**95,000**	**41.0%**	**28.5%**	**27.3%**	**26.3%**	**26.3%**	**26.4%**
Large Regional Jet		**27,090**	**13,467**	**10,910**	**14,540**	**15,510**	**17,050**	**7.3%**	**4.9%**	**4.1%**	**4.7%**	**4.7%**	**4.7%**
CRJ-900	70	-	956	2,591	3,453	3,684	4,049	0.0%	0.3%	1.0%	1.1%	1.1%	1.1%
CRJ-700	68	-	12,511	8,319	11,087	11,826	13,001	0.0%	4.6%	3.1%	3.6%	3.6%	3.6%
F28	60	27,090	-	-	-	-	-	7.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Small Regional Jet		**-**	**463**	**290**	**560**	**590**	**650**	**0.0%**	**0.2%**	**0.1%**	**0.2%**	**0.2%**	**0.2%**
CRJ-200	50	-	463	290	560	590	650	0.0%	0.2%	0.1%	0.2%	0.2%	0.2%
Turboprop/prop		**124,510**	**63,866**	**61,400**	**65,900**	**70,300**	**77,300**	**33.7%**	**23.4%**	**23.1%**	**21.4%**	**21.4%**	**21.5%**
DHC8-400	74	-	52,431	52,692	65,900	70,300	77,300	0.0%	19.2%	19.8%	21.4%	21.4%	21.5%
DHC8-100/200	37	72,827	-	-	-	-	-	19.7%	0.0%	0.0%	0.0%	0.0%	0.0%
EMB-120	30	40,604	7,716	8,708	-	-	-	11.0%	2.8%	3.3%	0.0%	0.0%	0.0%
Cessna (Single Turboprop)	11	11,079	-	-	-	-	-	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Cessna (Light Aircraft)	8	-	3,719	-	-	-	-	0.0%	1.4%	0.0%	0.0%	0.0%	0.0%

Sources: Airport Records; *Official Airline Guide*; Landrum & Brown analysis

Over the forecast period, wide-body jet activities at Sea-Tac Airport are expected to decline from 1.0 percent in 2009 to 0.9 percent in 2021. Narrow-body jet operations are expected to continue to account for the largest share of domestic passenger aircraft fleet in 2021.

- B737-400s operated by Alaska Airlines will continue to be replaced with B737-800s.
- B737-300s and B737-500s operated by Southwest Airlines will continue to be replaced with B737-700s.

- B737-300s and B737-500s operated by United Airlines were replaced with A319s in 2009. B757-200s operated by United are expected to be replaced with A320s by 2018.
- B757-200s operated by Delta are expected to be replaced with B787-800s and B737-800s. MD90 operated by Delta will be replaced with A320s by 2018.
- MD80 operated by American Airlines will be replaced with B737-800s by 2018.
- B767-300s operated by Hawaiian Airlines are expected to be replaced with A330-200s by 2021.

Domestic commuter aircraft fleet is expected to remain relatively the same as the 2009 fleet. Alaska Airlines replaced all of the Dash 8-100/200 (37 seat-aircraft) with Q400 (74 seat-aircraft) at Sea-Tac Airport in 2009. Q400 aircraft operated by Alaska Airlines are expected to continue to account for the largest share of more than 85 percent of domestic commuter aircraft through 2021. EMB 120 operated by United Express (SkyWest) at Sea-Tac Airport is expecting to be replaced with CRJ-700 aircraft by 2013.

Table 2-13 presents international commercial passenger operations by aircraft type. The international passenger aircraft fleet is expected to remain generally unchanged and commuter aircraft will continue to account for the largest share of international passenger aircraft fleet.

In 2010, Northwest/Delta is replacing all of the A330-200 aircraft from its international fleet at Sea-Tac Airport with A330-300 and B767 aircraft. Alaska Airlines continues to replace B737-400 with B737-800. Other airlines will continue using the same aircraft fleets.

Table 2-13
INTERNATIONAL PASSENGER OPERATION FLEET MIX
Seattle-Tacoma International Airport

Aircraft Type	Acft. Gauge	Aircraft Operations						% of International Operations					
		2000	2009	2010	2016	2018	2021	2000	2009	2010	2016	2018	2021
International Total		**42,200**	**28,534**	**28,400**	**37,000**	**38,000**	**39,800**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Air Carrier		**9,600**	**9,742**	**9,800**	**13,400**	**14,000**	**15,000**	**22.7%**	**34.1%**	**34.5%**	**36.2%**	**36.8%**	**37.7%**
Wide Body Jet		**7,810**	**6,551**	**7,250**	**9,370**	**9,790**	**10,490**	**18.5%**	**23.0%**	**25.5%**	**25.3%**	**25.8%**	**26.4%**
B747	372	3,152	174	207	238	245	257	7.5%	0.6%	0.7%	0.6%	0.6%	0.6%
747-400 (Mixed Config)	367	352	-	-	-	-	-	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%
B777-300ER	316	-	282	305	372	389	418	0.0%	1.0%	1.1%	1.0%	1.0%	1.1%
B777-200	301	-	479	494	641	667	710	0.0%	1.7%	1.7%	1.7%	1.8%	1.8%
B747-400	299	69	493	423	902	944	1,014	0.2%	1.7%	1.5%	2.4%	2.5%	2.5%
DC10	273	1,428	-	-	-	-	-	3.4%	0.0%	0.0%	0.0%	0.0%	0.0%
A330-300	273	-	1,740	2,110	2,907	3,043	3,270	0.0%	6.1%	7.4%	7.9%	8.0%	8.2%
A340-300	272	-	316	81	131	223	348	0.0%	1.1%	0.3%	0.4%	0.6%	0.9%
B777	268	1,697	1,644	1,499	1,833	1,915	2,052	4.0%	5.8%	5.3%	5.0%	5.0%	5.2%
B767-300	244	814	-	-	-	-	-	1.9%	0.0%	0.0%	0.0%	0.0%	0.0%
A330	222	-	333	319	430	454	494	0.0%	1.2%	1.1%	1.2%	1.2%	1.2%
A330-200	219	-	912	528	569	500	413	0.0%	3.2%	1.9%	1.5%	1.3%	1.0%
B767	214	298	-	833	1,113	1,165	1,251	0.7%	0.0%	2.9%	3.0%	3.1%	3.1%
B757-200 (Winglets)	189	-	178	451	234	245	263	0.0%	0.6%	1.6%	0.6%	0.6%	0.7%
Narrow Body Jet		**1,790**	**3,191**	**2,550**	**4,030**	**4,210**	**4,510**	**4.2%**	**11.2%**	**9.0%**	**10.9%**	**11.1%**	**11.3%**
B757-300	236	-	14	-	-	-	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
B757-200	182	-	-	2	-	-	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
A321	176	-	6	-	-	-	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
B737-900	172	-	609	229	803	842	902	0.0%	2.1%	0.8%	2.2%	2.2%	2.3%
B737-800 (Winglets)	157	-	922	439	1,155	1,309	1,474	0.0%	3.2%	1.5%	3.1%	3.4%	3.7%
B737-800	150	-	10	-	443	463	497	0.0%	0.0%	0.0%	1.2%	1.2%	1.2%
A320	146	418	-	-	-	-	-	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%
B737-400	144	513	120	557	159	55	-	1.2%	0.4%	2.0%	0.4%	0.1%	0.0%
MD80	140	323	-	-	-	-	-	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%
B737	124	-	395	20	-	-	-	0.0%	1.4%	0.1%	0.0%	0.0%	0.0%
B737-700	124	137	274	425	362	378	406	0.3%	1.0%	1.5%	1.0%	1.0%	1.0%
A319	120	399	-	-	-	-	-	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%
E190	93	-	841	878	1,108	1,163	1,231	0.0%	2.9%	3.1%	3.0%	3.1%	3.1%
Commuter		**32,600**	**18,792**	**18,600**	**23,600**	**24,000**	**24,800**	**77.3%**	**65.9%**	**65.5%**	**63.8%**	**63.2%**	**62.3%**
Large Regional Jet		**4,720**	**2,890**	**2,000**	**1,820**	**1,850**	**1,910**	**11.2%**	**10.1%**	**7.0%**	**4.9%**	**4.9%**	**4.8%**
CRJ-700	70	-	2,890	2,000	1,820	1,850	1,910	0.0%	10.1%	7.0%	4.9%	4.9%	4.8%
F28	60	4,720	-	-	-	-	-	11.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Small Regional Jet		**-**	**1,298**	**1,300**	**1,680**	**1,650**	**1,690**	**0.0%**	**4.5%**	**4.6%**	**4.5%**	**4.3%**	**4.2%**
CRJ-200	50	-	1,298	1,300	1,680	1,650	1,690	0.0%	4.5%	4.6%	4.5%	4.3%	4.2%
Turboprop		**27,880**	**14,604**	**15,300**	**20,100**	**20,500**	**21,200**	**66.1%**	**51.2%**	**53.9%**	**54.3%**	**53.9%**	**53.3%**
DHC8-400	74	-	11,007	11,619	15,573	15,883	16,425	0.0%	38.6%	40.9%	42.1%	41.8%	41.3%
DHC8-300	50	3,587	3,597	3,681	4,527	4,617	4,775	8.5%	12.6%	13.0%	12.2%	12.2%	12.0%
DHC8-100/200	37	19,564	-	-	-	-	-	46.4%	0.0%	0.0%	0.0%	0.0%	0.0%
DHC8-100	37	506	-	-	-	-	-	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%
EMB-120	30	4,223	-	-	-	-	-	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Sources: Airport Records; *Official Airline Guide*; Landrum & Brown analysis

2.3 AIR CARGO

This chapter presents an overview of the air cargo industry, historical trends in air cargo at Sea-Tac Airport, and air cargo forecasts for the key years of 2018 and 2021, with 2009 as the base year.

2.3.1 AIR CARGO INDUSTRY

The air cargo industry has experienced many changes in the last decade. The general U.S. economic downturn that began in 2000 adversely affected U.S. air cargo activity. After the terrorist attacks of September 11, 2001, cargo activity in the U.S. was immediately impacted. Critical impacts included an increased use of trucks, an escalation of insurance costs, consolidation among smaller firms, failure of many small cargo airlines and smaller support firms, higher security costs, longer processing time because of security, and increased available freighter capacity which drove down rates. The cargo industry recovered by 2003 and posted strong growth for several years.

Growth in U.S. air cargo activity began to slow down in 2006 as the price of oil began to rise to record high levels (ultimately peaking at $145 per barrel in July 2008), causing shipping by other modes to become more attractive. While oil prices declined significantly in the 4th quarter of 2008, economic activity deteriorated in late 2008 and the resulting global recession limited the positive impact of the lower oil prices. In fact, FedEx, the largest all-cargo carrier at Sea-Tac Airport experienced a decrease in domestic volumes in 2008 and in 2009. FedEx reports on a fiscal year ending May 31. FedEx Express average daily domestic volumes for Fiscal Year 2009 (June 1, 2008 through May 31, 2009) were down 13 percent over Fiscal Year 2008. Average daily international volumes declined by only 2.4 percent in Fiscal Year 2009, but the international segment makes up only about one third of the average daily total volumes. Average daily domestic volumes for the first three quarters of Fiscal Year 2010 (June 1, 2009 through February 28, 2010) were down only 1.6 percent over the same period last year.[7] **Exhibit 2-3** illustrates the historical growth by U.S. cargo carriers as measured in revenue ton miles (RTMs). U.S. revenue ton miles declined 3 percent from 2007 to 2008 and declined 21 percent between 2008 and 2009.

The impact of high oil prices and the economic recession is not limited to the U.S. According to Boeing statistics, growth in world air cargo traffic in the 2005 to 2007 timeframe marked "the weakest growth period for the industry since the first Gulf War, 1990-1992."[8] World air cargo traffic, as measured in revenue ton kilometers (RTKs), increased by 1.7 percent in 2005, 3.2 percent in 2006, and 5.1 percent in 2007. Although growth in world cargo traffic in 2005 to 2007 was slower than in the past, it was still positive growth. Worldwide cargo activities for 2008 and 2009 were not available at the time of this analysis, however, early reports from the carriers "point to either continuing weak or negative growth."[9]

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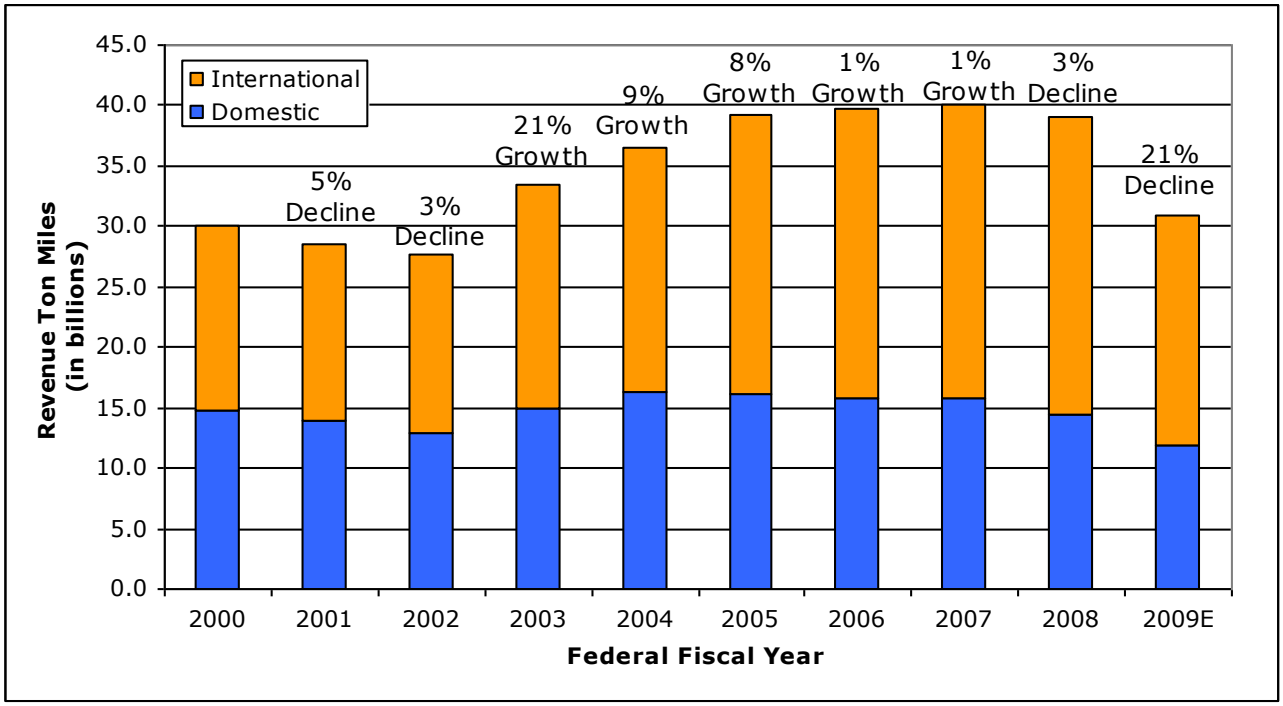
7 *FedEx Corporation Financial and Operating Statistics, Third Quarter Fiscal 2010*, March 18, 2010
8 Boeing *World Air Cargo Forecast 2008-2009*, Introduction
9 Boeing *World Air Cargo Forecast 2008-2009*, Introduction

Exhibit 2-3
HISTORICAL REVENUE TON MILES
U.S. COMMERCIAL CARGO CARRIERS

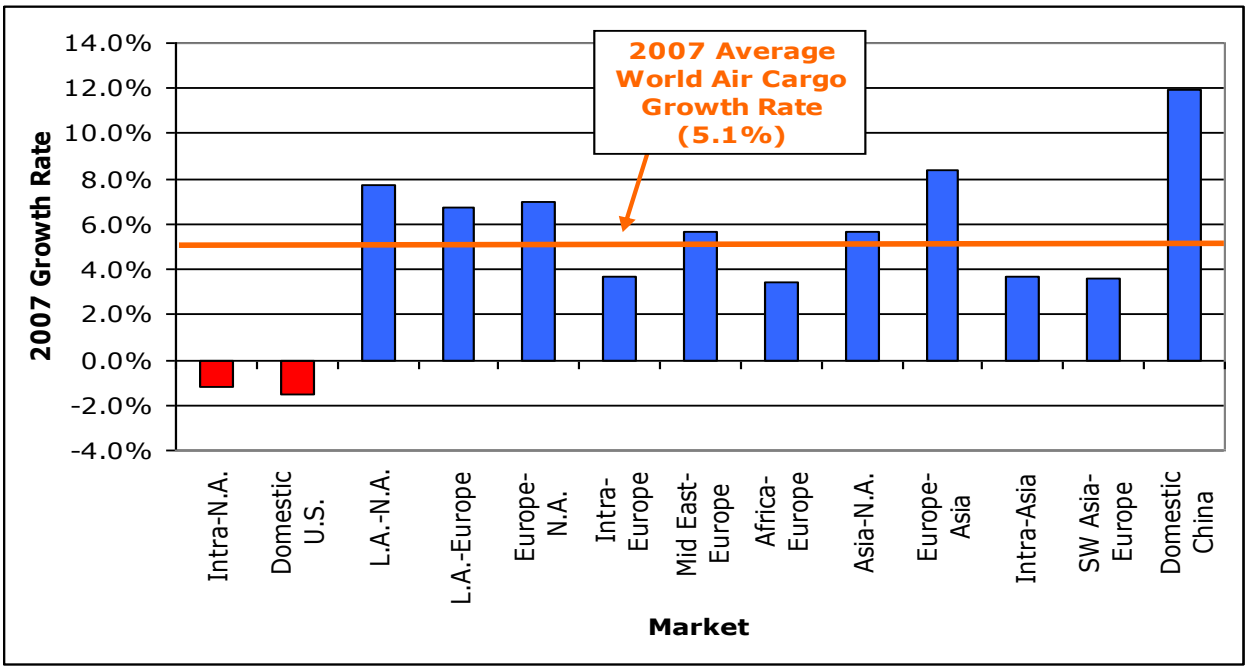


H:\STL\Aviation Forecast\Cargo Forecast\[Other cargo forecasts.xls]comp to STL

Sources: *FAA Aerospace Forecast*, Fiscal Years 2009-2025 and 2010–2030; Landrum & Brown analysis

In contrast, intra-North America cargo traffic shrunk by 1.2 percent and the domestic U.S. market declined by 1.5 percent in 2007 (see **Exhibit 2-4**). International shipments to and from the U.S. increased as the Latin America-North America, Europe-North America, and Asia-North America markets all experienced growth in 2007 that exceeded the world average. The highest growth market in 2007 was the domestic China market (almost 12 percent growth over 2006).

Exhibit 2-4
2007 AIR CARGO GROWTH BY MAJOR MARKET
(Revenue Ton Kilometers)



Sources: *Boeing World Air Cargo Forecast 2008-2009*; Landrum & Brown analysis

2.3.2 HISTORICAL AIR CARGO TRAFFIC

Air cargo volumes handled at Sea-Tac Airport increased at an average growth rate of 3.8 percent per year from 313,460 metric tons in 1990 to 456,920 metric tons in 2000. Since 2000, air cargo tonnage at Sea-Tac Airport has been declining; reaching 269,337 metric tons in 2009 (see **Table 2-14**). Domestic air cargo accounted for more than 70 percent of the traffic at Sea-Tac Airport. In 2009, about 65 percent of air cargo at Sea-Tac Airport was carried by all-cargo operators while the remainder was transported in the belly compartments of passenger aircraft. Belly cargo declined significantly between 2004 and 2009 at an average annual rate of 7.6 percent per year. All-cargo tonnage has been declining at a slower rate of just 3.3 percent per year over the same period.

Table 2-14
AIR CARGO TONNAGE (FREIGHT & MAIL; IN METRIC TONS)
Seattle-Tacoma International Airport

Year	Air Cargo (in metric tons) Total	Belly	All-cargo	Percent All-cargo
1990	313,460	n.a.	n.a.	
1995	408,198	n.a.	n.a.	
2000	456,920	n.a.	n.a.	
2001	401,535	n.a.	n.a.	
2002	374,753	n.a.	n.a.	
2003	351,418	n.a.	n.a.	
2004	347,517	140,224	207,293	59.6%
2005	338,590	132,800	205,790	60.8%
2006	341,984	125,465	216,519	63.3%
2007	319,013	120,872	198,141	62.1%
2008	290,768	107,977	182,791	62.9%
2009	269,337	94,471	174,866	64.9%
Average Annual Growth Rates:				
1990-2000	3.8%			
2000-2009	-5.7%			
2004-2009	-5.0%	-7.6%	-3.3%	1.7%
1990-2009	-0.8%			

Note: Belly/all-cargo splits estimated based on "*All-cargo and total landed weight by airline*" airport records.

Sources: Airport Records; Landrum & Brown analysis

Table 2-15 presents freight tonnage by operation type and airline. According to airport records, FedEx is the largest all-cargo operator at Sea-Tac Airport and accounted for 42.4 percent of total freight handled in 2009. Alaska is the largest belly cargo operator and accounted for 10.7 percent of total freight in 2009. Nearly 80 percent of Alaska's total freight was carried in the belly of passenger flights.

Table 2-15
FREIGHT TONNAGE BY AIRLINE (IN METRIC TONS)
Seattle-Tacoma International Airport

		All-Cargo Freight Tonnage						2009	AAG
Rank	Airline	2004	2005	2006	2007	2008	2009	% Share	04-09
1	Fedex	106,791	114,379	114,485	112,586	103,417	97,695	43.3%	-1.8%
2	China Airlines	5,692	5,285	4,517	5,165	4,526	10,178	4.5%	12.3%
3	Korean Airlines	-	-	8,754	14,533	12,824	9,873	4.4%	n.a.
4	Cargolux	13,057	12,607	13,333	13,414	11,800	9,353	4.1%	-6.5%
5	EVA Air	315	189	101	323	5,931	6,883	3.0%	85.3%
6	Alaska	6,936	9,165	8,299	7,795	6,063	5,000	2.2%	-6.3%
7	Martinair Holland	9,020	9,371	9,390	9,167	7,129	4,996	2.2%	-11.1%
	Other	28,287	22,086	24,185	5,179	2,905	2,665	1.2%	-37.7%
	Total	**170,098**	**173,082**	**183,064**	**168,162**	**154,595**	**146,643**	**64.9%**	**-2.9%**
		Belly Freight Tonnage						**2009**	**AAG**
Rank	**Airline**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**% Share**	**04-09**
1	Alaska	23,604	20,589	17,453	15,619	16,247	19,093	8.5%	-4.2%
2	Northwest	12,568	14,113	11,360	12,261	12,052	8,492	3.8%	-7.5%
3	British Airways	8,922	6,720	7,059	8,173	8,729	6,855	3.0%	-5.1%
4	United	15,624	14,357	16,161	12,519	7,747	6,660	2.9%	-15.7%
5	Southwest	6,472	7,350	7,527	7,582	8,313	5,911	2.6%	-1.8%
6	Delta	12,034	11,707	9,314	8,227	6,799	5,603	2.5%	-14.2%
7	Lufthansa	-	-	-	-	3,124	4,113	1.8%	n.a.
8	Hawaiian	5,059	5,201	4,944	5,290	4,945	3,811	1.7%	-5.5%
9	Continental	4,002	3,746	3,905	3,994	3,123	3,289	1.5%	-3.8%
10	Air France	-	-	-	1,645	2,978	3,129	1.4%	n.a.
	Other	26,779	27,910	28,356	27,274	17,264	12,268	5.4%	-14.5%
	Total	**115,064**	**111,693**	**106,079**	**102,584**	**91,321**	**79,224**	**35.1%**	**-7.2%**
Total Freight Tonnage		**285,162**	**284,775**	**289,143**	**270,746**	**245,916**	**225,867**	**100.0%**	**-4.6%**

Notes: Freight tonnage does not include mail; Belly/all-cargo splits are estimated based on carrier detail from airport records
AAG= average annual growth rates

Sources: Airport Records; Landrum & Brown analysis

2.3.3 AIR CARGO TONNAGE FORECAST

The FAA, Boeing, and Airbus forecasts expect domestic growth to range from 2.6 percent to 3.0 percent annually. The Boeing forecast predicts the U.S. domestic market will grow at a rate of 2.9 percent annually between 2007 and 2017 and 2.3 percent through 2027 in the base scenario. All-cargo and belly tonnages were forecast separately.

All-cargo tonnage was divided into FedEx and other. In 2010, cargo tonnage at Sea-Tac Airport is expected to remain at the 2009 level. Cargo tonnage handled by FedEx is expected to increase at Boeing growth rates and half of the Boeing growth rate is expected for other all-cargo operators. By applying the growth rates, all-cargo tonnage is expected to reach 223,700 metric tons in 2021 averaging an annual growth rate of 2.1 percent between 2009 and 2021 (see **Table 2-16**).

Air cargo tons per operation are expected to remain at the 2009 level throughout the forecast period. As a result, cargo operations are forecast to increase to 12,140 in 2021 with an average annual growth rate of 1.8 percent.

Table 2-16
ALL- CARGO FORECAST (FREIGHT & MAIL; IN METRIC TONS)
Seattle-Tacoma International Airport

		All-cargo Tonnage			Tons per operation			All-cargo operations		
	Year	FedEx	Other	Total	FedEx	Other	Total	FedEx	Other	Total
Actual	2004	130,142	77,151	207,293	22.0	11.6	16.5	5,904	6,678	12,582
	2005	135,994	69,796	205,790	21.0	12.8	17.3	6,470	5,432	11,902
	2006	135,407	81,112	216,519	21.0	14.3	17.8	6,460	5,670	12,130
	2007	132,657	65,484	198,141	20.6	16.5	19.0	6,426	3,978	10,404
	2008	122,279	60,512	182,791	19.6	18.0	19.0	6,240	3,366	9,606
	2009	116,497	58,369	174,866	19.8	14.8	17.8	5,874	3,942	9,816
Forecast	2010	116,500	58,400	174,900	19.9	14.8	17.8	5,860	3,940	9,800
	2016	138,400	63,700	202,100	20.3	14.8	18.2	6,830	4,300	11,130
	2018	145,700	65,300	211,000	20.4	14.8	18.3	7,140	4,410	11,550
	2021	156,000	67,700	223,700	20.6	14.8	18.4	7,570	4,570	12,140
Average Annual Growth Rates:										
2004-2009		-2.2%	-5.4%	-3.3%	-2.1%	5.1%	1.6%	-0.1%	-10.0%	-4.8%
2009-2016		2.5%	1.3%	2.1%	0.3%	0.0%	0.3%	2.2%	1.2%	1.8%
2016-2021		2.4%	1.2%	2.1%	0.3%	0.0%	0.3%	2.1%	1.2%	1.8%
2009-2021		2.5%	1.2%	2.1%	0.3%	0.0%	0.3%	2.1%	1.2%	1.8%

Sources: Airport Records; Landrum & Brown analysis

The share of belly cargo at Sea-Tac Airport has declined from more than 40 percent in 2004 to 35 percent in 2009. This reduction in belly cargo share is consistent with national trends. According to FAA statistics, the domestic U.S. belly cargo share has declined from 30 percent in 2000 to 14 percent in 2009. The FAA predicts that the belly cargo share for the U.S. as a whole will continue to decline and reach 10 percent in 2030 due to increases in the capacity of cargo aircraft and new security regulations.[10]

[10] *FAA Aerospace Forecasts, Fiscal Years 2010-2030*

As a result, belly cargo volumes at Sea-Tac Airport are forecast to drop to 26 percent of total air cargo tonnage by 2021. Belly cargo tonnage will decrease from 94,471 metric tons in 2009 to 77,800 tons in 2021 averaging a declining rate of 1.6 percent per year (see **Table 2-17**). The total air cargo tonnage at Sea-Tac Airport is expected to be 301,500 metric tons in 2021.

Table 2-17
TOTAL CARGO TONNAGE (FREIGHT & MAIL; IN METRIC TONS)
Seattle-Tacoma International Airport

		Total Tonnage			
	Year	All-cargo	Belly	Total	% Belly
Actual	2004	207,293	140,224	347,517	40.4%
	2005	205,790	132,800	338,590	39.2%
	2006	216,519	125,465	341,984	36.7%
	2007	198,141	120,872	319,013	37.9%
	2008	182,791	107,977	290,768	37.1%
	2009	174,866	94,471	269,337	35.1%
Forecast	2010	174,900	93,000	267,900	34.7%
	2016	202,100	84,400	286,500	29.5%
	2018	211,000	81,700	292,700	27.9%
	2021	223,700	77,800	301,500	25.8%
Average Annual Growth Rates:					
2004-2009		-3.3%	-7.6%	-5.0%	-2.8%
2009-2016		2.1%	-1.6%	0.9%	-2.5%
2016-2021		2.1%	-1.6%	1.0%	-2.6%
2009-2021		2.1%	-1.6%	0.9%	-2.5%

Sources: Airport Records; Landrum & brown analysis

2.3.4 AIR CARGO OPERATION FLEET MIX

The air cargo tonnage forecast for the all-cargo operators was used to derive the all-cargo operations forecast, based on assumptions regarding the amount of air cargo tonnage handled per operation. Historical all-cargo operations by aircraft type were analyzed to better understand the fleet mix for the all-cargo carriers at Sea-Tac Airport. Additionally, aircraft orders for FedEx, the dominant cargo carrier at Sea-Tac Airport, were analyzed to evaluate how the cargo fleet mix might evolve in the future. Ultimately, these analyses allowed for the projection of all-cargo operations by aircraft type.

FedEx currently operates mainly MD10 and Cessna 208s at Sea-Tac Airport. Based on a review of fleet plans for FedEx, no major changes in the carriers' fleet deployment at Sea-Tac Airport are expected over the forecast period. In 2008, FedEx began phasing out all its B727s and A310-200s. In addition, the five remaining DC10s will be replaced by MD10s by 2011. The Cessna 208, operated by Empire Airlines (FedEx feeder), is expected to maintain relatively the same allocation throughout the forecast period.

Based on these fleet assumptions, the share of wide-body aircraft is forecast to increase from 41 percent of cargo fleet in 2005 to 65 percent by 2021, mainly due to the larger deployment of A300s and MD-10F by FedEx. Narrow-body aircraft are expected to decline to 0.7 percent of the cargo fleet by 2021. Turboprops are expected to remain relatively the same as the 2009 level.

As a result, all-cargo operations are forecast to increase from 9,816 in 2009 to 12,140 in 2021. This increase represents a 1.8 percent average annual growth rate.

Table 2-18
ALL-CARGO OPERATION FLEET MIX
Seattle-Tacoma International Airport

	Aircraft Operations				% of Total			
Aircraft	**2005**	**2009**	**2016**	**2021**	**2005**	**2009**	**2016**	**2021**
Total	**11,902**	**9,816**	**11,130**	**12,140**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Widebody Jet	**4,920**	**5,887**	**7,270**	**7,870**	**41.3%**	**60.0%**	**65.3%**	**64.8%**
A300-600F	946	539	630	700	7.9%	5.5%	5.7%	5.8%
A310F	74	-	-	-	0.6%	0.0%	0.0%	0.0%
B747F	996	3,042	3,940	4,190	8.4%	31.0%	35.4%	34.5%
B767-200/300F	73	10	10	10	0.6%	0.1%	0.1%	0.1%
B777F	-	-	-	-	0.0%	0.0%	0.0%	0.0%
MD-10F	2,065	1,764	2,050	2,270	17.4%	18.0%	18.4%	18.7%
MD-11F	766	532	640	700	6.4%	5.4%	5.8%	5.8%
Narrowbody Jet	**3,056**	**686**	**90**	**90**	**25.7%**	**7.0%**	**0.8%**	**0.7%**
B757-200F	14	4	10	10	0.1%	0.0%	0.1%	0.1%
B727F	699	-	-	-	5.9%	0.0%	0.0%	0.0%
B737F	2,071	670	70	70	17.4%	6.8%	0.6%	0.6%
DC-9F	13	12	10	10	0.1%	0.1%	0.1%	0.1%
DC-8F	255	-	-	-	2.1%	0.0%	0.0%	0.0%
L100-30F	2	-	-	-	0.0%	0.0%	0.0%	0.0%
MD-80F	2	-	-	-	0.0%	0.0%	0.0%	0.0%
Turboprop	**3,926**	**3,243**	**3,770**	**4,180**	**33.0%**	**33.0%**	**33.9%**	**34.4%**
ANTONOV 12	3	1	-	-	0.0%	0.0%	0.0%	0.0%
ATR-42	-	186	200	220	0.0%	1.9%	1.8%	1.8%
ATR-72	-	94	100	110	0.0%	1.0%	0.9%	0.9%
BEECH 18	524	419	490	540	4.4%	4.3%	4.4%	4.4%
CESSNA 208	3,154	2,543	2,980	3,310	26.5%	25.9%	26.8%	27.3%
F-27	245	-	-	-	2.1%	0.0%	0.0%	0.0%

Sources: Airport Records; USDOT, Schedule T-100; Landrum & Brown analysis

2.4 AIR TAXI AND GENERAL AVIATION

This section includes all operations which are not considered commercial, cargo, or military operations. Air taxi activity typically includes "for hire" aircraft chartered for specific trips on an on-demand basis. Air taxi operations are usually made up of larger General Aviation (GA) aircraft, such as large turboprop aircraft and an array of corporate jets. GA activity includes diverse uses that can range from recreational flying, flight training activities, business travel, news reporting, traffic observation, police patrol, emergency medical flights, and even crop dusting.

Air taxi and general aviation operations can be subdivided into two major subcategories: "itinerant" and "local" based on FAA classifications. Local operations are defined by the FAA as "operations remaining in the local traffic pattern, simulated instrument approaches at the Airport…and operations to or from the Airport and a practice area within a 20-mile radius of the tower."[11] Itinerant operations are all operations not classified as "local".

2.4.1 NATIONAL TRENDS

The FAA's forecast[12] projects the following trends in the U.S. general aviation industry from 2009 to 2030:

- The number of active general aviation aircraft is forecast to increase by 0.9 percent annually.
- Growth of 2.5 percent per annum is expected in the number of general aviation hours flown.
- The number of student pilots is expected to decline by 1.5 percent per annum through 2010 and then increase at a rate of 0.6 percent annually through 2030.
- General aviation operations at airports with air traffic control service are forecast to decline by 3.1 percent annually through 2010 before increasing by 1.3 percent annually through 2030.

2.4.2 HISTORICAL TRENDS

Sea-Tac Airport is a primary commercial service airport, serving 317,873 total annual operations in 2009, with air taxi and general aviation activities making up 2 percent of total operations. Air taxi and general aviation activities make up a relatively small percentage of the operations at Sea-Tac Airport because general aviation pilots often prefer not to operate at commercial service airports due to the congestion that typically occurs at these airports, the differences in approach speeds between general aviation aircraft and commercial aircraft, and wake turbulence issues.

[11] FAA Order 7210.3, Facility Operation and Administration, Section 2, Airport Operations Count
[12] *FAA Aerospace Forecast, Fiscal Years 2010-2030*

Air taxi and general aviation operations at Sea-Tac Airport declined from 18,136 in 2004 to 6,114 in 2009 (see **Table 2-19**). This represents an average decline of 19.5 percent annually. In 2009, air taxi and general aviation operations at Sea-Tac Airport were exclusively itinerant in nature. There have been no local operations recorded by the air traffic control tower since October 2007.

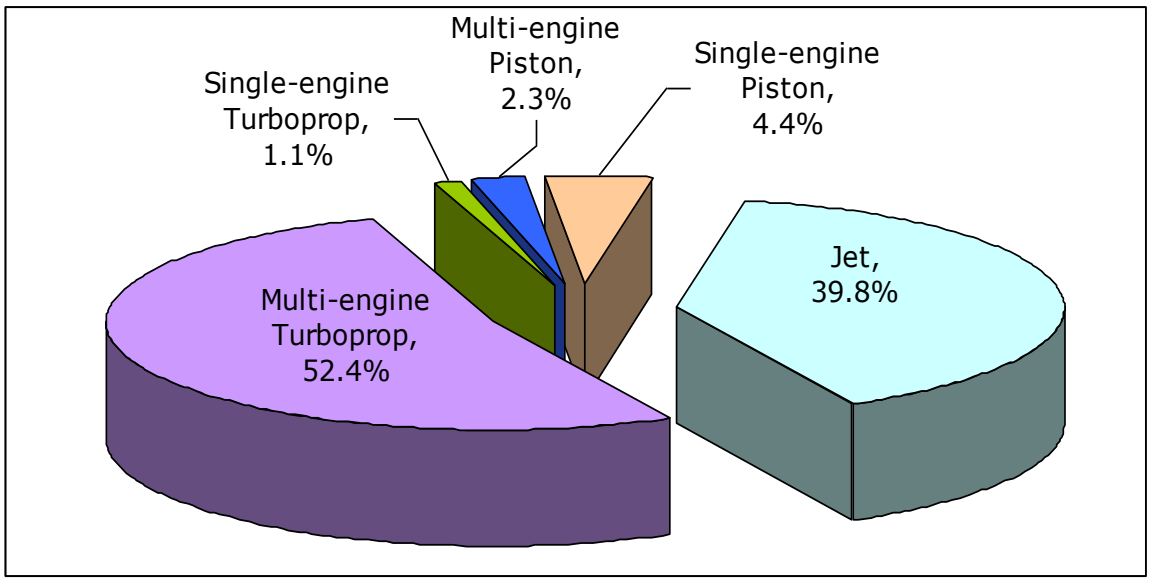
Table 2-19
HISTORICAL AIR TAXI AND GA OPERATIONS
Seattle-Tacoma International Airport

		Air Taxi and GA Operations		
	Year	Itinerant	Local	Total
Actual	2004	18,033	103	18,136
	2005	8,599	284	8,883
	2006	6,303	621	6,924
	2007	7,686	883	8,569
	2008	7,787	0	7,787
	2009	6,114	0	6,114
Average Annual Growth Rates:				
2004-2009		-19.5%	-100.0%	-19.5%

Sources: Airport Records; FAA ATADS

Exhibit 2-5 presents aircraft type allocations for air taxi and general aviation that operated at Sea-Tac Airport in 2009. Nearly 40 percent of the operations were jets and 53 percent were turboprop aircraft. The remaining 7 percent of operations were piston aircraft.

Exhibit 2-5
2009 AIR TAXI AND GA OPERATION FLEET MIX
Seattle-Tacoma International Airport



Sources: Radar data; Landrum & Brown analysis

2.4.3 AIR TAXI AND GENERAL AVIATION FORECAST

Nationally, the FAA Active Aircraft forecast in the *FAA Aerospace Forecasts, Fiscal Years 2010-2030* shows an initial decline of 0.2 percent annually in the number of active single-engine piston aircraft through 2018. The FAA expects single-engine piston aircraft to recover and grow at an average annual rate of 0.5 percent from 2018 to 2030. The number of multi-engine piston aircraft is expected to decline at an average annual rate of 0.8 percent from 2009 to 2030. Turboprops are forecast by the FAA to grow at rate of 1.4 percent annually while the number of jets is expected to grow the fastest at 4.2 percent annually.

Applying the FAA's national forecast to each aircraft type at Sea-Tac Airport results in an average annual growth rate of 2.5 percent between 2009 and 2021. Air taxi and general aviation aircraft operations are expected to reach 8,240 in 2021 (see **Table 2-20**).

Table 2-20
AIR TAXI AND GA OPERATION FLEET MIX
Seattle-Tacoma International Airport

	AT & GA Operations			% of total		
Aircraft Type	**2009**	**2018**	**2021**	**2009**	**2018**	**2021**
Jet	2,432	3,520	3,990	39.8%	46.2%	48.4%
Multi-engine Turboprop	3,206	3,630	3,780	52.4%	47.6%	45.9%
Single-engine Turboprop	68	77	80	1.1%	1.0%	1.0%
Multi-engine Piston	138	129	125	2.3%	1.7%	1.5%
Single-engine Piston	270	264	265	4.4%	3.5%	3.2%
Total	**6,114**	**7,620**	**8,240**	**100.0%**	**100.0%**	**100.0%**

Sources: Radar data; Airport Records; FAA Aerospace Forecasts Fiscal Years 2010-2030; Landrum & Brown analysis

2.5 MILITARY

Military operations ranged between 54 and 126 annually since 1996. There were 73 military operations in 2009, down from 110 in 2008. Based on an average of the past five years of military operations at Sea-Tac Airport, military operations are forecast to remain at 100 operations throughout the forecast period (see **Table 2-21**). According to radar data, there are two types of military aircraft recorded at Sea-Tac Airport in 2009: Lockheed 130 Hercules and Bombardier BD-700 Global Express. Bombardier BD-700 accounted for 75 percent of the total military operation in 2009.

Table 2-21
MILITARY OPERATIONS FORECAST
Seattle-Tacoma International Airport

	Year	Military Operations
Actual	1996	90
	1997	80
	1998	126
	1999	59
	2000	95
	2001	75
	2002	59
	2003	54
	2004	124
	2005	67
	2006	108
	2007	107
	2008	110
	2009	73
Forecast	2010	100
	2016	100
	2018	100
	2021	100
Average Annual Growth Rates:		
1996-2000		1.1%
2000-2009		-2.9%
2009-2016		4.6%
2016-2021		0.0%
2009-2021		2.7%

Sources: Airport Records; Landrum & Brown analysis

2.6 TOTAL AIRCRAFT OPERATIONS SUMMARY

Table 2-22 provides a summary of the operations forecast described in the previous sections for each of the primary components of aircraft operations at SEA. Aircraft operations are forecast to grow from 317,873 in 2009 to 419,680 in 2021, representing average annual growth of 2.3 percent.

Table 2-22
TOTAL AIRCRAFT OPERATIONS FORECAST
Seattle-Tacoma International Airport

	Calendar	Aircraft Operations				
	Year	Passenger	All-Cargo	Air Taxi & GA	Military	Total
Actual	2004	328,052	12,582	18,136	124	358,894
	2005	320,910	11,902	8,883	67	341,762
	2006	320,896	12,130	6,924	108	340,058
	2007	327,966	10,404	8,569	107	347,046
	2008	327,544	9,606	7,787	110	345,047
	2009	301,870	9,816	6,114	73	317,873
Forecast	2010	294,400	9,800	6,230	100	310,530
	2016	345,400	11,130	7,230	100	363,860
	2018	366,000	11,550	7,620	100	385,270
	2021	399,200	12,140	8,240	100	419,680
Average Annual Growth Rates:						
2004-2009		-1.6%	-4.8%	-19.5%	-10.1%	-2.4%
2009-2016		1.9%	1.8%	2.4%	4.6%	1.9%
2016-2021		2.9%	1.8%	2.6%	0.0%	2.9%
2009-2021		2.4%	1.8%	2.5%	2.7%	2.3%

Sources: Airport records; FAA, ATADS; Landrum & Brown analysis

2.5.1 COMPARISON TO FAA FORECASTS

The FAA develops Terminal Area Forecasts (TAF) on an annual basis for all active airports in the U.S. that are included in its National Plan of Integrated Airport Systems (NPIAS). The TAF is "prepared to meet the budget and planning needs of FAA and provide information for use by state and local authorities, the aviation industry, and the public."[13] The 2009 TAF was issued in December of 2009 and is compared to the Part 150 forecasts for Sea-Tac Airport in this section.

Table 2-23 provides a comparison of this Part 150 forecast with the FAA 2009 TAF for enplanements, commercial operations and total aircraft operations for the 5- and 10-year horizons. The Part 150 forecasts are within 10 percent of the 2009 TAF for the first 5 years and within 15 percent for the first 10 years.

[13] http://aspm.faa.gov/main/taf.asp

Table 2-23
AVIATION FORECASTS VERSUS FAA 2009 TAF
Seattle-Tacoma International Airport

	Year	Part 150 Forecast	2009 TAF	P150 Variance
Passenger Enplanements				
Base Yr.	2009	15,610,198	14,911,310	4.7%
Base Yr. + 5 Yrs.	2014	16,946,590	16,407,630	3.3%
Base Yr. + 10 Yrs.	2019	19,485,400	18,362,887	6.1%
Commercial Operations[1]				
Base Yr.	2009	311,686	317,420	-1.8%
Base Yr. + 5 Yrs.	2014	337,470	348,772	-3.2%
Base Yr. + 10 Yrs.	2019	388,740	386,959	0.5%
Total Operations[2]				
Base Yr.	2009	317,873	320,559	-0.8%
Base Yr. + 5 Yrs.	2014	344,420	352,012	-2.2%
Base Yr. + 10 Yrs.	2019	396,660	390,510	1.6%

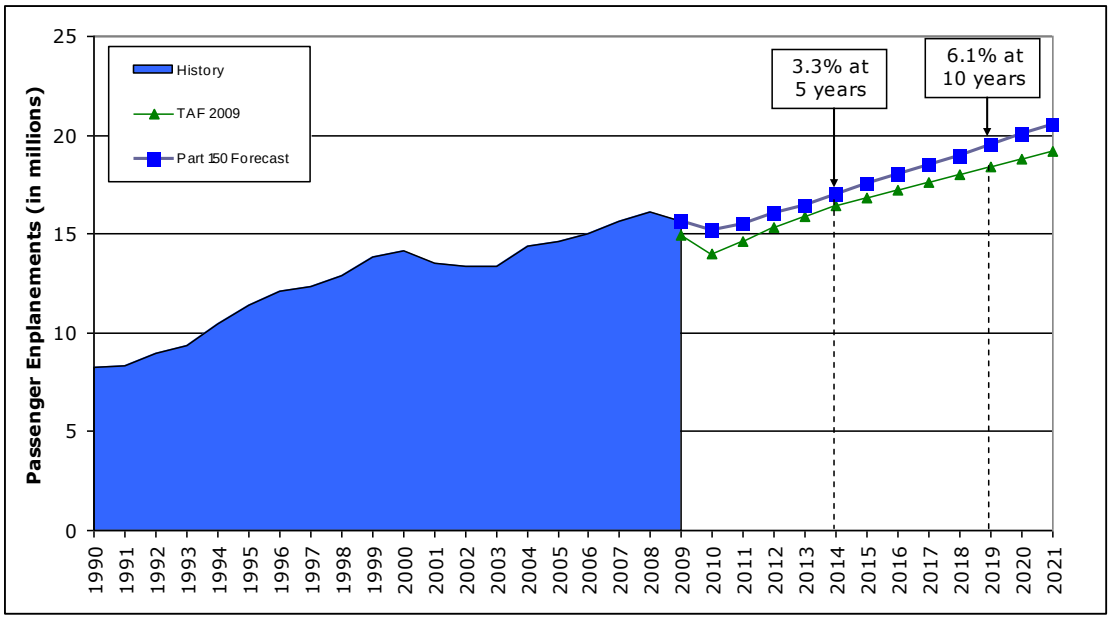
Notes: Part 150 data is on a calendar year basis. TAF data is shown on a fiscal year basis.
[1] Air taxi operations are included in the commercial operations totals for the TAF. The Part 150 forecast groups air taxi operations in the non-commercial category.
[2] Excludes overflights

Sources: Federal Aviation Administration 2009 Terminal Area Forecast; Airport Records; Landrum & Brown analysis

The 2009 TAF shows a 6 percent decline in enplanement levels in 2010 as a result of the economic recession and related decline in aviation activity, while the Part 150 forecast projects a slower decline of 3 percent in the traffic. The Part 150 Forecast expects passenger traffic will recover and grow at a slightly faster rate over the long-term compared to the 2009 TAF. The 2009 TAF predicts enplanements will increase at an average annual rate of 2.1 percent between 2009 and 2021. The Part 150 forecast projects an average annual growth rate of 2.3 percent over the same period. **Exhibit 2-6** provides a comparison between the enplanements forecast for this Part 150 forecast and the FAA 2009 TAF for Sea-Tac Airport. The difference in growth assumptions results in a 3.3 percent difference in enplanements in 2014 and a 6.1 percent difference in enplanements in 2019.

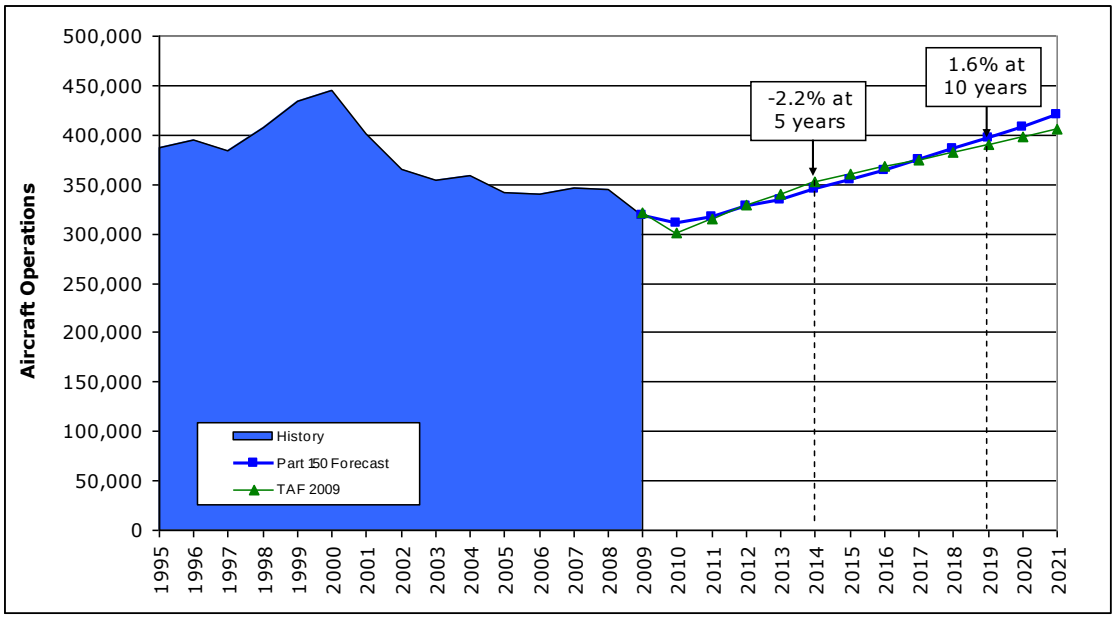
The 2009 FAA TAF predicts total aircraft operations at Sea-Tac Airport to grow 2.0 percent annually between 2009 and 2021. The Part 150 aircraft operations forecast assumes an average annual growth rate of 2.3 percent over the same period. As a result, total aircraft operations levels in the Part 150 forecast are 2.2 percent lower than the TAF in 2014 and 1.6 percent higher in 2019 (see **Exhibit 2-7**).

Exhibit 2-6
COMPARISON WITH FAA 2009 TAF – ENPLANEMENTS
Seattle-Tacoma International Airport



Sources: Federal Aviation Administration 2009 Terminal Area Forecast; Airport Records; Landrum & Brown analysis

Exhibit 2-7
COMPARISON WITH FAA 2009 TAF – OPERATIONS
Seattle-Tacoma International Airport

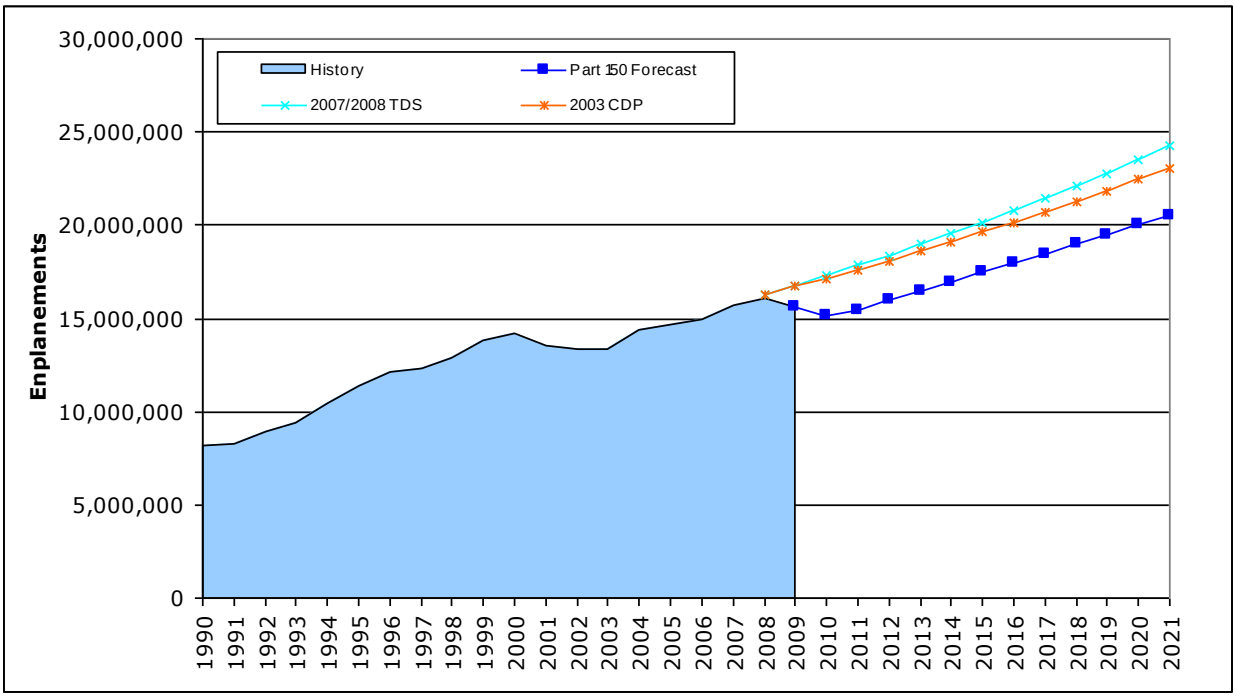


Sources: Federal Aviation Administration 2009 Terminal Area Forecast; Airport Records; Landrum & Brown analysis

2.5.2 REVIEW OF EXISTING FORECASTS

In addition to the comparison to the 2009 TAF, a review of other forecasts is also considered. There are two other forecasts reviewed and compared to the Part 150 forecast. **Exhibit 2-8** provides a comparison of passenger enplanement forecasts for 2003 CDP (Comprehensive Development Plan), 2007/2008 TDS (Terminal Development Strategy), and the Part 150 forecast. The 2003 CDP and the 2007/2008 TDS forecasts were done before the recession in 2008. Therefore, these forecasts did not reflect the traffic reduction in 2008 through 2010 or recovery period after 2010. The 2003 CDP forecast projected a 2.7 percent average annual growth rate between 2009 and 2021. The 2007/2008 TDS forecast projected a 3.1 percent average annual growth rate over the same period.

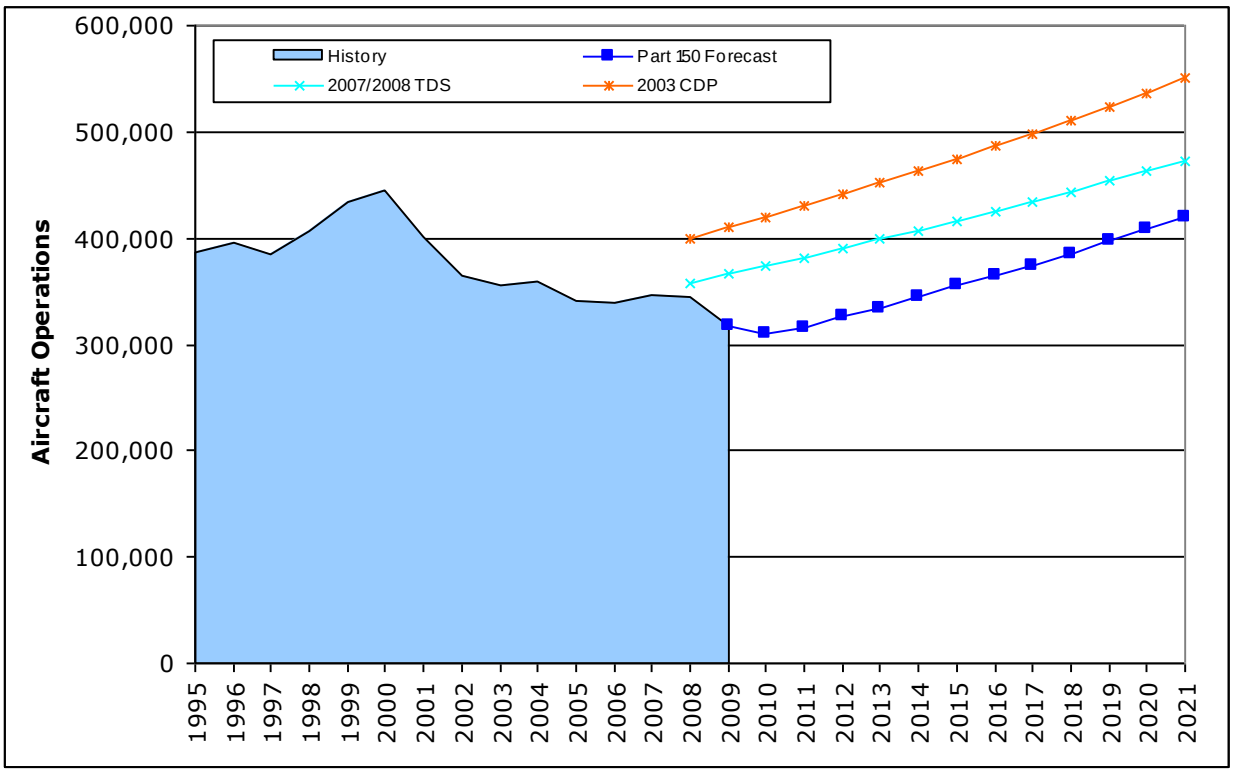
Exhibit 2-8
FORECASTS COMPARISON – ENPLANEMENTS
Seattle-Tacoma International Airport



Sources: 2007/2008 Activity and Forecasting Growth, April 1, 2008; Landrum & Brown analysis

Exhibit 2-9 provides a comparison of aircraft operation forecasts for 2003 CDP, 2007/2008 TDS, and the Part 150 forecast. The 2003 CDP and the 2007/2008 TDS forecasts projected a 2.5 percent and a 2.2 percent of average annual growth rates between 2009 and 2021 respectively. These two forecasts were well above the actual 2008 and 2009 levels. Consequently, the 2003 CDP and the 2007/2008 TDS forecasts predict much higher forecasts compared to the Part 150 forecast.

Exhibit 2-9
FORECASTS COMPARISON – OPERATIONS
Seattle-Tacoma International Airport



Sources: 2007/2008 Activity and Forecasting Growth, April 1, 2008; Landrum & Brown analysis

For purposes of ongoing business planning, the Airport maintains and periodically updates a long-range projection of aviation activity. Landrum & Brown reviewed the Airport's forecast and the underlying assumptions and determined that it was reasonable. The Part 150 forecast has a nearly identical average annual growth rate through 2015 as the Airport's business planning forecast. For the period 2018 through 2021, the Part 150 forecast is projecting more robust growth than the Airport's forecast. From a potential noise impact prospective, the Part 150 forecast is more conservative.

2.5.3 AVERAGE ANNUAL DAY HOURLY DISTRIBUTIONS

Part 150 analysis requires the classification of noise-modeled operations by daytime (7am-9:59pm) and nighttime (10pm-6:59am). In order to project daytime and nighttime operational proportions, an hourly distribution of traffic levels for the average annual day is provided in this section for each of the commercial passenger, air cargo, air taxi and general aviation, and military segments of the forecast.

Average annual day is developed based on annual aircraft operation forecasts for each segment divided by the number of days in the year. The average annual day operations for each segment are presented in **Table 2-24**. The total average annual day operations are projected to increase from 871 in 2009 to 1,151 in 2021.

Table 2-24
AVERAGE ANNUAL DAY
Seattle-Tacoma International Airport

Aircraft Operations
Seattle-Tacoma International Airport

Annual

	Calendar Year	Domestic Passenger Air Carrier Operations	Domestic Passenger Commuter Operations	International Passenger Air Carrier Operations	International Passenger Commuter Operations	Commercial Passenger Operations	All-Cargo Operations	AT & GA Operations	Military Operations	Total Operations
	2007	207,570	88,292	10,086	22,018	327,966	10,404	8,569	107	347,046
	2008	211,658	84,542	10,606	20,738	327,544	9,606	7,787	110	345,047
Base	2009	195,540	77,796	9,742	18,792	301,870	9,816	6,114	73	317,873
Forecast	2010	193,400	72,600	9,800	18,600	294,400	9,800	6,230	100	310,530
	2016	227,400	81,000	13,400	23,600	345,400	11,130	7,230	100	363,860
	2018	241,600	86,400	14,000	24,000	366,000	11,550	7,620	100	385,270
	2021	264,400	95,000	15,000	24,800	399,200	12,140	8,240	100	419,680

Average Annual Day

	Calendar Year	Domestic Passenger Air Carrier Operations	Domestic Passenger Commuter Operations	International Passenger Air Carrier Operations	International Passenger Commuter Operations	Commercial Passenger Operations	All-Cargo Operations	AT & GA Operations	Military Operations	Total Operations
	2007	569	242	28	60	899	29	23	-	951
	2008	578	231	29	57	895	26	21	-	942
Base	2009	536	213	27	51	827	27	17	-	871
Forecast	2010	530	200	28	50	808	28	16	-	852
	2016	622	221	38	64	945	30	20	-	995
	2018	662	237	38	66	1,003	32	21	-	1,056
	2021	725	260	42	68	1,095	34	22	-	1,151

Source: Landrum & Brown analysis

Hourly distribution for commercial passenger operations was derived from a flight schedule of a representative day (May 13, 2009) from *Official Airline Guide*. Radar data was used for cargo operation hourly distributions and a different day (May 12, 2009) was selected for cargo operation hourly distributions. Air taxi and general aviation operation hourly distribution was also derived from radar data of May 15, 2009. Selecting different days for each operation type can better represent an average day of the traffic at the Airport. The results show that 85 percent of total operations in 2009 were performed during daytime hours (see **Table 2-25)**. This day/night split is expected to remain at the 2009 level throughout the forecast period.

Table 2-25
AVERAGE ANNUAL DAY – DAY/NIGHT SPLITS
Seattle-Tacoma International Airport

		Domestic Passenger		International Passenger		Commercial				
		Air Carrier	Commuter	Air Carrier	Commuter	Passenger	All-Cargo	AT & GA	Military	Total
Year	Day/night	Operations	Operations	Operations	Operations	Operations	Operations	Operations	Operations	Operations
2009										
	Day	452	192	25	48	717	13	13	-	743
	Night	84	21	2	3	110	14	4	-	128
	Total	536	213	27	51	827	27	17	-	871
2016										
	Day	523	193	36	61	813	14	16	-	843
	Night	95	21	2	3	121	16	4	-	141
	Total	618	214	38	64	934	30	20	-	984
2021										
	Day	616	233	39	65	953	16	18	-	987
	Night	112	24	3	3	142	18	4	-	164
	Total	728	257	42	68	1,095	34	22	-	1,151
% Day Operations										
	2009	84.3%	90.1%	92.6%	94.1%	86.7%	48.1%	76.5%	n.a.	85.3%
	2016	84.6%	90.2%	94.7%	95.3%	87.0%	46.7%	80.0%	n.a.	85.7%
	2021	84.6%	90.7%	92.9%	95.6%	87.0%	47.1%	81.8%	n.a.	85.8%

Sources: Airport Records; Radar data; Official Airline Guide; Landrum & Brown analysis

Table 2-26 presents detailed average annual day hourly distributions for each key year broken down by each operations type.

Table 2-26
AVERAGE ANNUAL DAY – HOURLY DISTRIBUTIONS
Seattle-Tacoma International Airport

2009 Average Annual Day – Arrivals

	Domestic Passenger		International Passenger		Commercial				
2009	Air Carrier	Commuter	Air Carrier	Commuter	Passenger	All-Cargo	AT & GA	Military	Total
Hour	Arrivals	Arrivals	Arrivals	Arrivals	Arrivals	Arrivals	Arrivals	Arrivals	Arrivals
0	1	-	-	-	1	-	-	-	1
1	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-
3	1	-	-	-	1	2	-	-	3
4	1	-	-	-	1	-	-	-	1
5	5	-	-	-	5	5	-	-	10
6	1	6	-	1	8	1	-	-	9
7	3	8	1	3	15	-	-	-	15
8	7	6	1	1	15	-	-	-	15
9	14	8	1	2	25	-	-	-	25
10	20	8	-	-	28	-	-	-	28
11	20	5	3	2	30	-	-	-	30
12	15	6	1	1	23	-	-	-	23
13	18	4	1	3	26	-	1	-	27
14	17	6	-	2	25	-	-	-	25
15	10	8	-	1	19	-	-	-	19
16	15	6	1	1	23	2	-	-	25
17	11	7	-	-	18	2	1	-	21
18	17	7	1	4	29	2	1	-	32
19	14	8	2	2	26	-	-	-	26
20	23	7	1	1	32	-	2	-	34
21	22	3	1	1	27	-	3	-	30
22	18	2	-	-	20	-	-	-	20
23	15	1	-	-	16	-	1	-	17
Total	268	106	14	25	413	14	9	-	436

2009 Average Annual Day – Departures

	Domestic Passenger		International Passenger		Commercial				
2009	Air Carrier	Commuter	Air Carrier	Commuter	Passenger	All-Cargo	AT & GA	Military	Total
Hour	Departures	Departures	Departures	Departures	Departures	Departures	Departures	Departures	Departures
0	1	-	-	-	1	-	-	-	1
1	-	-	-	-	-	-	-	-	-
2	-	-	1	-	1	-	-	-	1
3	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	2	-	-	2
5	2	1	-	-	3	2	-	-	5
6	24	2	-	1	27	2	-	-	29
7	21	7	-	2	30	2	-	-	32
8	24	7	1	1	33	-	-	-	33
9	12	5	-	1	18	-	1	-	19
10	16	7	1	4	28	-	-	-	28
11	20	7	-	2	29	-	-	-	29
12	20	7	2	-	29	-	-	-	29
13	15	5	1	1	22	-	-	-	22
14	15	8	4	4	31	-	-	-	31
15	16	8	-	-	24	-	-	-	24
16	13	6	-	2	21	-	1	-	22
17	14	7	-	1	22	-	-	-	22
18	12	6	1	2	21	-	-	-	21
19	13	6	-	1	20	2	-	-	22
20	8	7	-	-	15	1	2	-	18
21	7	2	1	3	13	2	1	-	16
22	8	7	-	-	15	-	1	-	16
23	7	2	1	1	11	-	2	-	13
Total	268	107	13	26	414	13	8	-	435

2018 Average Annual Day – Arrivals

	Domestic Passenger		International Passenger		Commercial				
2016	Air Carrier	Commuter	Air Carrier	Commuter	Passenger	All-Cargo	AT & GA	Military	Total
Hour	Arrivals	Arrivals	Arrivals	Arrivals	Arrivals	Arrivals	Arrivals	Arrivals	Arrivals
0	1	-	-	-	1	-	-	-	1
1	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-
3	1	-	-	-	1	2	-	-	3
4	1	-	-	-	1	-	-	-	1
5	6	-	-	-	6	5	-	-	11
6	1	6	-	1	8	1	-	-	9
7	3	7	1	4	15	-	-	-	15
8	8	6	2	1	17	-	-	-	17
9	16	8	1	3	28	-	-	-	28
10	25	8	-	-	33	-	-	-	33
11	24	5	4	2	35	-	-	-	35
12	17	6	2	1	26	-	-	-	26
13	20	4	1	4	29	-	1	-	30
14	19	6	-	3	28	-	-	-	28
15	11	9	-	1	21	-	-	-	21
16	17	6	1	1	25	2	-	-	27
17	12	7	-	-	19	2	1	-	22
18	19	7	1	6	33	3	1	-	37
19	16	9	3	3	31	-	1	-	32
20	28	7	2	1	38	-	2	-	40
21	27	4	1	1	33	-	3	-	36
22	20	2	-	-	22	-	-	-	22
23	17	1	-	-	18	-	1	-	19
Total	309	108	19	32	468	15	10	-	493

2018 Average Annual Day – Departures

	Domestic Passenger		International Passenger		Commercial				
2016	Air Carrier	Commuter	Air Carrier	Commuter	Passenger	All-Cargo	AT & GA	Military	Total
Hour	Departures	Departures	Departures	Departures	Departures	Departures	Departures	Departures	Departures
0	1	-	-	-	1	-	-	-	1
1	-	-	-	-	-	-	-	-	-
2	-	-	1	-	1	-	-	-	1
3	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	2	-	-	2
5	2	1	-	-	3	3	-	-	6
6	28	2	-	1	31	3	-	-	34
7	25	6	-	3	34	2	-	-	36
8	28	7	2	1	38	-	-	-	38
9	14	5	-	1	20	-	1	-	21
10	18	7	1	5	31	-	-	-	31
11	24	7	-	3	34	-	-	-	34
12	24	7	3	-	34	-	-	-	34
13	17	5	2	1	25	-	-	-	25
14	17	7	6	5	35	-	-	-	35
15	18	9	-	-	27	-	1	-	28
16	15	6	-	3	24	-	1	-	25
17	16	7	-	1	24	-	-	-	24
18	14	6	1	2	23	-	-	-	23
19	15	6	-	1	22	2	-	-	24
20	9	7	-	-	16	1	3	-	20
21	7	2	2	4	15	2	1	-	18
22	9	7	-	-	16	-	1	-	17
23	8	2	1	1	12	-	2	-	14
Total	309	106	19	32	466	15	10	-	491

2021 Average Annual Day – Arrivals

	Domestic Passenger		International Passenger		Commercial				
2021	Air Carrier	Commuter	Air Carrier	Commuter	Passenger	All-Cargo	AT & GA	Military	Total
Hour	Arrivals	Arrivals	Arrivals	Arrivals	Arrivals	Arrivals	Arrivals	Arrivals	Arrivals
0	1	-	-	-	1	-	-	-	1
1	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-
3	1	-	-	-	1	3	-	-	4
4	1	-	-	-	1	-	-	-	1
5	7	-	-	-	7	5	-	-	12
6	1	7	-	1	9	1	-	-	10
7	4	9	1	4	18	-	-	-	18
8	9	7	1	1	18	-	-	-	18
9	18	9	1	3	31	-	-	-	31
10	29	9	-	-	38	-	-	-	38
11	28	7	5	3	43	-	-	-	43
12	21	8	2	1	32	-	-	-	32
13	24	5	2	4	35	-	1	-	36
14	22	8	-	3	33	-	-	-	33
15	13	11	-	1	25	-	-	-	25
16	20	7	2	1	30	2	-	-	32
17	15	8	-	-	23	3	1	-	27
18	22	8	1	7	38	3	1	-	42
19	18	10	3	3	34	-	1	-	35
20	33	8	2	1	44	-	2	-	46
21	32	4	1	1	38	-	4	-	42
22	24	2	-	-	26	-	-	-	26
23	20	1	-	-	21	-	1	-	22
Total	363	128	21	34	546	17	11	-	574

2021 Average Annual Day – Departures

	Domestic Passenger		International Passenger		Commercial				
2021	Air Carrier	Commuter	Air Carrier	Commuter	Passenger	All-Cargo	AT & GA	Military	Total
Hour	Departures	Departures	Departures	Departures	Departures	Departures	Departures	Departures	Departures
0	1	-	-	-	1	-	-	-	1
1	-	-	-	-	-	-	-	-	-
2	-	-	2	-	2	-	-	-	2
3	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	3	-	-	3
5	3	1	-	-	4	3	-	-	7
6	33	2	-	1	36	3	-	-	39
7	29	8	-	3	40	3	-	-	43
8	33	8	2	1	44	-	-	-	44
9	16	7	-	1	24	-	1	-	25
10	21	9	2	5	37	-	-	-	37
11	29	8	-	3	40	-	-	-	40
12	29	8	3	-	40	-	-	-	40
13	21	7	2	2	32	-	-	-	32
14	20	9	6	5	40	-	-	-	40
15	21	10	-	-	31	-	1	-	32
16	17	8	-	3	28	-	1	-	29
17	19	8	-	1	28	-	-	-	28
18	16	7	1	3	27	-	1	-	28
19	17	7	-	1	25	2	-	-	27
20	11	9	-	-	20	1	3	-	24
21	9	2	2	4	17	2	1	-	20
22	11	9	-	-	20	-	1	-	21
23	9	2	1	1	13	-	2	-	15
Total	365	129	21	34	549	17	11	-	577

Sources: Airport Records; Radar data; Official Airline Guide; Landrum & Brown analysis

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Exhibit 2

U.S. Department of Transportation
Federal Aviation Administration

Northwest Mountain Region
Office of the Regional Administrator

1601 Lind Avenue S.W.
Renton, WA 98057-3356

APR 10 2017

Mayor Lucy Krakowiak
City of Burien
400 SW 152nd Street, Suite 300
Burien, WA 98166

Dear Mayor Krakowiak:

Re: North Flow Departures from SeaTac Airport over the City of Burien

On March 28, 2017, the July 26, 2016 Approach Control Service and Coordination Procedures Letter of Agreement (LOA) between Seattle Terminal Radar Approach Control (S46) and Seattle Airport Traffic Control Tower (SEA) was amended. Specifically, the following paragraph from page 6 of the LOA has been removed:

5: PROCEDURES:

d. Departures. Tower must:

(9) Assign the following automatic turns to departing IFR Groups B, C, and D aircraft:

(b) North Flow:

3) 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.

This amendment removes the pre-coordinated 250° heading assigned to departing propeller-driven aircraft during north flow. There were no other changes made to the LOA.

The FAA is currently evaluating the use of this pre-coordinated 250° heading and conducting a comprehensive review of the historic use of this flight corridor. For many years, the FAA has utilized the 250° heading for propeller driven aircraft departures during north flow operations as a safe and efficient way to disperse and separate the propeller driven aircraft from jet aircraft. Before the July 26, 2016 LOA, S46 was required to manually coordinate with SEA to turn propeller driven aircraft. The coordination between S46 and SEA increased complexity and entered a safety risk into the National Airspace System. Therefore, the above paragraph was added to the LOA which resulted in increased safety and efficiency by eliminating the manual communication necessary to coordinate

each propeller driven aircraft heading assignment. The Seattle-Tacoma International Airport (Sea-Tac) has witnessed a nearly 9% increase in operations between 2015 and 2016. This increase in operations is projected to continue, due to greater demand and additional air carriers entering the market. The historical use of the westbound turn has allowed the FAA to improve safety and balance the additional demand at Sea-Tac.

The FAA would like to meet with you to discuss these departures. Please contact me or David C. Suomi, Deputy Regional Administrator, at (425) 227-2000 to arrange this meeting.

Sincerely,

KC Yanamura
Regional Administrator

Exhibit 3

Burien

City of Burien
400 SW 152nd Street
Suite 300
Burien, WA 98166-1911

P 206.241.4647
F 206.248.5539

burienwa.gov

November 15, 2017

David C. Suomi
Acting Regional Administrator
Federal Aviation Administration - Northwest Mountain Region
1601 Lind Avenue, S.W.
Renton, WA 98057

Dear Mr. Suomi:

I write on behalf of the City of Burien regarding the Federal Aviation Administration's (FAA's) proposal to establish an automatic heading for turboprop aircraft departing Seattle-Tacoma International Airport (Sea-Tac) during north flow conditions.

Over the last two years, this matter has been the subject of significant concern, substantial public controversy, and considerable discussion.

During the summer of 2016, without notice to the City or its residents, the FAA began experimenting with a new departure route assigning north flow turboprop aircraft to a 250-degree heading directly over the City. This new route resulted in substantial noise increases in City parks, schools, residential neighborhoods, and other noise-sensitive areas. The City and its residents spent considerable time and effort trying to obtain from the FAA information about the new route and the status of its implementation. The FAA formally responded to those inquiries on December 16, 2016, at which point it upheld — and refused to reconsider — the new route.

One February 14, 2017, the City filed a petition for judicial review of the FAA's actions in the United States Court of Appeals for the Ninth Circuit. In March, 2017, the FAA agreed to withdraw its authorization of the new route. Since that time, representatives of the City, the FAA, and the Department of Justice have regularly discussed the litigation under the auspices of the Ninth Circuit's mediation program. The City appreciates the FAA's (and Department of Justice's) participation in the mediation program, and remains hopeful that the litigation can be fully and finally resolved in a mutually-agreeable manner.

In June, 2017, the FAA issued a public notice proposing to re-adopt the new route (and its 250-degree heading over Burien). The notice invited public comment on the proposal and an

accompanying Draft Preliminary Environmental Assessment (PEA). The City timely submitted comments explaining that (i) the Draft PEA did not provide sufficient information to permit a detailed evaluation of the proposal; (ii) based on the limited information provided, the Draft PEA did not appear to satisfy the requirements of the National Environmental Policy Act (NEPA); and (c) the Draft PEA did not consider alternatives that would achieve the FAA's objectives while avoiding unnecessary impacts to the City and its residents. Our letter also indicated that while the proposed re-adoption of the new route does not avoid unnecessary impacts, alternative arrangements might.

We understand the agency also received more than 700 additional comments expressing concerns about the proposed re-adoption of the new route and disputing aspects of the Draft PEA. The outpouring further underscores the controversy attending this issue and the importance of working together to resolve it.

With that objective in mind, City representatives have met with you and your team to propose and discuss a series of potential alternatives that could address the objectives of both sides. We very much appreciate the opportunity to have these discussions with you, and we think they have served as a productive first step in working together toward a mutually-agreeable resolution.

We are now interested in taking the next step in that collaborative process. Our last meeting took place on September 14, 2017, at your office. Among other things, we discussed a variety of options capable of accommodating turboprops and missed approaches on various headings between 260 degrees and 320 degrees. At the close of the meeting, you and your team requested additional time to address some of those options. You indicated that you would then be in a position to schedule further meetings with the City.

We have not heard anything in the two months since. To ensure that we maintain as much forward momentum as possible, we believe it would be helpful to set a time for further discussion. The City's representatives would be happy to meet at your office if that would be convenient for you.

We remain committed to working with you and your team to identify and implement an alternative to the new route that is consistent with the interests of both the City and the FAA. We look forward to hearing from you soon.

Regards,

Lisa Marshall
City Attorney

Cc: Brian Wilson, City Manager
Patricia Deem, FAA
Pat Wells, FAA
Ven Neralla, Deputy Chief of Staff/Leg Director for Congresswoman Pramila Jayapal
Rachel Berkson, District Director for Congresswoman Pramila Jayapal
Matthew Adams, Dentons

Exhibit 4

[redacted]

From: Lisa Marshall <lisam@burienwa.gov>
Sent: Tuesday, February 06, 2018 12:35 PM
To: 'David.Suomi@faa.gov'
Cc: Patrick.J.Wells@faa.gov; Brian Wilson; Patricia.Deem@faa.gov; Adams, Matthew
Subject: RE: City of Burien FAA Discussions Regarding Flights over Burien

Hello David:

Thanks again for your update, below. We appreciate your willingness to confer in March, after the anticipated close of the review and decision process, and we look forward to that discussion. But would it also be productive to confer before the FAA decision-making process is complete? The City would like to make sure that it is continuing to be helpful in working toward a mutually-agreeable resolution.

I look forward to hearing from you soon,

Lisa Marshall
City Attorney

City of Burien
(206) 248-5535 office
(206) 641 -1182 cell
Lisam@burienwa.gov
Burienwa.gov

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From: David.Suomi@faa.gov [mailto:David.Suomi@faa.gov]
Sent: Monday, January 29, 2018 5:02 PM
To: Lisa Marshall <lisam@burienwa.gov>
Cc: Patrick.J.Wells@faa.gov; Brian Wilson <BrianW@burienwa.gov>; Patricia.Deem@faa.gov; matthew.adams@dentons.com
Subject: RE: City of Burien FAA Discussions Regarding Flights over Burien

Good afternoon, Lisa. This email is to update you as to where the FAA is on our environmental review and the expected schedule going forward concerning subject matter.

We are just finishing adjudicating the comments we received during the public notice process. During the month of February, we expect to have final environmental and facility review and executive signoff. Assuming our schedule projections are accurate, we expect to be reaching out to the City of Burien around the first week of March to schedule a meeting to share results and to answer any questions.

If you have any questions on the above, please do not hesitate to let me know.

Dave

David C. Suomi

Regional Administrator
Federal Aviation Administration - Northwest Mountain Region
1601 Lind Avenue, S.W.
Renton, WA 98057

425-227-2001

N.B. Effective April 1, 2018, we are relocating to a new facility. New contact information is as follows:

David Suomi, Regional Administrator
Federal Aviation Administration - Northwest Mountain Region
2200 South 216th Street
Des Moines, Washington 98198

Office Phone: 206-231-2001, David.Suomi@faa.gov
Duty Officer: 206-231-2000

From: Suomi, David (FAA)
Sent: Wednesday, November 22, 2017 12:33 PM
To: 'Lisa Marshall' <lisam@burienwa.gov>
Cc: Wells, Patrick J (FAA) <Patrick.J.Wells@faa.gov>; Brian Wilson <BrianW@burienwa.gov>; Deem, Patricia (FAA) <Patricia.Deem@faa.gov>; 'Adams, Matthew' <matthew.adams@dentons.com>
Subject: RE: City of Burien FAA Discussions Regarding Flights over Burien

Good afternoon, Lisa.

Thank you for your letter of November 15, 2017. The FAA is continuing to prepare the environmental review. This includes responding to the comments raised by Burien in response to the public notice to re-adopt the new route. We will plan to update you further in early January 2018 on our schedule.

I wish you a happy Thanksgiving holiday.

D

David C. Suomi

Regional Administrator
Federal Aviation Administration - Northwest Mountain Region
1601 Lind Avenue, S.W.
Renton, WA 98057

425-227-2002

From: Lisa Marshall [mailto:lisam@burienwa.gov]
Sent: Wednesday, November 15, 2017 12:36 PM
To: Suomi, David (FAA) <David.Suomi@faa.gov>
Cc: Wells, Patrick J (FAA) <Patrick.J.Wells@faa.gov>; Brian Wilson <BrianW@burienwa.gov>; Deem, Patricia (FAA) <Patricia.Deem@faa.gov>; 'Adams, Matthew' <matthew.adams@dentons.com>
Subject: City of Burien FAA Discussions Regarding Flights over Burien

Mr. Suomi:

Please see the attached letter. I look forward to hearing from you soon,

Lisa Marshall
City Attorney

City of Burien
(206) 248-5535 office
(206) 641 -1182 cell
Lisam@burienwa.gov
Burienwa.gov

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Exhibit 5

Leigh | Fisher

Port of Seattle

TECHNICAL MEMORANDUM No.7 FINAL

FACILITIES IMPLEMENTATION AND FINANCIAL FEASIBILITY

Seattle-Tacoma International Airport

Prepared for

Port of Seattle
Seattle, Washington

May 2018

Sustainable Airport Master Plan
Seattle-Tacoma International Airport

Leigh | Fisher Port of Seattle

TECHNICAL MEMORANDUM No.7 FINAL

FACILITIES, IMPLEMENTATION AND FINANCIAL FEASIBILITY

Seattle-Tacoma International Airport

Prepared for

Port of Seattle
Seattle, Washington

May 2018

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Introduction and Summary

The key results of the SAMP include a vision for long-term Airport development and a set of Near-Term Projects that is consistent with the Long-Term Vision, is compatible with the existing airfield, and is affordable.

1.1 Background

This *Technical Memorandum No. 7 – Facilities Implementation and Financial Feasibility* (TM-7) is the seventh in a series of memorandums which document the analyses, results, conclusions, and recommendations resulting from the Sustainable Airport Master Plan (SAMP) for Seattle-Tacoma International Airport (Airport). *Technical Memorandum No. 6 – Alternatives* (TM-6) determined an optimal layout of facilities required to satisfy the unconstrained 20-year forecast demand (Long-Term Vision). Airside modeling conducted to test the ability of the Long-Term Vision facilities to accommodate 20-year forecast demand is documented in TM-6. Airside modeling determined that, even with all Long-Term Vision improvements, airfield/airspace constraints resulted in severe congestion and aircraft delays as activity approached 15-year forecast demand (forecast to occur in 2029). Given these existing constraints, all improvements depicted in the Long-Term Vision that are not included in the Near-Term Projects will be subject to further study discussed in section 5 of this TM-7. The Long-Term Vision was refined as part of implementation planning and is illustrated in Figure 6-1 and further described in Section 6 of this TM-7.

1.2 Purpose

The purposes of this TM-7 are to:

- Determine a set of Near-Term Projects (NTP) resulting from the SAMP, which fit within the Long-Term Vision for Airport development as broadly defined in *Technical Memorandum No. 6 Alternatives* and illustrated on Figure 6-1.
- Summarize the results of the simulation analyses that confirmed the improvements included in the NTP can meet demand in the year that they would become operational.
- Confirm that the NTP is financially feasible.
- Recommend key follow-on actions, all related to the airfield/airspace system, which should be initiated as soon as practical.
- Document refinements to the Long-Term Vision resulting from implementation plan alternatives analysis.
- Document project phasing alternatives that were considered in determining the NTP.

1.3 Approach

The approach to conducting implementation planning and developing the NTP was significantly influenced by the physical constraints unique to the Airport and a recent, sustained increase in activity—among North American large hubs, the Airport experienced the highest growth (21.9%) in aircraft movements and the second highest growth (52.6%) in passenger traffic in the last 10 years. High passenger and cargo demand have strained existing facilities, leaving very few opportunities to relocate functions to underutilized areas and generating a pressing need to provide additional capacity in all key functional areas. The high utilization of the majority of existing facilities coupled with physical constraints results in difficult construction sequencing and long sequences of enabling projects, both of which increase program costs and delay the delivery of needed capacity. These factors drove the need to explore alternative project sequencing that could deliver capacity sooner and/or delay expensive enabling projects.

The implementation planning approach included the following guiding principles:

- Sequence projects to add gate and hardstand (designated aircraft parking) capacity for passenger operations as soon as possible.
- Program construction of a second terminal and landside access to align with construction of gates that can be readily connected to the Second Terminal.
- Sequence projects to add warehouse and hardstand capacity for cargo operations as soon as possible.
- Minimize impacts to existing cargo and aircraft maintenance facilities until additional capacity can be constructed.
- Minimize throwaway costs, by avoiding, where possible, building new facilities that will be impacted by subsequent construction.

1.4 Summary

This TM-7 documents the analysis and conclusions of the SAMP implementation planning and financial feasibility assessment. The SAMP Long-Term Vision identifies facility improvements required to satisfy unconstrained demand over the 20-year planning horizon. The implementation plan process began by establishing a baseline implementation plan to deliver needed capacity through a sequence of projects that concludes with the full build-out of the Long-Term Vision. Once the baseline plan was established, development and evaluation of alternative project sequencing then focused on Near-Term Projects to deliver capacity in response to dramatic growth in passenger and cargo activity. These alternatives were developed and evaluated within the context of the physical and financial constraints which were clarified early in implementation planning process. Alternative project sequencing and gate expansion options explored through the implementation planning process are documented in Appendix A.

Recent, sustained increased demand has strained existing facilities. High utilization of the majority of existing facilities and physical constraints limits opportunities for expansion or redevelopment of on-airfield facilities and often triggers the need to relocate existing functions in order to provide additional capacity to accommodate increased demand. The planning team established the guiding principles listed in Section 1.3 *Approach* in response to these constraints and used them to identify a financially feasible package of projects to accommodate near-term demand.

The Near-Term Projects (NTP) detailed in Section 2 *Near-Term Projects* and illustrated in Figure 2-1, include all enabling and capacity improvement projects required to accommodate forecast demand in 2027. The year 2027 corresponds to when substantial gate, hardstand and terminal capacity become operational. In addition to 19 new narrowbody equivalent gates connected to a second terminal, the NTP includes taxiway modifications to increase operational efficiency and the creation of new hardstands to boost capacity for passenger and cargo operations. These improvements were modeled using Total Airspace and Airport Modeler (TAAM) to confirm that they can accommodate forecast 2027 activity. TAAM modeling of the Near-Term Projects is detailed in Section 3 *Airfield Operational Feasibility*.

In addition to modeling the improvements to confirm they can accommodate forecast activity in 2027, the Port also conducted a financial feasibility assessment of the capital program costs to verify that the Port can feasibly finance these Near-Term Projects and other anticipate airport expenses through the year 2027. The analysis projected expenses and considered future airport debt and revenue to assess the Port's financial capabilities and future competitiveness with other airports in terms of Cost Per Enplanement (CPE). The analysis is documented in Section 4 *Financial Feasibility* and concluded that the Near-Term Projects are financially feasible.

As documented in Section 2.5 of *Technical Memorandum No. 6 Alternatives*, airfield modeling determined that, with all improvements included in the Long-Term Vision and no other changes to how the airfield/airspace is operated, the airfield/airspace as currently configured has insufficient capacity to meet the unconstrained 20-year forecast demand at an acceptable level of delay. The improvements included in the NTP fit within the Long-Term Vision and are stand-alone projects that are needed to satisfy near-term demand. While the Long-Term Vision includes airfield projects that improve the effectiveness of the airfield system, a comprehensive airfield/airspace study is needed to develop and assess alternatives to meet the unconstrained 20-year forecast demand. Given the existing airfield/airspace constraints, all improvements depicted in the Long-Term Vision that are not included in the Near-Term Projects will be subject to further study discussed in Section 5 *Key Actions Following Completion of the SAMP*. The Long-Term Vision was refined as part of implementation planning and is illustrated in Figure 6-1 and further described in Section 6 *Long-Term Vision*.

Near-Term Projects

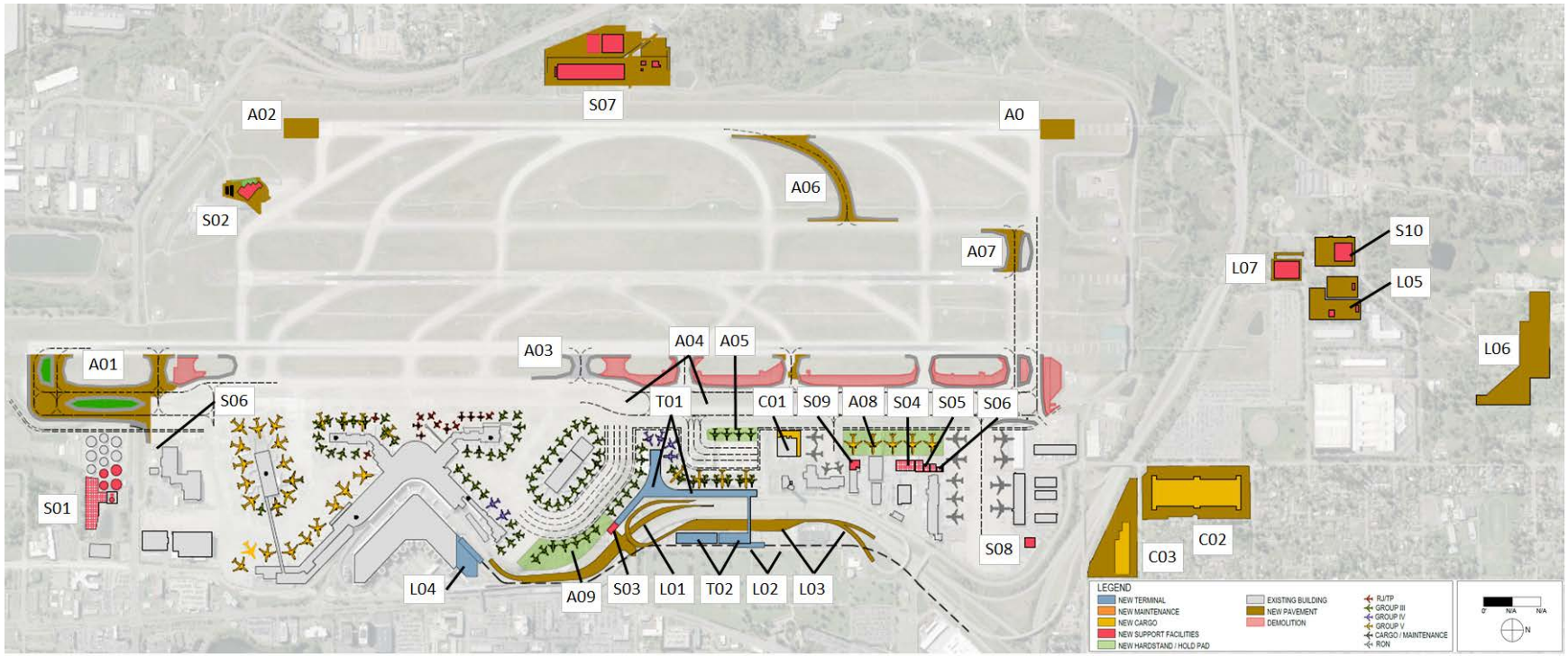
The Near-Term Projects (NTP) includes enabling and capacity projects, including a new north terminal and 19 new narrow-body gates, which will permit the Airport to accommodate approximately 56 million annual passengers.

2.1 Overview

The Near-Term Projects (NTP), illustrated on Figure 2-1, includes enabling and capacity improvement projects to satisfy facility requirements for forecast Airport activity through the year 2027 (approximately 56 million annual passengers). The Year 2027 corresponds to when substantial gate, hardstand and terminal capacity estimated to become operational. Airfield projects include taxiway modifications to increase operational efficiency and the creation of new hardstands to boost capacity for passenger and cargo operations. These improvements, along with added gate capacity, were modeled using Total Airspace and Airport Modeler (TAAM) to confirm that they can accommodate forecast 2027 activity. The TAAM modeling effort is documented in Section 3 *Airfield Operational Feasibility*. Figures 2-2, 2-3 and 2-4 illustrate the dimensions used to locate planned improvements and demonstrate compliance with separation requirements per AC 150/5300-13A- Airport Design.

Appendix A details alternative project sequencing and gate expansion options explored through the implementation planning process. The primary driver for the sequence of development included in Alternative 1 - *Baseline* and the exploration of other alternatives through the implementation planning process was the need to increase passenger and cargo facilities capacity as soon as possible. To that end, the planning team used the established guiding principles listed in Section 1.3 *Approach* to determine that Phase 1 of Alternative 2 - *Baseline with SASA deferred and Concourse B reconstruction removed* was the best package and sequence of projects to effectively accomplish this goal. The NTP also includes a number of landside improvements to provide access to the North Terminal; connectivity between the Rental Car Facility, Second Terminal and Main Terminal; expand employee parking; and expand ground transportation holding lots. Airport/airline support facility projects in the NTP primarily replace facilities displaced by passenger and cargo facility development, with the exception of projects S01 Fuel Farm Expansion (a capacity project) and S09 Centralized Receiving and Distribution Center (a security and operational efficiency project). Major project linkages and capacity drivers are discussed in more detail in Section 2.2. All projects included in the NTP are listed and described in Section 2.3 *Project Descriptions & Schedules*.

Figure 2-1
Near-Term Projects
Seattle-Tacoma International Airport



Airside

A01 Taxiway A/B Extension
A02 Runway 16R-34L Blast Pads
A03 Taxiway L Relocation *(Pre-SAMP project)*
A04 Taxiway B 500' Separation & RIM Mitigation
A05 North Hold Pad
A06 Runway 34L Highspeed Exit
A07 Taxiway D Extension
A08 Hardstand *(north)*
A09 Hardstand *(central)*
A10 Taxiway Fillets *(not shown)*
A11 Taxiway Q HS/RIM *(Pre-SAMP project)* *(not shown)*

Terminal

T01 North Gates
T02 Second Terminal & Parking

Cargo

C01 Cargo 4 South Redevelopment
C02 Off-site Cargo *Ph 1 (L-Shape)*
C03 Off-site Cargo *Ph 2 (L-Shape)*

Landside

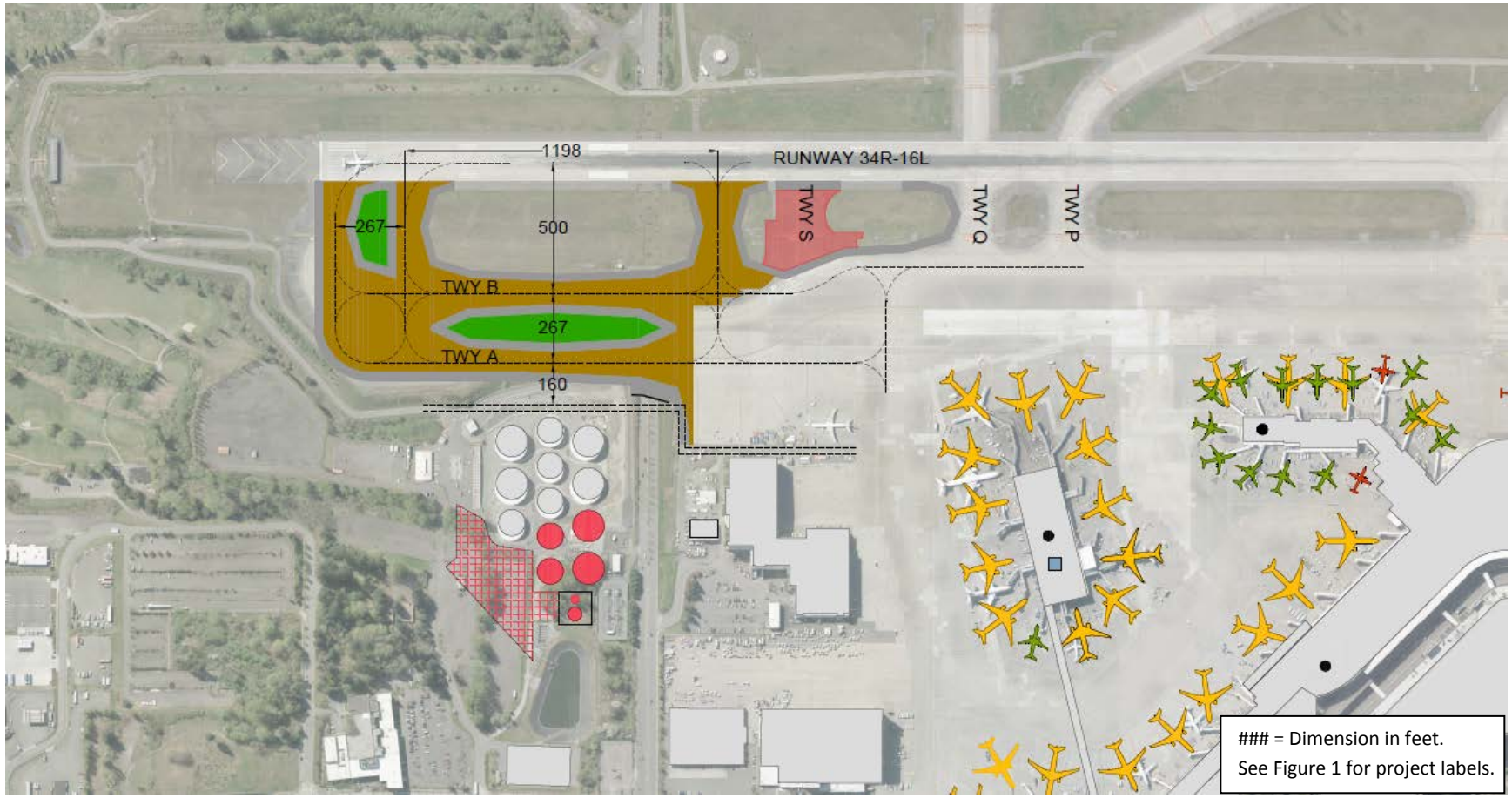
L01 NAE Relocation *(southbound lanes)*
L02 Elevated Busway & Stations
L03 Second Terminal Roads/Curbside
L04 Main Terminal North GT Lot
L05 North GT Holding Lot
L06 Employee Parking Surface Lot
L07 Employee Parking Structure

Airport/Airline Support

S01 Fuel Farm Expansion
S02 Primary ARFF
S03 Secondary ARFF
S04 Fuel Rack Relocation
S05 Triculator
S06 Consolidated De-icing Tanks
S07 Westside Maintenance Campus
S08 Airline Support *(north)*
S09 Airline Support *(west)*
S10 Centralized Rec. & Dist. Center

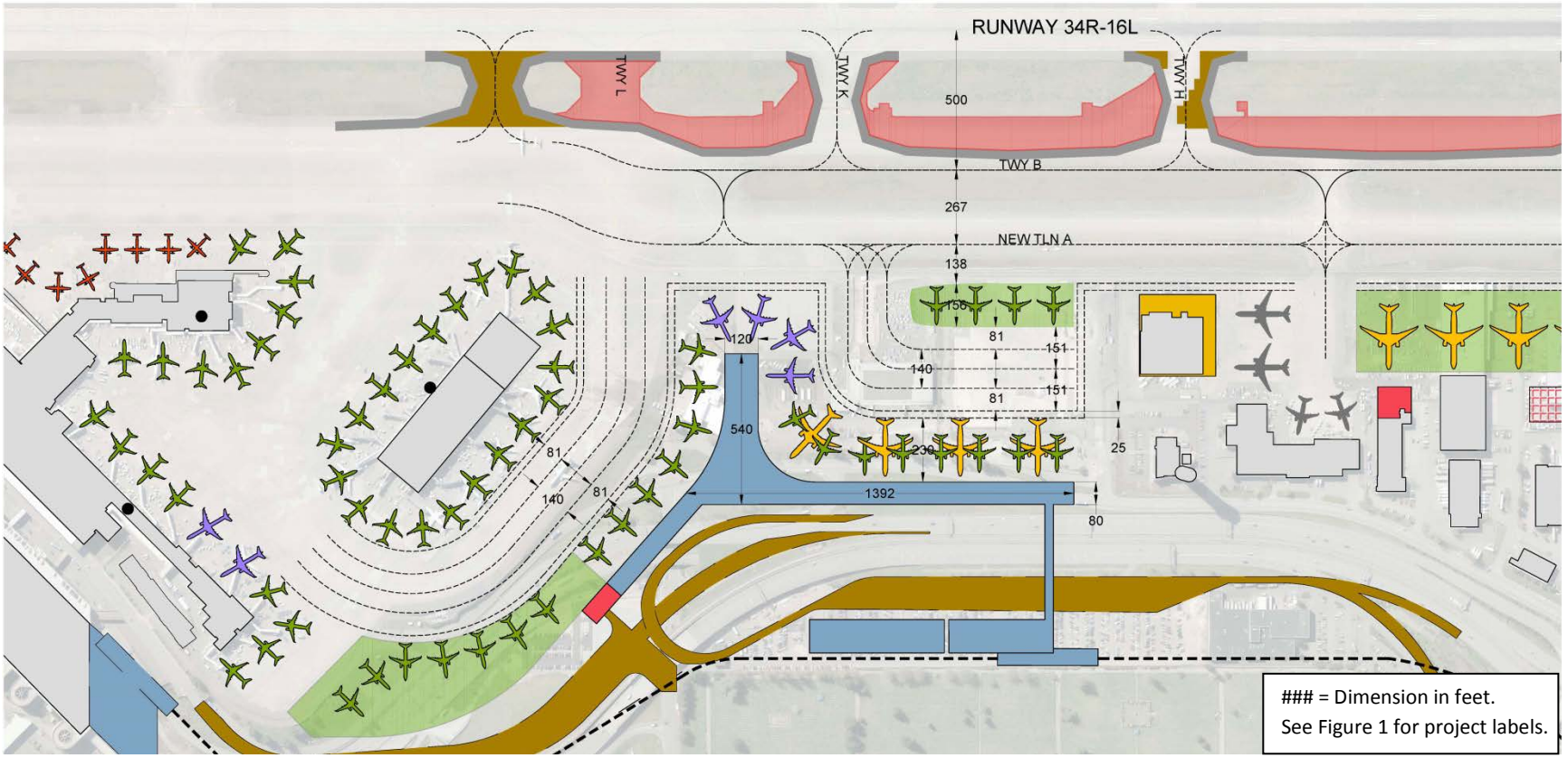
Source: Port of Seattle, 2017.

Figure 2-2
Near-Term Projects – Dimensions for Improvements South of the Existing Terminal Complex
Seattle-Tacoma International Airport



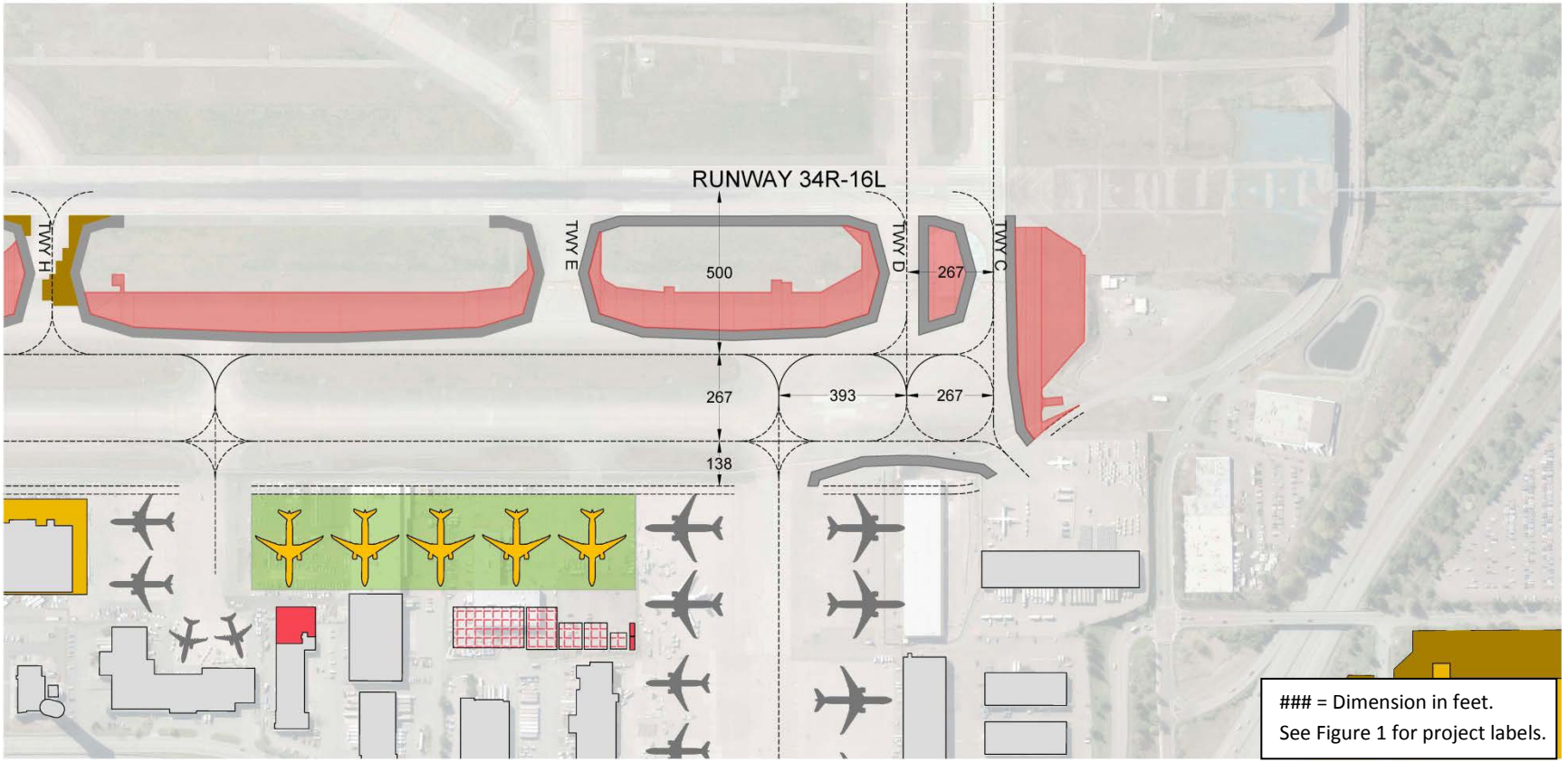
Source: Port of Seattle, 2017.

Figure 2-3
Near-Term Projects – Dimensions for Improvements in the area of the Existing Terminal Complex
Seattle-Tacoma International Airport



Source: Port of Seattle, 2017.

Figure 2-4
Near-Term Projects – Dimensions for Improvements North of the Existing Terminal Complex
Seattle-Tacoma International Airport



Source: Port of Seattle, 2017.

2.2 Major Project Linkages and Capacity Drivers

As described in Section 1.4 *Summary*, a primary purpose of conducting implementation planning is to determine a logical sequence of projects required to increase facility capacity and improve level of service in response to increased demand. Given the physical constraints surrounding the current airfield and high utilization of existing facilities, expansion or redevelopment of on-airfield facilities often triggers the need to relocate existing functions in order to provide additional capacity to accommodate increased demand. The subsections below describe enabling projects required to construct major NTP passenger and cargo capacity improvement projects.

2.2.1 Passenger Gates & Terminal

The schedule of projects in Figure 2-5 illustrates construction periods and includes the major capacity projects and enabling projects associated with providing additional passenger gates and terminal facilities. A number of enabling projects are required in order to clear an area for construction of gates hardstand for passenger operations. The critical path linkages between these enabling projects and the T01 North Gates and A09 Hardstand *(central)* projects are shown in red in Figure 2-5.

Figure 2-5
Schedule for Major Projects Associated With New North Gates and Second Terminal
Seattle-Tacoma International Airport

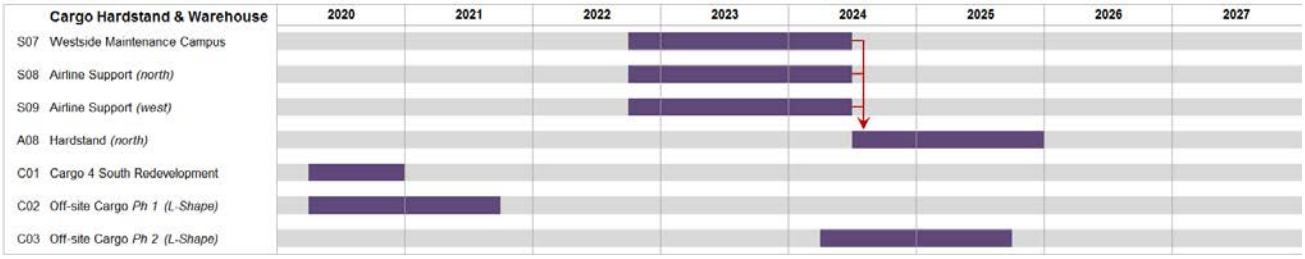
Source: Port of Seattle, 2017.

2.2.2 Cargo Warehouse & Freighter Hardstand

The schedule of projects in Figure 2-6 illustrates construction periods and includes the major capacity projects and enabling projects associated with providing cargo warehouse and freighter hardstands. Construction of hardstands for passenger operations, as a first phase of T01 North Gates construction, eliminates the Swissport cargo warehouse and two freighter parking positions in the Cargo 6 area. Reconstruction of the C01 Cargo 4 South building could potentially offset the loss of warehouse capacity at Cargo 6 and construction of new hardstand to the north (A08) would result in a net gain of hardstand capacity in the near-term. While not physically located on the airfield, new cargo warehouses and truck terminals constructed on the L-Shape property (C02 & C03) will be ideally situated to leverage this additional freighter hardstand capacity. Construction of the A08 Hardstand *(north)* requires removal of the Port Aviation Maintenance Facility (AMF) and the United Airlines

maintenance building. Replacement facilities for the AMF will be constructed in the S07 West-side Maintenance Campus. The United Airlines maintenance building includes shops for aircraft and Ground Service Equipment (GSE) maintenance and the Swissport building also includes GSE maintenance facilities. The NTP identifies two areas where these airline support functions can be accommodated (S08 & S09). Figure 2-6 identifies the construction of replacement Port maintenance facilities and the airline support facilities as critical path enabling projects for construction of the A08 Hardstand *(north)*.

Figure 2-6
Schedule for Major Projects Associated With Cargo Warehouse and Freighter Hardstand
Seattle-Tacoma International Airport



Source: Port of Seattle, 2017.

2.3 Project Descriptions & Schedules

2.3.1 Major Airside Projects

Major airside projects are described below and construction schedules are shown on Figure 2-7.

- A01 – Taxiway A/B Extension –Taxiway B is a full length Taxiway parallel to RWY 16L/34R and serves as a primary link to the runway and all gates. Taxiway A runs parallel to Taxiway B north of the terminal complex. This project would create a similar configuration south of the Cargo 7 hardstand by relocating Taxiway B south of Taxiway S to 500' runway/taxiway separation and provide a new parallel taxiway, Taxiway A. Taxiway A will be located 267' east of Taxiway B. The existing Taxiway B (Runway 16L-34R entry/exit taxiway) will also be split into two entry/exit taxiways, one at the runway threshold and a second 267' (centerline-to-centerline separation) north. All taxiways should be designed to Aircraft Design Group (ADG)-V / Taxiway Design Group (TDG)-6 standards aligning with the airports critical aircrafts. The taxiways should be equipped with in-pavement centerline lights and elevated taxiway edge lights. For Runway 16L-34R protection, the taxiway shall include hold position markings with in-pavement lights and elevated runway guard lights. Taxiway signage will be provided. To facilitate the taxiway work, the Runway 34R Glide Slope (GS) will need to relocated to the west side of Runway 16L-34R because it will be displaced by the Taxiway B construction. Relocation of the GS will require fill material to create a pad for the GS antenna and reflective plane that is at the runway elevation. Additional work that may also be required to facilitate the taxiway

construction is a new Vehicle Service Road (VSR) bridge over S 188 Street. The VSR will be placed outside of the proposed Taxiway A Object Free Area (OFA).

- A02 – Runway 16R-34L Blast Pads – A runway blast pad is a surface adjacent to a runway intended to provide erosion protection from aircraft jet blast. The existing blast pads on RWY 16R-34L will be expanded to standard 220'x400' blast pads. This project will require additional asphalt pavement and pavement markings.

- A03 – Taxiway L Relocation *(Pre-SAMP project)* –Taxiway L is a short east-west taxiway adjacent to the North Satellite. Taxiway L will shift approximately 400' to the south to resolve an issue with direct access between Runway 16L-34R and the North Satellite apron. The relocated Taxiway L will be designed to ADG-V / TDG-6 standards and will be equipped with in-pavement centerline lights and elevated taxiway edge lights. For Runway 16L-34R protection, the taxiway shall include hold position markings with in-pavement lights and elevated runway guard lights. Taxiway signage will be provided. Relocation of Taxiway L is anticipated to be completed during the 2018 construction season.

- A04 – Taxiway B 500' Separation & RIM Mitigation – To provide the standard 500' runway/taxiway separation, Taxiway B will be moved 100' to the east between Taxiway C (at the north end of the airfield) and the approximate location of the existing Taxiway L. Shifting Taxiway B will also result in Taxiway A being shifted east so that it is 267' (centerline-to-centerline separation) east of Taxiway B. Taxiway A will become a taxilane with 138' Taxiway Object Free Area (OFA) separation. Taxilanes can be either inside or outside of the movement area and the SAMP is not proposing to change the existing operational use of Taxiway A when it becomes the new Taxilane A. Taxiways C, D, E, H, and K between Taxiway B and Runway 16L-34R will need to be adjusted/extended to account for the shift in Taxiway B. Taxiways C and D will also be extended to Taxilane A and the expanse of pavement north of Taxiway C will be removed in an attempt to mitigate the existing RIM location. A phased approach to mitigating the RIM location by connecting Taxiways C and D perpendicularly to the existing Taxiway A and eliminating the expanse of pavement will be evaluated as part of ongoing planning and design activities with the intent to incrementally improve safety at this location. A phased approach appears feasible and may provide an opportunity to mitigate the RIM location earlier than shown in Figure 2-7. All taxiways should be designed to ADG-V / TDG-6 standards aligning with the airport's critical aircrafts. The taxiways should be equipped with in-pavement centerline lights and elevated taxiway edge lights. For Runway 16L-34R protection, all taxiway entrances/exits shall include hold position markings with in-pavement lights and elevated runway guard lights. Taxiway signage will be provided.

- A05 – North Hold Pad - In the northwest corner of the apron constructed as part of the T01 North Gates project is a hold pad capable of accommodating four ADG-III

aircraft. The hold pad would be used by aircraft waiting to take off or waiting for a gate, to reduce congestion on the taxiways and at the terminal.

- A06 – Runway 34L High-speed Exit – High-speed exits allow landing aircraft to exit the runway at relatively higher speeds, leading to less time on the runway. A new high-speed exit will be constructed for Runway 34L arrivals. The high-speed exit should be designed to ADG-V / TDG-6 standards aligning with the airport's critical aircrafts. The high-speed exit should be located between Taxiway J and Taxiway E, approximately 5,000' from the RWY 34L threshold. The high-speed exit should be equipped with in-pavement centerline lights and elevated taxiway edge lights. For Runway 16R-34L protection, the taxiway shall include a hold position marking with in-pavement lights. Taxiway signage will be provided. The Airport is currently updating from a Local-Area Augmentation System (LAAS) to a Ground Based Augmentation System (GBAS). As part of the update, a new location for the GBAS is being considered. If the GBAS utilizes the existing LAAS site, the GBAS will need to be relocated to facilitate construction of the high-speed exit.

- A07 – Taxiway D Extension – Taxiway D is currently a short taxiway between Runways 16C-34C and 16L-34R, and is used by aircraft waiting to take off from Runway 16C. This project will extend Taxiway D from Runway 16C-34C west to Taxiway T, which is a full-length taxiway between Runways 16C-34C and 16R-34L. Taxiway D should be designed to ADG-V / TDG-6 standards aligning with the airport's critical aircrafts. Taxiway D should be parallel to and located 267' (centerline-to-centerline separation) from Taxiway C. Taxiway D should be equipped with in-pavement centerline lights and elevated taxiway edge lights. For Runway 16C-34C protection, the taxiway shall include a hold position marking with in-pavement lights and elevated runway guard lights. Taxiway signage will be provided.

- A08 – Hardstand *(north)* – New hardstand (designated aircraft parking) is needed to accommodate increased cargo freighter demand. The hardstand will be constructed in the North Cargo area and located east of Taxiway A with all aircraft entering/exiting the hardstand via Taxiway A. The hardstand will be approximately 1,200' long with a depth of approximately 300' on the south and 500' on the north. The hardstand should be sufficient to accommodate approximately 5 ADG-V aircraft. This project requires the relocation of Airfield Maintenance Building (Project S07) and demolition of the United Airlines maintenance building.

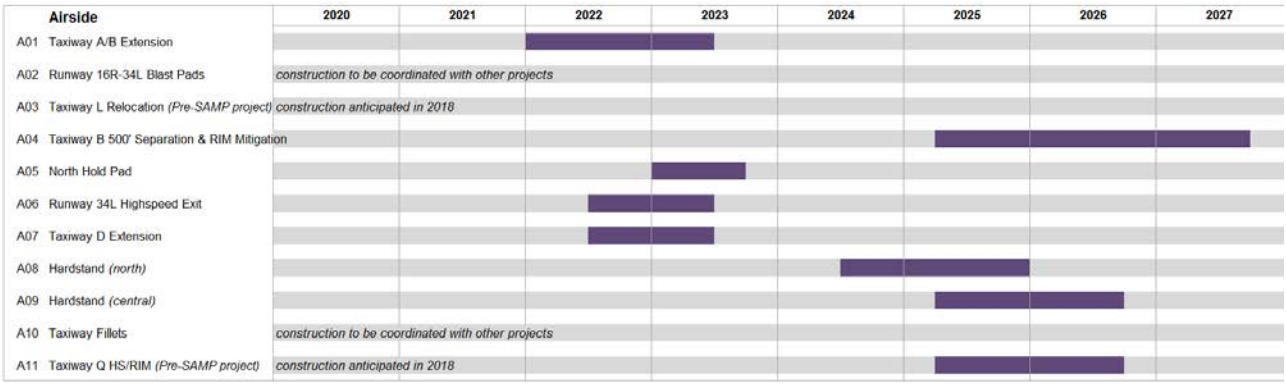
- A09 – Hardstand *(central)* – New hardstand is needed to accommodate increased demand for passenger hardstand operations and Remain Overnight parking of passenger aircraft (RON, used for aircraft parking at night so that they can be used for early-morning departures). Passengers will be bused to/from aircraft on the hardstand, primarily from the Concourse D hardstand holdroom and other holdrooms with bus access on the north side of the terminal complex. This project will create apron space for hardstand/RON operations north of Concourse D and East

of the North Satellite. The apron space should be sufficient to accommodate approximately 7 ADG-III aircraft. The depth and width of the apron varies. This project requires the relocation of the southbound lanes of the North Airport Expressway (Project L01). Following relocation of the roadway, fill will be required to increase the elevation in the area to provide a continuous expansion of the existing apron.

- A10 – Taxiway Fillets *[NOT SHOWN]* – Fillets are essentially rounded corners created with pavement and markings, and are used as part of taxiways to provide adequate distances between aircraft and the pavement edges. Fillets which currently do not meet TDG-6 standards will be improved when the fillet/area is in need of a reconstruction or impacted by a project. Adjustments to fillets will likely require adjustments to full strength pavement panels, shoulders, edge lighting, and signage.

- A11 – Taxiway Q Hot Spot/Runway Incursion Mitigation (HS/RIM) *(Pre-SAMP project) [NOT SHOWN]* – Adjustments will be made to the Taxiway Q centerline paint markings and in-pavement taxiway centerline lights to mitigate hot spots and runway incursions hazards. The Taxiway Q HS/RIM project is anticipated to be completed during the 2018 construction season.

Figure 2-7
Schedule for Major Airside Projects
Seattle-Tacoma International Airport



Source: Port of Seattle, 2017.

2.3.2 Major Terminal Projects

Major terminal projects are described below and construction schedules are shown on Figure 2-8.

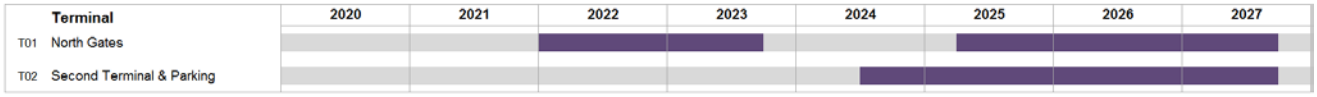
- T01 – North Gates – The North Gates project is a multi-level concourse connected to the Second Terminal via a pedestrian bridge and tunnel for baggage conveyance. In addition to gates, it includes an apron area for at gate aircraft parking, taxilanes, and a hold pad (A05 North Hold Pad). The multi-level concourse occupies an approximately 215,000 sf footprint and includes a ramp level for baggage/aircraft support functions; passenger concourse level with holdrooms, concessions, restrooms, etc.; and a mezzanine level with

office space and vertical circulation to the north terminal passenger walkway. The apron would accommodate up to 19 Aircraft Design Group (ADG)-III contact gates (sized for narrowbody aircraft such as the Boeing 737, but with the ability to be reconfigured for larger aircraft, and connected to the building) surrounded by dual ADG-III or a single ADG-V taxilane.

Construction of the North Gates and Apron requires the relocation of multiple facilities, including: the primary ARFF, fuel rack, the southbound lanes of the North Airport Expressway (NAE), Cargo 5 hardstand, Cargo 6 hardstand, deicing fluid storage, and the Swissport cargo building. The majority of facilities impacted by the North Gates will be relocated (Projects S02, S04, L01, S06, C02, and C03), with the exception of the Cargo 5 & 6 hardstands. Reconstruction/expansion of the Cargo 5 & 6 hardstands will be one of the initial phases for the North Gates project and will accommodate increased demand for hardstand operations and RON until the North Gates are activated and hardstand operations can be moved to contact gates.

- T02 – Second Terminal & Parking – A second terminal to the north is needed to support the planned North Gates. The Second Terminal will include facilities for passenger check-in; passenger and baggage screening; airline offices, baggage conveyance and claim; concessions; and restrooms. The Second Terminal and associated parking will be sized to support the new North Gates.

Figure 2-8
Schedule for Major Terminal Projects
Seattle-Tacoma International Airport



Source: Port of Seattle, 2017.

2.3.3 Major Cargo Projects

Major cargo projects are described below and construction schedules are shown on Figure 2-9.

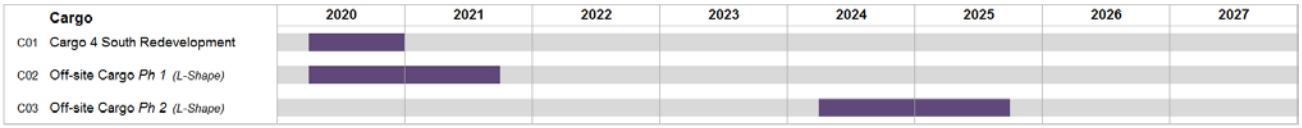
- C01 – Cargo 4 South Redevelopment – Additional cargo warehouse capacity is needed to accommodate growth in cargo activity. The Cargo 4 South site will be redeveloped to maximize warehouse capacity. New facilities will include a roughly 80,000 square foot building with warehouse and office space, truck terminals and parking for visitors and employees.

- C02 – Off-site Cargo Phase 1 *(L-Shape)* – Additional cargo warehouse capacity is needed to accommodate growth in cargo activity. New cargo facilities constructed on the Port owned L-Shape property in this first phase of development will include a roughly 330,000 square foot building with warehouse and office space, truck terminals and

parking for visitors and employees. While the L-Shape property is not located on the airfield and has no direct adjacency to freighter hardstands or secure warehouse access for cargo tugs, the close proximity of the L-Shape to the airfield provides the ability to transfer prescreened cargo pallets via trucks to/from the airfield. Cargo warehousing on the L-Shape will be used to build-up and breakdown cargo and will maximize the use of existing and planned freighter hardstand positions.

- C03 – Off-site Cargo Phase 2 *(L-Shape)* – Additional cargo warehouse capacity is needed to accommodate growth in cargo activity. New cargo facilities constructed on the Port owned L-Shape property in this second phase of development will include a roughly 90,000 square foot building with warehouse and office space, truck terminals and parking for visitors and employees. While the L-Shape property is not located on the airfield and has no direct adjacency to freighter hardstands or secure warehouse access for cargo tugs, the close proximity of the L-Shape to the airfield provides the ability to transfer prescreened cargo pallets via trucks to/from the airfield. Cargo warehousing on the L-Shape will be used to build-up and breakdown cargo and will maximize the use of existing and planned freighter hardstand positions.

Figure 2-9
Schedule for Major Cargo Projects
Seattle-Tacoma International Airport



Source: Port of Seattle, 2017.

2.3.4 Major Landside Projects

Major landside projects are described below and construction schedules are shown on Figure 2-10.

- L01 – North Airport Expressway (NAE) Relocation *(southbound lanes)* – Relocation of the southbound lanes of the NAE is required to clear the site for construction of A08 Hardstand *(central)* and T01 North Gates. The reconstructed southbound lanes will include the same number of lanes as exist today, and will result in the elimination of the cell phone waiting lot as well as Air Cargo Road and associated on/off ramps currently located south of Gate E125 and air traffic control tower. There are no suitable locations on Port property for relocation of the cell phone waiting lot which requires convenient and intuitive access to the freeway system. In the absence of a cell phone waiting lot, the Port will explore operational alternatives utilizing parking garages at the existing and future terminals.

- L02 – Elevated Busway & Stations – An elevated busway and stations are required to provide a landside connection for non-secure passengers accessing the Main Terminal,

Second Terminal, and Rental Car Facility (RCF). The Main Terminal busway station will be at the north end of the existing Main Parking garage and incorporated into the Main Terminal North Ground Transportation (GT) lot. The busway will extend north over the NAE and Light Rail to a Second Terminal station. The busway will extend north from the Second Terminal Station and ramp down to an at grade intersection at the S. 160th GT lot site where the existing RCF bus entrance will provide access to the RCF curb.

- L03 – Second Terminal Roads & Curbside – Landside improvements are required to provide ingress/egress to the Second Terminal and to connect the existing roadways system, providing access to/from the existing Main Terminal. Ingress is provided via a loop ramp from the southbound lanes of the NAE. Curbs for private and commercial vehicles are provided on a single level for arriving and departing passengers. Egress is provided via exit lanes/ramps connecting to the existing S. 160th St. Loop, westbound SR 518 on-ramp at S. 160th St., and the northbound lanes of the NAE.

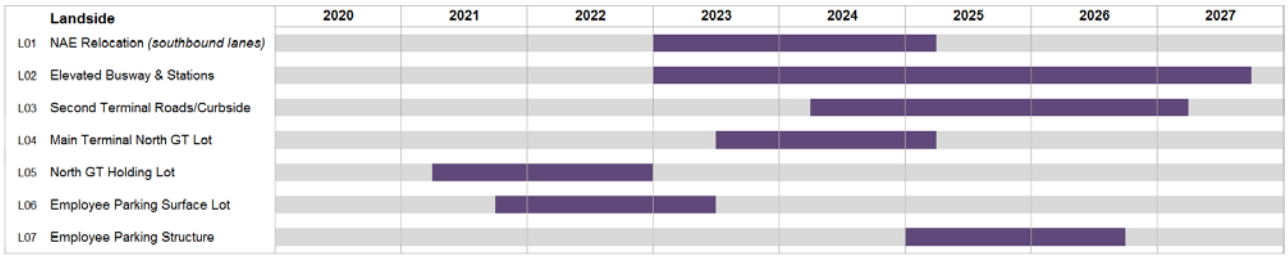
- L04 – Main Terminal North Ground Transportation (GT) Lot – Vertical expansion of the existing lot is required to accommodate increased bus demand including charter and cruise passenger buses. The expansion may include levels above for passenger circulation and office space with pedestrian bridge connection to the Main Terminal.

- L05 – North Ground Transportation (GT) Lot – A new GT lot is needed to accommodate increased demand and replace the S 160th St. GT lot displaced by the Elevated Busway. A new 180,000 square foot surface lot will be constructed on Port property north of SR 518.

- L06 – Employee Parking Surface Lot – A new surface parking lot is required to accommodate increased demand. A new 1,500 stall employee parking surface lot will be constructed on Port owned property north of SR 518.

- L07 – Employee Parking Structure – A new parking structure would provide additional capacity to accommodate increased demand and/or replace stalls displaced by potential cargo development on the existing North Employee Parking Lot (NEPL). A new parking structure of up to 2,000 stalls would be constructed on Port property adjacent to and west of NEPL.

Figure 2-10
Schedule for Major Landside Projects
Seattle-Tacoma International Airport



Source: Port of Seattle, 2017.

2.3.5 Major Airport/Airline Support Projects

Major airport/airline support projects are described below and construction schedules are shown on Figure 2-11.

- S01 – Fuel Farm Expansion – Expansion of the fuel farm includes additional settling tank capacity and construction of infrastructure to support the Ports biofuel initiative. The addition of four settling tanks adding approximately 10 million gallon storage capacity will require additional piping, expansion of the spill containment dike, and four above ground storage tanks. Infrastructure required to support the Ports Sustainable Aviation Biofuels (SAB) initiative includes a 500,000 gallon blending tank, 100,000 gallon neat SAB receipt tank, spill containment dike, fuel transfer pump, piping to transfer the fuel from the blending station to the existing/proposed settling tanks, and a truck fuel rack to support the delivery of SABs for blending. The infrastructure required for both projects will be located east of the existing fuel farm on the abandoned south end employee parking lot.

- S02 – Primary Air Rescue and Firefighting (ARFF) station – Relocation of the Primary ARFF station from its current location in the Cargo 6 area is required to clear the site for construction of T01 North Gates. The Primary ARFF will be relocated to the site of the existing secondary ARFF in the General Aviation Area. From this location, response times to the furthest runway can be achieved. The ARFF facility will be a multi-bay station that conforms to AC 150/5210-15A – Aircraft Rescue and Firefighting Station Building Design.

- S03 – Secondary ARFF – Relocation of the Primary ARFF station from its current location in the Cargo 6 area is required to clear the site for construction of T01 North Gates. With the relocation of the Primary ARFF station, a Secondary ARFF is needed to provide ambulatory response to the Terminals and Concourses; fuel spill and fire response to the concourse ramp areas, and back-up emergency response to the airfield. The secondary ARFF facility will be integrated with the North Gates at the southeast end of the concourse and will have both airside and landside access.

- S04 – Fuel Rack Relocation – Relocation of the fuel rack from its current location in the Cargo 6 area is required to clear the site for construction of T01 North Gates. The project will include extension of the fuel line to the future location in the North Cargo area east of the new A08 Hardstand *(north)*. The project will replace existing, displaced facilities and fuel truck parking.

- S05 – Triculator – The Triculator (or Triturator) is a waste grinding facility that requires water and sewer access to process the contents of ground service provider lavatory trucks. The Triculator is currently located east of the existing ARFF station and is an impediment to the A09 Hardstand *(central)* project. To facilitate the A09 Hardstand *(central)* project, the triculator will be relocated to the North Cargo area east of the new A08 Hardstand *(north)*.

- S06 – Consolidated De-icing Fluid Storage Tanks – In an effort to consolidate storage of aircraft deicing fluid and to clear a site for the construction of T01 North Gates, a set of deicing fluid tanks are proposed on both the north and south end of the airfield. The consolidated de-icing fluid storage tanks will be the common de-icing fluid racks from which all ground service providers can fill de-icing equipment with de-icing fluid. The southern set of tanks will replace and occupy the same location as the individual airline tanks that are currently located at Cargo 7. The northern set of tanks is to be located in the North Cargo area, east of the new A08 Hardstand *(north)* and will replace tanks that are displaced from the Cargo 6 area. Each site will have two tanks, one for Type I and the second for Type IV. Each set of tanks will also have a blending station.

- S07 – West-side Maintenance Campus – Relocation of the Port's Aviation Maintenance Facility (AMF) from its current location in the North Cargo area is required to clear the site for construction of the A08 Hardstand *(north) project*. The AMF will be located on the west side of the airport in the West-side Maintenance Campus and situated on a set of tiered platforms moving down the hill side. The new AMF will accommodate the relocation of current AMF facilities which includes a vehicle fuel rack, airfield deicer storage, and an approximate 135,000 square feet multi-bay building.

  The West-side Maintenance Campus will also accommodate relocation of the snow shed from the General Aviation area; relocation of the Port's Stormwater Lab and Wildlife Management Facility from Port property south of the airfield; and a new Consolidated Resource Recovery Facility (CRRF). The CRRF will be a fully enclosed building for consolidation of Airport waste materials to improve waste handling efficiency; enhance solid waste collection and storage capacity; and provide opportunities to optimize truck traffic. In addition, this facility will provide opportunities for environmental benefits through the sorting and recovery of compostable and non-compostable materials to enhance waste diversion from landfill. Materials will be processed to compact non-compostable waste and reduce the volume and weight of compostable materials through pulping and potentially anaerobic digestion or use of other waste-to-energy conversion technologies.

Due to the sites proximity to the Airport Surveillance Radar (ASR), and based on feedback from FAA Tech-Ops, the project assumes that no structure can be higher than the adjacent elevation of RWY 16R-34L. Today, the top platform closest to the runway sits approximately 20' below the runway elevation.

- S08 – Airline Support *(north)* & S09 – Airline Support *(west)* – To accommodate displaced Ground Service Equipment (GSE) maintenance and aircraft maintenance functions from the United Airlines maintenance building and Swissport cargo facility, and aircraft maintenance functions from the United Airlines maintenance building, two airline support buildings/expansions are planned. The first is a new building that would be located in the far northeast corner of the North Cargo area. The building will have an approximate 15,000 square feet footprint (S08 Airlines Support *(north)*). The second is an expansion of the existing AMB/AFCO III building to the west. The AMB/AFCO III building is currently being used for GSE maintenance functions. The proposed building expansion footprint is approximate 12,500 square feet (S09 Airlines Support *(west)*). Both buildings may be one or two stories depending on need/use.

- S10 – Centralized Receiving & Distribution Center (CRDC) – A new CRDC is needed to improve security and more efficiently screen and move supplies to concessionaires in the current and future passenger terminals. The new CRDC will be constructed on Port owned property north of SR 518 and will include a roughly 50,000 square foot building with warehouse and office space, truck terminals and parking for visitors and employees.

Figure 2-11
Schedule for Major Airport/Airline Support Projects
Seattle-Tacoma International Airport

Source: Port of Seattle, 2017.

Airfield Operational Feasibility

The airfield can support the Near-Term Projects at sustainable levels of annualized delay.

3.1 Background

Simulation modeling was performed to assess and confirm the ability of the airfield to support the proposed first phase of Airport development (i.e. the NTP).

3.2 Approach and Assumptions

As with all prior SAMP airfield simulation modeling, airfield simulation modeling related to the NTP was conducted using the Total Airspace and Airport Modeler (TAAM). With the exception of the facilities layout and flight schedule, the remaining modeling parameters were identical to the parameters used in prior simulations.

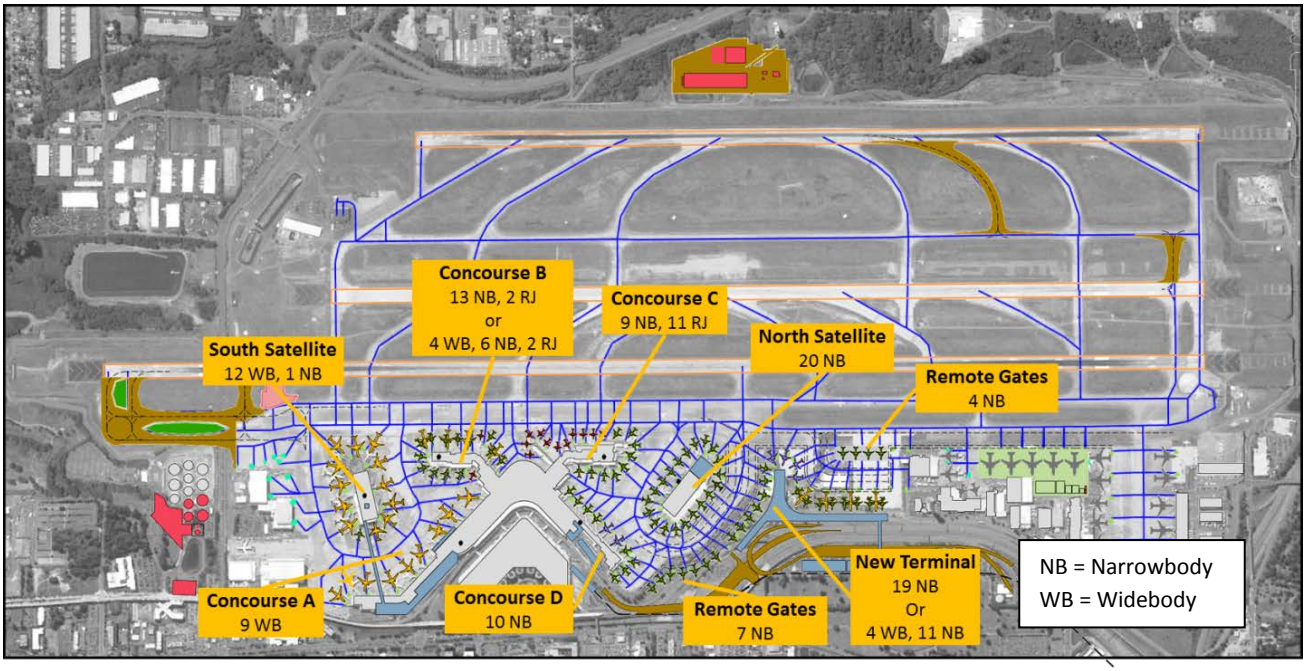
The facilities modeled are illustrated on Figure 3-1 and included NTP improvements to both the airfield and passenger terminal (please refer to Section 2.3 for descriptions of the improvements). Physical airfield improvements modeled included:

- A high-speed exit off Runway 34L between Taxiways E and J (A06 Runway 34L Highspeed Exit)
- An additional runway crossing at Taxiway D between Taxiway T and Runway 16C-34C (A07 Taxiway D Extension)
- Parallel Taxiways A and B located adjacent to the threshold of Runway 34R (A01 Taxiway A/B Extension)

Terminal improvements modeled included:

- A new International Arrivals Facility adjacent to Concourse A (IAF, *pre-SAMP project*)
- A newly renovated North Satellite (NorthSTAR, *pre-SAMP project*)
- 19 narrow-body aircraft gates (T01 North Gates)
- 7 hardstand positions located immediately north of Concourse D (A09 Hardstand *(central)*) and 4 hardstand positions located north and west of the new North Gates (A05 North Hold Pad)

Figure 3-1
Facilities Layout Modeled
Seattle-Tacoma International Airport



Source: Port of Seattle, 2017.

For the purposes of conducting modeling to test the ability of the airfield to support the NTP, a design day flight schedule (DDFS) representative of the year in which the NTP will be completed (2027) was developed. This flight schedule was (1) consistent with the other flight schedules used during the SAMP to assess facility requirements and for other TAAM modeling, and (2) contained activity estimated for 2027 (i.e., activity between PAL 2 (2024) and PAL 3 (2029)). Table 3-1 summarizes the activity contained in this 2027 flight schedule.

As with other SAMP simulations, simulations related to the NTP were conducted for five different weather and flow configurations and for two different airfield efficiency scenarios. The airfield efficiency scenarios simulate delays assuming that the future runway throughput would remain the same as today or with a moderate increase of 3-4 operations per hour (operations increase based on consultation with FAA staff). For more discussion on the simulated conditions and efficiency scenarios, please refer to Chapter 2 and Appendix G of *Technical Memorandum No. 6 – Alternatives*.

Table 3-1
Summary of Operations Included in 2027 Flight Schedule
Seattle-Tacoma International Airport

2027 Design Day Flight Schedule	Operation Type		
	Arrival	Departure	Total
Operations			
DDFS Operations	726	733	1459
Peak Hour Ops	68	63	108
Peak Hour Start	8:40 PM	10:36 AM	9:31 AM
Aircraft Type			
Wide Body	25	25	50
Narrow Body	448	456	904
Regional Jet	114	113	227
Turboprop	139	139	278
O/D Market Type			
Domestic	654	660	1314
International	27	28	55
Precleared	45	45	90

Source: LeighFisher, 2017.

3.3 Results and Conclusions

Table 3-2 summarizes the estimated average delays resulting from simulating the operation of the NTP assuming the 2027 flight schedule. Annualized weighting values were identified in consultation with FAA staff. When delay numbers for each model are weighted and totaled using the annualized weighting values shown, the average delay per operation is 22.0 minutes if there is no improvement in airfield efficiency and 16.6 minutes with medium improvement.

Table 3-2
Summary of Estimated 2027 Airfield Delay Associated with NTP
Seattle-Tacoma International Airport

Model	2027 No Improvement				2027 Medium Improvement			
	Arrival	Departure	Total	Weight	Arrival	Departure	Total	Weight
South VMC	11.7	12.3	12.0	0.3345	8.2	7.1	7.7	0.3345
South MMC	20.2	33.6	26.9	0.1099	19.4	17.5	18.5	0.1099
South IMC	21.2	54.8	37.8	0.2028	21.1	30.9	26.0	0.2028
North VMC	7.0	40.1	23.5	0.2496	7.7	35.6	21.7	0.2496
North IMC	110.9	107.7	109.4	0.0132	108.0	99.7	104.0	0.0132
Annualized				22.0				16.6

Source: LeighFisher, 2017.

Financial Feasibility

The Near-Term Projects are financially feasible.

4.1 Background and Objectives

This section summarizes the objectives, approach, results, and conclusions of an assessment conducted to determine the financial impacts and demonstrate the feasibility of the Near-Term Projects identified and described in Chapter 2 of this *Technical Memorandum No. 7*. The assessment was completed by Port of Seattle financial staff and incorporated existing forecasts of revenues, expenses, and planned capital improvements.

In order for the Near-Term Projects to be considered financially feasible, the financial forecast included in the assessment must demonstrate the Airport's ability to:

- Maintain debt service coverage consistent with bond covenants.
- Maintain debt levels within practical levels.
- Maintain cash reserves at levels consistent with current funding policy.
- Maintain a passenger airline cost per enplaned passenger (CPE) within a reasonable range of those projected at other large hub airports undergoing major capital programs.
- Maintain the capital capacity necessary for renewal and replacement of existing assets as well as ongoing maintenance costs.

4.2 Approach

The starting point for the assessment was the Port's financial forecast and funding plan for Sea-Tac Airport. This forecast includes assumptions relating to future revenues and operating and maintenance costs as well as future capital expenditures (excluding SAMP-related projects) and future operating and maintenance costs associated with new facilities. The funding plan for the existing capital program includes cash generated from airport operations, committed Airport Improvement Program and Transportation Security Administration grants and reasonable assumptions for future grants based on reviews with the FAA, Passenger Facility Charge (PFC) revenues continuing at the $4.50 level, Customer Facility Charge revenues to fund the debt service and operations of the consolidated rental car facility (in operation since 2012), and revenue bonds. Since most grants and PFCs in the coming years are committed to existing projects, the primary funding sources for SAMP projects will be cash from operations (net income) and new revenue bonds to be repaid from airport revenues.

Airline rates and charges were calculated consistent with the terms of the Signatory Lease and Operating Agreement (SLOA) that will go into effect June 1, 2018 (SLOA IV). The terms of SLOA IV are very similar to the prior agreement (SLOA III), with one notable change being the reduction of revenue sharing for 2018 and 2019 and the elimination of revenue sharing for 2020 and beyond. While the term of SLOA IV is for 2018 – 2022, the Port has assumed the terms of this agreement will continue throughout the forecast period. A continuing provision allows the Port to charge debt service coverage in the airline rate bases if needed to achieve total debt service coverage of 1.25x.

4.3 Results

The financial impacts of implementing the SAMP projects are reflected in Table 4-1 below.

Table 4-1
Financial Impacts of SAMP Near-Term Projects
Seattle-Tacoma International Airport

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2018-27 Total
Capital program ($M)											
Baseline	808	756	614	373	268	177	108	89	28	28	3,249
SAMP	--	1	56	158	487	720	810	1,017	855	361	4,465
Total	808	757	670	531	755	897	918	1,106	883	389	7,714
Key Measures											
CPE ($)	11.62	13.92	16.28	17.80	18.71	21.07	21.34	22.24	23.28	29.99	
D/S coverage	1.56	1.50	1.42	1.31	1.28	1.27	1.31	1.33	1.25	1.25	
Total Debt ($M)	2,703	3,229	3,747	4,121	4,731	5,381	6,215	7,108	7,811	7,827	
Debt/Enplanement ($)	110	130	149	163	186	209	236	267	286	280	
Cash ($M)	279	294	309	325	338	350	363	376	390	409	

Source: LeighFisher, 2017.

The baseline capital program includes all current projects and also includes an allowance for as yet undefined projects or budget changes to existing projects within the $3.25 billion. Based on a consultant's report on publicly available information on future CPE levels at the 30 large hub airports, it is the Port's judgment that by 2027 a number of large hub international gateway airports will have CPE in the $25 - $30 range, and some will likely be higher. Consequently, a projected CPE in this range will likely be competitive. Maintaining annual debt service coverage of at least 1.25x ensures the Port will meet its bond covenants. While less information is available about future debt levels at large hub airports, based on information obtained from the Port's bankers, it appears there will be multiple large hub airports with debt per enplaned passenger in the $250 - $300 range, and some above $300. Throughout the projection period, the Port is able to maintain a minimum cash balance equivalent to ten months of operating and maintenance costs (consistent with current target).

The financial projections include assumptions relating to future growth in non-aeronautical revenues as well as future operating and maintenance costs. Many factors can impact the actual costs the Port will incur and the actual revenues that the Port will generate. The costs of executing the capital program could also vary from current estimates. Clearly there are risks. Over a ten-year period, the Port will have opportunities to adjust course (change spending, alter fees) as conditions change in order to manage financial performance.

4.4 Conclusions

Based on the estimated costs of the Near-Term Projects, and the estimated timing of the expenditures, the assessment indicates that the Port's objectives can be met and that the plan is financially feasible.

The Port recognizes that undertaking this capital program will significantly increase airline costs at Sea-Tac, and significantly increase debt levels for the Port of Seattle. Information from peer airports suggest large hubs undertaking major expansions are increasing projected CPEs to levels that would have been considered "too high" a few years ago. Major expansions are very expensive, but the alternatives to expanding these large hubs are even more expensive to the cities and communities: foregoing airport expansion and suffering the economic consequences, or building or expanding another local airport.

In order to deliver the required capital improvements, and to potentially reduce the cost of construction, the Port will consider whether a public, private partnership (P3) of some kind could be advantageous to achieving the Port's objectives.

Another factor that could mitigate the cost impact of implementing the SAMP projects is if the project schedules are delayed, or if certain project elements are not deemed to be needed in the time frames currently planned. With each additional year that the project schedule is extended, Sea-Tac earns income from operations and PFCs that can be used to pay capital costs and therefore reduce the amount of revenue bonds needed to fund the program. Offsetting this, project delays can result in increased project costs due to cost escalation and increased project overhead, but on a net basis, there can still be savings.

Key Actions Following Completion of the SAMP

Increasing airfield/airspace operating efficiency is the most pressing long-range facility issue facing the Airport. Effective solutions will require a comprehensive process that should begin as soon as practical.

5.1 Introduction

In addition to actions directly related to environmental approvals, design, and construction of the NTP, the most significant actions following completion of the SAMP relate to the airfield/airspace system. As documented in Section 2.5 of *Technical Memorandum No. 6 Alternatives*, airfield modeling of the Long-Term Vision determined that with these improvements, and no other changes to how the airfield/airspace is operated, the airfield/airspace has insufficient capacity to meet the unconstrained 20-year forecast demand at a sustainable level of annualized delay. Airfield modeling of the NTP determined that with moderate efficiency gains over how the airfield/airspace is operated today (identified in consultation with FAA staff, see Section 3 – *Airfield Operational Feasibility*), the NTP improvements provide sufficient capacity to meet forecast demand in the year 2027 at a sustainable level of annualized delay. The improvements included in the NTP fit within the Long-Term Vision identified in the SAMP and are stand-alone projects that are needed to satisfy near-term demand. While the Long-Term Vision includes airfield projects that improve the effectiveness of the airfield system, a comprehensive airfield/airspace study is needed to develop and assess alternatives to meet the unconstrained 20-year forecast demand. Key findings and recommended actions are described in more detail below.

1. The airfield/airspace system, as it is currently configured and operated, has insufficient capacity to meet the unconstrained 20-year forecast demand at a sustainable level of annualized delay with all improvements in the SAMP Long-Term Vision. The primary constraint on the close-in airspace is the departure rate. The SAMP Long-Term Vision identifies several alternatives with the potential to improve the effectiveness of the airfield system. Such alternatives include, but are not limited to, end-around taxiways and modified runway use strategies. These requirements, constraints and alternatives for their resolution are discussed in *Technical Memorandum No. 5 Facility Requirements* and *Technical Memorandum No. 6 Alternatives.*

2. Design criteria issues are not unusual at U.S. airports; they occur for reasons such as the introduction of new aircraft, and are remedied either by physical changes or modifications to standards. Given the constraints to the airfield/airspace system, there are numerous airfield design criteria compliance issues that should be studied further in a comprehensive study of the airfield/airspace following the SAMP.

The significant design criteria compliance issues include those related to:

- Separation between Runway 16L-34R and Taxiway B (400 feet)
- Airfield intersection geometry
- Runway incursion and hot spot mitigation
- High-energy intersections
- Right-angle intersections
- Direct access to runway from apron
- Three-node concept

Design criteria compliance issues and alternatives for their resolution are discussed in *Technical Memorandum No. 5 Facility Requirements* and *Technical Memorandum No. 6 Alternatives*.

3. The most significant design criteria compliance issue is the non-standard centerline-to-centerline separation between Runway 16L-34R and Taxiway B of 400 feet. The standard separation based on current operations is 500 feet. The basis for this separation standard is low-visibility approaches to Runway 16L.*

   In a letter to the Airport Managing Director dated May 26, 2017 the FAA stated that the Port should initiate a study specifically designed to develop a plan to fully meet this separation standard in the long term. The facilities included in the Port's Long-Term Vision and NTP meet this standard by relocating both Taxiway A and Taxiway B in the areas of potential new construction north and south of the existing terminal complex. However, achieving 500 feet separation standard between Runway 16L-34R and Taxiway B in the area of the existing terminal complex would result in the loss of gates on the west side of both Concourse B and Concourse C.

5.2 Recommended Actions

The issues and potential solutions involving airfield/airspace system capacity and design criteria compliance are complex and involve benefit-cost tradeoffs. Therefore, additional study is required and should include a comprehensive systems and modeling approach and an inclusive stakeholder engagement process. The FAA and the Port should engage in this comprehensive study as soon as practical to assess the full range of issues and opportunities associated with reasonably improving airfield/airspace capacity and resolving design criteria compliance issues. The approach should be rigorous, analytical and involve airspace/airfield simulation modeling. The scope of the study should be limited to Sea-Tac airport and the close-in airspace and involve key stakeholders, including but not limited to: the Port, FAA, airlines, and the public. The Port and the FAA have committed to scoping the study in 2018.

*FAA advisory Circular 150/5300-13A *Airport Design* specifies that the separation required for an airplane design group V Taxiway B is 500 feet when airplanes in approach categories C, D, and E are conducting approaches with visibility minimums lower than ½ mile. The existing separation is 400 feet.

Long-Term Vision

Given existing airfield/airspace constraints, all improvements depicted in the Long-Term Vision that are not included in the NTP will be subject to further study.

6.1 Long-Term Vision

The vision for long-range development at the Airport is to provide facilities in all key functional areas (airfield, terminal, cargo, and airport/airline support facilities) to meet requirements for the unconstrained 20-year forecast of airport activity. The Long-Term Vision is the result of screening and analysis of a broad range of alternatives as documented in *Technical Memorandum No. 6 Alternatives* (TM-6). The alternatives analysis determined that the resulting Long-Term Vision is the most cost effective and operationally efficient layout of facilities to deliver balanced capacity to satisfy 20-year unconstrained demand within the conditions unique to Sea-Tac which constrain future Airport development.

Airside modeling conducted to test the ability of the Long-Term Vision facilities to accommodate 20-year forecast demand is documented in TM-6. Airside modeling determined that, even with all Long-Term Vision improvements, airfield/airspace constraints resulted in severe congestion and aircraft delays as activity approached 15-year forecast demand (forecast to occur in 2029). Given these existing constraints, all improvements included in the Long-Term Vision that are not included in the Near-Term Projects will be subject to further study discussed in section 5 of this TM-7. The Long-Term Vision is illustrated in Figure 6-1 and depicts all Near-Term Projects (shown in color) that would remain if development shown in grey were constructed. All Near-Term Projects included in the Long-Term Vision and described below are indicated by a project code and name. (e.g. A08 Hardstand *(north)*)

Given the physical constraints surrounding the current airfield and high utilization of existing facilities, expansion or redevelopment of on-airfield facilities often triggers the need to relocate existing functions in order to provide additional capacity to accommodate increased demand. The Long-Term Vision includes on-airfield facility expansion and redevelopment in the following areas:

- Modification of the airfield to improve safety and efficiency, including extension of Taxiway A/B in the southeast corner of the airfield (A01 Taxiway A/B Extension) and new end-around taxiways south and north of the airfield.
- Construction of aircraft hardstands to the south of the existing terminal in an area currently occupied by Alaska Airlines aircraft maintenance facilities to provide additional hold positions for passenger aircraft operations and remain overnight parking for passenger aircraft.

- Extension of Concourse D and gate expansion to the north of the existing terminal into an area currently occupied by cargo and airport/airline support facilities.

- Construction of new hardstands north of the future gate expansion, in an area currently occupied by the Port's Aviation Maintenance Facility (AMF) and United Airlines maintenance building (A08 Hardstand *(north)*). In the near-term, this hardstand provides additional cargo freighter parking positions and potential Remain Overnight parking for passenger aircraft (RON). With the development of additional cargo capacity in SASA, and reconfiguration/expansion of facilities in this area, this hardstand will eventually provide additional, flow-through hold positions for passenger aircraft operations.

- Construction of a new development "platform" in SASA by selectively excavating and filling the terrain. With the new platform, SASA would be capable of accommodating aircraft via a taxiway bridge to the existing airfield.

- Construction of new airline support facilities (e.g., ground support equipment and aircraft maintenance facilities) in SASA and the far north cargo area (S08 Airline Support *(north)* & S09 Airline Support *(west)*).

- Redevelopment of cargo facilities in the far north cargo area to maximize the efficiency of cargo operations in a limited footprint.

Facilities displaced by expansion and redevelopment of on-airfield facilities would be accommodated in three areas:

- SASA would accommodate relocated aircraft maintenance hangars and cargo facilities, as well as airline support facilities.

- The existing General Aviation (GA) area would accommodate relocated Primary Airport Rescue and Firefighting facility (S02 Primary ARFF).

- The future West-side Maintenance Campus would accommodate relocated airport support facilities, including the Port's Aviation Maintenance Facility (various shops/equipment storage), the Transportation Operations Center (bus maintenance), Distribution Center (parts warehouse), and the snow shed.

The plan also envisions improvements on Port property not contiguous to the airfield, including:

- Relocation of construction logistics facilities to vacant property south of S. 200th St.

- Expansion the existing Fuel Farm to the east (S01 Fuel Farm Expansion).

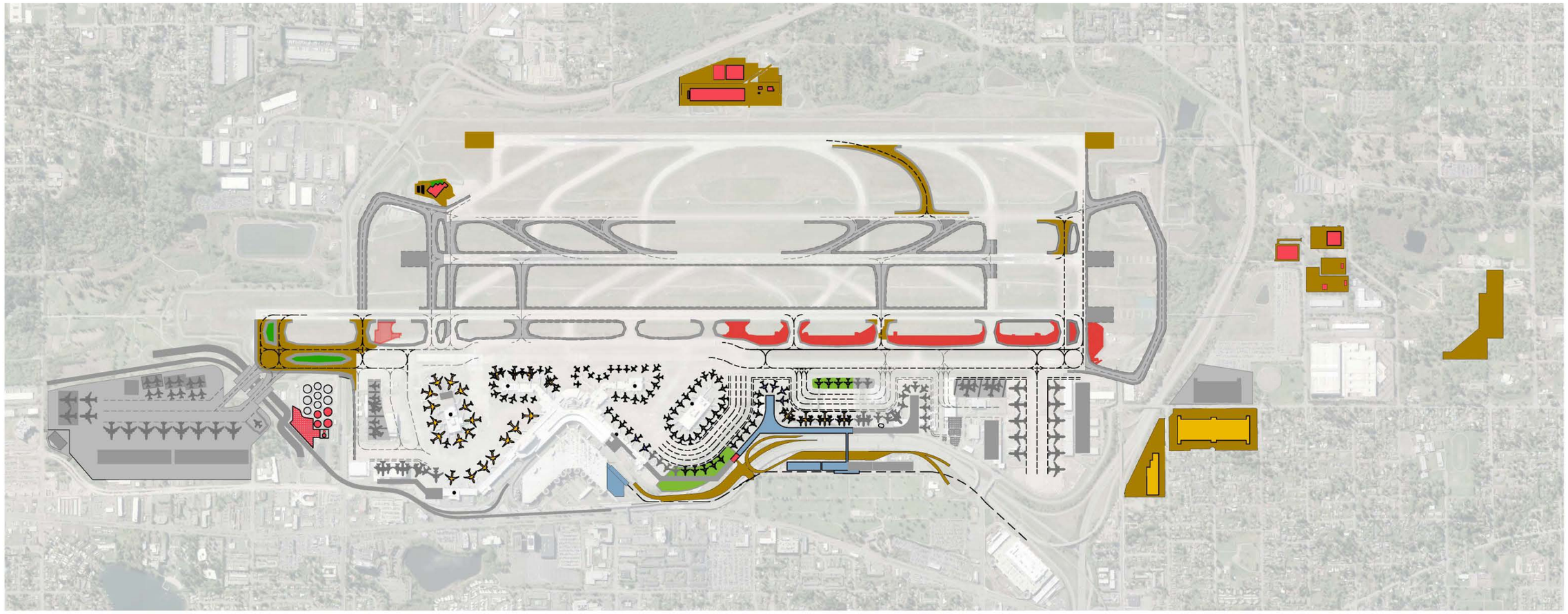
- Construction of a second terminal processor and associated passenger parking in an area currently occupied by the Doug Fox parking lot. In the near-term, the Second

Terminal and associated parking (T02 Second Terminal & Parking) would be sized to support gates constructed under the T01 North Gates project.

- Extensive roadway improvements to provide access to the Second Terminal and improve access to the Main Terminal (L01 North Airport Expressway Relocation & T03 Second Terminal Roads/Curbside).
- Construction of an elevated bus guideway to provide a landside connection between the Main Terminal, Second Terminal, and the Rental Car Facility (RCF) (L02 Elevated Busway & Stations).
- Expansion of the existing Main Terminal North Ground Transportation Lot (L04 Main Terminal North GT Lot).
- Relocation and expansion of employee parking to areas north of SR 518 (L06 Employee Parking Surface Lot & L07 Employee Parking Structure).
- Relocation and expansion of the existing S. 160th Street ground transportation holding lot to an area north of SR 518 (L05 North GT Holding Lot).
- Construction of a Centralized Receiving and Distribution Center (CRDC) in an area north of SR 518 (S10 Centralized Receiving and Distribution Center).
- Construction of cargo warehousing in an area north of SR 518 and adjacent to 24th Ave S (C02 & C03 Off-site Cargo *Ph1 & Ph2*).

The Long-Term Vision is illustrated in Figure 6-1 and depicts all Near-Term Projects (shown in color) that would remain if development shown in grey were constructed.

Figure 6-1
Vision for Comprehensive Long-range Airport Development
Seattle-Tacoma International Airport



Source: Port of Seattle and LeighFisher, 2016.

Leigh | Fisher

In association with

Synergy Consultants, Inc.

TECHNICAL MEMORANDUM No.1 FINAL

BACKGROUND, PROCESS, GOALS, AND OBJECTIVES

Seattle-Tacoma International Airport

Prepared for

Port of Seattle
Seattle, Washington

July 2015

Sustainable
Airport Master Plan
Seattle-Tacoma International Airport

Leigh | Fisher

In association with

Synergy Consultants, Inc.

TECHNICAL MEMORANDUM No.1 FINAL

BACKGROUND, PROCESS, GOALS, AND OBJECTIVES

Seattle-Tacoma International Airport

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Background and Process Overview

The Port of Seattle will strategically plan for sustainable growth at Seattle-Tacoma International Airport.

1.1 Introduction

In accordance with Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5070-6B, Airport Master Plans, and FAA Sustainability Guidance,* the Port of Seattle (the Port) is preparing a Sustainable Airport Master Plan (SAMP) for Seattle-Tacoma International Airport (Airport or Sea-Tac Airport). This Technical Memorandum describes the goals and objectives established by the Port of Seattle commission to guide the SAMP, the SAMP process, and how SAMP goals and objectives will guide preparation of a recommended development plan.

This Technical Memorandum is organized in the following four chapters:

1. Background and Process Overview
2. National, Regional, and Local Sustainability Goals and Plans
3. SAMP Sustainability Goals and Objectives
4. How SAMP Sustainability Goals and Objectives will Guide the Vision for Long-range Airport Development

1.2 Seattle-Tacoma International Airport and the Port of Seattle

The Airport, ranked according to 2014 FAA enplaned passenger data as the 13th busiest commercial service airport in the United States, is operated by the aviation division of the Port. The Port was created in 1911 and is overseen by five Commissioners elected at large by the voters of King County. Each Commissioner serves a four-year term; together they establish Port policy. The Port owns and operates the Airport as well as a wide range of maritime and logistics facilities. The Port's mission, vision, values, and commitment are summarized in the graphic on the following page.

1.3 Sustainable Airport Master Plan Process

This section describes previous master planning at the Airport, compares the process of preparing a traditional airport master plan with the process of preparing a sustainable airport master plan, and describes how sustainability will be integrated throughout the SAMP study and plan recommendations.

*http://www.faa.gov/airports/environmental/sustainability/

1.3.1 Master Planning at Sea-Tac Airport

Typically, large air carrier airports undertake a master plan every 10-12 years or when conditions make it necessary. The Port last completed a master plan update for the Airport in 1997, which focused on the construction of the third runway (now operating as Runway 16R-34L). That master plan arose out of a prior Port study titled "Comprehensive Planning Review" that was conducted in 1988, as well as other regional studies designed to ensure that the Airport was the appropriate place for building the region's airfield capacity. While the 1997 study focused on the third runway, it also identified a long-range plan that was intended to enable the Airport to accommodate demand through 2010 as then forecast.

Airports operate in dynamic environments, as the air travel industry is subject to societal and economic changes from the global to local levels. The Port completed a Comprehensive Development Plan (CDP) in 2007 to identify a less costly and more-convenient alternative for terminal and landside improvements, which would reflect important changes in the aviation industry following its 1997 study. Those industry changes included the increased security requirements following the 9/11 terrorist events, the global financial crisis which had already begun to affect commercial air service, changes in passenger travel preferences and characteristics, and changes in the types of aircraft operating at the Airport.

Since 2007, both the air travel industry and the region Sea-Tac Airport serves have continued to change and grow (for example, advances in technology continue to redefine flight check-in processes and

facilities). Accordingly, in 2013, the Aviation Division of the Port initiated this SAMP and, at the beginning of the process, established three major goals:*

- Identify the facility requirements that would enable the Airport to satisfy air transportation demand through the next 20 years in a safe and efficient manner.
- Identify a long-term plan to achieve the Century Agenda and complement the Aviation Division Business Plan.
- Identify measures that enable the Port to build, manage, and operate facilities in ways that meet sustainability goals and objectives.

These goals were intended to guide development of the SAMP and to ensure that when concluded, the study effort has achieved its underlying objectives. The goals were targeted to the work products of the SAMP. They differ from the Port's sustainability mission and sustainability goals and objectives, which focus on issues broader than those related only to the Airport and that will likely endure after completion of the SAMP.

1.3.2 Traditional Airport Master Planning Process

An airport master plan, as defined by the FAA in AC 150/5070-6B *Airport Master Plans*, is a comprehensive study of an airport and results in airport development plans for the short-, medium-, and long-term (i.e., 5-, 10-, and 20-year planning periods). A typical airport master plan includes the following elements:

1. **Pre-Planning**—Identify need, establish goals and objectives, hire consulting team, and apply for funding, if appropriate.
2. **Public Involvement**—Establish a process and identify key stakeholders and issues.
3. **Existing Conditions Inventory**—Inventory information useful for subsequent analyses. Inventory information is collected from various sources and summarized in tables, graphs, and scaled drawings.
4. **Aviation Activity Forecasts**—Project number of passengers, volume of air cargo, and number of aircraft operations that must be accommodated in the planning periods. Typically, a forecast considers conditions 20 years into the future.
5. **Facility Requirements**—Identify types and locations of facilities needed in each of the airport's major functional areas to accommodate forecast aviation activity in the planning period. Requirements are developed using a variety of techniques ranging from spreadsheets to simulation modeling and are expressed in terms of both units (e.g., number of passenger aircraft gates) and area (e.g., a 50,000-square foot air cargo warehouse).

*SAMP goals were established by Port staff in consultation with the SAMP consultant team.

6. **Alternatives Development and Evaluation**—Develop alternatives for satisfying facility requirements during the planning period. Alternatives are (1) both physical (e.g., build a new roadway) and managerial (e.g., accommodate the demand elsewhere), (2) typically described in both narrative and graphic (i.e., drawings) formats, and (3) evaluated based on appropriate criteria (e.g., cost or environmental impact) for the purposes of comparison.

7. **Implementation Plan**—Describe proposed development plans for the planning periods, the cost of the plan elements, and triggers that will indicate need for specific facilities.

8. **Environmental Considerations**—Consider potential environmental impacts as development alternatives are identified and evaluated, and identify the likely environmental process that would be required to implement the recommended development plan.

9. **Financial Analysis**—Demonstrate how the recommended development plan will be financed, and its feasibility.

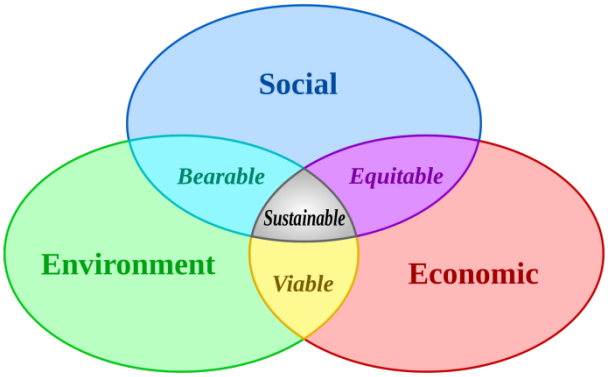
10. **Airport Layout Plan (ALP)**—Produce a set of drawings that graphically represent the plan and its conformance with FAA design criteria. The ALP is an official airport document that shows many items required by the FAA, as well as proposed future development.

1.3.3 Sustainable Airport Master Plans

This section describes how the traditional master planning approach is modified to include sustainability in the key steps of developing and screening alternatives. In the past, master planning typically focused on the financial bottom line and organizational needs/capabilities. Sustainable master planning, in contrast, captures local values as described below and incorporates environmental, social, and community outreach goals.

"Sustainability," as it relates to development, has many definitions, but generally has its origin in the 1987 United Nation's Commission on Environment and Development (known as the Brundtland Commission). The Brundtland Commission suggested that development was acceptable and necessary, but that it must be done in a sustainable manner. A plan or development is sustainable if it balances three – often competing – elements: economic/financial, environmental, and social. Development that accomplishes this is known as meeting the "Triple Bottom Line," as illustrated in Figure 1-1.

Figure 1-1
The Triple Bottom Line: Economic Environmental, and Social
Seattle-Tacoma International Airport



Source: "Sustainable development," Johann Dréo, Creative Commons, January, 2007.

Because the Airport received a grant from FAA to develop a SAMP, the FAA's approach and definition of sustainability and SAMP requirements also influence the process and integration of sustainability into the master plan. FAA defines as sustainable actions that:

- Reduce environmental impacts.
- Help maintain high, stable levels of economic growth.
- Help achieve "social progress," a broad set of actions that ensure organizational goals are achieved in a way that's consistent with the needs and values of the local community.*

The FAA also provides guidance for airports preparing sustainable airport master plans, stating that "Sustainability Master Plans (SAMPs) fully integrate sustainability into an airport's long-range planning [and] use(s) baseline assessments of environmental resources and community outreach to identify sustainability objectives that will reduce environmental impacts, realize economic benefits, and improve community relations."* For FAA funded sustainability planning efforts, the FAA requires **the sponsor to include the following:

- A written sustainability policy or mission statement.
- Categories or areas of focus as determined by each airport.
- Baseline inventory for each category.

*http://www.faa.gov/airports/environmental/sustainability/
**FAA, Airport Sustainability Master Plan, Memo from Elliot Black dated May 27, 2010 available at: http://www.faa.gov/airports/environmental/sustainability/media/interim_guidance_sustainable_master_plan_pilot.pdf

- Measureable goals for each category.
- Sustainability initiatives designed to achieve the goals.
- Public participation and community outreach.

Sustainability has been and will be integrated into the SAMP throughout the planning process in the following ways.

- Sustainability goals and objectives were developed from the Port's existing goals and objectives with guidance from the Port Century Agenda goals. This was completed during the first step of the SAMP and is documented in Chapter 3 of this Technical Memorandum.
- Sustainability goals and objectives will guide the development of alternatives and screening criteria that will be applied to identify preferred alternatives. The screening criteria will be developed considering the Airport's functional areas (e.g., terminal, airfield, landside, and cargo), potential alternatives for satisfying demand, and how objectives might be influenced by chosen alternatives.

For example, the Port has established a goal of reducing greenhouse gas emissions. Thus, the SAMP screening criteria will be used to assess the relative performance of alternatives with respect to changes in greenhouse gases. During implementation, the same criteria can be used to assess actual performance of chosen alternatives relative to all goals and objectives of the SAMP, to ensure that progress is made in a sustainable fashion.

The SAMP will include four categories of actions or initiatives that are designed to achieve the Port's sustainability goals and objectives. The four categories of actions are **what we build, where we build, how we build,** and **how we operate**. These actions:

- Involve construction (what, where, and how we build) and are reflected in the alternatives.
- Determine how the Port manages and operates the existing and future facilities (how we operate).

In a traditional master plan, the effort focuses on serving forecast demand with a preferred alternative that achieves the highest operational performance at the lowest cost. Sustainability Management Plans (SMPs) address how an airport can manage and/or operate its facilities in a sustainable fashion. The SAMP will contain alternative development actions and initiatives that will address where, what, and how the Port builds combined with how the Port manages and operates its airport facilities. All actions and initiatives will be evaluated for their contributions to achieving the sustainability goals and objectives.

The SAMP planning process parallels the traditional master plan process described in the previous section, but adds social considerations to most steps of the planning process. The SAMP process will

start with an inventory of existing conditions (across the financial/economic, environmental, and social/community outreach categories) and forecasts of aviation activity . Based on the forecasts, facility requirements (facilities needed to efficiently serve demand) will be identified. Then the planning effort will focus on how and where those requirements can be satisfied. In parallel, the planning team will begin to consider alternative management and operational initiatives to achieve the goals and objectives.

In the case of the SAMP, initial alternatives for meeting the needs of the various functional areas of the Airport (e.g., terminal, landside, cargo, etc.) will be identified. These alternatives will undergo high level screening relative to the SAMP objectives. The concepts that best achieve SAMP objectives will then continue through the planning process as preferred alternatives for functional areas.

The screening criteria for the various goals and objectives will be qualitative and quantitative, as appropriate. Criteria will be selected that best enable differentiation between alternatives, subject to a specific goal or objective. The screening results will then be summarized in a decision matrix, and either one or two alternatives will be selected as preferred based on overall performance relative to the criteria. Once preferred alternatives are selected for each functional area, initial long-range development alternatives will be developed, and one preferred alternative will be selected. The planning process will conclude with a vision for comprehensive long-range Airport development (Vision).

The Vision will reflect a balanced plan for satisfying goals and objectives across the entire Airport, rather than a plan for one or two functional areas. The Vision will identify the function, location, concept, and size of existing and planned facilities. The planning team will carefully review the Vision to determine how it performs relative to the SAMP goals and objectives (this process is referred to as a gap analysis). Any gaps between actual and desired performance will be identified and initiatives that would enable further optimization of the Vision will be identified.

Since a master plan does not include design or engineering, the sustainable facilities and gap analyses will identify initiatives that could enable the Port to further achieve SAMP objectives, further refining the preferred Vision. These initiatives may represent discrete changes in the plan as well as opportunities that a new or modified facility might enable as projects proceed into design. Total-cost-of-ownership (TCO) will be considered in light of sustainability principles.

Throughout the master planning process, the planning team and the Port will also identify existing and future management initiatives that support sustainable operations at the Airport and document their use in the Vision. These management initiatives will become the SMP portion of the SAMP and will result in an integrated Sustainability Management and Master Plan, which will be documented in Technical Memorandum No. 9. Also, Technical Memorandum No. 9 will contain the documentation requested by the FAA in its 2010 interim guidance memorandum about sustainable airport master plans, and will identify the implementation process (roles and responsibilities) for the various sustainability initiatives.

Before the Port can implement many of the recommendations of the SAMP, compliance with the National Environmental Policy Act (NEPA) and the Washington State Environmental Policy Act (SEPA)

will be required. Therefore, in tandem with preparing Technical Memorandum No. 9 to document the sustainability process and results, an Environmental Effects Overview will also be prepared. This review will provide a high level overview of the environmental effects of the Vision relative to the environmental resources considered in NEPA and SEPA, expanding upon the environmental categories reflected in the sustainability screening, and then will identify an approach to obtaining NEPA/SEPA clearance. This Environmental Effects Overview will be documented in Technical Memorandum No. 8.

This approach to including sustainability in the overall SAMP process is illustrated in Figure 1-2.

1.4 SAMP Scoping Process

Consistent with sustainability concepts, the SAMP was initiated with a series of scoping workshops involving the consultant team and both internal and external Port of Seattle stakeholders. Stakeholders included staff from the Port's Aviation Division, the Federal Aviation Administration (FAA), airlines, and local jurisdictions.

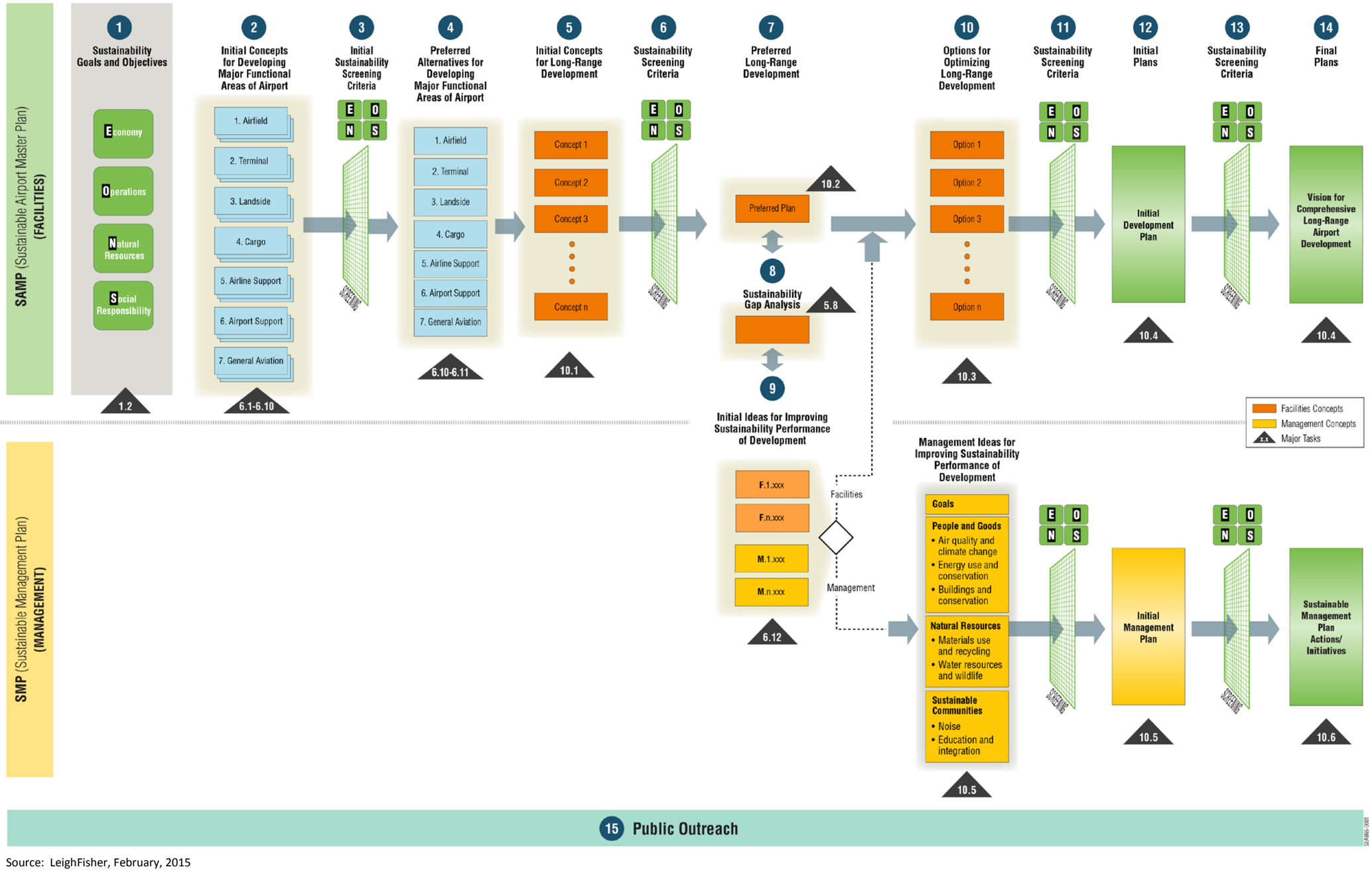
The objectives of the workshops were to acquaint the stakeholders with the master planning process and solicit input on issues of importance, which should be considered for inclusion the SAMP scope of work. The workshops were held in 2013, (July 24-26, July 30-August 1, and August 14). The results of the workshops are summarized in the document titled *Scoping Workshop Notes, Sustainable Airport Master Plan, Seattle-Tacoma International Airport*, August 7, 2013, Revised September 10, 2013.

Following the scoping workshops, a detailed draft study scope of work was prepared. The scope of work was organized by major tasks and, for each task, described:

- Objectives of the study process
- Approach
- Scope of Work
- Deliverables
- Coordination
- Schedule
- Responsibilities

The draft scope of work was the basis of an iterative process that involved (1) preparing a draft budget corresponding with the study draft scope of work, (2) comparing the study draft budget with the budget approved by the Port Commission, (3) revising the draft scope of work and budget, and (4) repeating the process until the budget was aligned with the budget approved by the Port Commission.

Figure 1-2
Process for Integrating Sustainability into the SAMP
Seattle-Tacoma International Airport



Source: LeighFisher, February, 2015

1.5 SAMP Documentation

The SAMP will be documented in nine Technical Memorandums, a summary report, an executive summary report, and an Airport layout plan. These documents and their purpose and content are summarized below.

- ***Technical Memorandum No. 1 Background, Process, Goals, and Objectives***—Defines the SAMP's purpose and desired outcome, (2) explains how the Port has made sustainability a strategic priority at the Airport, (3) communicates the results of the most recent sustainability goal-setting process as part of the SAMP, and (4) illustrates the integration of those sustainability goals into the SAMP process.

- ***Technical Memorandum No. 2 Inventory of Existing Conditions***—Documents drawings, plans and data that the planning team will use for subsequent requirements and alternatives analyses.

- ***Technical Memorandum No. 3 Air Cargo Market Assessment***—Documents (1) the composition of air carriers (and allied services) that forms the Airport's current air cargo operating environment, (2) improvements in facilities and services at the Airport that could stimulate air cargo growth beyond that reasonably expected through organic growth over the 25-year planning period, (3) competitive pressures from other gateways and other transport modes that could limit air cargo growth over the same planning period, (4) the commodity composition of exports and imports transported principally by air, as well as relevant intermodal combinations, (5) the international origins and destinations of commodities traversing regional gateways, and (6) the external economic factors that affect air cargo demand in the region.

- ***Technical Memorandum No. 4 Forecasts of Aviation Activity***—Documents forecasts of enplaned passengers, air cargo, based aircraft, and aircraft operations by type for use in the facility requirements analysis and the long-term development plan and strategy.

- ***Technical Memorandum No. 5 Facility Requirements***—Documents facilities and associated land areas required to accommodate future aviation activity for planning activity levels (PALs) corresponding with activity forecast for the 5-, 10-, 15-, and 20-year planning periods.

- ***Technical Memorandum No. 6 Alternatives***—Documents the alternatives for satisfying facility requirements that were assessed and identifies the vision for comprehensive long-range Airport development.

- ***Technical Memorandum No. 7 Facilities Implementation and Financial Feasibility***—Identifies the proposed Near-Term Projects (NTP; a subset of the Vision), their timing, phasing, cost, and rationale; summarizes the analyses that demonstrated the financial feasibility of the NTP; and recommends key actions following completion of the SAMP.

- ***Technical Memorandum No. 8 Environmental Overview***—Identifies any special purpose law that conflicts with the proposed SAMP recommendations, general project-related environmental effects (overview), and likely NEPA and SEPA processing requirements in areas such as wetlands, water quality, air quality, disturbed/ contaminated soil, site impacts to historical land, wildlife and endangered species, and noise.

- ***Technical Memorandum No. 9 Sustainability Planning and Management***—Synthesizes sustainability findings including: (1) gap analysis between impacts of forecasted growth and sustainability goals, (2) significant sustainability challenges faced by the Port, (3) important sustainability projects or project with a sustainability component identified by the SAMP, and (4) a roadmap that details the plan and processes for adopting the sustainability strategies and implementing initiatives through action plans, also known as the management plan.

- ***Executive Summary Report***—A concise document prepared to communicate essential SAMP conclusions and recommendations to the public.

- ***Airport Layout Plan***—The Airport layout plan is a set of drawings prepared according to FAA criteria. The ALP will reflect the development plan resulting from the SAMP and must be approved by the FAA.

National, Regional, and Local Sustainability Goals and Plans

The Port has already established sustainability goals, dedicated resources to achieve measurable outcomes, and reported on its progress to its stakeholders.

2.1 Introduction

This chapter further defines the concept of sustainability and identifies industry, federal, regional, and Port specific sustainability goals that were established prior to the start of the SAMP.

2.2 The Origin and Long-term Goals of Sustainability

Sustainability is related to global challenges recognized by the Port, which include climate change, economic stability, resource depletion, and environmental degradation among many others. All of these issues threaten the viability of the aviation industry, the Airport, and the communities the Port serves. The Port's challenges are also local in nature. Regional economic development, maintaining strong community relations, and investing in a healthy and prosperous workforce are crucial sustainability goals for the Port and are only achievable on the regional level. Because sustainability reflects local needs, the approach to sustainability varies from airport to airport.

The SAMP will translate the concept of sustainability into a framework useful for organizational decision-making, helping the Port understand dependencies, relationships, and trade-offs that exist when satisfying its business mission, serving its community, and protecting the environment.

Sustainability at the Airport is also shaped by external forces. Some of these are local, regional, and national government and policy organizations. Many of these organizations share the same broad vision and commitment to sustainability and some even share similar sustainability goals as the Port.

2.3 National and Airport Industry Sustainability Goals

The U.S. Federal Government exerts significant influence on sustainability programs at the Airport through regulation. In addition to regulatory influence, the U.S. Federal Government has established long-term sustainability-related goals in five focus areas: climate change, community and regional development, economy, energy, and environment. Twenty-four major Federal agencies identified these goals in their FY 2015 budgets and performance plans. At the federal level, the goals will be refined and reported against every two years.* A complete list of the federal goals can be found in Table A-1 in Appendix A.

*http://www.performance.gov/

In 2009, the Board of Directors of the Airports Council International – North America (ACI-NA) adopted a series of environmental goals. The Port is a member of ACI-NA and has been meeting many of ACI-NA's Environmental Goals.* One of two airport industry organizations, ACI-NA is the international organization that advocates policies and provides services that strengthen the ability of commercial airports to serve their passengers, customers and communities. Table A-2 in Appendix A lists ACI-NA's environmental goals, which are being updated in 2015, in the areas consistent with the Port's focus areas of: climate change and air quality, energy, environmental, noise, waste management, and water quality.

2.4 Puget Sound Region Sustainability Goals

Four major government and non-governmental organizations have set sustainability goals for the Puget Sound Region: City of Seattle, King County, Puget Sound Regional Council, and Washington State. Table A-3 in Appendix A summarizes the publicly available sustainability goals pursued by these organizations, by focus area. More information on each organization's sustainability goals can be found on their websites.

The State of Washington enacted sustainability goals through eight executive orders, as well as through regulations passed by several state agencies. These executive orders can be found in Table A-4 in Appendix A. Additional information can be found on the State of Washington Department of Ecology's sustainability website.**

In addition to what is listed in Table A-1 in Appendix A, the major focus areas and sub-focus areas of sustainability for Washington State are (1) Economic: Job Creation ("Enacting the Evergreen Jobs Act"); (2) Environmental: Climate Change, Environmentally Preferred Purchasing, Green Buildings, and Toxic Reduction; and (3) Social: Growth Management, Energy, and Affordable Housing.

2.5 The Port of Seattle Sustainability Goals

As mentioned in Section 1.1, the Port has undertaken a number of strategic planning exercises in the last five years to define its sustainability goals. The number and frequency of these separate strategic planning efforts demonstrate that the Port has strived to make sustainability local, i.e. addressing issues of particular importance to the Puget Sound Region and the Port's operation. The strategic planning exercises occurred at different levels of the organization, all offering relevant perspectives on how the Port can be more sustainable and what enhanced sustainability looks like. Furthermore, these efforts have revealed that what is considered "sustainable" is always changing. The SAMP is the next iteration in this process and will not be the last. Sustainability is built on a foundational culture of continuous performance monitoring and improvement.

The following sections describe past strategic planning exercises and present sustainability goals that were used to establish updated sustainability goals and objectives for the SAMP. Specific programs that

*http://www.aci-na.org/sites/default/files/board_enviro_goals_feb6.pdf
**http://www.ecy.wa.gov/sustainability/exeorders.html

resulted from the strategic planning exercises (1) illustrate how the Port manages and reports on sustainability and where the Port has focused efforts thus far in addressing sustainability, and (2) serve as a foundation for introducing the goals, objectives, and initiatives that were established during the SAMP sustainability goal-setting process discussed in Chapter 3.

2.5.1 Port Commission Century Agenda

As the Port neared its centennial of operation in 2011, the Port Commission undertook efforts to establish an agenda—known as the "Century Agenda"—for the next quarter century that would further its mission, vision, and commitment. The Century Agenda, shown in Table A-5 in Appendix A, includes the following strategies and objectives that relate to the Airport:

Position the Puget Sound region as a premier international logistics hub

- Triple air cargo volume to 750,000 metric tons.
- Triple the value of outbound cargo to over $50 billion.

Advance this region as a leading tourism destination and business gateway

- Make Seattle-Tacoma International Airport the West Coast "Gateway of Choice" for international travel.
- Double the number of international flights and destinations.
- Meet the region's air transportation needs at Seattle-Tacoma International Airport for the next 25 years and encourage the cost-effective expansion of domestic and international passenger and cargo service.

Use our influence as an institution to promote small business growth and workforce development

- Increase the proportion of funds spent by the Port with qualified small business firms on construction, goods and services to 40 percent of the eligible dollars spent.
- Increase workforce training, job and business opportunities for local communities in maritime, trade, travel and logistics.

Be the greenest, and most energy efficient port in North America

- Meet all increased energy needs through conservation and renewable sources.
- Meet or exceed agency requirements for storm water leaving Port-owned or operated facilities.
- Reduce air pollutants and carbon emissions: Reduce air pollutant emissions by 50 percent from 2005 levels. Reduce carbon emissions from all Port operations by 50 percent from 2005 levels and reduce aircraft-related carbon emissions at Sea-Tac Airport by 25 percent.

As a result of the Century Agenda, guiding principles and explicit strategic goals were developed for the Airport (these principles and strategic goals are summarized in Table A-6 in Appendix A). Furthermore, Port staff have included in their business plans actions to advance progress toward achieving the Century Agenda Vision, Strategies, and Objectives. These actions highlight the Port's individual business lines' contributions to the Century Agenda effort while increasing focus on their core businesses.

Because the Port Commission sets directives for the entire Port of Seattle, including the Airport, we refer to the Century Agenda Strategic Objectives as Century Agenda Goals for the purposes of the SAMP. Collectively, the Century Agenda goals and objectives are the foundation for the goals and objectives that will guide the SAMP.

2.5.2 Environmental Strategy Plan

The *Environmental Strategy Plan* (ESP), formulated in the context of the Century Agenda and completed in 2009, is a five-year roadmap for achieving greater environmental sustainability at the Airport. It established three high-level goals for the organization that could be addressed by activities related to the ESP:

- Move people and goods efficiently.
- Manage natural resources wisely.
- Promote sustainable communities.

Based on the ESP, the Port established the following focus areas or categories, each with specific goals: Air Quality and Climate Change, Energy Use and Conservation, Buildings and Infrastructure, Materials Use and Recycling, Water Resources and Wildlife, Noise, and Education and Integration. The focus areas and their goals are summarized in Table A-7 in Appendix A.

For each goal, the Port (1) identified key metrics, (2) summarized existing programs and progress to date on achieving the goal, and (3) set a target for achieving the goals by year 2014. Many elements of the ESP were leveraged during the process of establishing SAMP sustainability goals and objectives (discussed in more detail in Section 3.3).

2.5.3 25-Year Environmental Goals

As part of the Century Agenda, the Port also established Port-wide 25-year environmental goals that address pollution, energy, and land use issues most important to the Port. Many elements of the 25-year environmental goals were leveraged during the process of establishing SAMP sustainability goals and objectives, which is discussed in more detail in Section 3.3.

2.5.4 Aviation Business Plan, 2014

The *Aviation Business Plan* is a day-to-day strategic document that set the Airport's annual organizational goals across its business. A number of sustainability goals from the Aviation Business Plan were used to establish SAMP planning and sustainability goals. Table A-8 in Appendix A organizes

the Aviation Business Plan goals according to a related strategic goal in the Century Agenda and Sea-Tac Airport Purpose and Strategic Goals documents.

2.5.5 Other Historic Activities

In addition to its strategic planning exercises, the Port has implemented a number of sustainability policies and initiatives at the Airport since 2009.

The Airport's social responsibility programs are part of the Port's Office of Social Responsibility (OSR). The OSR seeks to ensure that the economic (job creation and development) and the environmental (healthy communities) gains made by the Port are done "within a framework of equity, inclusion and equal access." Social sustainability, as defined by the Global Reporting Initiative, "concerns the impacts the organization has on the social systems within which it operates."* These social systems are the communities that live within the local jurisdiction of SeaTac, Seattle, King County, and Washington State; business partners like airlines and contractors; and the Port's employees.

OSR programs and Airport specific programs are varied in size and scope. Yet, all programs strive to: (1) be a catalyst for change, (2) enhance human capital by giving people the ability to achieve their full potential, (3) remove barriers to participate in the economy, and (4) set an example in the community by reinforcing good behavior.**

The OSR goals and objectives establish broad direction on social responsibility for the Port. These goals do not easily translate into elements that can be used in the SAMP process. However, Technical Memorandum 9 will address how the recommendations of the SAMP will affect achievement of the Port's social goals.

*https://www.globalreporting.org
**http://www.portseattle.org/About/Organization/Documents/OSR_AnnualReport2014_EV1.pdf

SAMP Sustainability Goals and Objectives

Sustainability goals and objectives will help the Port achieve its sustainability vision as it develops, manages, and operates the Airport.

3.1 Introduction

The terms "goals" and "objectives" are used throughout this Technical Memorandum and the SAMP documentation. The roles in the development of these goals and objectives are summarized below, in order of the hierarchy related to their application.

- Port Commission—The Port Commission established goals for the Port and stated them in the Century Agenda (discussed in Chapter 2).
- Port Senior Management—Port senior management established the Airport's Purpose & Strategic Goals. These goals provide broad direction for the next five, ten, and twenty-five years.
- Aviation Division—the Aviation Division established goals and objectives specific to the Airport; these are reflected in the Aviation Division Business Plan, which articulates the Division's approach to achieving the Century Agenda and the Airport's strategic goals.
- Port Sustainability Team and SAMP Team— These Teams reviewed the goals and objectives established by the Port Commission, Port senior management, and the Aviation Division to determine the best way to apply them as the SAMP is developed. During this review, additional objectives were developed to better satisfy the goals, better differentiate among alternatives, and facilitate the screening of alternatives. This review, referred to as "the goal- setting process," generated sustainability goals and objectives.

This chapter summarizes the SAMP goal-setting process and key inputs and outputs and is organized in three sections

- Organization and formulation of sustainability goals and objectives.
- Summary of SAMP sustainability objectives and metrics.
- Sustainability management plan and its implementation.

It is expected that the sustainability goals and objectives will be modified over time, and will aid the Port in achieving its sustainability vision as it develops, manages, and operates the Airport. Later in the

SAMP process, initiatives will be identified that will improve performance related to meeting the sustainability goals and objectives.

3.2 Organization and Formulation of Sustainability Goals and Objectives

Following the triple-bottom line framework, the SAMP sustainability goals and objectives were organized and formulated according to three facets of sustainability: (1) Financial/Operational, (2) Environmental, and (3) Social/Community Outreach.

3.2.1 Financial/Operational Goals and Objectives

The Port's overall mission is to "create jobs by advancing trade and commerce, promoting industrial growth, and stimulating economic development" and it has established a public commitment to creating economic opportunities for all. Further, the Port has established its objective to "manage our finances responsibly." The following Aviation Business Plan goals guided the development of SAMP objectives:

- Maintain passenger airline cost per enplaned passenger (CPE) and forecasted CPE within the middle third of peer airports through 2019.
- Manage financial activity to achieve targeted metrics. Specific metrics for performance are: financial results, competitive airport costs, cash flow, liquidity, and leverage.
- Maximize non-aeronautical net operating income (NOI) consistent with current contracts, appropriate use of Airport properties, and market demand.

As noted in Chapter 1, airports in the U.S. have embraced sustainability, noting the importance of efficient airport operations within their financial/economic goals and objectives. The Port has established an operational policy of serving existing and future air travel while maintaining a safe and efficient airport. The Port's business plan matches up its Airport goals and objectives with the Commission's Century Agenda in the following way (those that are not applicable to the SAMP are not included):

- Triple air cargo volume to 750,000 metric tons (Century Agenda).
- Increase air cargo tonnage by 20 percent to a total of 364,000 metric tons in 2019. (Aviation Division Business Plan).
- Make Sea-Tac Airport the west coast "Gateway of Choice" for international travel (Century Agenda).
- Double the number of international flights and destinations (Century Agenda).
- Meet the region's air transportation needs at Sea-Tac Airport for the next 25 years (Century Agenda).
- Increase productivity of existing terminal facilities (Aviation Division Business Plan).

- Renew aging landside infrastructure. (Aviation Division Business Plan).
- Provide an efficient and updated baggage system that incorporates new technology and efficient conveyor systems necessary to improve system performance and allow for future growth. (Aviation Division Business Plan).

During meetings with Port staff managing the facilities in the functional areas of the Airport, the following objectives were identified that would assist with measuring progress toward achieving the Century Agenda and Commission goals:

- Enable the Port to achieve its financial goals in the business plan relative to Cost per Enplaned passenger (CPE) and Debt Per Enplaned passenger (DPE). It is believed that the following are important to achieving this primary objective:
  - Enable phased, incremental development.
  - Maximize use of technology to minimize the amount of new development.
  - Provide revenue-generating space in the terminal facilities in accordance with Port guidelines.
  - Ensure that that the cost of meeting facility needs does not exceed the Port's debt goals (i.e., overall affordability, but with total cost of ownership in mind).
- Minimize the effect of SAMP recommendations on cost center imbalances. This goal was identified as important because of the Airport lease agreement structure, which is based on cost centers, and it would affect the ability to afford future development.
- Reduce dwell time on the curb front and increase throughput to efficiently accommodate demand in the following ways:
  - Ensure capacity of public parking is adequate to enable the Port to increase revenue.
  - Provide cruise ship bus interfaces in ways that enhance customer service.
- Minimize aircraft taxi time and reduce airfield congestion associated with ground vehicles through the following measures:
  - Reduce runway crossings and reduce runway occupancy times.
  - Provide for efficient aircraft deicing.
  - Develop a Surface Area Management System.
  - Develop aircraft departure sequencing process vs. FAA first-come, first-served model.
  - With demand for Remain Over Night (RON) aircraft parking increasing, develop more versatile RON parking layouts and business arrangements.

- Satisfy the demand for air cargo in a manner that strives to consolidate cargo areas while minimizing congestion associated with the landside interfaces.
- Maximize efficient passenger and baggage movement throughout the passenger's trip through Sea-The Airport (garage/terminal-to-aircraft, and for connections, from aircraft to aircraft).
    - Maximize passenger throughput and level-of-service (LOS) in the terminal, including security checkpoints.
    - Maximize the passenger's ease of connection, and minimize wait time at security and check-in.
    - Maximize customer service by minimizing walking distances.
    - Minimize development by maximizing common use facilities.

When setting goals and objectives in the context of sustainability, it is important to also identify the metrics by which progress can be measured. In the case of financial objectives, those metrics would include: professional judgment, CPE, DPE, and NOI. Metrics associated with the operational goals are primarily aircraft taxi time, walking distances, wait times, level-of-service (LOS), and customer satisfaction. Technical Memorandum No. 5 will identify the facility requirements. Technical Memorandum No. 6 will identify the alternatives and their operational efficiency.

Technical Memorandum No. 9 (which presents the management plan for the sustainability plan) will identify quantifiable metrics, connected to objectives, that potentially can be used to measure and report on progress. Metrics may include: dwell/delay time, LOS, runway crossings, runway occupancy time, and customer satisfaction based on passenger surveys.

3.2.2 Environmental Goals and Objectives

Because the Airport's Environmental Strategy Plan expired in 2014, staff has been preparing the next phase of its environmental programs. This next phase would identify new objectives in light of the Century Agenda and new technological developments and ideas across the broad range of environmental sectors. The new objectives and initiatives designed to meet them will be presented in a new document entitled *Strategy for a Sustainable Sea-Tac* or S3.

Since the SAMP development timeline overlaps with S3, staff opted to integrate the two processes, and use the S3 objectives to help direct the sustainability aspects of the SAMP. The Port's S3 objectives-setting process took place in three stages. First, the Port staff working groups developed objectives and metrics to guide the continued development of the Airport's capital programs and operations. These new objectives were based on existing environmental sustainability objectives and progress to date, goals established in the Century Agenda (see earlier description), and the airport's strategic goal related to the environment. The high level goals are:

- Be the greenest and most energy efficient port in North America (Century Agenda).

- Lead the U.S. airport industry in environmental innovation and minimize the Airport's environmental impact. (Seattle-Tacoma International Airport Purpose and Strategic Goals).

The Port established working groups to structure organization-wide input into the Port's environmental objective-setting process. Each working group addressed one or more key focus areas that drive environmental performance of the Airport. Thirteen working groups were formed to guide refinement of environmental goals and objectives for use in the SAMP. The focus areas and proposed objectives from the working groups are summarized below.

Air Quality

- Reduce air pollutant emissions by 50 percent from 2005 levels by 2034.

Buildings and Infrastructure

- Seek LEED Silver for new construction, additions, and major renovations and minor renovations that modify mechanical, electrical, and plumbing systems, and encourage LEED certification for tenant improvements.

Climate Adaptation

- Complete a risk analysis of potential climate change impacts and implications for the Airport, and develop a strategic plan for avoiding/mitigating risks.

Climate Protection

- Reduce Airport-owned and controlled greenhouse gas emissions by 15 percent below 2005 levels by 2020, and 50 percent by 2034.

- Reduce aircraft-related greenhouse gas emissions by 25 percent below 2005 levels by 2034.

Construction Waste

- Divert to recycling 85 percent of construction waste by 2020, 90 percent by 2025, and reach zero waste by 2034.

Energy

- Meet all future growth in energy demand through the most practical and cost-effective conservation measures and renewable energy.

Fish and Wildlife

- Protect, enhance, and steward fish and wildlife habitat while maintaining air transportation safety.

Hazardous Waste

- Reduce the volume of hazardous waste generated from Port maintenance and operations to meet requirements for Small Quantity Generator Status by 2020.

Noise

- Increase the number of noise compatible units within the noise remedy boundary to 95 percent through the year 2030.

Terminal and Airfield Waste

- Divert 50 percent of terminal solid waste and 15 percent of airfield solid waste by 2020. (SAMP)

Transportation

- Increase the percentage of passengers accessing the Airport via environmentally-preferred modes of transportation from 60 percent in 2014 to 70 percent in 2020.

Water Conservation

- Reduce projected future consumption by 4 percent in 2020 and 12 percent in 2030.

Water Quality

- Contribute to the restoration of Puget Sound and local receiving waters by providing water quality treatment, flow control, and using green storm water infrastructure (where feasible) for Airport industrial storm water.

The working groups also established targets and metrics for each objective to monitor progress toward the goal(s). Similar to the financial/operational goals and objectives discussed in Section 3.3.1, metrics were also identified for the above SAMP goals and objectives. Metrics to be used in screening the SAMP alternatives could include professional judgment; anticipated natural resource consumption (i.e., water, energy); waste generation; emissions of criteria pollutants and greenhouse gases; filling wetlands and floodplains, etc. The initial screening of alternatives will likely occur by qualitative and professional judgment of environmental impacts. Once alternatives are narrowed to a smaller subset, it is expected that a more refined analysis of impacts will be conducted that would include selective quantification of the effects of the alternatives.

3.2.3 Social/Community Outreach

Social/community outreach, as it relates to sustainability and is defined by the Global Reporting Initiative, "concerns the impacts an organization has on the social systems within which it operates."* These social systems are the communities that live within the local jurisdiction of Sea-Tac, Seattle; King County; and Washington State; business partners like airlines, contractors, and tenants; and the Port's employees.

The Airport's social programs are part of the Port's larger Office of Social Responsibility (OSR), and are created to deliver on the Century Agenda Commitment: "The Port of Seattle creates economic opportunity for all, stewards our environment responsibly, partners with surrounding communities, promotes social responsibility, conducts ourselves transparently, and holds ourselves accountable."

*https://www.globalreporting.org

OSR ensures that gains in job creation and development made by the Port are done "within a framework of equity, inclusion and equal access." The OSR was consulted in preparing the SAMP, and three of its programs were identified in the social/community outreach goal-setting process.

The Port's goal-setting process for social/community outreach began with the existing social/community outreach goals and objectives found within the Century Agenda and Aviation Business Plan. Those goals and objectives include:

- Consistently Live by our Values (Century Agenda).
- Increase the proportion of funds spent by the Port with qualified small business firms on construction, goods and services to 25 percent of the eligible dollars spent (Century Agenda).
- Foster new aviation division opportunities for local businesses (Aviation Business Plan).
- Increase workforce training, job and business opportunities for local communities in maritime, trade, travel, and logistics (Century Agenda).
- Implement new aviation division programs that support Port-wide workforce development strategies and Commission Quality Jobs policies (Aviation Business Plan).
- Complete a Work Continuity and Succession Planning Departmental pilot program (Aviation Business Plan).
- Complete a Post-Graduate Fellowship pilot and produce recommendations for a follow on program (Aviation Division Business Plan).

In further refining the Port's overall social/community outreach goals and objectives, the following additional objectives were identified for use in the SAMP:

- Maximize the compatibility of new development with nearby lands.
- Identify benefits of proposed development to the local community.
- Enhance employee welfare, and facilitate diversity.
- Reduce off-Airport environmental impacts to nearby communities.
- Be transparent in public communications and increase outreach to the local community.

These additional goals and objectives will be measured with metrics such as jobs, payroll, economic output, environmental effects (using the metrics noted in the prior section on natural resource conservation and preservation), numbers of meeting and notices, and community feedback.

3.3 Summary of SAMP Goals and Objectives and Associated Metrics

Table 3-1 lists the SAMP objectives as well as the metrics that will be used in later Technical Memorandums to compare various alternatives and sustainability initiatives. To enable tracking the use and evolution of the goals and objectives, each is given a designation beginning with O and a sequential number (i.e., O1 through O23, with the O referring to Objective). Table B-1, located in Appendix B, summarizes how the SAMP goals and objectives in Table 3-1 relate to Port plans (i.e., the SAMP and SMP), functional areas of the Airport (i.e., airfield, terminal, landside, cargo, and support), and actions the Port can take to achieve its sustainability goals and objectives. These actions involve both construction (i.e., what, where, and how we build) and how the Port manages and operates its facilities.

Table 3-1
SAMP Goals and Objectives
Seattle-Tacoma International Airport

SAMP Goals / Objectives	Potential Metrics
O1: Enable the Port to achieve its financial goals in the business plan relative to Cost per Enplaned Passenger (CPE) and debt per enplaned passenger (DPE). The following are important to achieving this primary objective: • Enable phased, incremental development. • Maximize use of technology to minimize the amount of new development. • Provide revenue-generating space in the terminal facilities in accordance with Port guidelines. • Ensure that that the cost of meeting facility needs does not exceed the Port's debt goals (i.e., overall affordability, but with total cost of ownership in mind).	• Professional Judgment (cost, spatial allocation) • CPE • DPE • Total project capital costs • Estimated 20-year O & M costs • Total cost of ownership
O2: Minimize the effect of SAMP recommendations on cost center imbalances. This goal was identified as important, as given the Airport lease agreement structure that is based on cost centers. It would affect the ability to afford future development.	• Percentage of project cost allocated to airline cost center (for top 4 or 5 projects only)
O3: Reduce dwell time on the curb front and increase throughput to efficiently accommodate demand in the following ways: • Ensure capacity of public parking is adequate to enable the Port to increase revenue. • Provide cruise ship bus interfaces in a way that enhances customer service.	• LOS on curb front • Parking spaces • Average walk distance for cruise ship passengers—enplaning and deplaning • Average level changes for cruise ship passengers—enplaning and deplaning
O4: Minimize aircraft taxi time and reduce airfield congestion associated with ground vehicles in the following ways: • Reduce runway crossings and reduce runway occupancy times; • Provide for efficient aircraft de-icing. • Develop a Surface Area Management System. • Develop aircraft departure sequencing process vs. FAA First Come, First Serve model. • Develop more versatile parking, with RON demand increasing.	• Professional judgment (trade-offs among gate, RON, cargo, and deicing position productivity) • Professional judgment related to the availability of appropriately located runway exits, by airplane design group • Runway crossings • Runway occupancy times • Average aircraft taxi time • Average gate occupancy time during deice conditions

Table 3-1 *(continued)*
SAMP Goals and Objectives
Seattle-Tacoma International Airport

SAMP Goals / Objectives	Potential Metrics
O5: Satisfy the demand for air cargo in a manner that strives to consolidate cargo areas while minimizing congestion associated with the landside interfaces.	• Utilization ratio (metric tons per square foot of warehouse)
O6. Maximize efficient passenger and baggage movement throughout the passenger's trip through Sea-Tac Airport (garage/terminal – to-aircraft, and making connections from aircraft to aircraft): • Maximize passenger throughput and level-of-service (LOS) in the terminal, including security checkpoints. • Maximize the passenger's ease of connection, and minimize wait time at security and check-in. • Maximize customer service: Minimize walking distances. • Minimize development through maximize common use facilities.	• LOS (queuing, curbsides) • Minimum connect time • Average walking distance • Average SSCP wait time • Peak period SSCP wait time • Average distance—curb to bag drop; centroid of garage to bag drop • Last bag cutoff time
O7: Air Quality: Reduce air pollutant emissions by 50 percent from 2005 levels by 2034.	• Dwell time • Taxi time • Vehicle miles traveled • Emissions inventory (tons/year)
O8: Buildings and Infrastructure: Seek LEED Silver for new construction, additions, and major renovations and minor renovations that modify mechanical, electrical, and plumbing systems, and encourage LEED certification for tenant improvements.	• Square feet of buildings with LEED silver or higher certification.
O9: Climate Adaptation: Complete a risk analysis of potential climate change impacts and implications for the Airport, and develop a strategic plan for avoiding/mitigating risks.	• Complete risk analysis • Prepare strategic plan
O10: Climate Protection: Reduce Airport-owned and controlled greenhouse gas emissions by 15 percent below 2005 levels by 2020, and 50 percent by 2034.	• Energy consumption • Scope 1 & 2 Emissions inventory
O11: Climate Protection: Reduce aircraft-related greenhouse gas emissions by 25 percent below 2005 levels by 2034.	• Energy consumption • Scope 1 & 2 Emissions inventory
O12: Waste - Construction: Divert 85 percent of construction waste by 2020, 90 percent by 2025, and reach zero waste by 2034.	• percent of waste diverted.
O13: Waste - Terminal and Airfield: Divert 50 percent of terminal solid waste and 15 percent of airfield solid waste by 2020.	• Tons of Landfilled Waste • Tons of Recycled Waste
O14: Waste - Hazardous: Reduce the volume of hazardous waste generated from Port maintenance and operations to meet requirements for Small Quantity Generator Status by 2020.	• Kilograms of hazardous waste generated, rolling 180 days.

Table 3-1 *(continued)*
SAMP Goals and Objectives
Seattle-Tacoma International Airport

SAMP Goals / Objectives	Potential Metrics
O15: Energy: Meet all future growth in energy demand through the most practical and cost-effective conservation measures and renewable energy.	• Electricity (kWh) consumption per year • Percentage of electricity consumed that comes from renewable sources (kWhs from renewable/total kWhs). • Natural gas (therms) consumption per year • Percentage of natural gas consumed that comes from renewable sources (therms from renewable/total therms)
O16: Fish and Wildlife: Protect, enhance, and steward fish and wildlife habitat while maintaining air transportation safety.	• Acres of open space displaced • Acres of protected habitat displaced
O17: Noise: Increase the number of noise compatible units within the noise remedy boundary to 95 percent through the year 2030.	• Percentage of noise compatible units within the noise remedy boundary
O18: Transportation: Increase the percentage of passengers accessing the Airport via environmentally-preferred modes of transportation from 60 percent in 2014 to 70 percent in 2020.	• Percentage of passengers accessing the Airport under the various environmentally preferred modes (percentage of passengers using environmentally preferred modes relative to total O&D passengers) • Environmentally preferred modes: Daily parking, taxi, door-to-door van, hotel/motel courtesy vehicle, air porters, public transit, and charter/other bus.
O19: Water Conservation: Reduce projected future consumption by 4 percent by 2020 and 12 percent by 2030.	• Portable water consumption in gallons per year • Non-potable water reuse
O20: Water Quality: Contribute to the restoration of Puget Sound and local receiving waters by providing water quality treatment, flow control, and using green storm water infrastructure (where feasible) for Airport industrial storm water.	• Gallons of water treated by infiltration per year • Gallons of rainwater captured and reused per year
O21: Maximize the compatibility of new development with nearby lands.	• Consistency of propose project with existing zoning • Proximity to noise and light sensitive land uses
O22: Identify benefits of proposed development to the local community.	• Socioeconomic impact (jobs/payroll/regional economic input) • Roadway LOS/Congestion • Changes in environmental effects (O7 thru O20)
O23: Enhance employee welfare, and facilitate diversity.	• OSR office to determine – will not differentiate among MP alts
O24: Reduce off-Airport environmental effects to nearby communities.	• Changes in environmental effects (O7 thru O20)
O25: Be transparent in public communications and increase outreach to the local community.	• Number of interactions with the public (i.e., workshops) • Number of comments received

3.4 Sustainability Management Plan

The sustainability management plan will be documented in Technical Memorandum No. 9 and will include an integrated list of all goals and objectives and refinements as the SAMP progresses. It will also detail the SAMP initiatives recommended to achieve those goals and objectives, as well as action plans for accomplishing the initiatives.

SAMP initiatives will be discrete programs, actions, or investments that could be implemented to accomplish an objective. SAMP initiatives will be derived from S3, the Aviation Business Plan, and upon evaluation of needs as part of the SAMP study process.

The sustainability management plan will be organized using the Deming Cycle, a model for implementing organization change that relies on the repetition of four main steps of Plan, Do, Check, and Act:

- PLAN—The SAMP goal-setting process is the current iteration of planning work accomplished by the Port. The Port established objectives and metrics necessary to deliver results in –line with its goals.
- DO—The action plans created as part of the SAMP management plan will set the course for implementing the plan by executing initiatives.
- CHECK —As part of the S3, the Port will regularly study the results (identified by the metrics set in the objectives table in Section 3.4) and compare against the targets that were set during the Plan phase, in this case, the SAMP.
- ACT—Depending on the results of the Check phase, the Port can choose to adjust its strategy for pursuing the SAMP and any future goals it may establish. This includes any corrective actions on individual goals, objectives, targets, and initiatives as well as creating new initiatives to help achieve those goals and objectives.

In keeping with the Act step, through the SAMP, the Port has adjusted its environmental objectives (Section 3.3.2) to aid in further achieving its goals. As part of the implementation plan for the SAMP, the Port will continue to identify initiatives and actions that relate to managing the Port's environmental goals.

How SAMP Sustainability Goals and Objectives will Guide the Vision for Long-Term Airport Development

Recommendations for what and where we build, how we build, and how we operate Airport facilities will reflect the Port's sustainability goals and objectives.

4.1 Introduction

Chapter 1 of this Technical Memorandum describes the SAMP process, in which alternatives will be developed to meet the requirements for each functional area of the Airport. Requirements are the facilities and associated land areas needed to either accommodate future aviation demand or satisfy Port goals and objectives. Chapter 3 of this Technical Memorandum describes the sustainability goals and objectives to be used for the SAMP process.

As is discussed in Chapter 1, the Port intends to employ a three-part approach to achieving its sustainability goals and objectives. The first part of the approach is by building facilities, which is what a traditional master plan would consider. In the master planning process, what and where facilities would be built will be identified (**What and where we build**). The second part of the approach is to implement actions to manage the building process (**How we build**). The Port will also progress toward achieving its sustainability goals and objectives by improving the ways its facilities are managed and operated (**How we operate**); these actions are not dependent on construction. Thus, the SAMP addresses this three-part approach to sustainability.

As identified in Figure 1-2, sustainability goals and objectives will be used throughout the planning process to guide the development of physical alternatives for meeting requirements, inform the development of criteria used to screen the alternatives to a manageable number, and guide the refinement of the long-term development plan. This chapter provides conceptual examples that illustrate how SAMP sustainability goals and objectives will guide the planning process and development of the plan.

4.2 Developing Alternatives (What and Where to Build)

Developing alternatives is an iterative process. First, alternatives will be developed for each functional area of the Airport (e.g., the airfield, terminal, landside, cargo, airline support, airport support, and general aviation functions). This will consist of identifying the "what, where, and when" related to alternatives for satisfying functional requirements. Those alternatives will be screened and refined, which ultimately will result in identification of a preferred alternative for each functional area. The preferred functional area alternatives will then be assembled in different combinations to form long-

range Airport-wide development alternatives. Those alternatives will in turn be screened and refined, leading to identification of the vision for comprehensive long-range Airport development.

Goals and objectives will be used to guide the development of alternatives for both individual functional areas of the Airport and for the Airport as a whole. By understanding the Port's overall goals and objectives, the professionals developing the alternatives will have insight as to the Port's strategic direction. At the initial stage of the planning process, the influence of goals and objectives will be limited to "big picture" guidance such as the general purpose, location, and potential impact.

For example, the Century Agenda goal to "Meet the region's air transportation needs at Sea-Tac Airport for the next 25 years" will guide the planning team to identify alternatives that will accommodate all forecast air travel demand throughout the planning period. Technical Memorandum No. 4 *Aviation Activity Forecasts* presents the forecast prepared for the SAMP. Relative to the airfield functional area, for example, the planning team would interpret this goal as guidance to only identify airfield alternatives that efficiently accommodate all of the forecast activity. Alternatives that are unable to efficiently accommodate all of the forecast activity would not be developed.

4.3 Applying Screening Criteria to Identify the Vision (What, Where, and How to Build)

Two fundamental steps are involved in identifying the Vision: (a) alternatives will developed and screened in four stages, and (b) screening will occur in "rounds" (i.e., repetitions). These steps are described in the following sections.

4.3.1 Alternatives will be Identified, Refined, and Screened During a Four Stage Planning Process

Alternatives will be screened during each of four planning process stages with the objective of focusing subsequent project resources on the most promising alternatives and, ultimately, identifying the Vision. The four stages of the planning process and how they relate to the numbered process steps identified in Figure 1-2 are summarized below.

- Stage 1—Identify and screen initial alternatives for each functional area of the Airport relative to the ability to achieve the study goals and objectives. During this stage of development, experience shows that the greatest insight is learned about the performance of alternatives and the ability to achieve various goals and objectives. Stage 1 comprises steps 1 – 4 in Figure 1-2 and results in the identification of preferred alternatives for each functional area.

- Stage 2—Identify and screen initial alternatives for combining preferred functional area development into a preferred long-range Airport development plan. Stage 2 comprises steps 5 – 7 in Figure 1-2.

- Stage 3—Assess the preferred long-range Airport development plan against key sustainability goals (e.g., energy and water consumption and total cost of ownership) to identify performance gaps (i.e., failures to achieve the desired performance), and

alternatives for bridging the gaps and optimizing the preferred plan. It is expected that some of these alternatives will be discrete initiatives and others may be opportunities to be explored as the project moves into the design and engineering phase after completion of the SAMP. In Stage 3, how the facilities are built and how they are operated will be the focus. An example of how the plan might be optimized could be the application of the sustainable facilities model to identify opportunities to meet the SAMP goal of being the "greenest, most energy efficient port in North America." Stage 3 comprises steps 8 – 12 in Figure 1-2 and includes both physical plans (What and where we build) and management strategies for further improving performance related to sustainability objectives (How we operate).

- Stage 4—Screen final alternatives for opportunities to "fine tune" the preferred plan. The Vision will then be the plan that performs best relative to screening criteria across all sustainability criteria. Stage 4 comprises steps 13 – 14 in Figure 1-2 and could include both physical plans (What and where we build) and management strategies for further improving performance related to sustainability objectives (How we operate).

4.3.2 Screening will Occur in Rounds

Screening will occur in rounds within each stage of the planning process using criteria based on the sustainability goals and objectives and conditions unique to each functional area or alternative being considered. The objective will be to identify promising alternatives and move to the next stage of the process as efficiently as possible, thus making the most effective use of project resources.

The number of rounds of screening will vary, as appropriate, by functional area of the Airport (the issues to be resolved in the functional areas vary from inconsequential to complex) and by stage of the planning process. After each round of screening, both the remaining alternatives and subsequent screening criteria will be refined based on what was learned.

Early, the screening criteria will rely more on qualitative measures such as experience and professional judgment. In situations where many alternatives must be quickly reduced to a manageable number, the screening criteria may represent "threshold" tests—i.e., the criteria may represent minimum performance that must be achieved to warrant further consideration (for example, if a gate layout alternative does not deliver the required number of gates, it will be eliminated). As the number of alternatives is reduced, the depth of evaluation will increase and screening criteria will involve more quantitative measures and the use of high-level analytical tools (e.g., a gate, terminal, airfield, or roadway simulation model). Criteria derived from sustainability goals objectives will aid in comparing how well alternatives achieve desired results.

During each round of screening, attempts will be made to balance the number of criteria being considered relative to the three elements of sustainability—economic, environmental, and social. In many cases, it will not be possible to ensure an equal number of criteria for each of the elements. However, it is expected that in some instances the criteria will reflect more than one element of sustainability. For example, the criterion "reduced aircraft taxi time" could reflect a financial element (i.e., reduced fuel cost) as well as an environmental element of sustainability (i.e., reduced energy, pollution, and greenhouse gas emissions).

Appendix A
Background Information Related to National and Local Sustainability Goals

Table A-1
U.S. Federal Government Sustainability Goals
Seattle-Tacoma International Airport

Focus Areas	Goals
Climate Change	• More than double Federal government consumption of electricity from renewable sources to 20 percent by 2020 and improve energy efficiency at Federal facilities as part of the wider strategy to reduce the Federal Government's direct greenhouse gas emissions by 28 per cent and indirect greenhouse gas emissions by 13 per cent by 2020 (2008 baseline).
Community and Regional Development	• Foster quality of life in communities by integrating transportation policies, plans, and investments with coordinated housing and economic development policies to increase transportation choices and access to transportation services for all. • Increase the energy efficiency and health of the nation's housing stock. • Build strong, resilient, and inclusive communities. • Use Housing as a Platform to Improve Quality of Life. • Clean up communities, advance sustainable development, and protect disproportionately impacted low-income and minority communities. Prevent releases of harmful substances and clean up and restore contaminated areas. • Align community-based activities to provide seamless assistance to communities, both urban and rural, while maximizing efficiency and results. • Expand support of community efforts to build healthy, sustainable, green neighborhoods and reduce and prevent harmful exposures and health risks to children and underserved, overburdened communities.
Economy	• Improve federal investment tools and resources, while also increasing interagency coordination, to encourage foreign direct investment, spurring job growth. • Increase the economic impact of Federally-funded research and development by accelerating and improving the transfer of new technologies from the laboratory to the commercial marketplace. • Prepare workers for better jobs.
Energy	• Advance foundational science, innovate energy technologies, and inform data driven policies that enhance U.S. economic growth and job creation, energy security, and environmental quality, with emphasis on implementation of the President's Climate Action Plan to mitigate the risks of and enhance resilience against climate change. • Promote responsible development of renewable energy and ensure safe and environmentally responsible access to natural resources.
Environment	• Protect and restore waters to ensure that drinking water is safe and sustainably managed, and that aquatic ecosystems sustain fish, plants, wildlife, and other biota, as well as economic, recreational, and subsistence activities. • Reduce the risk and increase the safety of chemicals and prevent pollution at the source. Advance sustainable environmental outcomes and optimize economic and social outcomes through Agency decisions and actions, which include expanding the conversation on environmentalism and engaging a broad range of stakeholders. • Provide science to understand, model, and predict ecosystem, climate, and land use changes.

Table A-2
Airports Council International – North America Environmental Goals
Seattle-Tacoma International Airport

Focus Areas	Goals
Climate Change and Air Quality	• ACI-NA member airports will strive to convert airport-owned and operated ground vehicles and GSE to low emission vehicles with an industry-wide average goal of 50 percent of vehicle conversion by 2019. • By 2010, every ACI-NA member airport will strive to implement an incentive program to encourage taxi, shuttle, limo, and rental car companies to use low emission vehicles. • Half of ACI-NA member airports will strive to provide low emission vehicle support infrastructure by 2019. • Half of ACI-NA member airports will strive to provide incentives and/or reduced fee parking for low emission passenger vehicles by 2011. • Every ACI-NA member airport will strive to have at least 25 percent of its loading bridges equipped with pre-conditioned air and 400 Hz electrification by 2019. • Half of ACI-NA member airports will strive to conduct greenhouse gas emissions inventories by 2015.
Energy	• By 2014, every ACI-NA member airport will strive to implement an energy conservation program that includes adoption of an airport-specific goal to reduce non-renewable energy consumption.
Environment	• Environmental Policies: Every ACI-NA member airport will strive to have an environmental policy statement by 2010. • Environmental Management Systems: Every ACI-NA member airport will strive to have an Environmental Management System in place by: o 2014 at large airports o 2016 at medium airports o 2019 at small airports.
Noise	• Every ACI-NA member airport will strive to develop a noise and land use compatibility policy by 2019.
Waste Management	• Every ACI-NA member airports will strive to have a basic recycling program in place by 2011. Half of airports will have more extensive recycling programs by 2014.
Water Quality	• By 2014, every ACI-NA member airport will strive to implement a water conservation program that includes adoption of an airport-specific goal to reduce water consumption. • ACI-NA member airports will facilitate awareness and training with a goal of reducing spills by 25 percent from 2005 levels by 2015. ACI-NA airports will strive to have no releases of petroleum-based spills.

Table A-3
Sustainability Goals of Four Regional Governmental and Non-Governmental Organizations
Seattle-Tacoma International Airport

Focus Areas	City of Seattle [1]	King County [2]	Puget Sound Regional Council [3]	Washington State [4]
Building and Energy	• Energy conservation in residential, commercial, and city buildings. • Increase number and level of certified sustainable buildings. • Acquire 15 percent of electricity from new renewable sources by 2020. • Increase solar energy production in the community.	• Help reduce energy use by its residents, business and other partners and will support development of increasing amounts of local renewable energy. • King County will reduce energy used in government operations.	• The region will care for the natural environment by protecting and restoring natural systems, conserving habitat, improving water quality, reducing greenhouse gas emissions and air pollutants, and addressing potential climate change impacts. The region acknowledges that the health of all residents is connected to the health of the environment. Planning at all levels should consider the impacts of land use, development patterns, and transportation on the ecosystem.	• Requires that all new buildings and renovation projects that receive state funding be built to one of three green building standards. • Enhance economic competitiveness through an affordable and reliable energy supply. • Ensure the state's energy system meets the needs of its citizens. • Expand and integrate additional carbon-free and carbon-neutral generation. • Improving the energy transmission capacity serving the state. • Maintain and enhance our existing energy infrastructure. • Make state government a model for energy efficiency. • Meet statutory greenhouse gas limits and environmental requirements. • Pursue all cost-effective energy efficiency. • Reduce dependence on fossil fuel energy sources. • Support (1) access to clean energy markets (2) clean energy business and workforce development, (3) clean energy technology innovation, (4) development of cleaner energy sources, (5) clean, renewable energy and greenhouse gas-neutral operations.

[1] http://www.seattle.gov/environment/about-ose
[2] http://your.kingcounty.gov/dnrp/climate/documents/2013-King-County-Sustainability-Report.pdf
[3] http://www.psrc.org/assets/366/7293-V2040.pdf
[4] http://www.ecy.wa.gov/sustainability/exeorders.html

Table A-3 *(continued)*
Sustainability Goals of Four Regional Governmental and Non-Governmental Organizations
Seattle-Tacoma International Airport

Focus Areas	City of Seattle	King County	Puget Sound Regional Council	Washington State
Climate Change	Carbon neutral by 2050.	• Partner with its residents, businesses, local governments and other partners to reduce countywide greenhouse gas emissions by at least 80 percent below 2007 levels by 2050. • Reduce total greenhouse gas emissions from government operations, compared to a 2007 baseline, by at least 15 percent by 2015, 25 percent by 2020, and 50 percent by 2030. • Work with local cities and other partners to prepare for the effects of climate change on the environment, human health and the economy. • Plan and prepare for the likely impacts of climate change on County-owned facilities, infrastructure and natural resources.		• Return to 1990 greenhouse gas levels by 2020. • By 2035, reduce emissions to 25 percent below 1990 levels. • By 2050, reduce emissions to 50 percent below 1990 levels. • Programs to achieve goals: o Mandatory Emissions Inventory and Reporting o Creating Green Economy Jobs o Reducing Emissions from Transportation o Reducing Emissions from Electricity and Buildings o Helping Communities Save Energy and Reduce Emissions o State Agencies Reducing Emissions from their Operations o Preparing for and Adapting to Climate Change o Funding and Tax Incentives

Table A-3 *(continued)*
Sustainability Goals of Four Regional Governmental and Non-Governmental Organizations
Seattle-Tacoma International Airport

Focus Areas	City of Seattle	King County	Puget Sound Regional Council	Washington State
Development	Trees and Green Space • 1 acre of open space per 100 residents. • All residents live within 1/4 mile of a park. • 100 percent level of service for care of Seattle's green spaces. • 30 percent tree canopy cover by 2037. • 2,500 acres of forested parkland restored by 2025. • Increase volunteers caring for natural areas and trees. • Plant 1,800 trees in neighborhoods annually through community partnerships.	Forests and Agriculture • Support healthy, productive farms and privately owned forests that maximize biological carbon storage, promote public health, and are resilient to changing climate conditions. • Acquire, manage and restore its parks and other natural lands in ways that maximize biological carbon storage and are resilient to changing climate conditions.	The region will focus growth within already urbanized areas to create walkable, compact, and transit-oriented communities that maintain unique local character. Centers will continue to be a focus of development. Rural and natural resource lands will continue to be permanent and vital parts of the region.	
Economy			The region will have a prospering and sustainable regional economy by supporting businesses and job creation, investing in all people, sustaining environmental quality, and creating great central places, diverse communities, and high quality of life.	• Mobilize and enhance local assets that strengthen community ability to meet the economic and social needs of Washington's families, workers and employers. • Improve economic performance of rural areas. • Increase Washington's share of high growth, high employment, trade sectors. • Make Washington the best state in the country to start and grow a small business.
Food	• Increase healthy food access. • Increase urban food production. • Increase local food consumption.			

Table A-3 *(continued)*
Sustainability Goals of Four Regional Governmental and Non-Governmental Organizations
Seattle-Tacoma International Airport

Focus Areas	City of Seattle	King County	Puget Sound Regional Council	Washington State
Housing			The region will preserve, improve, and expand its housing stock to provide a range of affordable, healthy, and safe housing choices to every resident. The region will continue to promote fair and equal access to housing for all people.	
Public Service			The region will support development with adequate public facilities and services in a coordinated, efficient, and cost-effective manner that supports local and regional growth planning objectives.	
Transportation and Land Use	• Promote electric vehicles. • Triple the amount of bicycling in Seattle between 2007 and 2017. • Reduce the rate of bicycle collisions between 2007 and 2017. • Make Seattle the most walkable city in the United States.	• Reduce the need for driving and provide and encourage the use of sustainable transportation choices such as public transit, alternative technology vehicles, ridesharing, walking and bicycling. • Increase the efficiency of its vehicle fleets and minimize their greenhouse gas emissions.	The region will have a safe, cleaner, integrated, sustainable, and highly efficient multimodal transportation system that supports the regional growth strategy, promotes economic and environmental vitality, and contributes to better public health.	• Support reductions in vehicle miles traveled (VMT) and greenhouse gas (GHG) emissions. • Encourage more cost-effective and sustainable practices for construction and operations. • Facilitate efficient and sustainable transportation for users. • Research and promote the use of new technologies. • Promote alternative fuels and electric vehicle (EV) infrastructure. • Prepare our communities and the transportation system to adapt to climate change.

Table A-3 *(concluded)*
Sustainability Goals of Four Regional Governmental and Non-Governmental Organizations
Seattle-Tacoma International Airport

Focus Areas	City of Seattle	King County	Puget Sound Regional Council	Washington State
Waste Management	• Divert 70 percent of its waste to recycling and composting by 2020. • Increase the number of products where waste is managed by manufacturers. • Ban or discourage problem materials.	• Consumption and Materials Management • Encourage and support behaviors, purchasing, and waste management strategies that account for and minimize the life-cycle impacts of consumption and materials. • King County will minimize operational resource use, maximize reuse and recycling, and choose products and services that have low environmental impacts.		Green Purchasing • Increase purchases of environmentally preferable products. • Reduce the use of equipment, supplies, and other products that contain persistent, bio-accumulative toxic chemicals.
Water	• Use less than 105 million gallons of water per day. • Decommission 236 miles of logging roads in Cedar River watershed by 2020. • Manage 700 million gallons of runoff by 2025 with green infrastructure. • Increase pollutant removal from roadways. • Reduce sewer backups to less than 4 per 100 miles by 2025. • Reduce sewer overflows to one outflow per year by 2025.			

Table A-4
State of Washington Sustainability Executive Orders
Seattle-Tacoma International Airport

Executive Order 02-03, 2002: Sustainable Practices by State Agencies

Executive Order 04-01, 2004: Persistent Toxic Chemicals

Executive Order 05-01, 2005: Establishing Sustainability Efficiency Goals for State Operations

Executive Order 06-01, 2006: Reaffirming The Interagency Committee of State Employed Women

Executive Order 07-02, 2007: Washington Climate Change Challenge

Executive Order 08-01, 2008: Washington's New Americans Policy Council

Executive Order 08-02, 2008: Extending the State Biodiversity Council

Executive Order 09-05, 2009: Washington Leadership on Climate Change

Table A-5
Port Commission Century Agenda
Seattle-Tacoma International Airport

Regional Initiatives

- Strengthen access to global markets and supply chains for Northwest businesses.
- Make Washington a preferred destination for international travelers from countries with which we have direct flights.
- Establish an educational consortium to serve the needs of the maritime industry for workforce development, applied research, and business growth.
- Foster a coordinated effort among Puget Sound ports in support of Washington state's pursuit of a healthier Puget Sound.

Mission, Vision, and Commitment

- Our Mission: The Port of Seattle is a public agency that creates jobs by advancing trade and commerce, promoting industrial growth, and stimulating economic development.
- Our Vision: Over the next 25 years, we will add 100,000 jobs through economic growth led by the Port of Seattle, for a total of 300,000 Port-related jobs in the region, while reducing our environmental footprint.
- Our Commitment: The Port of Seattle creates economic opportunity for all, stewards our environment responsibly, partners with surrounding communities, promotes social responsibility, conducts ourselves transparently, and holds ourselves accountable. We will leave succeeding generations a stronger Port.

Strategic Goal 1

- Position the Puget Sound region as a premier international logistics hub.
- Objectives for Strategic Goal 1:
  - Grow seaport annual container volume to more than 3.5 million TEUs.
  - Structure our relationship with Washington ports to optimize infrastructure investments and financial returns.
  - Triple air cargo volume to 750,000 metric tons.
  - Triple the value of our outbound cargo to over $50 billion.
  - Double the economic value of the fishing and maritime cluster.

Table A-5 *(continued)*
Port Commission Century Agenda
Seattle-Tacoma International Airport

Strategic Goal 2

- Advance this region as a leading tourism destination and business gateway.
- Objectives for Strategic Goal 2:
  - Make Seattle-Tacoma International Airport the West Coast "Gateway of Choice" for international travel.
  - Double the number of international flights and destinations.
  - Meet the region's air transportation needs at Seattle-Tacoma International Airport for the next 25 years and encourage the cost-effective expansion of domestic and international passenger and cargo service.
  - Double the economic value of cruise traffic to Washington state.

Strategic Goal 3

- Use our influence as an institution to promote small business growth and workforce development.
- Objectives for Strategic Goal 3:
  - Increase the proportion of funds spent by the Port with qualified small business firms on construction, goods and services to 40 percent of the eligible dollars spent.
  - Increase workforce training, job and business opportunities for local communities in maritime, trade, travel and logistics.

Strategic Goal 4

- Be the greenest and most energy efficient port in North America.
- Objectives for Strategic Goal 4:
  - Meet all increased energy needs through conservation and renewable sources.
  - Meet or exceed agency requirements for storm water leaving Port-owned or operated facilities.
  - Reduce air pollutants and carbon emissions. Specifically: Reduce air pollutant emissions by 50 percent from 2005 levels. Reduce carbon emissions from all Port operations by 50 percent from 2005 levels and reduce aircraft-related carbon emissions at the Airport by 25 percent.

- Anchor the Puget Sound urban industrial land use to prevent sprawl in less developed areas.
- Restore, create, and enhance 40 additional acres of habitat in the Green/Duwamish watershed and Elliott Bay.

Table A-6
Seattle-Tacoma International Airport Purpose and Strategic Goals
Seattle-Tacoma International Airport

Purpose: Sea-Tac International Airport promotes regional economic vitality by:

- Operating a world-class international airport.
- Providing an extraordinary customer service.
- Being a model of environmental innovation for our region and our industry.

Strategic Goals:

- Operate a world-class international airport by:
  - Ensuring safe and secure operations.
  - Anticipating and meeting the needs of our tenants, passengers, and the region's economy.
  - Managing our assets to minimize the long-term total cost of ownership.
- Become one of the top ten customer service airports in the world by 2015.
- Lead the US airport industry in environmental innovation, and minimize the airport's environmental impact.
- Reduce airline costs (CPE) as much as possible without compromising operational and capital needs.
- Maximize non-aeronautical net operating income (NOI) consistent with current contracts, appropriate use of airport properties and market demand.
- Continually invest in a culture of employee development, organizational improvement, and business agility.
- Develop valued community partnerships based on mutual understanding and socially responsible practice.

Table A-7
Environmental Strategy Plan (ESP) Focus Areas and Focus Area Goals
Seattle-Tacoma International Airport

A. Air Quality and Climate Change
   a. Reduce air pollution that results from combustion and other activities.
   b. Reduce greenhouse gases (GHGs) that result from combustion and contribute to climate change.
   c. Prepare for climate change impacts.
   d. Improve the efficiency at which the community accesses the Airport.

B. Buildings and Infrastructure
   a. Increase adoption of LEED or other sustainable building performance frameworks.
   b. Improve asset management practices to minimize total cost of ownership and maximizes environmentally-sustainable development.

C. Energy Use and Conservation
   a. Reduce electricity and natural gas consumption.
   b. Increase adoption of technologies that reduce energy demand and increase efficiency.

D. Materials Use and Recycling
   a. Increase solid waste recycling rate.
   b. Reduce construction and hazardous waste.
   c. Reduce use of hazardous materials and opting for environmentally preferred products instead.

E. Noise
   a. Limit the noise impacts of its operations on the surrounding community.

F. Water Resource and Wildlife
   a. Reduce potable water consumption.
   b. Manage water treatment and flow control.
   c. Improve wildlife habitat and protections for native species not in conflict with aviation safety.
   d. Develop biologically sound approaches for managing hazardous wildlife

Table A-8
Airport Business Plan Goals and Associated Goal in Century Agenda or Port Strategic Goal
Seattle-Tacoma International Airport

Aviation Business Plan Goal	Century Agenda or Port Strategic Goal
Complete the Sustainable Airport Master Plan (SAMP) to meet the needs of our tenants, passengers and regional economy for the next 20 years.	"Leading tourism destination and business gateway"
Commence operations from new International Arrivals Facility (IAF) by December 31, 2018.	"Leading tourism destination and business gateway"
Facilitate/accommodate growth in international operations until new IAF is completed.	"Leading tourism destination and business gateway"
Complete all NorthSTAR program improvements by Q2 2000.	"Leading tourism destination and business gateway"
Increase productivity of existing terminal facilities.	"Leading tourism destination and business gateway"
Add four new international airline routes by 2019.	"Leading tourism destination and business gateway"
Renew aging landside infrastructure.	"Leading tourism destination and business gateway"
Provide an efficient and updated baggage system that incorporates new technology and efficient conveyor systems necessary to improve system performance and allow for future growth.	"Leading tourism destination and business gateway"
Identify and plan for all necessary refurbishments in the South Satellite.	"Leading tourism destination and business gateway"
Prepare a benefit/cost analysis for improvements to Minimum Connect Time (MCT).	"Leading tourism destination and business gateway"
Create a new Airport Master Record As-built Drawing System.	"Leading tourism destination and business gateway"
Complete initial comprehensive inventory of all physical assets across the Airport, continue periodic inspections to assess age and condition, and develop a system to facilitate forecasting of capital renewal projects and improve ongoing maintenance.	"Leading tourism destination and business gateway"
Achieve Top 5 ranking among 25 selected North American peers in 2018 ACI Airport Service Quality (ASQ) survey	"Leading tourism destination and business gateway"
Grow Continuous Process Improvement (CPI/Lean) across the Port.	"Leading tourism destination and business gateway"
Complete a work continuity and succession planning departmental pilot program.	"Leading tourism destination and business gateway"
Grow a mature Business Intelligence (BI) and performance management capability.	"Leading tourism destination and business gateway"
Implement noise mitigation programs consistent with updated Part 150 and Commission direction.	"Maintain community partnerships"

Table A-8 *(continued)*
Airport Business Plan Goals and Associated Goal in Century Agenda or Port Strategic Goal
Seattle-Tacoma International Airport

Aviation Business Plan Goal	Century Agenda or Port Strategic Goal
Collect accurate data to monitor compliance with noise abatement procedures and investigate stakeholder inquiries about Airport noise.	"Maintain community partnerships"
Maintain productive relationships with surrounding jurisdictions in order to facilitate support for redevelopment of Port-owned land in Airport communities. Airport community awareness of Port priorities and Commission goals 2015 – 2019. Airport jurisdictions approve Port projects 2015 - 2019.	"Maintain community partnerships"
Renegotiate the Port of Seattle/City of SeaTac Interlocal Agreement (ILA).	"Maintain community partnerships"
Implement new aviation division programs that support Port-wide workforce development strategies and Commission Quality Jobs policies.	"Maintain community partnerships"
Foster new aviation division opportunities for local businesses.	"Maintain community partnerships"
Prepare for the growing capital program to ensure program success.	"Manage our finances responsibly"
Maintain passenger airline cost per enplaned passenger (CPE) and forecasted CPE within the middle third of peer airports (list of 22 airports focusing on large hubs and Western U.S. airports) through 2019.	"Manage our finances responsibly"
Maintain Airport baseline O&M costs.	"Manage our finances responsibly"
Implement conservation practices that will enable Airport to meet all future electricity load growth (2010 baseline) through conservation and renewable energy.	"Manage our finances responsibly"
Manage financial activity to achieve targeted metrics.	"Manage our finances responsibly"
Grow Airport Dining and Retail sales per enplanement (SPE).	"Manage our finances responsibly"
Grow parking revenues.	"Manage our finances responsibly"
Grow annual revenues from leasing Airport property.	"Manage our finances responsibly"
Grow revenues from ground transportation service providers.	"Manage our finances responsibly"
Increase the revenues generated from the Airport's common-use lounge business.	"Manage our finances responsibly"
Make economical Airport cruise ship facility improvements where possible to support Seaport Division cruise business.	"Meeting needs of tenants, passengers, and the region's economy"

Table A-8 *(continued)*
Airport Business Plan Goals and Associated Goal in Century Agenda or Port Strategic Goal
Seattle-Tacoma International Airport

Aviation Business Plan Goal	Century Agenda or Port Strategic Goal
Provide adequate Airport-wide Wi-Fi infrastructure capacity.	"Meeting needs of tenants, passengers, and the region's economy"
Optimize use of Passenger Facility Charges (PFCs) to minimize CPE and to ensure that specific rates. Do not become a disincentive for airlines to operate at Sea-Tac Airport.	"Meeting needs of tenants, passengers, and the region's economy"
Increase Air Cargo tonnage by 20 percent to a total of 364,000 metric tons in 2019, in line with the Century Agenda.	"Premier international logistics hub"
Increase number and/or value of small business contracts.	"Promote small business growth and workforce development"
Improve overall safety of aircraft and vehicular movement measured by an increase in a composite annual score of 100 possible points, ranking runway incursions, wildlife strikes, taxilane and apron area surface incidents and Part 139 discrepancies.	"Safe and secure operations"
Reconstruct Runway 16C/34C by Q4 2015.	"Safe and secure operations"
Increase overall runway availability during snow events.	"Safe and secure operations"
Increase airline departure rate during snow events through centralized de-icing facilities.	"Safe and secure operations"
Ensure uninterrupted supply of jet fuel to Sea-Tac fuel farm from existing Olympic Pipeline Renton terminal through creation of redundant feed source.	"Safe and secure operations"
Mitigate risk of security breaches and associated downtime.	"Safe and secure operations"
Constantly improve overall readiness of the Port to respond to and recover from an emergency, disaster, and any event that would substantially disrupt business/operational continuity at the Airport.	"Safe and secure operations"
Provide emergency-back-up electrical power.	"Safe and secure operations"
Complete the next Sustainable Sea-Tac Strategy (S3) Plan by Q3 2015.	Be the greenest, and most energy efficient port in North America
Air Quality and Climate Change: Sea-Tac Airport will (1) reduce airport-owned and controlled greenhouse gas emissions by 15 percent below 2005 levels by 2020, and (2) implement programs with business partners to reduce emissions as much as possible.	Be the greenest, and most energy efficient port in North America
Materials Use & Recycling: Increase solid waste recycling rate to 50 percent by 2014. Develop goal for airfield recycling program.	Be the greenest, and most energy efficient port in North America
Water Conservation: Reduce operational (non-construction) potable water consumption rate 5 percent below 2008 levels.	Be the greenest, and most energy efficient port in North America

Table A-8 *(concluded)*
Airport Business Plan Goals and Associated Goal In Century Agenda or Port Strategic Goal
Seattle-Tacoma International Airport

Aviation Business Plan Goal	Century Agenda or Port Strategic Goal
Water Resources and Wildlife: Achieve and maintain Best Management Practices for water quality treatment and flow control over 100 percent of Airport industrial areas.	Be the greenest, and most energy efficient port in North America
Education & Integration: Institute an environmental education campaign to promote environmental stewardship and raise awareness of Airport environmental and sustainability initiatives. Integrate environmental and sustainability considerations into core business operations.	Be the greenest, and most energy efficient port in North America
New Airport buildings achieve high levels of environmental performance in energy, building materials, water conservation and indoor environmental quality.	Be the greenest, and most energy efficient port in North America
Complete a Post-Graduate Fellowship Pilot Program and produce recommendations for a follow-on program.	Promote small business growth and workforce development

Appendix B
Potential Applicability of SAMP Goals and Objectives to Port Plans, Functions, and Actions

Table B-1
Potential Applicability of SAMP Goals and Objectives to Port Plans, Functions, and Actions
Seattle-Tacoma International Airport

SAMP Goals / Objectives	Potential Metrics	Potential Applicability of SAMP Goals / Objectives										
		Plans		Function					Action			
		SAMP	SMP	Airfield	Terminal	Landside	Cargo	Support	What we build	Where we build	How we build	How we operate
O1: Enable the Port to achieve its financial goals in the business plan relative to Cost per Enplaned Passenger (CPE) and debt per enplaned passenger (DPE). The following are important to achieving this primary objective: • Enable phased, incremental development. • Maximize use of technology to minimize the amount of new development. • Provide revenue generating space in the terminal facilities in accordance with Port guidelines. • Ensure that that the cost of meeting facility needs does not exceed the Port's debt goals (i.e., overall affordability, but with total cost of ownership in mind).	• Professional Judgment (cost, spatial allocation) • CPE • DPE • Total project capital costs • Estimated 20-year O & M costs • Total cost of ownership	X		X	X	X	X	X	X	X	X	
O2: Minimize the effect of SAMP recommendations on cost center imbalances. This goal was identified as important, given the Airport lease agreement structure that is based on cost centers. It would affect the ability to afford future development.	• Percentage of project cost allocated to airline cost center (for top 4 or 5 projects only)	X							X			
O3: Reduce dwell time on the curb front and increase throughput to efficiently accommodate demand: • Ensure capacity of public parking is adequate to enable the Port to increase revenue; and • Provide cruise ship bus interfaces in a way that enhances customer service.	• LOS on curb front • Parking spaces • Average walk distance for cruise ship passengers—enplaning and deplaning • Average level changes for cruise ship passengers—enplaning and deplaning	X				X						X
O4: Minimize aircraft taxi time and reduce airfield congestion associated with ground vehicles: • Reduce runway crossings and reduce runway occupancy times. • Provide for efficient aircraft de-icing. • Develop a Surface Area Management System. • Develop aircraft departure sequencing process vs. FAA First-Come, First-Serve model. • With RON demand increasing, develop more versatile parking.	• Professional judgment (trade-offs among gate, RON, cargo, and deicing position productivity) • Professional judgment related to the availability of appropriately located runway exits, by airplane design group • Runway crossings • Runway occupancy times • Average aircraft taxi time • Average gate occupancy time during deice conditions	X		X					X	X		X
O5: Satisfy the demand for air cargo in a manner that consolidates cargo areas while minimizing congestion associated with the landside interfaces.	• Utilization ratio (metric tons per square foot of warehouse)	X					X		X	X		X

Table B-1 *(continued)*
Potential Applicability of SAMP Goals and Objectives to Port Plans, Functions, and Actions
Seattle-Tacoma International Airport

SAMP Goals / Objectives	Potential Metrics	Potential Applicability of SAMP Goals / Objectives										
		Plans		Function					Action			
		SAMP	SMP	Airfield	Terminal	Landside	Cargo	Support	What we build	Where we build	How we build	How we operate
O6. Maximize efficient passenger and baggage movement throughout the passenger's trip through Sea-Tac Airport (garage/terminal-to-aircraft, and for connections from aircraft to aircraft): • Maximize passenger throughput and level-of-service (LOS) in the terminal, including security checkpoints. • Maximize the passenger's ease of connection, and minimize wait time at security and check-in. • Maximize customer service: Minimize walking distances. • Minimize development through maximize common use facilities.	• LOS (queuing, curbsides) • Minimum connect time • Average walking distance • Average SSCP wait time • Peak period SSCP wait time • Average distance—curb to bag drop; centroid of garage to bag drop • Last bag cutoff time	X			X				X	X		X
O7: Air Quality: Reduce air pollutant emissions by 50 percent from 2005 levels by 2034.	• Dwell time • Taxi time • Vehicle miles traveled • Emissions inventory (tons/year)	X	X	X		X	X	X	X			X
O8: Buildings and Infrastructure: Seek LEED Silver for new construction, additions, and major renovations and minor renovations that modify mechanical, electrical, and plumbing systems, and encourage LEED certification for tenant improvements.	• Square feet of buildings with LEED silver or higher certification.		X		X		X	X			X	
O9: Climate Adaptation: Complete a risk analysis of potential climate change impacts and implications for the Airport, and develop a strategic plan for avoiding/mitigating risks.	• Complete risk analysis • Prepare strategic plan	X	X		X		X	X	X	X		
O10: Climate Protection: Reduce Airport-owned and controlled greenhouse gas emissions by 15 percent below 2005 levels by 2020, and 50 percent by 2034.	• Energy consumption • Scope 1 & 2 Emissions inventory	X	X	X	X	X	X	X	X		X	X
O11: Climate Protection: Reduce aircraft-related greenhouse gas emissions by 25 percent below 2005 levels by 2034.	• Energy consumption • Scope 1 & 2 Emissions inventory	X	X	X					X	X		X
O12: Waste - Construction: Divert 85 percent of construction waste by 2020, 90 percent by 2025, and reach zero waste by 2034.	• Percent of waste diverted.		X								X	
O13: Waste - Terminal and Airfield: Divert 50 percent of terminal solid waste and 15 percent of airfield solid waste by 2020.	• Tons of Landfilled Waste • Tons of Recycled Waste	X	X	X	X				X	X		X
O14: Waste - Hazardous: Reduce the volume of hazardous waste generated from Port maintenance and operations to meet requirements for Small Quantity Generator Status by 2020.	• Kilograms of hazardous waste generated, rolling 180 days.		X					X	X			X

Table B-1 *(concluded)*
Potential Applicability of SAMP Goals and Objectives to Port Plans, Functions, and Actions
Seattle-Tacoma International Airport

SAMP Goals / Objectives	Potential Metrics	Potential Applicability of SAMP Goals / Objectives										
		Plans		Function					Action			
		SAMP	SMP	Airfield	Terminal	Landside	Cargo	Support	What we build	Where we build	How we build	How we operate
O15: Energy: Meet all future growth in energy demand through the most practical and cost-effective conservation measures and renewable energy.	• Electricity (kWh) consumption per year • Percentage of electricity consumed that comes from renewable sources (kWhs from renewable/total kWhs). • Natural gas (therms) consumption per year • Percentage of natural gas consumed that comes from renewable sources (therms from renewable/total therms)	X	X	X	X	X	X	X	X			X
O16: Fish and Wildlife: Protect, enhance, and steward fish and wildlife habitat while maintaining air transportation safety.	• Acres of open space displaced • Acres of protected habitat displaced	X	X	X			X	X	X	X		X
O17: Noise: Increase the number of noise-compatible units within the noise remedy boundary to 95 percent through the year 2030.	• Percentage of noise compatible units within the noise remedy boundary		X									X
O18: Transportation: Increase the percentage of passengers accessing the Airport via environmentally-preferred modes of transportation from 60 percent in 2014 to 70 percent in 2020.	• Percentage of passengers accessing the Airport under the various environmentally preferred modes (percentage of passengers using environmentally preferred modes relative to total O&D passengers) • Environmentally preferred modes: Daily parking, taxi, door-to-door van, hotel/motel courtesy vehicle, air porters, public transit, and charter/other bus.	X	X			X						X
O19: Water Conservation: Reduce projected future consumption by 4 percent in 2020 and 12 percent in 2030.	• Portable water consumption in gallons per year • Non-potable water reuse	X	X		X			X	X			X
O20: Water Quality: Contribute to the restoration of Puget Sound and local receiving waters by providing water quality treatment, flow control, and using green storm water infrastructure (where feasible) for Airport industrial storm water.	• Gallons of water treated by infiltration per year • Gallons of rainwater captured and reused per year	X	X						X	X		X
O21: Maximize the compatibility of new development with nearby lands.	• Consistency of propose project with existing zoning • Proximity to noise and light sensitive land uses	X	X	X			X	X	X	X		X
O22: Identify benefits of proposed development to the local community.	• Socioeconomic impact (jobs/payroll/regional economic input) • Roadway LOS/Congestion • Changes in environmental effects (O7 thru O20)	X	X	X	X	X	X	X	X	X		
O23: Enhance employee welfare, and facilitate diversity.	• OSR office to determine – will not differentiate among MP alts		X	X	X	X	X	X			X	X
O24: Reduce off-Airport environmental impacts to nearby communities.	• Changes in environmental effects (O7 thru O20)	X	X	X			X	X	X	X	X	X
O25: Be transparent in public communications and increase outreach to the local community.	• Number of interactions with the public (i.e., workshops) • Number of comments received	X	X	X	X	X	X	X				X

Exhibit 6

[redacted]

From: Kranz, Erika (ENRD) <Erika.Kranz@usdoj.gov>
Sent: Thursday, April 12, 2018 11:42 AM
To: Adams, Matthew
Subject: Burien - CATEX
Attachments: 250 Westerly turn for SB turboprops in NF Categorical Exclusion.pdf; Appendix A - Initial Environmental Review.pdf; Appendix B - Zoning for Burien_Seattle_Normandy Park.pdf; Appendix C - Correspondence with WA State Historic Preservation Officer.pdf; Appendix E - Endangered Species Act Listed Species.pdf

Matt—
Attached are the CATEX body and attachments A, B, C, and E for the automated westerly turn for departing southbound turboprops when SEA is in north flow. I will send Appendix D separately, as it is a large file. Please do not make these documents public. They will be posted to FAA's website on Monday. Please let me know if you have any questions.

Erika Kranz
U.S. Department of Justice
Environment & Natural Resources Division, Appellate Section
202-307-6105 | Erika.Kranz@usdoj.gov

Exhibit 7

[redacted]

From: Kranz, Erika (ENRD) <Erika.Kranz@usdoj.gov>
Sent: Wednesday, May 09, 2018 1:16 PM
To: Adams, Matthew
Subject: RE: Automatic turn suspension question

Matt, I have learned that our standard practice would be to oppose an effort to amend a petition, although it seems we have not encountered this frequently. The only recent case I'm aware of where a petition was amended came in the context of an amended—not new—agency decision. Where there is an entirely new agency decision, and the existing petition is moot, a new petition is appropriate.

Erika

From: Adams, Matthew <matthew.adams@dentons.com>
Sent: Tuesday, May 8, 2018 4:20 PM
To: Kranz, Erika (ENRD) <EKranz@ENRD.USDOJ.GOV>
Subject: RE: Automatic turn suspension question

Erika-
Do you have any position on amendment of the petition (vs. filing of a new one)?
Happy to discuss later this week.
Many thanks,
Matt

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From: Kranz, Erika (ENRD) [mailto:Erika.Kranz@usdoj.gov]
Sent: Tuesday, May 08, 2018 11:35 AM
To: Adams, Matthew
Subject: Automatic turn suspension question

Matt—In response to your question about what is meant by "when operationally feasible" in the CATEX statement, "This automatic westerly turn would be suspended between the hours of 10 pm and 6 am, when operationally feasible," I am told the following:

There may be times when national airspace system impacts throughout the day compound arrival and departure delays resulting a higher departure demand in the 10 o'clock hour than normally scheduled. The most common example is bad weather. The implementation of "sleepytime operations" and/or the termination of the automatic turns may be adjusted to allow the delayed airplanes to depart as efficiently as possible and for safety of the operation. Any decision to delay the implementation of noise sensitive procedures will be evaluated for each situation.

I hope this helps. I'll send along any more information that I receive.

Erika Kranz
U.S. Department of Justice
Environment & Natural Resources Division, Appellate Section
202-307-6105 | Erika.Kranz@usdoj.gov

CERTIFICATE OF SERVICE - CM/ECF

I certify that on November 29, 2018, I electronically filed the **PETITIONER'S MOTION TO CORRECT THE RECORD, OR IN THE ALTERNATIVE, FOR CONSIDERATION OF EXTRA-RECORD EVIDENCE** with the Clerk of the Court for the United States Court of Appeals for the Ninth Circuit by using the appellate CM/ECF system. Counsel for all parties are registered to use that system and, to my knowledge, will receive copies of this document upon its filing.

/s/Matthew G. Adams
Matthew G. Adams

Case No. 18-71705

IN THE UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

CITY OF BURIEN, WASHINGTON

Petitioner,

v.

FEDERAL AVIATION ADMINISTRATION and
MICHAEL HUERTA,

Respondents.

CORRECTED PETITIONER'S OPENING BRIEF

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CORPORATE DISCLOSURE STATEMENT

Petitioner the City of Burien, Washington, is a municipal government. It is not a "nongovernmental corporate party" within the meaning of Federal Rule of Civil Procedure 26.1.

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STATEMENT OF JURISDICTION

In this Petition for Review, the City of Burien, Washington ("City" or "Burien"), challenges a decision by the Federal Aviation Administration ("FAA") to approve a new flight path (the "New Route") at Seattle-Tacoma International Airport. This Court has jurisdiction pursuant to 49 U.S.C. §46110(a), which provides for judicial review of FAA decision-making through the filing of a Petition for Review within 60 days of the issuance of the agency's decision.[1] The FAA's decision to approve the New Route is memorialized in a Categorical Exclusion, which was issued on April 16, 2018. *See* SAR 243.[2] The New Route became effective on June 6, 2018. ER 136. The City timely filed its Petition for Review on June 11, 2018. *See* Dkt. 1-2.

[1] A later filing date may also justified by "reasonable grounds." 49 U.S.C. §46110(a); *City of Phoenix v. Huerta*, 869 F.3d 963, 969-70 (D.C. Cir. 2017), *modified in part by* 2018 U.S. App. Lexis 7273 (D.C. Cir. Feb. 7, 2018); *Safe Extensions v. Fed. Aviation Admin.*, 509 F.3d 593, 603-04 (D.C. Cir. 2007).

[2] "SAR" refers to the Supplemental Administrative Record items identified in Petitioner's *Corrected* Motion to Correct the Record, Or, In The Alternative, For Consideration Of Extra-Record Evidence, filed herewith.

STATEMENT OF ISSUES PRESENTED FOR REVIEW

1. Did the FAA arbitrarily and capriciously conclude the New Route fits within an existing Categorical Exclusion from National Environmental Policy Act ("NEPA") review, where (a) the Categorical Exclusion relied upon by the agency applies to "modification of currently approved procedures"; (b) the New Route is not a "modification"; and (c) there was no "currently approved procedure" in place at the time of the New Route's approval?

2. Did the FAA arbitrarily and capriciously rely on a Categorical Exclusion from National Environmental Policy Act review, where (a) applicable NEPA procedures stipulate that "extraordinary circumstances" render Categorical Exclusions inapplicable; and (b) the agency failed properly to evaluate whether "extraordinary circumstances" were present?

3. Did the FAA arbitrarily and capriciously conclude that there is no reasonable alternative to the New Route, where (a) the conclusion rests on an incomplete application of one of its own Orders; and (b) the agency's alternatives analysis is premised on assumptions contrary to those employed in the agency's analysis of environmental consequences?

STATEMENT REGARDING PERTINENT AUTHORITY

Pertinent statutes, ordinances, regulations, and rules are set forth verbatim in an Addendum.

STATEMENT OF THE CASE

A. Legal Framework

The National Environmental Policy Act ("NEPA") requires federal agencies to identify, evaluate, and disclose to the public the environmental impacts of, and alternatives to, their proposed actions. 42 U.S.C. §4332(2)(C),(E); 40 C.F.R. parts 1500-1508; [Order 1050.1F, ¶1-7]. This review process has two primary purposes: (1) it "ensures that the agency…will have available, and will carefully consider, detailed information" regarding environmental concerns; and (2) it "guarantees that the relevant information will be made available to the larger audience that may also play a role in both the decision-making process and the implementation of [the] decision." *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349-50 (1989). Consistent with those Congressionally-defined objectives, agencies must fully comply with NEPA *before* taking any action that could have adverse environmental consequences or limit their choice of reasonable alternatives. 40 C.F.R. §1506.1.

Under NEPA, proposed actions with significant environmental effects must be evaluated in a detailed, comprehensive Environmental Impact Statement ("EIS"). 42 U.S.C. §4332(2)(C); 40 C.F.R. part 1502. Proposed actions with

environmental impacts that are less than significant or not fully known are evaluated in a more concise document known as an Environmental Assessment ("EA"). 42 U.S.C. §4332(2)(E); 40 C.F.R. §1508.9.

In limited circumstances, an agency may proceed without an EIS or an EA if its proposed action falls within a defined Categorical Exclusion—a category of actions which have previously been found, in properly-adopted agency procedures, to present no possibility of a significant environmental impact. *See* 40 C.F.R. §1508.4. NEPA requires agencies to strictly comply with all requirements of their Categorical Exclusion procedures. *See, e.g., Am. Bird Conservancy v. Fed. Commc'n Comm'n*, 516 F.3d 1027, 1033-34 (D.C. Cir. 2008).

Agency NEPA compliance is subject to multiple layers of regulations and guidance. The Council on Environmental Quality ("CEQ") has promulgated NEPA regulations which are binding on all federal agencies. *See* 40 C.F.R. §1500.3. Among other things, CEQ's regulations direct each federal agency to adopt its own NEPA "procedures." 40 C.F.R. §1507.3. At all times relevant to this Petition, the FAA's NEPA procedures were memorialized in FAA Order 1050.1F.[3] The FAA has also published a *1050.1F Desk Reference*,[4] which provides interpretive guidance.

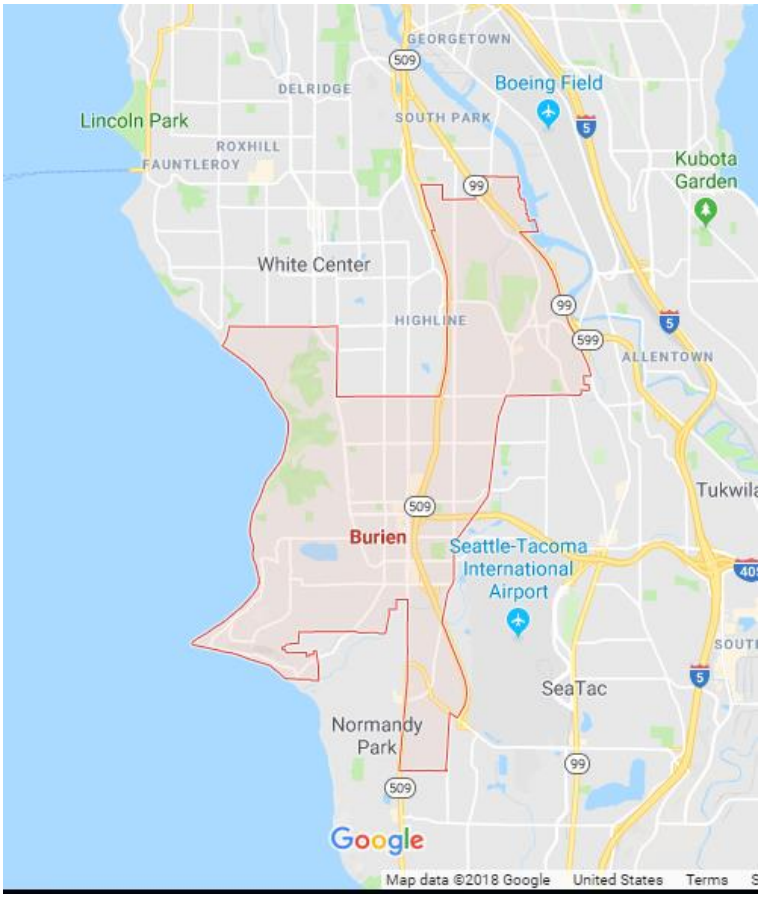
---

[3] FAA Order 1050.1F is set forth in its entirety at Administrative Record 3. Relevant excerpts appear in Petitioner's Excerpts of Record at ER 215-249.

B. Statement of Facts

1. Seattle-Tacoma International Airport

The City of Burien, Washington, is a residential community of approximately 50,000 people located south of Seattle that is known for its shoreline, its parks, and scenic Lake Burien. The City surrounds Seattle-Tacoma International Airport ("Sea-Tac") on two sides. *See* **Figure 1**. Central Burien, including the City's downtown area, is due west of the airport, while Northeast Burien is due north of the airport. *Id*.



[4] The *1050.1F Desk Reference* is set forth in its entirety at Administrative Record 6. Relevant excerpts appear in Petitioner's Excerpts of Record at 250-291.

Sea-Tac has three runways, which are oriented in a north-south alignment. ER 8. As a general matter, aircraft take off and land into the wind. *Id*. When winds are from the north aircraft depart northward in a pattern commonly referred to as "North Flow." For many years, the standard Sea-Tac North Flow departure route has used a 340-degree heading, which directs aircraft north from the airport before they are eventually turned toward their ultimate destinations. ER 17.

Sea-Tac is not the only airport in the area. A smaller facility known as "Boeing Field" is located approximately 5 miles away. The 340-degree North Flow departure heading from Sea-Tac passes over Boeing Field, but there is no record evidence that this route is considered to preclude operations at either airport.

Commercial airlines serve Sea-Tac with both jet and turboprop aircraft. ER 7, 13. Different airplanes accelerate and climb at different rates, and, for that reason, it is sometimes desirable to separate turboprops from jets after departure from Sea-Tac. ER 13, 17. For southbound turboprops[5] in North Flow conditions, this is often done by turning turboprops to the west. ER 12, 15.

For decades, southbound turboprops in North Flow were turned by Sea-Tac's Air Traffic Control Tower ("ATCT") after coordination with Seattle Terminal Radar Approach Control (known as "S46"). ER 18. This was important

[5] Alaska Air Group, for example, operates turboprop flights from Sea-Tac to Portland, Oregon and Reno, Nevada. *See* https://www.alaskaair.com/content/route-map?lid=nav:explore-routeMap (last visited Nov. 29, 2018).

because ATCT operates independently from the control tower at Boeing Field. ER 14, 88. Consultation with S46 ensured that there would be no conflict between turboprops turning southbound and Boeing Field operations. ER 88.

Consultation between ATCT and S46 also served to minimize the impacts of southbound turboprop flights. The coordination resulted in "multiple headings being used" for the turboprops, each one "provided to the pilots at different points" after takeoff. ER 55; *see also* ER18 ("multiple westerly headings…and the planes receiving instructions to turn westerly at different points"). Because the turn was issued on an as-needed, case-by-case basis, turboprop overflights were distributed across a relatively broad area and no single neighborhood or community bore the brunt of their impacts. *See* **Figure 2**.

2. Airport Growth

In recent years, Sea-Tac has grown quickly and somewhat unexpectedly. The FAA reports that "there has been approximately a 33% increase in operations at [Sea-Tac] since 2010, most of which has occurred since 2014." ER 7. In 2014, Sea-Tac was the fourteenth busiest airport in the United States; by 2016 it had become the ninth busiest. ER 6. This growth includes a 20% increase in use of the Bombardier Q400, the principal turboprop turned west in North Flow conditions. ER 7. Although Sea-Tac is "essentially at capacity during daytime hours," additional growth is expected. ER 25; SAR 146.

To accommodate this growth, the FAA created an internal workgroup "to determine how to best manage southbound turboprops departing [Sea-Tac] in north flow." ER 15. Although the record contains little information about the workgroup's participants and proceedings, two things are clear: first, the focus of the group was on increasing throughput and capacity (ER 15, 203); and second, the New Route was developed as part of the group's activities (ER 15).

The New Route eliminates the traditional coordination between ATCT and S46 regarding southbound turboprops in North Flow. ER 17. Instead, it calls for turboprops to be "automatically" turned to a 250-degree heading by ATCT. *Id.* The automatic turn was intended to allow ATCT to turn southbound turboprops more efficiently. But eliminating S46 from the process also raised the prospect of conflict with Boeing Field. *See* ER 88.

The FAA "solved" this issue — a problem of its own making — by requiring southbound turboprops departing Sea-Tac to turn onto the 250-degree heading immediately upon takeoff. ER 17. This helped eliminate safety concerns regarding Boeing Field. *Id.*; ER 88. But it also meant that aircraft would have to make the turn at a much lower altitude. *See, e.g.*, ER 57 ("the change is felt as soon as the aircraft is off the runway"). And it effectively concentrated those low-flying turboprops in a narrow band directly over central Burien. See **Figure 3**.

Figure 2: 60 random days August 2015 - January 2016
White Center
Burien
SEA
BFI
Key:
Westerly turned north flow turboprops
Burien City Boundary
Study Area

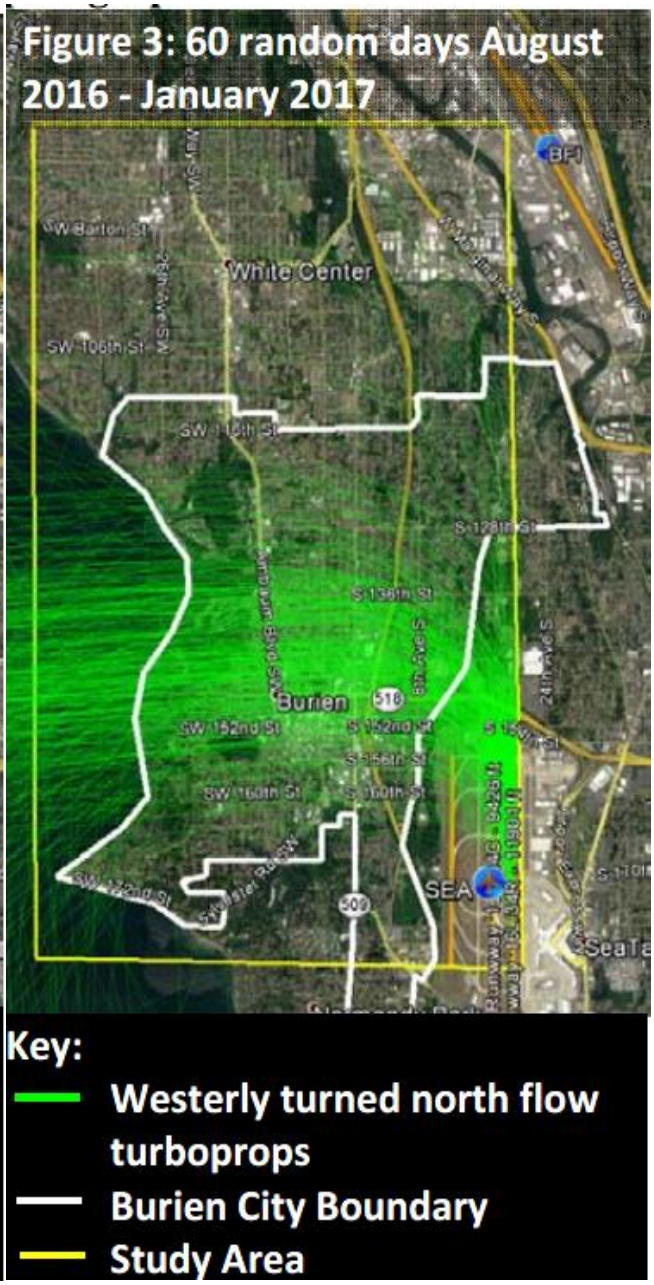


Figure 3: 60 random days August 2016 - January 2017
White Center
Burien
SEA
BFI
Key:
Westerly turned north flow turboprops
Burien City Boundary
Study Area

ER 55, 56.

In July, 2016, the FAA finalized the New Route and added it to a pre-existing Letter Of Agreement ("LOA") between ATCT and S46.[6] ER 186.

3. Initial Implementation Of The New Route

The FAA began implementing the New Route during the summer of 2016. ER 15; SAR 147. It did so without any notice to the City or its residents and without conducting any environmental review. *Id*.

The New Route imposed substantial noise impacts on City parks, schools, residential neighborhoods, and other noise-sensitive areas. SAR 147. The City and its residents spent considerable time and effort trying to obtain from the FAA information about the New Route and its impacts. *Id*.; ER 171, 177. The FAA did not provide a formal, substantive response until December 16, 2016, at which point it refused to reconsider the New Route. SAR 147.

Faced with no other option, the City filed a Petition for Review in this Court. *See City of Burien v. Fed. Aviation Admin*. (No. 17-70438). Rather than defend its actions, the FAA agreed to withdraw and rescind the New Route. ER 174; SAR 145-46. The agency announced this decision in an April 10, 2017, letter stating that the New Route would be withdrawn and removed from the LOA. SAR 145-46. The letter placed no conditions on the withdrawal. *Id*. But it did note FAA's

[6] The LOA governs coordination between ATCT and S46. ER 181-202. Although not itself a "procedure" or "flight path," it does contain a list of some of the approved procedures relevant to Sea-Tac. *Id*.

continued interest in the New Route as a means of accommodating future capacity and demand: "[Sea-Tac] has witnessed a nearly 9% increase in operations between 2015 and 2016" and "[t]his increase in operations is projected to continue, due to greater demand and additional air carriers entering the market." *Id.*

4. Environmental Review Of The New Route

In the spring of 2017, the FAA prepared a short Preliminary Environmental Analysis ("PEA") for addressing "automation of a westerly heading for turboprop aircraft separating [Sea-Tac] in north flow." ER 162-70. The eight-page document stated the FAA's intent to re-adopt the New Route. ER 162. It also listed a series of 16 environmental impact categories required to be addressed under NEPA and provided brief overviews of some (but not all) of them. ER 162-70. The PEA said nothing about the number of turboprops expected to fly the New Route, the altitude at which those aircraft would pass over the City of Burien, or the FAA's plans for NEPA review. *Id.*

On June 8, 2017, the FAA announced the availability of the PEA for review and comment. ER 48, 170. The agency originally planned to provide just 14 days for interested parties to review and comment on the document. ER 170. United States Representative Pramila Jayapal sent a letter to the FAA noting the "significant public controversy" surrounding the New Route and the inadequacy of

the comment period. ER 159. The FAA subsequently extended the comment period for an additional 14 days.

The FAA received more than 700 comments on the PEA. ER 96-105. The City provided extensive comments identifying defects in the PEA, as well as a technical analysis cataloguing missing environmental information. ER 109-126. The United States Environmental Protection Agency ("EPA") disputed the environmental assumptions underlying the PEA and recommended additional analysis. ER 106-108. And numerous other community stakeholders registered environmental objections of their own. ER 96-105.

5. Approval of the New Route and Petition for Review

Notwithstanding this outpouring of concern, the FAA proceeded to issue a Categorical Exclusion (ER 1-129) and approve the New Route. The City timely filed its Petition for Review on June 11, 2018. *See* Dkt. 1-2.

SUMMARY OF ARGUMENT

1. The FAA arbitrarily and capriciously relied on a Categorical Exclusion that applies to "modification of currently approved procedures." The New Route is not a "modification," and, at the time of its approval, there was no "currently approved procedure" addressing southbound turboprops in North Flow.

2. "Extraordinary circumstances" render Categorical Exclusions inapplicable. The FAA arbitrarily and capriciously concluded that the New Route presents no "extraordinary circumstances." The agency's conclusion is based on erroneous assumptions and is squarely contradicted by the record.

3. The FAA arbitrarily and capriciously concluded that there were no feasible alternatives to the New Route. The agency's conclusion was based on an incomplete application of its own Orders. In addition, the assumptions used in the agency's alternatives analysis cannot be reconciled with those used in its evaluation of environmental impacts.

STANDING

A petitioner demonstrates standing by showing that (1) it has suffered an injury in fact that is (a) concrete and particularized and (b) actual or imminent, not conjectural or hypothetical; (2) the injury is fairly traceable to the challenged

action; and (3) it is likely that the injury will be redressed by a favorable decision. *Friends of the Earth v. Laidlaw*, 528 U.S. 167, 180-81 (2000); *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 560-61 (1992). The City meets each of these requirements.

A. Injury

The City has been injured by the FAA's failure to comply with the procedural requirements of the Administrative Procedure Act ("APA") and NEPA. A procedural injury confers standing where the injured party can show "that it was accorded a procedural right to protect its interests and that it has concrete interests that are threatened." *City of Las Vegas v. Fed. Aviation Admin*., 570 F.3d 1109, 1114 (9th Cir. 2009).

Burien satisfies the first requirement because NEPA and the APA provide procedural rights to municipalities seeking to protect their environmental and socioeconomic resources. *Id*.; *see also City of Sausalito v. O'Neill*, 386 F.3d 1186, 1197 (9th Cir. 2004).

Burien satisfies the second requirement because the New Route "directs flights over densely populated parts of the city, which threatens the city's interests in the environment and in land management." *City of Las Vegas*, 570 F.3d at 1114. The City has invested considerable effort and regulatory resources on noise mitigation within existing noise corridors. ER 112-13. At the same time, it has

exercised its land-use planning and regulatory powers to direct noise-sensitive uses (including residential development required to meet state-mandated shares of regional housing needs) into areas outside of those corridors. *Id.* For example, one of Burien's recent efforts has been to rehabilitate and revitalize its downtown. Declaration of Lisa Marshall ("Marshall Dec."), ¶5. To that end, the City has helped develop, fund, and maintain public spaces, parks, a regular farmer's market, a public library, a new City Hall, and other noise-sensitive uses in the downtown area, all in the reasonable expectation that departure routes from Sea-Tac would remain consistent with existing noise corridors. *Id.* The New Route would direct low-flying aircraft straight over this downtown area, adversely affecting the City's economic, environmental, aesthetic, proprietary, and regulatory interests. *Id.* In addition, the New Route will lead to an increase in jet departures over northeast Burien, where the City has invested substantial resources in addressing already-elevated noise levels. Marshall Dec., ¶4. These impacts not only harm Burien residents, but also injure the City *qua* city. *City of Las Vegas*, 570 F.3d at 1114; *City of Sausalito*, 386 F.3d at 1197. Indeed, Burien was originally incorporated for the very purpose of protecting community resources from the impacts of Sea-Tac. Marshall Dec., ¶3.[7]

[7] For most of its modern history, Burien was an unincorporated area of King County, Washington. Marshall Dec., ¶3. Incorporation initiatives were defeated on four

B. Causation

There is no reasonable dispute that the low-flying turboprop aircraft and increased jet departures described above are fairly traceable to the FAA's approval and implementation of the New Route. For example, prior to the New Route, southbound turboprop departures in North Flow were given a variety of headings and turn locations, resulting in more dispersion and fewer noise impacts. ER 18, 55. The New Route has concentrated those same turboprop departures in a narrow corridor over central Burien, eliminating dispersion and substantially increasing noise impacts. *See* **Figures 2 and 3**. The stated purpose of this change was to permit more aircraft — jets as well as turboprops — to depart Sea-Tac in North Flow conditions. ER 17.

C. Redressability

The City's injuries can readily be redressed by a decision requiring the FAA to comply with NEPA and the APA. *City of Sausalito*, 386 F.3d at 1199; *see also City of Dania Beach v. Fed. Aviation Admin.*, 485 F.3d 1181, 1185-87 (D.C. Cir. 2007) ("An agency action that is taken without following the proper environmental procedures can be set aside by this Court and remanded to the agency for completion of the review process").

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different occasions between 1950 and 1984. *Id*. Not until the early 1990s, when Sea-Tac unveiled plans to build an additional runway, did residents vote to become a city. *Id*. The incorporation vote was an explicit effort to secure a voice in airport expansion decisions. *Id*.

STANDARD OF REVIEW

The FAA's approval of the New Route is reviewed under the "arbitrary and capricious" standard of the APA, which requires the Court to "hold unlawful and set aside agency action, findings and conclusion" that are "arbitrary, capricious, and abuse of discretion, or otherwise not in accordance with law" or adopted "without observance of procedure required by law." 5 U.S.C. §706(2).

The "arbitrary and capricious" standard mandates a "thorough, probing, in-depth review" of agency decision-making. *Citizens to Preserve Overton Park v. Volpe*, 401 U.S. 402, 416 (1971). Although courts do not substitute their judgment for that of an agency, neither do they "rubber stamp" agency decisions. *Ocean Advocates v. United States Army Corps of Eng'rs,* 402 F.3d 846, 859 (9th Cir. 2005). Thus, "to withstand review, [an] agency must articulate a rational connection between the facts found and the conclusions reached." *Sierra Club v. Bosworth*, 510 F.3d 1016, 1022 (9th Cir. 2007).

An agency's decision-making is "arbitrary and capricious" if it is based on "factors which Congress has not intended [the agency] to consider," if the agency has "failed to consider an important aspect of the problem," if the agency offers "an explanation for its decision that runs counter to the evidence," or if the agency's conclusions are "so implausible that [they] could not be ascribed

to…agency expertise." *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983).

ARGUMENT

A. The FAA's Reliance On A Categorical Exclusion Was Arbitrary And Capricious

1. The FAA Arbitrarily and Capriciously Concluded the New Route Falls Within a Categorical Exclusion

The FAA found that the New Route qualifies for the Categorical Exclusion set forth in Order 10501.1F, ¶5-6.5i, which applies to four classes of actions:

> [1] Establishment of new or revised air traffic control procedures conducted at 3,000 feet or more above ground level (AGL); [2] procedures conducted below 3,000 feet AGL that do not cause traffic to be routinely routed over noise sensitive areas; [3] modifications to currently approved procedures conducted below 3,000 feet AGL that do not significantly increase noise over noise sensitive areas; and [4] increases in minimum altitudes and landing minima.

ER 247. Although the record is not entirely clear (*see* ER 2), the FAA appears to have concluded the New Route falls within the third classification — namely, "modifications to currently approved procedures conducted below 3,000 feet AGL that do not significantly increase noise over noise sensitive areas." ER 93.

That conclusion is clearly erroneous. At the time of its approval, the New Route was just that — a new procedure, not a "modification" to a "currently approved procedure." The FAA first approved and implemented a 250-degree turn

procedure for southbound turboprops in July, 2016. ER 179, 186. It did so without any NEPA compliance or notice to the community, and, when the agency refused to reconsider or mitigate the effects of its decision, the City filed suit. SAR 147. In March, 2017, the FAA explicitly withdrew its approval of the 250-degree turn procedure and removed it from the LOA. ER 174; SAR 145-46. That withdrawal was complete and unconditional. *Id*.. Thus, at the time of the New Route's approval, there was no "currently approved procedure" governing southbound turboprops in North Flow. *Id*.; *see also* ER 16. And because there was no "currently approved procedure," the New Route could not have been a "modification." Therefore, the FAA's reliance on the "modifications to currently approved procedures" Categorical Exclusion was arbitrary and capricious.

2. The FAA Arbitrarily and Capriciously Relied on a Categorical Exclusion Despite the Existence of Extraordinary Circumstances

Even if the New Route fit within the "modifications to currently approved procedures" Categorical Exclusion — and it did not — the FAA's NEPA analysis would not pass muster. Reliance on an otherwise-applicable Categorical Exclusion is improper where "extraordinary circumstances" indicate that the proposed action may have a significant environmental impact. 40 C.F.R. §1508.4; ER 233; *see also California v. Norton*, 311 F.3d 1162, 1168 (9th Cir. 2002) ("In [ ] extraordinary circumstances, a categorically excluded action would nevertheless

trigger preparation of an EIS or EA"); *City of Phoenix*, 869 F.3d at 972 (invalidating FAA Categorical Exclusion based on extraordinary circumstances).

FAA Order 1050.1F identifies 12 extraordinary circumstances in which an EIS or EA is required for actions that would normally qualify for a Categorical Exclusion. ER 233-35. The FAA concluded that the New Route did not implicate any of them. ER 71-75. That conclusion was arbitrary and capricious in each of the following respects.

Potential for Additional Airport Operations

The FAA's entire environmental analysis regarding extraordinary circumstances was premised on an assumption that there will be no increase in the number of flights (or, to use the agency's term, "operations") at Sea-Tac. *See, e.g.*, ER 27 (air quality analysis); 30 (analysis regarding impacts to parks); *see also* ER 26 ("no increase in the number of airport operations"), 44 ("will not change the levels of airport operations"), 114 ("not expected to increase operations"). That assumption does not withstand scrutiny.

The New Route was developed by an FAA workgroup that "looked at ways to increase the departure flow" ER 203 and sought to "maximize throughput in a north flow" ER 204. The FAA's stated purpose and need for the Project includes accommodating additional flights at Sea-Tac. ER 16-17. The FAA eliminated from consideration several alternatives to the New Route based, in whole or in

substantial part, on their perceived inability to accommodate additional departures. ER 23, 25. And the FAA has admitted that the New Route will "allow[ ] more aircraft to depart SEA within a given window of time" (ER 19) and permit ATC to "increase the rate at which aircraft may depart SEA" (ER 53). On this record, the FAA's unsupported "no increased operations" assumption was arbitrary and capricious.

The issue is not abstract. As noted above, the New Route concentrates turboprop aircraft and their impacts over central Burien, immediately west of Sea-Tac. But it also increases capacity for jet departures on the traditional 340-degree heading immediately north of the airport. In fact, *that is precisely what the it was intended to accomplish*. ER 16-17, 203-204. Increased jet departures impact northeast Burien, an area containing environmental justice communities and where noise levels already exceed 65 dBA on a regular basis. ER 41 (environmental justice), 47 (noise levels). The Categorical Exclusion does not explain how many additional jet departures can be expected to occur or whether the impacts of those departures have the potential to be significant, thereby failing to "consider an important aspect of the problem." *Motor Vehicle*, 463 U.S. at 43.

Cumulative Impacts

Even if the FAA's "no increased operations" assumption were reasonable for the New Route standing alone, the agency's analysis would nonetheless be

arbitrary and capricious for failing to properly evaluate the cumulative impact of the New Route together with other developments bearing on the number of operations at Sea-Tac.

FAA Order 1050.1F provides that "extraordinary circumstances" exist if the proposed action has the potential to create significant cumulative impacts. ER 33-35. Cumulative impacts refer to "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions." 40 C.F.R. §1508.7. In other words, a significant cumulative impact "can result from individually minor but collectively significant actions taking place over a period of time," whether those actions are local or federal, public or private. *Id*.; *see also Kern v. U.S. Bureau of Land Mgmt*., 284 F.3d 1062, 1078-79 (9th Cir. 2005). Therefore, "in a cumulative impact analysis, an agency must take a hard look at *all* actions that may combine with the action under consideration to affect the environment." *Great Basin Res. Watch v. Bureau of Land Mgmt.*, 844 F.3d 1095 (2016) (internal quotations omitted).

FAA's cumulative impacts analysis briefly discusses eight roadway and development projects in the general vicinity of Sea-Tac. ER 44-47. But it fails to address past, present, and reasonably foreseeable future actions at the airport itself.

Id. There has been a 33% increase in overall operations at Sea-Tac since 2010. ER 7. Use of the principal turboprop aircraft that would fly the New Route has increased 20%. *Id*. Further increases are expected, as are additional air carriers. SAR 145-46. In other words, the FAA's New Route concentrates turboprop flights in a narrow path over central Burien and creates additional capacity for jet departures over northeast Burien, while at the same time, other actors (airlines, Sea-Tac, etc.) have decided to dramatically increase both jet and turboprop operations. The Categorical Exclusion says nothing about the cumulative, synergistic impact of these developments. ER 44-47. That omission renders the agency's decision-making arbitrary and capricious. *See Kern*, 284 F.3d at 1078-79; *Ocean Advocates v. U.S. Army Corps of Eng'rs*, 402 F.3d 846, 866-67 (9th Cir. 2005).

The Categorical Exclusion also fails to address the cumulative impact of the New Route together with Sea-Tac's Sustainable Airport Master Plan ("SAMP"). The SAMP process is funded through a FAA grant. SAR 152-242. It has three "major goals," one of which is to achieve the Seattle Port Commission's "Century Agenda." SAR 193. The Century Agenda, in turn, calls for Sea-Tac to become a "west coast gateway of choice" by doubling the number of international flights and destinations, tripling air cargo volume, and encouraging expansion of both domestic and international passenger service. SAR 204. To reach these goals the

Port of Seattle (Sea-Tac's proprietor) has identified a series of "near-term projects," some of which are identified as "capacity improvements." SAR 159. Specific projects include new gates and terminals, taxiways, runway improvements, aircraft parking areas, and a series of "major cargo projects." SAR 165-70. All of these projects were reasonably foreseeable during the FAA's NEPA review. *Id.*[8] In fact, as part of its comments on the Preliminary Environmental Assessment, the City explicitly requested that the FAA's cumulative impact analysis be revised to address "capacity-enhancing future projects planned for the airport." ER 113. The agency's failure to do so was arbitrary, capricious, and contrary to NEPA. *See, e.g., Grand Canyon Trust v. Fed Aviation Admin.*, 290 F.3d 339, 345-47 (D.C. Cir. 2002) (failure to address cumulative impact of all reasonably airport projects was arbitrary and capricious).

Public Controversy

"Extraordinary circumstances" exist if the impacts of a proposed action are "likely to be highly controversial on environmental grounds." ER 233-34; *accord* 40 C.F.R. 1508.27(b)(4). Order 1050.1F defines "highly controversial on environmental grounds" to mean "a substantial dispute involving reasonable

[8] The final version of this document is dated "May 2018," but the Near Term Projects were planned, analyzed, and proposed beginning in 2017 — precisely the time when the FAA was conducting its NEPA review of the New Route. *See, e.g.*, SAR 160-63, 176 (maps of Near-Term Projects dated 2017); SAR 168-69 (project schedule dated 2017); SAR 177, 179 (analyses dated 2017).

disagreement over the degree, extent, or nature of a proposed action's environmental impacts or over the action's risks of causing environmental harm." *Id*. Order 1050.1F further directs that "[o]pposition on environmental grounds by a Federal, state, or local government agency…or by a substantial number of the persons affected by the action" helps determine whether or not there is a "reasonable disagreement regarding the impacts of the proposed action." *Id*.

The Administrative Record reveals just such a "reasonable disagreement" here. Burien (a "local government agency") provided the FAA with robust comments identifying substantive defects in the FAA's PEA, as well as a technical memorandum identifying missing environmental information. ER 109-126.[9] The EPA (a "Federal" agency) disputed key assumptions presented in the PEA and recommended additional environmental analysis. ER 106-108. And more than 700 other commenters (a "substantial number" of affected persons) expressed environmental objections of their own. ER 96-105. This evidence is more than enough to establish public controversy on environmental grounds. *See, e.g., Nat'l Parks & Conservation Ass'n v. Babbitt*, 241 F.3d 722, 736 (9th Cir. 2001) (finding public controversy where agency received 450 comments on Environmental Assessment); *Found. for N. Am. Wild Sheep v. Dep't of Agric*., 681 F.2d 1172,

[9] Indeed, the City's comments on the Preliminary Environmental Analysis were lengthier and more substantive than the Preliminary Environmental Analysis itself. *Compare* ER 109-126 *with* ER 162-70.

1182 (9th Cir. 1982) (finding public controversy where sister agencies and experts expressed environmental concerns).

The Categorical Exclusion admits that the New Route has produced "a high level of controversy," but concludes that the New Route is not "highly controversial on environmental grounds" because "there are no reportable or significant noise impacts." ER 74. The agency's wordplay is unconvincing. Under the plain language of Order 1050.1F, the fact that FAA has concluded there will be no significant impacts does not determine the existence or non-existence of public controversy. ER 234; *see also City of Phoenix*, 869 F.3d at 972 (rejecting similar FAA contention in the context of historic resources). What matters is whether other stakeholders — including, as relevant here, local agencies, federal agencies, or a substantial number of affected persons — reasonably and substantively dispute the FAA's analysis and conclusions regarding significance. *Id.*; *see also City of Phoenix*, 869 F.3d at 971-72. As described above, the City, the EPA, and the larger community have all done so here.

Moreover, the FAA's suggestion that (admitted) public controversy surrounding the New Route was not "environmental" rings hollow in light of the agency's own failure to disclose its NEPA analysis to the public. True, the FAA allowed the public to comment on the short Preliminary Environmental Analysis. *See* ER 162-70. But, as the City (ER 110-11), the City's technical expert (ER 119-

26), and the EPA (ER 106) all pointed out, the Preliminary Environmental Analysis was not a NEPA document and did not provide sufficient information to permit meaningful comment on matters required to be addressed in the NEPA process. In response to those comments, the FAA admitted that "the preliminary environmental analysis was not intended to be presented as a draft or final NEPA document." ER 106. The agency never made such a document available for public review and comment, however. Having failed to share its full environmental analysis with the public, it was unreasonable, arbitrary, and capricious for the agency to conclude that the public's comments lacked sufficient environmental substance.

B. The FAA's Consideration Of Alternatives Was Arbitrary And Capricious

The Categorical Exclusion discusses several alternatives to the New Route, all of which the FAA eliminated from detailed consideration after concluding they would not satisfy the agency's purposes and needs. ER 17-25. That conclusion was arbitrary and capricious in two fundamental respects.

First, the agency arbitrarily and capriciously eliminated alternative turboprop headings from detailed consideration based on an incomplete assessment of the requirements of Section 5-8-5 of FAA Order 7110.65W. The Categorical Exclusion describes the requirement as follows: "A minimum 30 [degree] separation is required between a departure and a missed approach heading per

FAA Order 7110.65W Section 5-8-5." ER 19. In the FAA's view, this precludes southbound turboprops from ever using any heading within 30 degrees of Sea-Tac's 290-degree missed approach path. But the text of Section 5-8-5 is not quite so categorical. It appears to require a 30-degree separation only "until separation is applied." ER 212. This clause is nowhere referenced or discussed in the Categorical Exclusion. Nor is there anything else in the record to suggest the FAA ever considered whether the "until separation is applied" clause might render alternatives to the New Route feasible.

Second, as briefly noted above, FAA eliminated from consideration several alternatives to the New Route based, in whole or in substantial part, on their perceived inability to accommodate increasing departures. At the same time, however, the agency has maintained that its analysis of environmental impacts need not account for any additional operations. ER 26, 27, 30; 44, 114. The FAA cannot have it both ways. If the Categorical Exclusion's alternatives analysis is properly premised on a need to accommodate additional operations, those additional operations were required to be addressed in the document's analysis of environmental consequences. Or, if the Categorical Exclusion's impacts analysis is properly premised on the notion that there will be no additional operations at Sea-Tac, the document's alternatives analysis was arbitrary and capricious for relying on the agency's need to accommodate such operations.

CONCLUSION

For the reasons set forth above, the City respectfully requests that this Court (1) find the FAA's approval of the New Route arbitrary, capricious, and in violation of law; (2) invalidate the New Route; and (3) and remand the matter to the FAA for further proceedings.

Dated: November 30, 2018

Respectfully submitted,

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STATEMENT OF RELATED CASE

Pursuant to Circuit Rule 28-2.6, Petitioner City of Burien, Washington states that it is not aware of any related cases pending before this Court.

CERTIFICATE OF COMPLIANCE

The undersigned certifies that, according to the word count provided by Microsoft Word 2010, the body of the foregoing brief contains 6590 words. The text of the brief is in 14-point Times New Roman, which is proportionately spaced.

/s/Matthew G. Adams
Matthew G. Adams

CERTIFICATE OF SERVICE - CM/ECF

I certify that on November 30, 2018, I electronically filed ***CORRECTED*** **PETITIONER'S OPENING BRIEF** with the Clerk of the Court for the United States Court of Appeals for the Ninth Circuit by using the appellate CM/ECF system. Counsel for all parties are registered to use that system and, to my knowledge, will receive copies of this document upon its filing.

/s/Matthew G. Adams
Matthew G. Adams

Case No. 18-71705

IN THE UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

CITY OF BURIEN, WASHINGTON

Petitioner,

v.

FEDERAL AVIATION ADMINISTRATION and
MICHAEL HUERTA,

Respondents.

PETITIONER'S ADDENDUM OF STATUTES AND REGULATIONS

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Pursuant to Federal Rules of Appellate Procedure 28(f) and Ninth Circuit Rule 28-2.7, Petitioners hereby submit the following Addendum of Statutes and Regulations.

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ADDENDUM OF STATUTES AND REGULATIONS

5 U.S.C. § 706

Title 5: Government Organization and Employees
Part I: The Agencies Generally
Chapter 7: Judicial Review

§ 706. SCOPE OF REVIEW

To the extent necessary to decision and when presented, the reviewing court shall decide all relevant questions of law, interpret constitutional and statutory provisions, and determine the meaning or applicability of the terms of an agency action. The reviewing court shall--

(1) compel agency action unlawfully withheld or unreasonably delayed; and

(2) hold unlawful and set aside agency action, findings, and conclusions found to be--

(A) arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law;

(B) contrary to constitutional right, power, privilege, or immunity;

(C) in excess of statutory jurisdiction, authority, or limitations, or short of statutory right;

(D) without observance of procedure required by law;

(E) unsupported by substantial evidence in a case subject to sections 556 and 557 of this title or otherwise reviewed on the record of an agency hearing provided by statute; or

(F) unwarranted by the facts to the extent that the facts are subject to trial de novo by the reviewing court.

In making the foregoing determinations, the court shall review the whole record or those parts of it cited by a party, and due account shall be taken of the rule of prejudicial error.

42 U.S.C. § 4332
Title 42: The Public Health and Welfare
Chapter 55: National Environmental Policy
Subchapter I: Policies and Goals

§ 4332. COOPERATION OF AGENCIES; REPORTS; AVAILABILITY OF INFORMATION; RECOMMENDATIONS; INTERNATIONAL AND NATIONAL COORDINATION OF EFFORTS

The Congress authorizes and directs that, to the fullest extent possible: (1) the policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policies set forth in this chapter, and (2) all agencies of the Federal Government shall--

(A) utilize a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decisionmaking which may have an impact on man's environment;

(B) identify and develop methods and procedures, in consultation with the Council on Environmental Quality established by subchapter II of this chapter, which will insure that presently unquantified environmental amenities and values may be given appropriate consideration in decisionmaking along with economic and technical considerations;

(C) include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on--

(i) the environmental impact of the proposed action,

(ii) any adverse environmental effects which cannot be avoided should the proposal be implemented,

(iii) alternatives to the proposed action,

(iv) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and

(v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

> Prior to making any detailed statement, the responsible Federal official shall consult with and obtain the comments of any Federal agency which has jurisdiction by law or special expertise with respect to any environmental impact involved. Copies of such statement and the comments and views of the appropriate Federal, State, and local agencies, which are authorized to develop and enforce environmental standards, shall be made available to the President, the Council on Environmental Quality and to the public as provided by section 552 of Title 5, and shall accompany the proposal through the existing agency review processes;

(D) Any detailed statement required under subparagraph (C) after January 1, 1970, for any major Federal action funded under a program of grants to States shall not be deemed to be legally insufficient solely by reason of having been prepared by a State agency or official, if:

> **(i)** the State agency or official has statewide jurisdiction and has the responsibility for such action,
>
> **(ii)** the responsible Federal official furnishes guidance and participates in such preparation,
>
> **(iii)** the responsible Federal official independently evaluates such statement prior to its approval and adoption, and
>
> **(iv)** after January 1, 1976, the responsible Federal official provides early notification to, and solicits the views of, any other State or any Federal land management entity of any action or any alternative thereto which may have significant impacts upon such State or affected Federal land management entity and, if there is any disagreement on such impacts, prepares a written assessment of such impacts and views for incorporation into such detailed statement.
>
> The procedures in this subparagraph shall not relieve the Federal official of his responsibilities for the scope, objectivity, and content of the entire statement or of any other responsibility under this chapter; and further, this subparagraph does not affect the legal sufficiency of statements prepared by State agencies with less than statewide jurisdiction.1

(E) study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources;

(F) recognize the worldwide and long-range character of environmental problems and, where consistent with the foreign policy of the United States, lend appropriate support to initiatives, resolutions, and programs designed to maximize international cooperation in anticipating and preventing a decline in the quality of mankind's world environment;

(G) make available to States, counties, municipalities, institutions, and individuals, advice and information useful in restoring, maintaining, and enhancing the quality of the environment;

(H) initiate and utilize ecological information in the planning and development of resource-oriented projects; and

(I) assist the Council on Environmental Quality established by subchapter II of this chapter.

40 C.F.R. § 1500.3
Title 40: Protection of Environment
Chapter V: Council on Environmental Quality
Part 1500: Purpose, Policy and Mandate

§ 1500.3 MANDATE

Parts 1500 through 1508 of this title provide regulations applicable to and binding on all Federal agencies for implementing the procedural provisions of the National Environmental Policy Act of 1969, as amended (Pub. L. 91-190, 42 U.S.C. 4321 et seq.) (NEPA or the Act) except where compliance would be inconsistent with other statutory requirements. These regulations are issued pursuant to NEPA, the Environmental Quality Improvement Act of 1970, as amended (42 U.S.C. 4371 et seq.) section 309 of the Clean Air Act, as amended (42 U.S.C. 7609) and Executive Order 11514, Protection and Enhancement of Environmental Quality (March 5, 1970, as amended by Executive Order 11991, May 24, 1977). These regulations, unlike the predecessor guidelines, are not confined to sec. 102(2)(C) (environmental impact statements). The regulations apply to the whole of section 102(2). The provisions of the Act and of these regulations must be read together as a whole in order to comply with the spirit and letter of the law. It is the Council's intention that judicial review of agency compliance with these regulations not occur before an agency has filed the final environmental impact statement, or has made a final finding of no significant impact (when such a finding will result in action affecting the environment), or takes action that will result in irreparable injury. Furthermore, it is the Council's intention that any trivial violation of these regulations not give rise to any independent cause of action.]

40 C.F.R. § 1506.1
Title 40: Protection of Environment
Chapter V: Council on Environmental Quality
Part 1506: Other Requirements of NEPA

§ 1506.1 Limitations on Actions During NEPA Process

(a) Until an agency issues a record of decision as provided in § 1505.2 (except as provided in paragraph (c) of this section), no action concerning the proposal shall be taken which would:

(1) Have an adverse environmental impact; or

(2) Limit the choice of reasonable alternatives.

(b) If any agency is considering an application from a non-Federal entity, and is aware that the applicant is about to take an action within the agency's jurisdiction that would meet either of the criteria in paragraph (a) of this section, then the agency shall promptly notify the applicant that the agency will take appropriate action to insure that the objectives and procedures of NEPA are achieved.

(c) While work on a required program environmental impact statement is in progress and the action is not covered by an existing program statement, agencies shall not undertake in the interim any major Federal action covered by the program which may significantly affect the quality of the human environment unless such action:

(1) Is justified independently of the program;

(2) Is itself accompanied by an adequate environmental impact statement; and

(3) Will not prejudice the ultimate decision on the program. Interim action prejudices the ultimate decision on the program when it tends to determine subsequent development or limit alternatives.

(d) This section does not preclude development by applicants of plans or designs or performance of other work necessary to support an application for Federal, State or local permits or assistance. Nothing in this section shall preclude Rural Electrification Administration approval of minimal expenditures not affecting the environment (e.g. long leadtime equipment and purchase options) made by non-governmental entities seeking loan guarantees from the Administration.

40 C.F.R. § 1507.3

Title 40: Protection of Environment
Chapter V: Council on Environmental Quality
Part 1507: Agency Compliance

§ 1507.3 AGENCY PROCEDURES

(a) Not later than eight months after publication of these regulations as finally adopted in the Federal Register, or five months after the establishment of an agency, whichever shall come later, each agency shall as necessary adopt procedures to supplement these regulations. When the agency is a department, major subunits are encouraged (with the consent of the department) to adopt their own procedures. Such procedures shall not paraphrase these regulations. They shall confine themselves to implementing procedures. Each agency shall consult with the Council while developing its procedures and before publishing them in the Federal Register for comment. Agencies with similar programs should consult with each other and the Council to coordinate their procedures, especially for programs requesting similar information from applicants. The procedures shall be adopted only after an opportunity for public review and after review by the Council for conformity with the Act and these regulations. The Council shall complete its review within 30 days. Once in effect they shall be filed with the Council and made readily available to the public. Agencies are encouraged to publish explanatory guidance for these regulations and their own procedures. Agencies shall continue to review their policies and procedures and in consultation with the Council to revise them as necessary to ensure full compliance with the purposes and provisions of the Act.

(b) Agency procedures shall comply with these regulations except where compliance would be inconsistent with statutory requirements and shall include:

(1) Those procedures required by §§ 1501.2(d), 1502.9(c)(3), 1505.1, 1506.6(e), and 1508.4.

(2) Specific criteria for and identification of those typical classes of action:

(i) Which normally do require environmental impact statements.

(ii) Which normally do not require either an environmental impact statement or an environmental assessment (categorical exclusions (§ 1508.4)).

(iii) Which normally require environmental assessments but not necessarily environmental impact statements.

(c) Agency procedures may include specific criteria for providing limited exceptions to the provisions of these regulations for classified proposals. They are proposed actions which are specifically authorized under criteria established by an Executive Order or statute to be kept secret in the interest of national defense or foreign policy and are in fact properly classified pursuant to such Executive Order or statute. Environmental assessments and environmental impact statements which address classified proposals may be safeguarded and restricted from public dissemination in accordance with agencies' own regulations applicable to classified information. These documents may be organized so that classified portions can be included as annexes, in order that the unclassified portions can be made available to the public.

(d) Agency procedures may provide for periods of time other than those presented in § 1506.10 when necessary to comply with other specific statutory requirements.

(e) Agency procedures may provide that where there is a lengthy period between the agency's decision to prepare an environmental impact statement and the time of actual preparation, the notice of intent required by § 1501.7 may be published at a reasonable time in advance of preparation of the draft statement.

40 C.F.R. § 1508.4

Title 40: Protection of Environment
Chapter V: Council on Environmental Quality
Part 1508: Terminology and Index

§ 1508.4 CATEGORICAL EXCLUSION

Categorical exclusion means a category of actions which do not individually or cumulatively have a significant effect on the human environment and which have been found to have no such effect in procedures adopted by a Federal agency in implementation of these regulations (§ 1507.3) and for which, therefore, neither an environmental assessment nor an environmental impact statement is required. An agency may decide in its procedures or otherwise, to prepare environmental assessments for the reasons stated in § 1508.9 even though it is not required to do so. Any procedures under this section shall provide for extraordinary circumstances in which a normally excluded action may have a significant environmental effect.

40 C.F.R. § 1508.7

Title 40: Protection of Environment
Chapter V: Council on Environmental Quality
Part 1508: Terminology and Index

§ 1508.7 CUMULATIVE IMPACT

Cumulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

40 C.F.R. § 1508.9

Title 40: Protection of Environment
Chapter V: Council on Environmental Quality
Part 1508: Terminology and Index

§ 1508.9 ENVIRONMENTAL ASSESSMENT

Environmental assessment:

(a) Means a concise public document for which a Federal agency is responsible that serves to:

(1) Briefly provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact.

(2) Aid an agency's compliance with the Act when no environmental impact statement is necessary.

(3) Facilitate preparation of a statement when one is necessary.

(b) Shall include brief discussions of the need for the proposal, of alternatives as required by section 102(2)(E), of the environmental impacts of the proposed action and alternatives, and a listing of agencies and persons consulted.

40 C.F.R. § 1508.27

Title 40: Protection of Environment
Chapter V: Council on Environmental Quality
Part 1508: Terminology and Index

§ 1508.27 SIGNIFICANTLY

Significantly as used in NEPA requires considerations of both context and intensity:

(a) Context. This means that the significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality. Significance varies with the setting of the proposed action. For instance, in the case of a site-specific action, significance would usually depend upon the effects in the locale rather than in the world as a whole. Both short- and long-term effects are relevant.

(b) Intensity. This refers to the severity of impact. Responsible officials must bear in mind that more than one agency may make decisions about partial aspects of a major action. The following should be considered in evaluating intensity:

(1) Impacts that may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial.

(2) The degree to which the proposed action affects public health or safety.

(3) Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.

(4) The degree to which the effects on the quality of the human environment are likely to be highly controversial.

(5) The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.

(6) The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.

(7) Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.

(8) The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.

(9) The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.

(10) Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.

Dated: November 29, 2018

Respectfully submitted,

DENTONS US LLP

By */s/ Matthew G. Adams*
Matthew G. Adams
Jessica L. Duggan
Attorneys for Petitioners

CERTIFICATE OF SERVICE - CM/ECF

I certify that on November 29, 2018, I electronically filed the **PETITIONER'S ADDENDUM OF STATUTES AND REGULATIONS** with the Clerk of the Court for the United States Court of Appeals for the Ninth Circuit by using the appellate CM/ECF system. Counsel for all parties are registered to use that system and, to my knowledge, will receive copies of this document upon its filing.

/s/Matthew G. Adams
Matthew G. Adams

Case No. 18-71705

IN THE UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

CITY OF BURIEN, WASHINGTON

Petitioner,

v.

FEDERAL AVIATION ADMINISTRATION and
MICHAEL HUERTA,

Respondents.

DECLARATION OF LISA MARSHALL

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Attorneys for Petitioner CITY OF BURIEN.

I, Lisa M. Marshall, hereby declare as follows:

1. I am an attorney licensed to practice in the State of Washington. I have knowledge of, and am competent to testify regarding, all of the matters set forth herein.

2. I am the City Attorney for the City of Burien, Washington.

3. For most of its modern history, Burien was an unincorporated area of King County, Washington. Area residents voted against incorporation on four different occasions between 1950 and 1984. But when plans to build an additional runway at Seattle-Tacoma International Airport ("Sea-Tac") were unveiled, residents voted, by a two-to-one margin, to become a city. The incorporation vote was an explicit effort to secure some voice and regulatory authority for the Burien community in airport-related decisions.

4. Burien has invested considerable effort and regulatory resources on noise mitigation within the existing noise corridor immediately north of Sea-Tac's three runways. At the same time, the City has exercised its land-use planning and regulatory powers to direct noise-sensitive uses — including residential development required to meet our State-defined share of regional housing needs — into areas outside of that corridor. These efforts are undertaken in compliance with state laws and municipal ordinances governing land use, zoning, and environmental quality.

5. One recent example of the phenomenon described above is Burien's effort to rehabilitate and revitalize its historic downtown. To that end, the City has helped develop, fund, and maintain public spaces, parks, a farmer's market, a public library, a new City Hall, and other noise-sensitive uses in the downtown area. This represents a substantial commitment of Burien's economic and regulatory resources. The City made that commitment in the reasonable expectation that defined departure routes from Sea-Tac would continue to be consistent with existing noise corridors. Unfortunately, the Federal Aviation Administration's new route for southbound turboprops in North Flow directs airplanes to make a sharp left turn immediately upon departure and routes those planes over the downtown Burien area. These overflights have adversely impacted — and will continue to adversely impact — aesthetics and environmental quality in downtown Burien, and, in so doing, they also impact the City's economic investment and proprietary interests.

I declare under penalty of perjury that the foregoing is true and correct.

Dated: November 29, 2018

By _____
Lisa Marshall

CERTIFICATE OF SERVICE - CM/ECF

I certify that on November 29, 2018, I electronically filed the **DECLARATION OF LISA MARSHALL** with the Clerk of the Court for the United States Court of Appeals for the Ninth Circuit by using the appellate CM/ECF system. Counsel for all parties are registered to use that system and, to my knowledge, will receive copies of this document upon its filing.

/s/Matthew G. Adams
Matthew G. Adams

Case No. 18-71705

IN THE UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

CITY OF BURIEN, WASHINGTON

Petitioner,

v.

FEDERAL AVIATION ADMINISTRATION and
MICHAEL HUERTA,

Respondents.

CORRECTED PETITIONER'S MOTION TO CORRECT THE RECORD, OR IN THE ALTERNATIVE, FOR CONSIDERATION OF EXTRA-RECORD EVIDENCE

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ARGUMENT

Petitioner the City of Burien, Washington, hereby moves this Court, pursuant to Circuit Rule 17-1 and Federal Rules of Appellate Procedure 16, 17 and 27, for an Order directing that seven documents be added to the Administrative Record in this Petition for Review of Federal Aviation Administration ("FAA") action to approve a new departure route (the "New Route") at Seattle-Tacoma International Airport ("Sea-Tac"). True and correct copies of the documents are attached to this Motion as Exhibits 1 through 7.

The record on review of an agency order consists of: (1) the order involved; (2) any findings or report on which it is based; and (3) the pleadings, evidence and other parts of the proceedings before the agency. Fed. R. App. Proc. 16(a). All parts of the record retained by the agency are a part of the administrative record on review for all purposes. Fed. R. App. Proc. 17(b)(3). "A reviewing court must review the administrative record before the agency at the time the agency made its decision." *National Wildlife Federation v. U. S. Army Corps of Engineers*, 384 F.3d 1163; 1170 (9th Cir. 2004), *citing Southwest Ctr. for Biological Diversity v United States Forest Serv*., 100 F.3d 1443, 1450 (9th Cir. 1996).

Federal Courts, including this Court, may allow supplementation of an agency-prepared administrative record if the record inadequate, incomplete or insufficient to explain the agency's decision. *Midwater Trawlers Coop. v. Dep't of*

Commerce, 393 F.3d 994, 1007 (9th Cir. 2004) ("judicial review of an agency decision may be expanded beyond the [administrative] record if necessary to explain agency decisions")

Courts may also rely on "extra-record" materials: (1) if necessary to determine whether the agency has considered all relevant factors and has explained its decision; (2) when the agency has relied on documents not in the record; (3) when supplementing the record is necessary to explain technical terms or complex subject matter, or (4) when plaintiffs make a showing of agency bad faith. *Ctr. for Biological Diversity v. U. S. Fish & Wildlife Serv.*, 450 F.3d 930, 943 (9th Cir. 2006) (citations omitted.) "These limited exceptions operate to identify and plug holes in the administrative record." *Lands Council v. Powell*, 379 F.3d 738, 747 (9th Cir. 2004), *citing Camp v. Pitts*, 411 U.S. 138, 142-43 (1973) (reviewing court may require supplementation of the administrative record if it is incomplete).

Consistent with these general principles governing administrative record review, Petitioner respectfully requests that this Court supplement FAA's

Administrative Record with the following seven documents, or, in the alternative, consider those seven documents as extra-record evidence.[1]

1. **Seattle-Tacoma International Airport Part 150 Noise Compatibility Study, dated October 2013**

The FAA claims to have reviewed this document as part of the National Environmental Policy Act ("NEPA") process at issue in this case (*see* AR 37 at 39), but it does not appear in the agency's Administrative Record.

2. **Letter from Regional Administrator KC Yanamura to Mayor Lucy Krakowiak regarding "North Flow Departures from Sea-Tac Airport over the City of Burien", dated April 10, 2017**

This document is an official communication of the FAA announcing the commencement of the NEPA process at issue in this case, but it does not appear in the agency's Administrative Record.

3. **Letter from Burien City Attorney Lisa Marshall to Acting Regional Administrator David Suomi requesting additional discussions, dated November 15, 2017**

This document is an official communication from Petitioner City of Burien to the FAA addressing the NEPA process at issue in this case, but it does not appear in the agency's Administrative Record.

[1] Counsel for the Petitioner has notified counsel for the FAA of Petitioner's intent to file this Motion. Counsel for the FAA has advised that she intends to file a response, but will review the Motion before stating whether that response states an objection.

4. **Exchange of emails between Burien City Attorney Lisa Marshall and Acting Regional Administrator David Suomi regarding status of FAA decision-making, dated November 22, 2017; January 29, 2018; and February 6, 2018**

These documents are official communications between the FAA and the City addressing the NEPA process at issue in this case, but they do not appear in the agency's Administrative Record.

5. **Seattle-Tacoma International Airport Sustainable Airport Master Plan Technical Memoranda 1 and 7, dated July, 2015, and May, 2018**

These are official documents prepared as part of a planning process funded by the FAA and occurring at Sea-Tac during the same timeframe as the NEPA process at issue in this case. Under NEPA, the FAA had an obligation to identify and evaluate the cumulative impact of the New Route together with all past, present, and reasonably foreseeable future actions. 40 C.F.R. §1508.7. These documents are therefore necessary to determine "whether the agency has considered all relevant factors and has explained its decision." *See Ctr. for Biological Diversity*, 450 F.3d at 943.

6. **E-mail from E. Kranz to M. Adams regarding publication of Categorical Exclusion to FAA website, dated April 12, 2018**

This document is an official communication from a representative of the FAA to a representative of the Petitioner regarding the agency decision-making process at issue in this case, but it does not appear in the agency's Administrative

Record. The document also confirms the date of the FAA's final order, and is therefore necessary for effective judicial review.

7. **E-mails between M. Adams and E. Kranz regarding filing of new petition for review, dated May 8 and 9, 2018**

This document confirms the positions of the Parties with respect to the filing of the Petition for Review in this case, and is therefore necessary for effective judicial review.

CONCLUSION

The seven documents discussed above address issues that go to the core of the substance and judiciability of this case. For these reasons and the others set forth above, the City respectfully requests that its Motion be granted.

Dated: November 30, 2018

Respectfully submitted,

DENTONS US LLP

By */s/ Matthew G. Adams*
Matthew G. Adams
Jessica L. Duggan
Attorneys for Petitioners

Exhibit 1

CHAPTER ONE
INVENTORY

Seattle-Tacoma International Airport (Sea-Tac Airport) is the primary air transportation hub of Washington State and the Northwest United States. The Airport is located within King County and the City of SeaTac, approximately 12 miles south of downtown Seattle and approximately 20 miles north of the City of Tacoma. As of May 2012, Sea-Tac Airport was served by 25 commercial passenger airlines with scheduled passenger service. There are also several scheduled all-cargo carriers serving Sea-Tac Airport. Sea-Tac Airport provides non-stop air service to 71 cities within the United States and 17 additional cities worldwide. In terms of passenger activity, in 2011 Sea-Tac Airport was the 16th busiest airport in the United States and is the primary commercial service airport for the Pacific Northwest. In terms of operations, it was the 23th busiest airport in the United States in 2011. It is the only airport that provides primary scheduled commercial service in the Puget Sound Region. The generalized location of Sea-Tac Airport is illustrated on **Exhibit 1-1, *Airport Location Map***.

Sea-Tac Airport is owned and operated by the Port of Seattle (Port), which is led by a five-member governing body called the Port of Seattle Commission (Commission). The Commission is elected at large to direct Port policy. The Port district boundaries are contiguous with those of King County. The Managing Director of the Aviation Division is responsible for the day-to-day operations of Sea-Tac Airport. While state enabling legislation provides the Port with a broad range of municipal powers over Sea-Tac Airport property and operations, the Port does not have jurisdiction over land use and zoning requirements to ensure compatible development in the noise-affected areas around Sea-Tac Airport. The Port, as operator of Sea-Tac Airport, has enacted a comprehensive program of noise abatement and mitigation measures through Port Commission Resolutions. These Resolutions are outlined in subsequent sections of this chapter.

This 14 CFR Part I50 Study will evaluate traditional Part 150 elements and time frames, which generally includes evaluating aircraft noise exposure and noise abatement measures within the five-year time frame dictated by Title 14, Part 150 of the Code of Federal Regulations (14 CFR Part 150).

1.1 14 CFR PART 150

Part 150 is a section of the Code of Federal Regulations (CFR) that sets forth rules and guidelines for airports desiring to undertake airport noise compatibility planning. The regulations were promulgated by the Federal Aviation Administration (FAA) pursuant to the Aviation Safety and Noise Abatement Act (ASNA) of 1979, Public Law 96-193. ASNA was enacted to "… provide and carry out noise compatibility programs, to improve assistance to assure continued safety in aviation and for other purposes." The FAA was vested with the authority to implement and

administer this act. This legislation required the establishment of a single system for measuring aircraft noise, determining noise exposure, and identifying land uses, which are normally compatible with various noise exposure levels.

Through 14 CFR Part 150, the FAA established regulations governing the technical aspects of aircraft noise analysis and the public participation process for airports choosing to prepare airport noise compatibility plans.

1.1.1 PURPOSE OF CONDUCTING A PART 150 STUDY

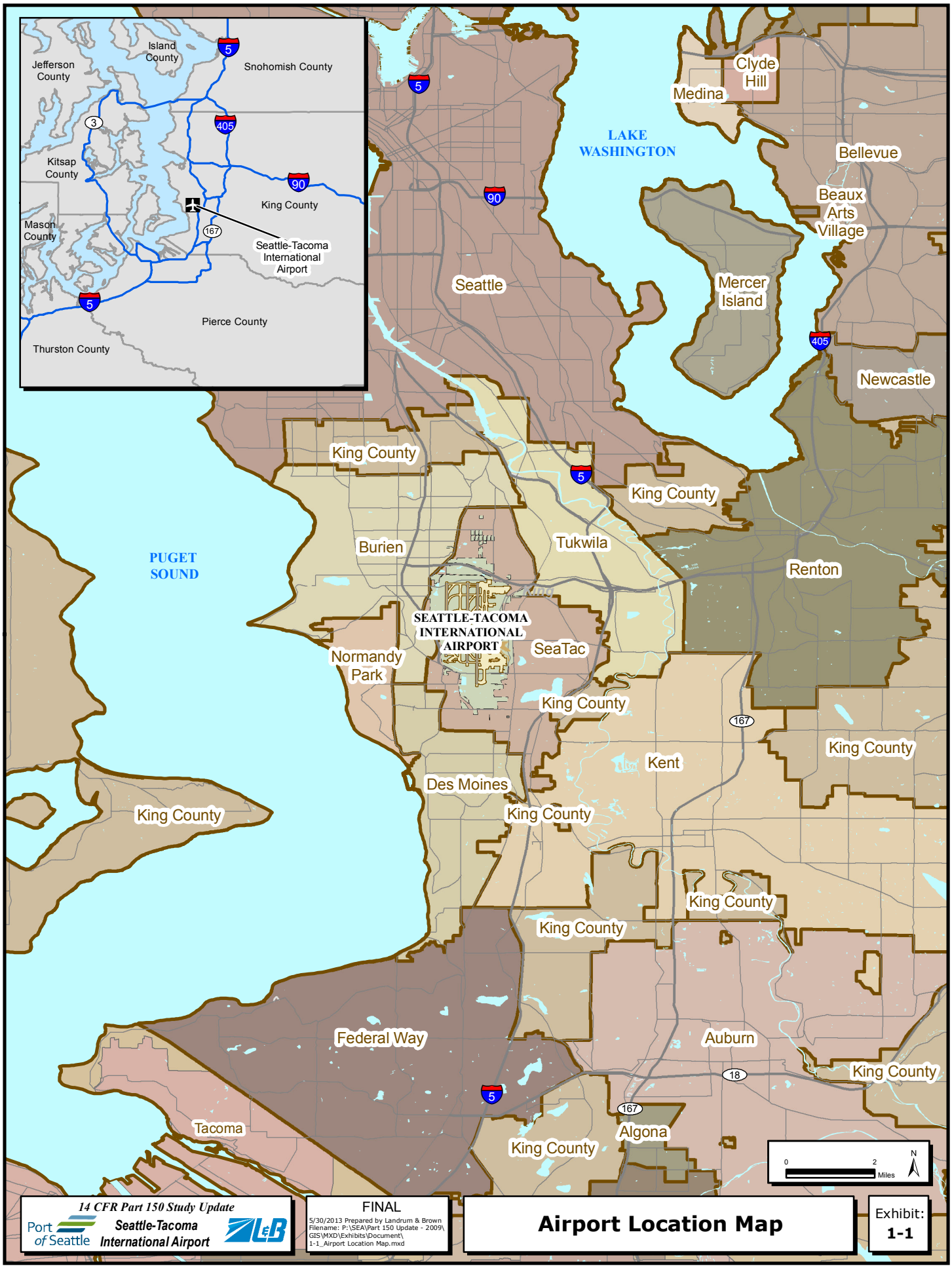
The purpose for conducting a Part 150 Study at an airport is to develop a balanced and cost-effective plan for reducing current noise impacts from an airport's operations, where practical, and to limit additional impacts in the future. By following the process, the airport operator is assured of the FAA's cooperation through the involvement of air traffic control professionals in the study and the FAA's review of the recommended Noise Compatibility Program (NCP). An airport with an FAA-approved NCP also becomes eligible for funding assistance for the implementation of measures in the NCP.

Among the general goals and objectives addressed by a Part 150 Study are the following:

- To reduce, where feasible, existing and forecasted noise levels over existing noise-sensitive land uses;
- To reduce new noise-sensitive developments near the airport;
- To mitigate, where feasible, adverse impacts in accordance with Federal guidelines;
- To provide mitigation measures that are sensitive to the needs of the community and its stability;
- To minimize the impact of mitigation measures on local tax bases; and
- To be consistent, where feasible, with local land use planning and development policies.

The previous Noise Compatibility Study for Sea-Tac Airport was approved by the FAA in June 2002. The following describes the reasons for updating the 2002 Part 150 Study. The FAA also issued acceptance of the Existing 1998 and Future 2004 Noise Exposure Maps (NEMs) prepared for that study.

- Typically, airports revise their Noise Exposure Maps (NEMs) and NCP every five years.
- Since the 2002 Part 150 Study, the third parallel runway (designated Runway 16R/34L) was opened (in November 2008).
- Through the Record of Decision (ROD) issued by the FAA for the third runway at Sea-Tac Airport, the Port committed to additional noise evaluations after the opening of the runway.


Island County
Jefferson County
Snohomish County
Kitsap County
King County
Mason County
Seattle-Tacoma International Airport
Pierce County
Thurston County
LAKE WASHINGTON
Clyde Hill
Medina
Bellevue
Beaux Arts Village
Seattle
Mercer Island
Newcastle
King County
Burien
Tukwila
Renton
PUGET SOUND
SEATTLE-TACOMA INTERNATIONAL AIRPORT
SeaTac
Normandy Park
Kent
Des Moines
Federal Way
Auburn
Tacoma
Algona
0 2 Miles
N
14 CFR Part 150 Study Update
Port of Seattle
Seattle-Tacoma International Airport
FINAL
5/30/2013 Prepared by Landrum & Brown
Filename: P:\SEA\Part 150 Update - 2009\GIS\MXD\Exhibits\Document\1-1_Airport Location Map.mxd
Airport Location Map
Exhibit: 1-1

1.1.2 PART 150 PLANNING PROCESS

The Part 150 planning process involves the methods and procedures an airport operator must follow when preparing NEMs and developing an NCP. The decision to undertake noise compatibility planning is entirely voluntary on the part of the airport operator. If an airport operator chooses to prepare an NCP, the FAA will provide funding assistance to conduct the study if the operator follows the regulations of 14 CFR Part 150. As a further encouragement to undertake noise compatibility planning, an airport operator becomes eligible to apply for Federal funding assistance for the implementation of measures in an FAA-approved NCP. See **Exhibit 1-2**, ***Noise Compatibility Planning Process***, for a flowchart showing the planning process.

A Part 150 Study involves six major steps:

- Data collection, including existing land use patterns, existing aircraft operations from radar data and other sources, and forecast development;
- Definition of existing and future noise exposure patterns and preparation of NEMs;
- Evaluation of alternative measures for abating noise, including noise abatement, land use mitigation, and program management measures;
- Development of a NCP including an implementation and monitoring plan;
- Conducting public consultation, including publishing a draft report and holding a public hearing; and
- FAA review and approval of the recommended NCP, including the analysis of alternatives, the compatibility plan, and the implementation and monitoring plan.

The Part 150 Study process is designed to identify noise incompatibilities surrounding an airport, and to recommend measures to both correct existing incompatibilities and to prevent future incompatibilities. For Part 150 Study purposes, noise incompatibilities are generally defined as residences or public use noise-sensitive facilities (churches, schools, libraries, nursing homes, and hospitals) within the Day-Night Average Sound Level (DNL) 65 dBA noise contour.

The process to update the 2002 NCP was designed to accomplish two goals:

- Update the status of the measures included in the 2002 NCP
  - Each previously approved measure was evaluated to determine if it should be continued, withdrawn, or modified, based on operational and land use changes that have occurred since the completion of the 2002 NCP.
- Identify, analyze, and recommend new measures
  - Potential new noise abatement, land use compatibility, and program management measures were evaluated, based on the existing conditions at Sea-Tac Airport and conditions expected to occur within the next five years.

The planning process has both technical and procedural components. The first component involves the preparation of NEMs, which requires the use of specific technical criteria and methods to complete analyses of aircraft noise exposure, potential noise abatement, and land use mitigation measures. NEMs show the official noise contours for an airport and are prepared for existing conditions and for five years in the future. For this Part 150 Study, 2013 is the existing year and 2018 is the future year. The NEMs must be prepared according to 14 CFR Part 150 guidelines with regard to methodology, noise metrics, identification of incompatible land uses, and public participation. More detailed information regarding the NEM process is included in **Section 1.1.3** of this chapter.

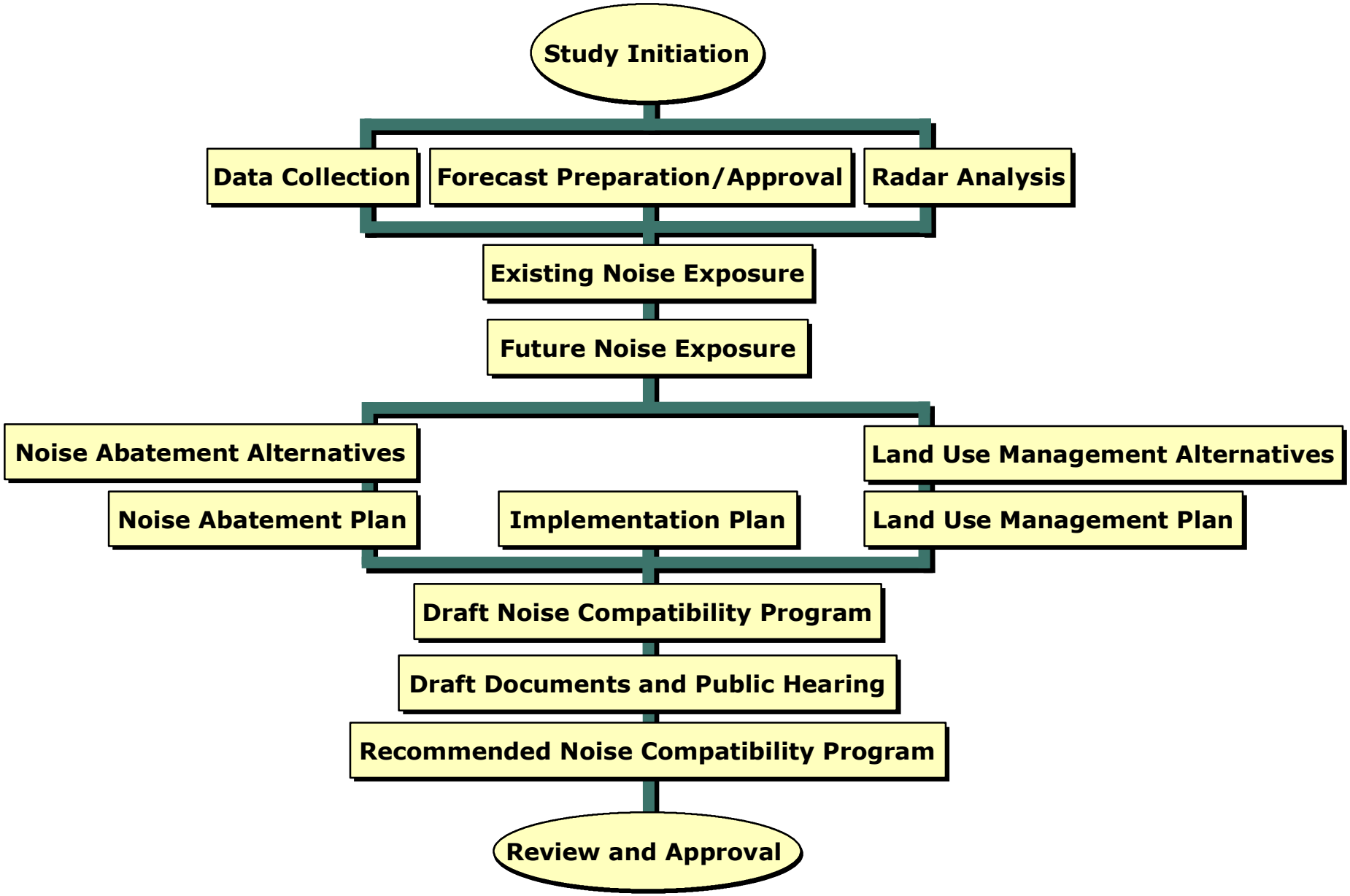
The second component of the planning process involves the development of an NCP. The NCP sets forth measures intended to mitigate the impacts of significant noise exposure on residential areas near an airport, and to limit, to the extent possible, the introduction of new incompatible land uses into locations exposed to significant noise levels. Per 14 CFR Part 150, all land uses are considered compatible with aircraft noise below DNL 65 dBA. Noise sensitive land uses, defined as residential, schools, churches, hospitals, and nursing homes, are considered incompatible at or above DNL 65 dBA without mitigation.

Part 150 regulations require that potentially affected airport users, local governments, and the public be consulted during the study, with the process culminating in the opportunity for a public hearing on the recommended NCP. More detailed information regarding the NCP process is included in **Section 1.1.4** of this chapter. Information regarding the public participation component of this Study is included in **Section 1.1.5** of this chapter and **Chapter Seven, *Consultation***.

1.1.3 NOISE EXPOSURE MAPS (NEMs)

The NEM component of a Part 150 Study presents airport noise exposure contours for the existing condition and a forecast condition five years from the date of submission of the maps for FAA review. The current year NEM is dated 2013 and is representative of 2013 conditions at Sea-Tac Airport. The data collection and analysis for this Part 150 Study Update began in 2008 and continued through May 2012. The total annual operations on which the Existing (2013) NEM is based is 313,352. The future year NEM is dated 2018 because it is five years from the date of submission.

The 2018 NEM is representative of future conditions forecasted at the Sea-Tac Airport. The NEM noise contours are superimposed on a land use map to show areas of incompatible land use. (Per 14 CFR Part 150, incompatible land uses are defined as residences, schools, churches, nursing homes, hospitals, and libraries.) **Chapter Three, *Noise Analysis***, contains detailed information on the inputs and methodology for preparing the noise exposure contours. The official (full-size printed) NEMs are located at the back of the printed version of this document. Small-scale representations of the official NEMs are located at the front of this document with the NEM and NCP checklist.



Port of Seattle — *14 CFR Part 150 Study* — *Seattle-Tacoma International Airport* — LEB

FINAL
5/30/2013 Prepared by Landrum & Brown
Filename: P:\SEA\Part 150 Update - 2009\GIS\MXD\Exhibits\Document\1-2_Noise Compatibility Planning Process.mxd

Noise Compatibility Planning Process

Exhibit: **1-2**

14 CFR Part 150 requires the use of standard methodologies and metrics for analyzing and describing noise. It also establishes guidelines for the identification of land uses that are incompatible with noise of different levels. Section 150.21(d) of 14 CFR Part 150 states that airport proprietors are required to update NEMs when changes in the operation of the airport would create any new, substantial incompatible use. This is considered to be an increase or decrease in DNL noise levels of 1.5 decibels (dB) over incompatible land uses when the aircraft noise level exceeds DNL 65 dBA. Of course, the airport operator may update the NEMs at any time based on their own needs and concerns.

Congress has provided airport proprietors that prepare, submit, and publish FAA accepted NEMs with protection from liability for claims based on noise allegedly attributable to the airport. *See* ASNA, 49 U.S.C. §47506 (limitations on recovering damages for noise).

The FAA has defined "significant" for purposes of ASNA's safe harbor from liability for airport noise claims to mean a change in one of the four specified factors that results in an increase at a particular property in the yearly day-night average sound level of 1.5 dB DNL or greater. 14 C.F.R. Part 150, Section 150.21(d), (g). Under ASNA, the person asserting the claim must prove this increase as to the allegedly affected property. FAA officials consider the term "area surrounding an airport" to mean an area within the DNL 65 dBA contour shown on the NEM. See 14 CFR Part 150, Section 150.21(b), (d), (f), and (g). Sea-Tac Airport has previously published FAA-accepted NEMs in July 1993 and December 2001 and will publish new NEMs in a newspaper of general circulation at the conclusion of this study.

An acceptance of the NEMs by the FAA is required before the FAA will approve an NCP for the airport.

1.1.4 NOISE COMPATIBILITY PROGRAM (NCP)

An NCP includes provisions for the abatement of aircraft noise through aircraft operating procedures, air traffic control procedures, or airport facility modifications. It also includes provisions for land use compatibility planning and may include actions to mitigate the impact of noise on incompatible land uses. **Chapter Six, *Noise Compatibility Program***, includes detailed information for the Sea-Tac Airport NCP recommendations. The NCP must also contain provisions for updating and periodic revision.

14 CFR Part 150 establishes procedures and criteria for FAA evaluation of the NCP. Two criteria are of particular importance: the airport proprietor may not take any action that imposes an undue burden on interstate or foreign commerce; nor may the proprietor unjustly discriminate between different categories of airport users.

The FAA also reviews changes in flight procedures proposed for noise abatement for potential effects on flight safety, safe and efficient use of the navigable airspace, management and control of the national airspace and traffic control systems, security and national defense, and compliance with applicable laws and regulations. Because the FAA has the ultimate authority over air traffic control and flight

procedures related to air traffic control requirements, any measures relating to these subjects that are recommended in an NCP must be explicitly approved by the FAA and may not be implemented unilaterally by the airport proprietor.

The FAA reviews the NCP and may approve or disapprove each measure on its merits and adherence to the national aviation policy. The approval or disapproval of each recommended measure is documented in the FAA Record of Approval (ROA). Additionally measures that require FAA action prior to implementation must be environmentally reviewed per the National Environmental Policy Act (NEPA) and measures that may affect safety must undergo a safety assessment per FAA Order 5200.11, FAA Airports Safety Management System. Following these steps, the FAA is able to participate in actions over which it has primary implementation responsibility (e.g., air traffic modifications). With an approved NCP, an airport proprietor becomes eligible for Federal funding to implement the eligible items of the program. Approval by the FAA does not, however, commit the Agency to either a specific schedule of implementation or guarantee the allocation of Federal funds for implementation of any measure.

The culmination of a Part 150 Study is the development of NCP measures intended to reduce the impact of aircraft noise. Typically, recommended NCP measures fall into three categories:

1. **Abatement** measures – these measures are applied at the airfield or to aircraft operations and include changes in runway use or changes in flight-track location.
2. **Mitigation** measures – these measures are applied to land use to and can be further classified into two types:
   - **Preventive** measures – land use control measures to prevent the new noise-sensitive land uses from occurring in the existing and future airport noise contours; such measures include compatible land use zoning or noise overlay zoning within off-airport noise exposure areas.
   - **Corrective (Remedial)** measures – mitigation measures applied to existing incompatible land uses; such measures include acquisition or sound insulation of noise-sensitive property. (Noise-sensitive property is defined as houses, schools, churches, nursing homes, hospitals, and libraries.)
3. **Program Management** measures – address administrative and management actions to enhance the program.

1.1.5 PUBLIC INVOLVEMENT

As discussed previously, a key element in the Part 150 process is public involvement, which is designed to inform and gather input from the public regarding the data and findings of the Part 150 Study. Additional information on the public involvement process is included in Chapter Seven of this document.

1.2 AIRPORT PHYSICAL FACILITIES

Sea-Tac Airport currently consists of three parallel runways: Runways 16L/34R, 16C/34C, and 16R/34L. Runway 16L/34R is the longest runway on the airfield, at 11,901 feet in length and 150 feet in width. Runway 16C/34C is 800 feet to the west of Runway 16L/34R and is 9,426 feet in length and 150 feet in width. Runway 16R/34L is approximately 1,700 feet to the west of Runway 16C/34C and is 8,500 feet in length and 150 feet wide. There are instrument approaches installed on all six runway ends. There are dual parallel taxiways to the east of Runway 16L/34R, west of the terminal, Taxiway A and Taxiway B. Taxiway B extends the full length of Runway 16L/34R, while Taxiway A ends approximately 1,200 feet short of the south end the runway (Runway 34R). There is a full-length parallel taxiway (Taxiway T) between Runway 16C/34C and Runway 16R/34L. A series of high-speed taxiway exits connects the runways and the ramp areas. Aircraft using Runway 16C/34C must cross Runway 16L/34R and aircraft using Runway 16R/34L must cross both other runways in either an approach or departure operation.

Most ancillary landside facilities are located on the east side of Sea-Tac Airport, with the passenger terminal complex located approximately to the center and east of Runway 16L/34R. Existing cargo and other support facilities are located north of the terminal. The terminal itself consists of one main central terminal building with four attached concourses, designated A, B, C, and D. There are two satellite concourses, referred to as the north and south satellites. The existing facilities at Sea-Tac Airport are graphically presented in **Exhibit 1-3, *Existing Airport Layout***.

Major ground access to/from Sea-Tac Airport is provided by International Boulevard (Highway 99) or State Highway 518 from the north. State Highway 518 connects to Interstates 5 and 405 and State Route 509. Sea-Tac Airport is connected to the Sound Transit Link light rail via the SeaTac / Airport Station, which is connected to the fourth floor of the Airport Garage. King County Metro Transit and Sound Transit provide bus service to and from Sea-Tac Airport.

1.3 AIR TRAFFIC OPERATIONS ACTIVITY

Like many airports nationwide, Sea-Tac Airport has seen a decrease in total operations over the past several years. As shown in the **Table 1-1, *Summary of Historical Operations, 1999-2011***, total operations (an operation is either a takeoff or a landing) have decreased from 433,646 in 1999 to 313,954 in 2010; however, total operations increased slightly to 314,944 in 2011.

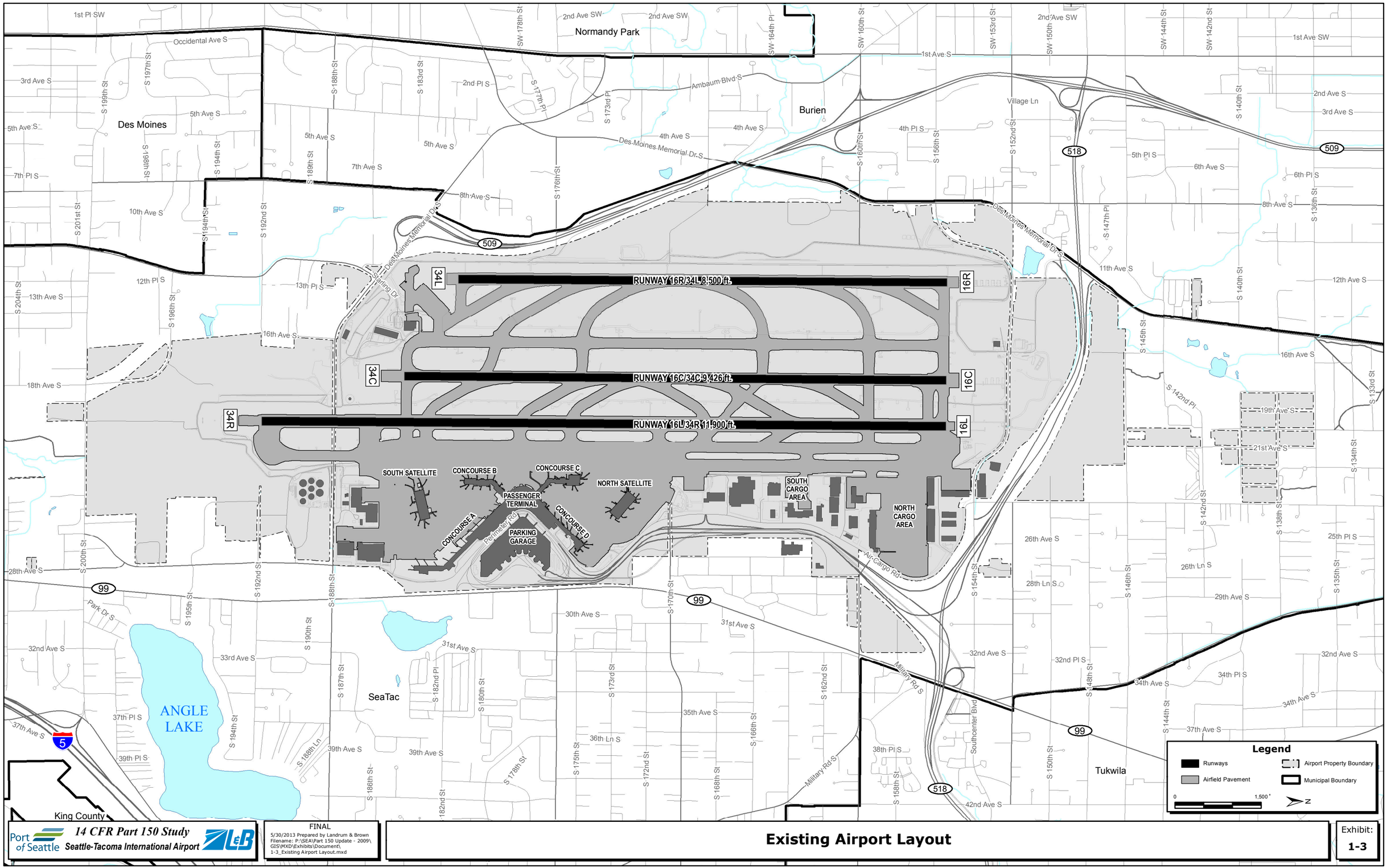
In terms of overall operations, Sea-Tac Airport was the 25th busiest airport in the United States in 2010. The airlines with the largest percentage of overall landings at Sea-Tac Airport during 2010 were: Alaska (29.3%), Horizon (25.0%), Southwest (9.1%), United (7.7% including United Express/Skywest), Delta (7.0%), American (3.1%), Continental (2.9%), US Airways (2.3%) and Virgin America (1.8%). The remainder of the airlines accounted for 11.7 percent of overall landings in 2011.

The aircraft that accounted for greatest number of operations at Sea-Tac Airport in 2011 were: Boeing 737 models (45.8%), de Havilland Dash 8 (25.5%), Airbus A320 Series (7.5%), Boeing 757 (5.6%), Embraer EMB-120 (2.0%), Bombardier CRJ-700 (1.9%), Boeing 767 (1.7%), Airbus A319 (1.4%), and Airbus A330 (1.2%). All other aircraft types comprised the remaining 7.5 percent of operations.

Table 1-1
SUMMARY OF HISTORICAL OPERATIONS, 1999-2011
Seattle-Tacoma International Airport

YEAR	AIR CARRIER	AIR TAXI	GENERAL AVIATION	MILITARY	TOTAL
1999	233,914	194,352	5,335	59	433,660
2000	236,355	203,723	5,504	95	445,677
2001	227,589	168,322	4,684	75	400,670
2002	220,733	139,793	4,086	59	364,671
2003	210,603	140,777	3,385	54	354,819
2004	250,605	105,377	2,788	124	358,894
2005	254,829	83,928	2,938	67	341,762
2006	253,507	82,147	4,296	108	340,058
2007	276,954	64,745	5,240	107	347,046
2008	306,425	34,453	4,059	120	345,057
2009	297,621	17,133	3,046	73	317,873
2010	292,016	18,562	3,262	114	313,954
2011	295,763	15,324	3,708	149	314,944

Source: Federal Aviation Administration, Air Traffic Activity Data System (ATADS), 2012.



Port of Seattle — *14 CFR Part 150 Study* — *Seattle-Tacoma International Airport* — LeB

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Existing Airport Layout

Exhibit: **1-3**

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Operations are further broken down by the time of day they occurred. Based on a review of and radar data from February 2011 through January 2012, approximately 86 percent of total operations occur between 7:00 a.m. and 10:00 p.m., as shown in **Table 1-2, *Summary of Operations by Time of Day (in Percent)***. This ratio of daytime to nighttime operations is expected to continue at Sea-Tac Airport for the duration of the planning horizon of this Part 150 Study.

Table 1-2
SUMMARY OF OPERATIONS BY TIME OF DAY (IN PERCENT)
Seattle-Tacoma International Airport

TYPE OF AIRCRAFT	DAYTIME (7:00 A.M. TO 9:59 P.M.)	NIGHTTIME (10:00 P.M. TO 6:59 A.M.)
Large Jet (Passenger)	84.6%	15.4%
Commuter / General Aviation Jet	93.5%	6.5%
All Cargo Jet	60.9%	39.1%
Propeller Aircraft	89.3%	10.7%
Total	85.9%	14.1%

Source: FAA Radar Data, Landrum & Brown analysis.

In 2011, 32,823,220 total passengers were accommodated (enplaned and deplaned) at Sea-Tac Airport. This compares to 31,553,166 total passengers in 2010. The 2011 passenger figures include 29,838,192 domestic passengers and 2,985,028 international passengers. The number of passengers at Sea-Tac Airport has increased since 2004 when there were 28,804,553 total passengers. Sea-Tac Airport was ranked the 16th busiest airport in the United States for total passengers in 2011. The total passengers that were accommodated at Sea-Tac Airport between 2004 and 2011 is shown in **Table 1-3, *Summary of Total Passengers***.

The domestic passenger market, which accounted for approximately 90.3 percent of the total scheduled seats in 2011, was dominated by the contiguous United States, which accounted for 88.1 percent of the domestic seats available (79.6% of all seats). Alaska accounted for 8.4 percent of domestic seats (7.6 % of total seats) and Hawaii accounted for the remaining 3.5 percent of the domestic seats (3.1 percent of total seats). The top five domestic destination markets in terms of available seats were the San Francisco Bay Area (10.5%), the Los Angeles Area (10.0%), Anchorage, (45.4%), Chicago (5.0%) and Denver (4.9%).

Table 1-3
SUMMARY OF TOTAL PASSENGERS
Seattle-Tacoma International Airport

YEAR	DOMESTIC PASSENGERS	INTERNATIONAL PASSENGERS	TOTAL PASSENGERS
2004	26,368,448	2,436,106	28,804,554
2005	26,817,991	2,471,035	29,289,026
2006	27,517,599	2,478,825	29,996,424
2007	28,585,819	2,710,003	31,295,822
2008	29,274,094	2,922,434	32,196,528
2009	28,593,782	2,633,730	31,227,512
2010	28,745,014	2,808,152	31,553,166
2011	29,838,192	2,985,028	32,823,220

Note: Includes enplaned and deplaned passengers.
Source: Port of Seattle, 2012.

The international passenger market, which accounted for 9.1 percent of the total passengers at Sea-Tac Airport in 2011, was divided between Canada (3.0%), Asia (3.1%), Europe (2.4%), and Mexico (0.6%). The top five international destination markets were Vancouver, British Columbia (1.4%); Tokyo, Japan (1.1%:); Seoul, South Korea (0.9%); Victoria, British Columbia (0.7%); and Amsterdam, Netherlands (0.7%).

In 2011, Sea-Tac Airport provided for the transportation of 234,129 metric tons of cargo. Approximately 65.0 percent of this cargo, 152,211 metric tons, was domestic freight, and approximately 35.0 percent, 81,918 metric tons, was international freight. Federal Express accounted for 40.8 percent of all the air freight, Alaska Airlines accounted for 10.5 percent, Delta Airlines handled 10.1 percent, Korean Air accounted for 5.0 percent, and China Airlines accounted for 4.3 percent. The remaining cargo airlines all account for less than four percent each. **Table 1-4, *Summary of Total Cargo*,** shows the total cargo that was shipped to/from Sea-Tac Airport between 2004 and 2011.

Table 1-4
SUMMARY OF TOTAL CARGO
Seattle-Tacoma International Airport

YEAR	TOTAL CARGO IN METRIC TONS
2004	347,517
2005	338,590
2006	341,981
2007	319,013
2008	290,768
2009	270,142
2010	283,425
2011	279,625

Source: Port of Seattle, 2012.

1.4 AIRSPACE/AIR TRAFFIC CONTROL

The FAA is responsible for the safe and efficient use of the national air space. This airspace is divided into three specific types; enroute, terminal, and tower, within which air traffic controllers work to maintain separation between airborne aircraft. When an aircraft departs an airport, it is located in the airspace being handled by air traffic controllers working in an airport traffic control tower (ATCT). ATCT facilities control aircraft on the ground and within that airport's airspace.

Upon departure, when the aircraft is approximately one mile away from the airport, the aircraft is handed off to controllers working the Terminal Radar Approach Control Facility (TRACON). These controllers are responsible for the airspace extending out approximately 25 to 30 miles from the airport in all directions. TRACON facilities sequence and separate aircraft as they approach or depart the facility's airspace.

Once a departing aircraft exits TRACON airspace, it then enters the third type of airspace and becomes the responsibility of enroute controllers working in an Air Route Traffic Control Center (ARTCC). The enroute controllers retain control and continue to sequence and ensure separation of aircraft until the aircraft nears its intended destination. The Seattle ARTCC provides enroute control of the state of Washington and part of California, Idaho, Nevada, and Oregon. The air-traffic control process is then reversed for approaches.

At Sea-Tac Airport, the Seattle TRACON facility is located on the west side of the Airport and the ATCT is located on the north end of the airfield. There are several airports located in the Seattle area that are under the control of Seattle TRACON. Although Sea-Tac Airport accounts for a significant percentage of all area aircraft operations, the cumulative number of aircraft operations at the other airports also adds a significant workload for controllers at the Seattle TRACON. There are also other general aviation airports without operational control towers or published instrument procedures that contribute to the total number of area-wide aircraft operations. While aircraft using these other general aviation airports operate under visual flight rules (VFR), they must utilize the Seattle terminal airspace, and aircraft using Sea-Tac Airport must be separated from them. Seattle TRACON provides full arrival and departure services for Sea-Tac Airport, as well as the following airports:

- King County International Airport/Boeing Field (BFI),
- Gray Army Air Field (GRF)/McChord Air Force Base (TCM),
- Olympia Regional Airport (OLM),
- Renton Municipal Airport (RNT),
- Tacoma Narrows Airport (TIW),
- Bremerton National Airport (PWT),
- Auburn Municipal Airport (S50),
- Shelton/Sanderson Field (SHN), and
- Snohomish County Airport (Paine Field) (PAE).

Sea-Tac Airport has a 24-hour, continuously operating ATCT that has a designated Airport Traffic Area (ATA). Aircraft which operate within an ATA must be in contact, at all times, with the tower controllers, especially to receive approval for take-offs and landings. Standard ATAs are designated to include all airspace within five miles of an airport from the surface of the ground up to (but not including) 3,000 feet. Because of its proximity to other airports in the area, especially BFI, the Sea-Tac ATA is not completely circular. Airspace operational activities are explained in greater detail in the following paragraphs.

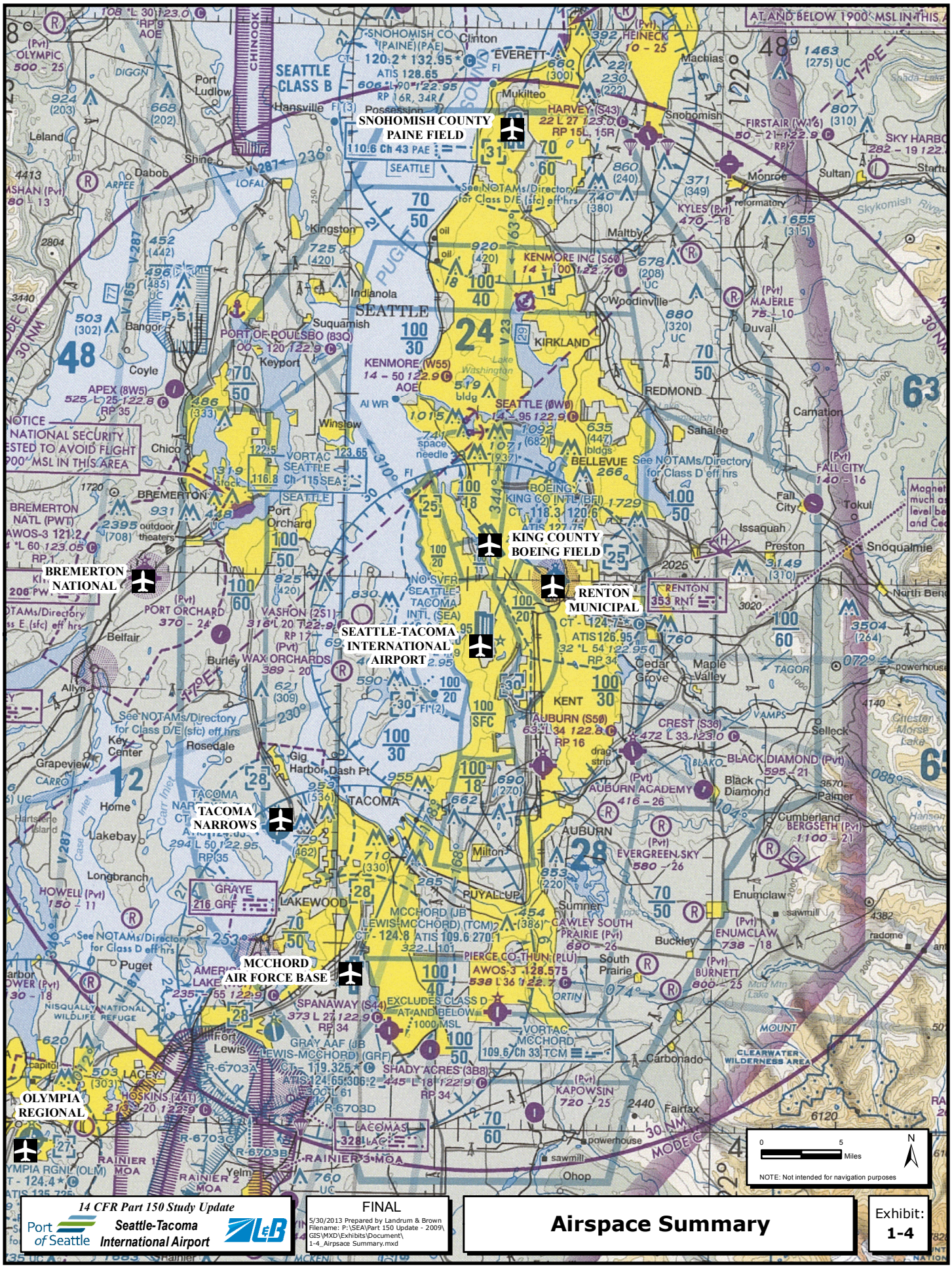
1.4.1 AIR SPACE CONFIGURATION

The Seattle TRACON area airspace is shown in **Exhibit 1-4, *Airspace Summary***. The Seattle ARTCC provides Air Traffic Control (ATC) services to aircraft between TRACON areas. The Seattle TRACON provides approach/departure control services within its delegated airspace. Seven of the busiest airports within the Seattle TRACON's airspace have ATCTs or "towers." These towers provide control within the TRACON's airspace. These seven airports are: BFI, GRF, OLM, RNT, SEA, TIW, and Snohomish County Airport/Paine Field (PAE).

The ARTCC and TRACON provide control primarily to aircraft operating under instrument flight rules (IFR). In addition, TRACON provides control or service to aircraft operating under VFR within the Seattle Class B Airspace, (Formerly TCA). An ATC clearance and control is mandatory for VFR aircraft operating within Class B airspace. The Seattle Class B Airspace Area is depicted on Exhibit 1-4.

All aircraft, both IFR and VFR, in Class B airspace are subject to positive control from ATC. Class B airspace exists at 29 high-density airports in the United States as a means of managing air traffic activity around the airport. It is designed to regulate the flow of air traffic above, around, and below the arrival and departure routes used by air carrier aircraft at major airports. Class B airspace generally includes all airspace from an airport's established elevation up to 12,000 feet MSL, and, at varying altitudes, out to a distance of about 30 nautical miles from the center of the airport. Aircraft operating in Class B airspace must have specific radio and navigation equipment, including an altitude encoding transponder, and must obtain ATC clearance.

Published instrument approach procedures exist for seven airports within the Seattle TRACON airspace as listed in **Table 1-5, *Published IFR Approach Procedures At Nearby Airports***. Table 1-5 differentiates between precision and non-precision approaches. A precision approach, by definition, provides electronic vertical guidance to the pilot as well as horizontal (azimuth) guidance. A non-precision approach provides horizontal guidance only. Generally the azimuth guidance for a precision approach is more precise. For an Instrument Landing System (ILS) approach procedure, a localizer transmitter provides the azimuth guidance and a glide-slope transmitter provides the vertical guidance.



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Port of Seattle — *Seattle-Tacoma International Airport*

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Airspace Summary

Exhibit: **1-4**

Table 1-5
PUBLISHED IFR APPROACH PROCEDURES AT NEARBY AIRPORTS
Seattle-Tacoma International Airport

AIRPORT	RUNWAY(S)	PROCEDURE
Bremerton National Airport (PWT)	19	ILS or LOC
	01	RNAV (GPS)
	19	RNAV (GPS)
	01	NDB
Gray Army Air Field (GRF)/McChord Air Force Base (TCM)	16	ILS or LOC
	34	ILS or LOC
	34	ILS
	16	TACAN
	34	TACAN
King County International Airport/Boeing Field (BFI)	31L	ILS or LOC
	13R	ILS RWY
	13R	RNAV (GPS)
	13R	RNAV (RNP)
	13R	LOC/DME
Olympia Regional Airport (OLM)	17	ILS or LOC
	17	RNAV (GPS)
	35	RNAV (GPS)
	35	VOR/DME
Renton Municipal Airport (RNT)	16	RNAV (GPS)
	16	NDB
Sea-Tac Airport (SAE)	16L/C/R	ILS or LOC
	34L/C/R	ILS or LOC
	16R	ILS (SA CAT I)
	34L/C/R	ILS (CAT II)
	16L/C/R	ILS (CAT II)
	16L/C/R	ILS (CAT III)
	16L/C/R	RNAV (GPS)
	34L/C/R	RNAV (GPS)
	16L/C	VOR/DME
	34C	VOR/DME
Snohomish County Airport (Paine Field) (PAE)	16R	ILS OR LOC/DME
	16R	ILS (SA CAT I)
	16R	RNAV (GPS)
	34L	RNAV (GPS)
	16R	VOR/DME
Tacoma Narrows Airport (TIW)	17	ILS RWY
	17	RNAV (GPS)
	35	RNAV (GPS)
	35	NDB

Abbreviations: DME=Distance Measuring Equipment; GPS=Global Positioning System; ILS=Instrument Landing System; LOC=Localizer; NDB=Nondirectional (radio) Beacon; RNAV=Area Navigation; RNP=Required Navigation Performance; TACAN=Tactical Air Navigation; VOR=Very High Frequency Omnidirectional Range.

Source: AirNav, 2013.

1.4.2 AIRSPACE USAGE

All aircraft flights are governed by either VFR or IFR. Definitions are contained in 14 CFR Part 91 and summarized below. The basic difference between VFR and IFR is that the pilot maintains spatial orientation of an aircraft by reference to the earth's surface for VFR and by reference to aircraft instruments for IFR. Under IFR rules, a pilot can operate in poor visibility conditions within controlled airspace. Flight under VFR rules requires good visibility and maintenance of specified distances from clouds.

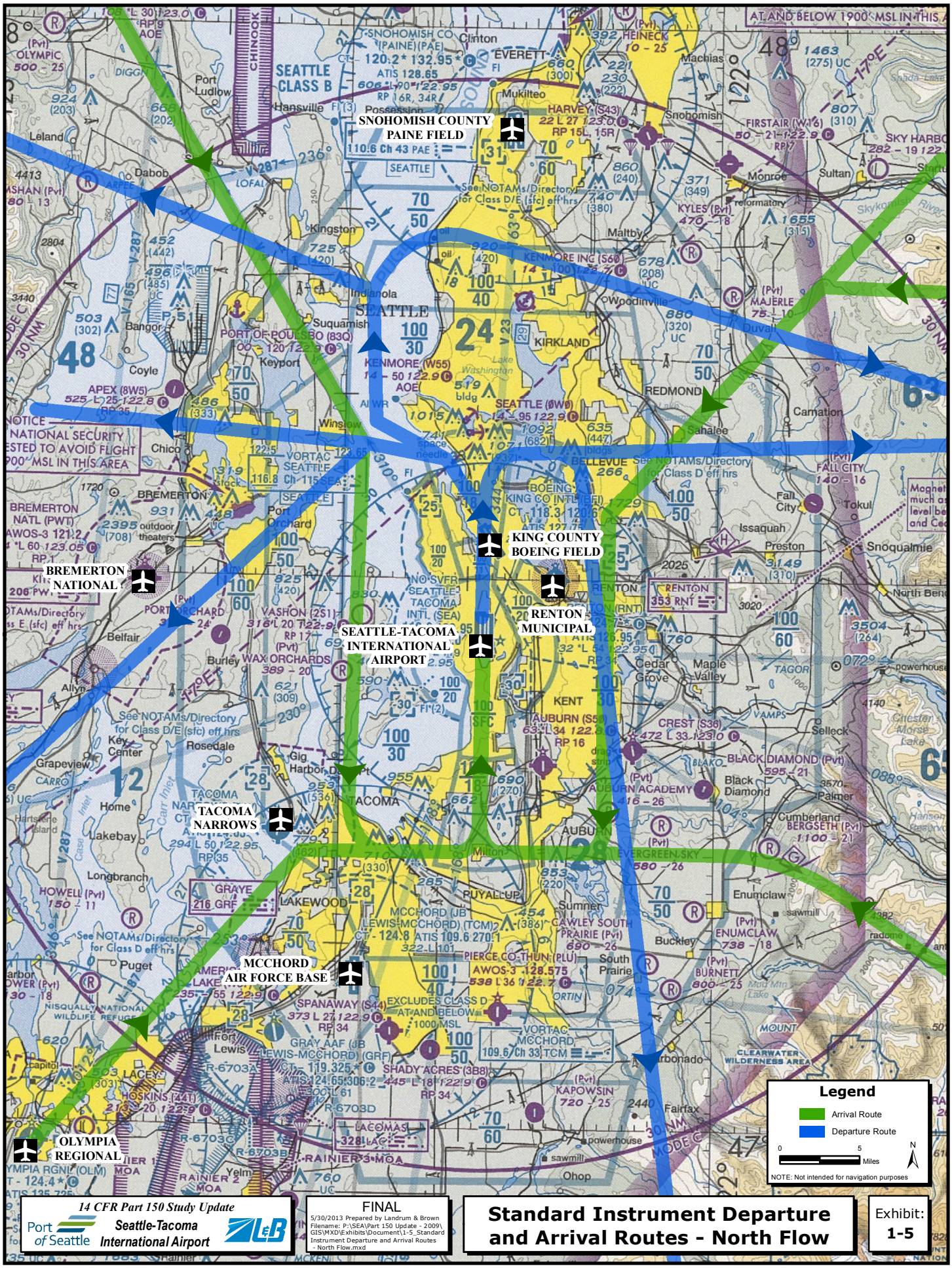
With the opening of Runway 16R/34L, during low visibility conditions, Sea-Tac Airport is restricted to dual arrival streams to Runways 16L/34R and 16R/34L. This is because of the proximity of the parallel runways. FAA Air Traffic Control guidelines require a separation of at least 2,500 feet for dual parallel approaches, which is the separation of Runways 16L/34R and 16R/34L. Sea-Tac Airport operates with a dual arrival stream approximately 44 percent of the time.

The Seattle Terminal Airspace area includes nine IFR airports and approximately 30 VFR airports. Two of the IFR airports are military (McChord AFB and Gray AAF), and 10 of the VFR airports are private or restricted and generally are not available to the public.

IFR Operations

Air carrier and many turbojet general aviation and military aircraft operating to or from Sea-Tac Airport under IFR, are reassigned coded flight routes and procedures referred to as Standard Instrument Departures (SIDS) and Standard Terminal Arrival Routes (STARS). These SID and STAR routes are depicted on **Exhibit 1-5, *Standard Instrument Departure and Arrival Routes – North Flow*,** for north flow and on **Exhibit 1-6, *Standard Instrument Departure and Arrival Routes – South Flow,*** for south flow. These figures also depict arrival and departure gates. Navigation of IFR aircraft within the Seattle TRACON airspace is generally provided by radar vectors to achieve efficient sequencing, spacing, and separation between aircraft. Therefore, actual aircraft flight tracks, particularly closer in to the airport, will not conform exactly to the SIDS, and STARS depicted.

In general, however, IFR arrival aircraft are cleared to Sea-Tac Airport by the Seattle ARTCC via these STARS while descending from enroute altitudes. These aircraft arrivals are "handed off' via radar from the Seattle ARTCC to the Seattle TRACON at various entry points, referred to as "gates". In other words, there are established arrival routes that aircraft utilize and the pilots are in contact with different controllers as they approach Sea-Tac Airport.


SNOHOMISH COUNTY
PAINE FIELD
KING COUNTY
BOEING FIELD
BREMERTON
NATIONAL
RENTON
MUNICIPAL
SEATTLE-TACOMA
INTERNATIONAL
AIRPORT
TACOMA
NARROWS
MCCHORD
AIR FORCE BASE
OLYMPIA
REGIONAL
SEATTLE
CLASS B
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Standard Instrument Departure and Arrival Routes - North Flow
Exhibit:
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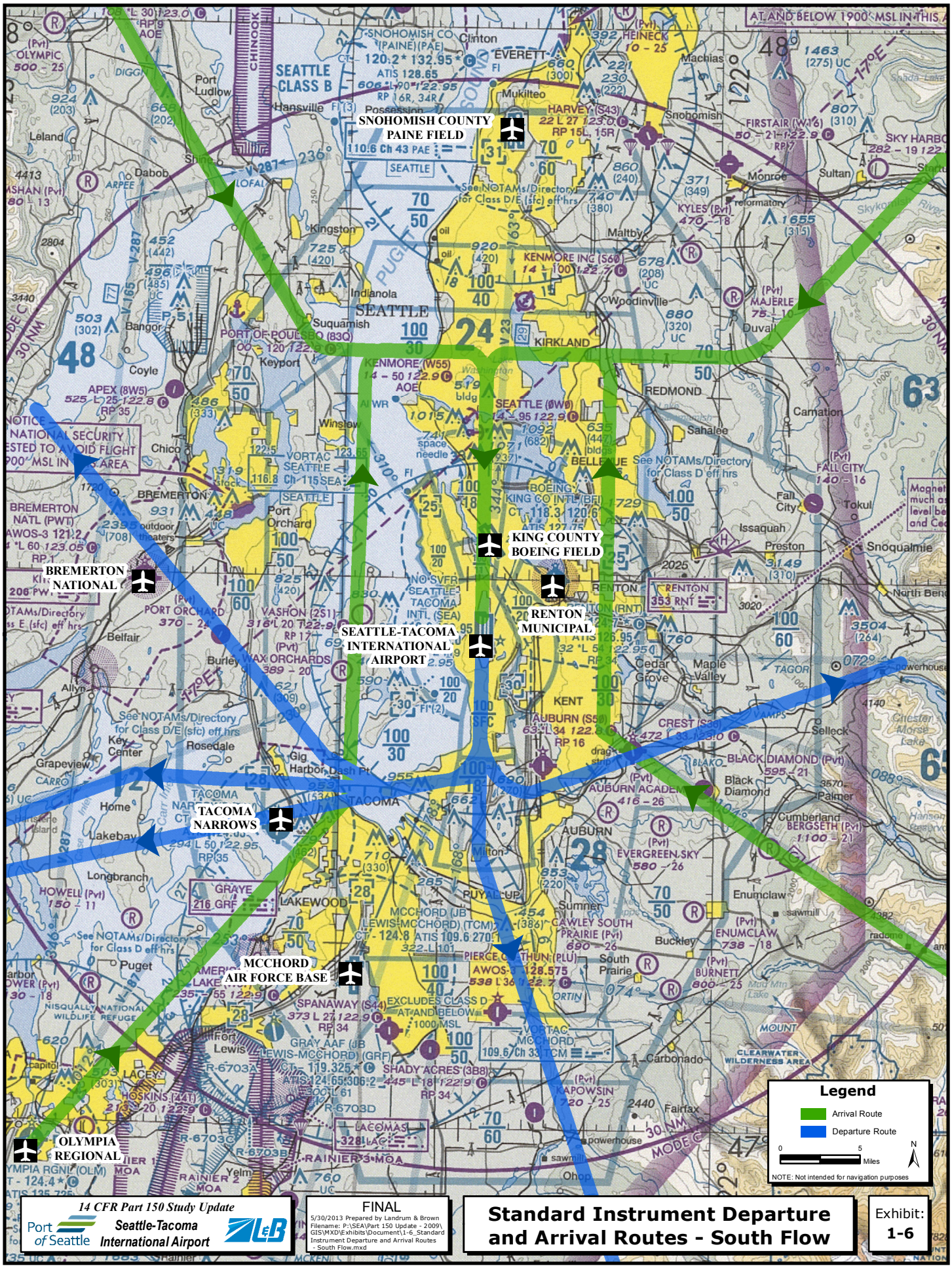
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KING COUNTY
BOEING FIELD
RENTON
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SEATTLE-TACOMA
INTERNATIONAL
AIRPORT
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NATIONAL
TACOMA
NARROWS
MCCHORD
AIR FORCE BASE
OLYMPIA
REGIONAL
SEATTLE
CLASS B
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Standard Instrument Departure and Arrival Routes - South Flow
Exhibit:
1-6

In April 1990 the FAA standardized the air traffic patterns for jet aircraft flying in and out of Sea-Tac Airport. The new air traffic plan, referred to as the "4-Post Plan," changed the arrival and departure procedures used by the air-traffic controllers to transfer the aircraft from the enroute to the terminal environment. The FAA determined that safety and efficiency could be improved if the procedures used to route air traffic to the terminal airspace area were designed to be the same regardless of the direction of traffic flow. Depending on the city of origin, aircraft enter the terminal airspace from one of the four "posts," or corners of the terminal airspace area. These procedures helped to alleviate difficulties associated with having two different sets of patterns that were wind dependent.

The TRACON assumes responsibility for guiding the arrival aircraft to the final approach course at the destination airport and for separating it from other aircraft. Lower performance aircraft, and some commuter/air-taxi aircraft, operate at lower altitudes allowing separation from the jet aircraft routes. The lower performance (i.e. propeller aircraft) aircraft are "placed" into the arrival routes closer in to Sea-Tac Airport to minimize the effects of the speed differentials.

When arrival aircraft are in the vicinity of their destination airport they are given descent instructions by the TRACON until they are approximately 1,500 feet above the destination airport and approximately five nautical miles from the runway threshold on the final approach. The TRACON then clears them for the approach and instructs the pilot to contact the destination airport's tower.

Similarly, departing IFR aircraft are guided by the Seattle TRACON through its delegated airspace and separated from other aircraft. Shortly after departure aircraft are airborne, the tower clears the aircraft to contact the TRACON for departure control. The TRACON then directs departing aircraft toward the departure "gates". As soon as departing aircraft either pass the departure "gate" or climb out of the TRACON airspace, they are transferred to ARTCC for enroute control.

Unless visual separation is applied, the TRACON provides all IFR aircraft with a radar separation of at least three nautical miles longitudinally, or 1,000 feet of vertical separation, throughout their terminal airspace. Additional longitudinal separation[1] to avoid wake turbulence is provided for various combinations of aircraft sizes. The minimum longitudinal separation in terminal airspace is listed below:

[1] Note: longitudinal separation refers to the longitudinal (horizontal) spacing of aircraft at the same altitude expressed in terms of distance or time. For example, an aircraft trailing another aircraft at the same altitude may have a longitudinal separation of 4, 5, or 6 miles depending on the types of aircraft.

Leading Aircraft	Trailing Aircraft	Longitudinal Separation (Nautical Miles)
Heavy	Heavy	4
Boeing 757	Large/Heavy	4
Large	Small	4
Boeing 757	Small	5
Heavy	Large	5
Heavy	Small	6

Source: FAA Order JO 7110.65U, *Air Traffic Control*, February 9, 2012

For the purpose of wake turbulence separation minimums, FAA classifies aircraft as Heavy, Large and Small as follows:

- **Heavy**: Aircraft capable of take-off weights of 300,000 pounds or more whether or not they are operating at this weight during a particular phase of flight (Examples: B-747, B-777, DC-10).
- **Large**: Aircraft of more than 41,000 pounds, maximum certified takeoff weight, up to 300,000 pounds (Examples: B-737, MD-80, Business jets).
- **Small**: Aircraft of 41,000 pounds or less maximum certified take-off weight (Twin and single piston/turboprops).

Within the Seattle Class B airspace, the Seattle TRACON provides all VFR aircraft a radar separation of one-half nautical mile longitudinally, or 500 feet of vertical separation, from all other IFR and VFR aircraft.

VFR Operations

Flights conducted under VFR, unlike IFR flights, are not always under ATC jurisdiction. Under VFR, pilots may normally operate without an ATC clearance, except when operating within Class B airspace. When operating in visual meteorological conditions, all pilots, regardless of type of airspace flight plan or ATC clearance, are ultimately responsible to see and avoid other aircraft.

The lower altitudes of airspace to the east and west of the Seattle area are restricted by the Cascade and Olympic Mountains. These mountains and the Class B Airspace tend to channel north-south VFR traffic. One north-south channel or VFR flyway exists at approximately five-to-six miles east of Sea-Tac Airport and below 4,000 or 5,000 feet above mean sea level (MSL). The other north/south VFR flyway is somewhat wider and close to the Olympic Mountains. Those transiting under Class B Airspace in the vicinity of Sea-Tac Airport and over the Puget Sound are below 3,000 feet. Some VFR aircraft fly over the tops of Class B Airspace. The top of the Class B Airspace is at 10,000 feet above MSL.

1.4.3 FLOW CONTROL

In general, Flow Control refers to a procedure allowing TRACON to determine the maximum hourly rate of arrivals to Sea-Tac Airport. The Seattle TRACON advises Seattle ARTCC so that adjustments can be made to the rate of entries into TRACON airspace. This hourly rate of arrivals is known as the Airport Acceptance Rate (AAR). The AAR varies according to several conditions including number of runways available for landings, weather conditions, direction of traffic flow, types of approach in use, and runway operational conditions.

1.4.4 INTERACTIONS

Interactions are situations requiring special controller and/or pilot attention to ensure that adequate separation or sequencing is accomplished. Although this broad definition could include random occurrences that do not affect capacity, there are two interactions which affect capacity at Sea-Tac Airport that occur regularly during IFR weather conditions and one that occurs regularly when visual approaches are in progress. These three interactions occur during: (1) IFR south-flow conditions; (2) IFR north-flow conditions; and (3) visual approaches in south-flow conditions.

IFR Weather Conditions-South Flow

During IFR weather conditions, when Sea-Tac Airport and BFI are operating with south flows, interactions exist between the arrivals to the two airports. Although a minimum of 1,000 feet of altitude separation exists between the published ILS approaches, a need exists to protect BFI missed approach possibilities. In weather conditions that allow BFI air traffic controllers to see aircraft arriving to Sea-Tac Airport, visual separation is provided by the controllers and no loss in capacity is experienced. This operating arrangement is known as Plan Alpha. Cloud ceilings at BFI must be at least 2,500 feet for BFI ATC personnel to see aircraft arriving to Sea-Tac Airport. Based on historic weather observations, the yearly frequency of occurrence of south flow conditions, with ceilings below 2,500 feet (no Plan Alpha) is approximately 14.9 percent. This is estimated to drop to about 4.8 percent during the busiest part of the day (7:00 a.m. to 9:00 p.m.). Additionally, weather conditions below minimums (closed conditions) at Sea-Tac Airport would reduce the occurrence of the interaction by another 1 or 2 percent.

The actual time of this impact to capacity due to this interaction is decreased by special ATC procedures. Under these procedures, during certain weather conditions and with pilots who are familiar with BFI, aircraft approaching Sea-Tac Airport will be advised to maintain 3,000 feet Mean Sea Level (MSL) until BFI Tower advises TRACON that the landing of the other aircraft at BFI is assured. At this point, the pilot of the aircraft on approach to Sea-Tac Airport is given a final approach clearance and authorization to land. If the pilot approaching BFI executes a missed approach, TRACON will vector the aircraft on approach to Sea-Tac Airport back into the arrival stream and one arrival interval or slot is lost in arrival capacity at Sea-Tac Airport. However, this situation occurs very rarely.

Weather Conditions - North Flow

During north-flow IFR conditions, interactions exist between the arrivals to BFI and departures from Sea-Tac Airport. Departures from Sea-Tac are held on the ground from the time a BFI arrival nears the final approach fix located just east of Sea-Tac Airport until the BFI Tower reports the landing is assured or until visual separation can be provided. This situation can affect the departure capacity at Sea-Tac Airport. If an arrival to Sea-Tac Airport is within two nautical miles of the Runway 34R threshold, a departure from Sea-Tac Airport, in certain IFR conditions, cannot be released. As a result one to three intervals could be lost.

When SeaTac Airport and BFI are both in north flow, the TRACON typically initiates Plan Charlie, in which departures from SeaTac Airport are issued an initial heading of 20 degrees to ensure separation between the SeaTac departure and traffic on final approach to BFI.

Visual Approaches - South Flow

Visual approaches can normally be conducted to Sea-Tac Airport when the cloud ceiling is at least 5,000 feet over the Puget Sound and pilots have visual contact with the preceding aircraft or Sea-Tac Airport.

When visual approaches are being conducted, the TRACON will radar vector aircraft on three arrival routes and sequence them into a common arrival stream over Elliott Bay. This activity occurs over the top of straight-in arrivals to BFI.

During peak periods, both Runways 16L and 16R at Sea-Tac Airport are used if visual approach conditions exist. Two common arrival streams are formed over Elliott Bay. This situation requires special attention on the part of both controllers and pilots. When pilots are making the turns into Elliott Bay from the north and south, visibility from the cockpit is reduced. If two aircraft are about to make the turn at about the same time onto different arrival streams, one pilot often tends to reduce speed and fall back, in order to keep the other aircraft in sight. This reduction of speed will increase the longitudinal spacing in the arrival stream and reduce the arrival rate.

1.4.5 ANOMS RADAR DATA

The Port's Noise Abatement Office has a flight track data collection and analysis program called the Airport Noise and Operational Monitoring System (ANOMS). This program collects and processes radar data from the FAA's STARS aircraft radar tracking system. Once collected, the ANOMS program performs a number of processes, including determining if the track is a departure or arrival and assigning a runway to the track. With this system, the Port is able to analyze adherence with the Port's noise abatement program and investigate particular incidents concerning aircraft operations.

The ANOMS program exports a file that includes flight information about the aircraft that is operating on each track as well as position information regarding the location and altitude of the flight. The flight information includes data such as the aircraft type, airline code, flight number, and type of operation and runway. The position information includes the X and Y position of each radar record for the flight track for every four seconds of the flight as well as the altitude of the aircraft at each point and the time of day that the aircraft was at that point. The position information is given in distance relative to the STARS radar antenna that is on airport property.

These files have been successfully exported for analysis in this Part 150 Study. Note that the data used is based upon the information from ANOMS, which is derived from the FAA's radar system. There is always the possibility that some data are lost in these radar systems; however, every possible step is taken to ensure this does not occur. When data are lost or when gaps occur in the data, the data are typically not recoverable.

1.5 CURRENT NOISE COMPATIBILITY PROGRAM

The Port has a long history of implementing noise abatement programs at Sea-Tac Airport. These programs include both physical and operational programs. In 1976, the Port prepared the Sea-Tac Community Plan, which addressed for the first time the relationship of aircraft noise to land use development and contained recommendations for land use compatibility. This Plan was updated in 1985 when the Port completed its first Part 150 Study. This Study recommended many of the existing noise mitigation programs currently adopted by the Port and established the Noise Remedy Program Boundary. That Part 150 Study was updated in 1993 and again in 2002. Each Updated Part 150 Study produced an updated set of NEMs and updated existing measures and developed new measures included in the NCP that was adopted in the first study. This Part 150 Study Update is the fourth Part 150 Study that the Port has undertaken.

Following the first Part 150 Study, in 1985 the Port undertook a new and innovative process to address the aircraft noise issue at Sea-Tac Airport. This was called the Sea-Tac Noise Mediation process, which was a consensus-based approach that was used to address aircraft noise issues. Through that process, several measures for noise abatement and noise mitigation were recommended and adopted, resulting in a package of noise-reduction measures for Sea-Tac Airport. Many diverse interests were represented in this process, including airport users, tenants, citizens from throughout the area, the FAA, and pilots. The package contained both short-term and long-term measures to reduce aircraft noise by at least 50 percent by 2001. In 1990, the Port Commission adopted these recommendations contained in the package.

The "package" contained many elements for noise reduction, including:

- Implement a "noise budget" or allocation of noise for Sea-Tac Airport and airlines that will decrease over time. The budget limits and controls aircraft noise and accelerates the use of the new Stage III aircraft.

- Restrict nighttime use of Stage II aircraft. For the first two years of the program, no new Stage II aircraft flights were introduced between midnight and 6:00 a.m. On October 1, 1995, the restriction became fully implemented with no Stage II flights between 10:00 p.m. and 7:00 a.m.
- Double the rate of the Port's existing sound-insulation program (The Noise Remedy Program) and changing the "cost-share" insulation area to 100-percent Port funded.
- Control of aircraft ground noise by restricting use of engine power for backing aircraft away from gates, improving run-up regulations, investigating the reduction of reverse thrusts, limiting use of auxiliary power units, and erecting a "hush" facility if a maintenance base is built at Sea-Tac Airport.
- Implement a state-of-the-art flight track monitoring system to better monitor compliance with noise abatement flight track procedures.
- Improve flight procedures through the Elliott Bay corridor and over Puget Sound to minimize jet noise to adjacent residential areas, with special attention to nighttime flights.
- Control noise from "single-event" aircraft operations that are particularly annoying by improving the Port's complaint hotline and flight track monitoring system.
- Establish a Noise Abatement Committee to ensure implementation of the agreement.

Many of the elements of these recommendations have been incorporated into the approved NCP; while other elements are beyond the scope of 14 CFR Part 150 and are implemented by Sea-Tac independently of the NCP.

The NCP measures, as outlined in the previous Part 150 studies, and the current implementation status of each measure is listed in the following sections.

1.5.1 ABATEMENT MEASURES

Measure A-1: Explore Limited Rescheduling of Nighttime Flights

Description: This measure involves the voluntary rescheduling of the flight times (earlier or later) of nighttime short-haul flights by jet aircraft. This measure primarily addresses those short-haul flights that currently are scheduled to operate between 10:00 p.m. and 12:00 a.m. or between 5:00 a.m. and 7:00 a.m. to reduce the number of operations of jet aircraft during periods of low ambient noise. Since the adoption of this measure, the Federal Government issued 14 CFR Part 161, which limits the ability of airports to enact airport use restrictions that are not voluntary.

Status: This measure is ongoing. Airlines operating at Sea-Tac Airport were sent letters requesting that they voluntarily limit nighttime flights. All startup airlines are sent letters requesting that they limit nighttime flights if possible. Also prior to the year 2000, Sea-Tac Airport had restrictions on Stage 2 aircraft over 75,000 lbs. during the nighttime hours (prior to the Federally-mandated Stage 2 phase-out).

Measure A-2: Eliminate Training Activity

Description: This measure was intended to limit the use of Sea-Tac Airport for training activities (primarily practice instrument approaches by military aircraft).

Status: This measure is complete. No training activity is allowed at Sea-Tac Airport.

Measure A-3: Use VOR Radials to Curb Aircraft Drifting from Noise Abatement Track

Description: This measure uses very high frequency omnidirectional range (VOR) radials to curb departing aircraft from drifting off the runway heading tracks as specified in the Tower Order.
Status: This measure has been implemented and adherence to this measure is ongoing.

Measure A-4: Expand Noise Monitoring System

Description: This measure expanded the existing noise monitoring system at Sea-Tac Airport by adding two additional permanent noise monitors.

Status: This measure has been implemented. The Port has a state-of-the-art noise and operations monitoring system. The Port has periodically expanded and upgraded this system. The system collects and stores flight data from the FAA's automated radar terminal system, which enables staff to regularly monitor noise abatement procedures and investigate citizen inquiries. In addition to this system, the Port also provides WebTrak, which enables the public to investigate flights via the Web. The Port owns and operates 25 permanent noise monitors. The noise monitoring system measures noise levels from individual aircraft and keeps track of operations over time. As data from the monitors is accumulated and analyzed, a history of noise levels is maintained so changes can be noted and trends identified.

Measure A-5: Establish Noise Abatement Office

Description: This measure established a noise abatement office to initiate, implement, and monitor the various noise abatement actions included in the NCP.

Status: This measure has been implemented.

Measure A-6: Establish Follow-Up Public Committee

Description: This measure recommended the establishment of a committee to monitor programs implemented as a result of the Part 150 Study after its completion; and help develop and evaluate the Fly Quiet Program described in Measure A-12.

Status: This measure was approved by the FAA in the 2002 ROA. This measure is complete. The Follow-Up Committee assisted in the development of the Fly Quiet Program, which is currently in effect at Sea-Tac Airport. Committee disbanded after recommended programs were implemented.

Measure A-7: Establish Noise Barriers/Run-up Enclosure

Description: The 1985 Part 150 recommended the use of airport facilities for buffering ground noise. This measure was amended in the 2002 Part 150 Study Update to include the construction of a noise barrier in the North Cargo Area and conduct a siting/feasibility study for a Ground Run-up Enclosure (GRE).

Status: Not implemented – This measure was approved in part by the FAA in the 2002 ROA. The FAA approved the conduct of a siting/feasibility study, but noted that "…placement of any future GRE will be subject to additional FAA review determined by the results of the study." The Port completed a feasibility study in 2001, but since then a recommended site could not be finalized because of some serious airfield planning issues adjacent to the area that was designated for a future GRE. A GRE should be located in close proximity to the aircraft maintenance facilities of an airport's primary air carriers. The GRE is currently being reviewed again as part of the current Part 150 Study. The construction of a noise barrier in the North Cargo Area was disapproved by the FAA in the 2002 ROA pending submission of additional information regarding non-compatible land uses impacted and benefits to those non-compatible land uses from construction of the noise barrier.

Measure A-8: Restrict Taxiing of Aircraft to/from Maintenance Areas during Nighttime Hours

Description: This measure requires that airlines tow aircraft to and from the maintenance area or when repositioning aircraft from one gate to another during nighttime hours.
Status: This measure was not implemented. Current airport rules and regulations do not prohibit taxiing aircraft for maintenance activity because it would reduce operational efficiency below acceptable levels.

Measure A-9: Encourage Voluntary Phase-out of Stage 2 Jet Aircraft under 75,000 Lbs.

Description: The 1985 Part 150 Study recommended compliance with 14 CFR Part 36 standards related to the phase-out of Stage 2 aircraft weighing over 75,000 lbs. Jet aircraft weighing less than 75,000 lbs. were exempt from the Stage 2 phase-out mandated under the Airport Noise and Capacity Act (ANCA) of 1990. This measure was amended in the 2002 Part 150 Study Update to include a voluntary phase-out of Stage 2 commercial and business jets weighing less than 75,000 lbs.

Status: This measure was disapproved by the FAA in the 2002 ROA pending submission of additional information to document the contribution Stage 2 aircraft had on the overall noise environment at Sea-Tac Airport. However, this measure is complete. Horizon Airlines has phased-out the F-28 commercial jet, which met the Stage 2 criteria and was less than 75,000 lbs.

Measure A-10: Maintenance Run-up Regulations

Description: This measure addressed maintenance run-ups and recommended several limitations to run-up related activities and fines for violations. These include:

- Prohibit run-ups during the overnight hours of 12:00 a.m. to 6:00 a.m.
- Include language that allows run-ups during the shoulder hours of 10:00 p.m. to 12:00 a.m. and 6:00 A.M. to 7:00 A.M. only if it is necessary for a departure within two-and-a-half hours of the scheduled run-up.
- Increase fines for violations to the run-up regulations to $1,000 for the first offense, doubling each time thereafter, within a 12-month timeframe, to a maximum of $8,000 per occurrence.
- Implement new fine structure once new noise monitoring system has been installed and tested for reliability.
- Include run-up monitoring in Fly Quiet Program (See Measure A-12)
- Work with airlines to restrict run-ups on weekend mornings before 9:00 a.m. unless needed for a departure within two-and-a-half hours of the scheduled run-up.

Status: This measure was disapproved by the FAA in the 2002 ROA. This measure has been implemented by the Port independent of the NCP. The Port of Seattle has established a period that restricts engine run-ups from 10:00 p.m. to 7:00 a.m. If absolutely necessary, run-ups may be conducted during these hours with the airport's permission and may not exceed two minutes in duration. Aircraft operators may conduct longer run-ups from 6:00 a.m. to 7:00 a.m. only if the aircraft is scheduled for a flight that departs between the hours of 7:00 a.m. to 8:30 a.m. and has the airport's permission. Violations to these time restrictions will result in the following tariffs being applied to the aircraft operator:

- First offense – Letter of Admonishment
- Second offense in a calendar year - $1,000
- Third offense within a calendar year from the first offense - $2,000
- Maximum fine within a calendar year from first offense - $8,000

Measure A-11: Preferential Runway Use

Description: This measure implemented a preferential runway system, during the nighttime hours, for operations through the North Flow Nighttime Noise Abatement Corridor. This would be operational when traffic and other conditions permit as determined by the FAA. When conditions permit, during nighttime hours, departures can be shifted from south to north, thus utilizing the established noise abatement corridor.

Status: This measure was approved as voluntary by the FAA in the 2002 ROA. This measure has been implemented and adherence to this measure is ongoing.

Measure A-12: Development/Implementation of a Fly Quiet Program

Description: This measure is intended to encourage greater compliance with the noise abatement procedures, work with operators to reduce single event noise levels, and continue to raise awareness of citizens' noise concerns with the FAA and aircraft operators. The Fly Quiet Program was recommended to:

- Monitor adherence to ideal noise abatement flight tracks
- Evaluate success of airlines, aircraft types, and other variables
- Establish goals and track level of improvement over time
- Offer incentives for improvement

The Fly Quiet Program was recommended to include the following elements:

- Aircraft noise should be related to its effects on people including such factors as annoyance, speech interference and sleep disturbance;
- Comparative fleet quality between airlines should also be included;
- The program should utilize measured data from the Airport's noise monitoring system;
- A method of normalizing data to account for airlines that most efficiently serve the region's air transportation needs should be developed;
- Incentives of sufficient importance that airlines will take notice of the results; and
- Pilots and air traffic controllers should be included, if possible.

Status: This measure was approved as voluntary by the FAA in the 2002 ROA. This measure has been implemented. The Fly Quiet Program was implemented in 2004 and remains in place for the foreseeable future. Airline operations are carefully monitored and airlines compete to be designated as the "quietest" at Sea-Tac Airport. Winning airlines are rewarded with extensive publicity regarding their Fly Quiet efforts. Airlines are evaluated on their performance in complying with flight tracks, as well as their compliance with ground run-up regulations. An advisory committee worked in 2003 to assist the Port in developing the program, and served as the "follow-up committee" per the 2002 recommendation.

Measure A-13: Evaluate Increased Use of the Duwamish/Elliott Bay Corridor with FMS

Description: Through this measure, the Port encouraged the FAA to pursue options for determining the feasibility of increased use of the Duwamish/Elliott Bay Corridor. Increasing the use of Flight Management Systems (FMS) technology ensures that the rate of adherence to an optimum flight track will increase over time.

Status: This measure was disapproved by the FAA in the 2002 ROA. According to the 2002 FAA Record of Approval, implementing this action would greatly impact the efficiency of the air traffic system in the region and degrade safety, which would not be consistent with 14 C.F.R. part 150, section 150.35(b)(3)(iii).

Measure A-14: Nighttime Use of Commencement Bay Departure

Description: This measure recommended that the FAA study the use of the nighttime (12:00 A.M. to 5:00 A.M.) use of the Commencement Bay corridor.

Status: This item was studied during the 2002 Part 150. Port staff coordinated/consulted with the cities of Fife, Milton, and Tacoma who firmly objected to the recommendation. Since no agreement could be made between the various cities involved, no FAA action was taken in the 2002 ROA and the recommendation was not implemented.

Measure A-15: Use of FMS Procedures

Description: This measure is designed to encourage the use of FMS procedures over non-populated areas, to discourage the development of new FMS procedures over populated areas, and to support development of FMS procedures for all north flow departures turning west to improve compliance with the identified noise abatement corridor. FMS flight tracks have the potential to become very narrow on straight portions of the flight tracks. When turning, however, the differing operating characteristics of the aircraft will cause dispersion.

Status: This measure was approved by the FAA in the 2002 ROA. This measure has been implemented and is ongoing. Following the 2002 Part 150, FMS departure procedures have been developed by the FAA for use of the Elliott Bay corridor and are routinely assigned to pilots.

Measure A-16: Use of Ground Equipment

Description: This measure recommended the installation of power and conditioned air in existing and newly constructed gates to minimize the use of auxiliary power units (APUs)/ground power units (GPUs). Once power and conditioned air are installed at gates, airlines should be required to use these services. This reduces noise from the operation of APUs/GPUs when aircraft are parked at the gate.

Status: This measure was disapproved by the FAA in the 2002 ROA; however, has been implemented by the Port independently of the NCP. The project is underway - 73 gates are anticipated to be equipped with central pre-conditioned air by April 2013 As of October 2012 there were 30 diesel/electric point of use units being utilized.

Measure A-17: Raise Altitude Where Aircraft Intercept Glide Slope

Description: Through the Fly Quiet Program, the subsequent Follow-On Committee will work with the operators and the FAA toward a goal of having aircraft on the glide slope as far out as possible while not adversely impacting capacity. When aircraft are on arrival to Sea-Tac Airport, they are utilizing the glide slope and the angle of the glide slope to line up on the runway and descend at the proper rate of speed and angle to touch down on the runway. This is usually done under instrument flying conditions, but almost all-commercial service aircraft and cargo aircraft fly the glide slope even during clear weather conditions (VFR). All glide slope angles at Sea-Tac Airport are at three degrees. This is consistent with almost every other airport in the country. Aircraft are designed to operate at an approximate three-degree glide slope for safety, efficiency of aircraft movement, performance of the aircraft, and comfort to the passengers.

Status: This measure was disapproved by the FAA. As noted in the 2002 ROA, moving aircraft further out on the glide slope would negatively impact airspace capacity and efficiency. The current procedures are needed to maintain operational efficiency at Sea-Tac Airport.

1.5.2 MITIGATION MEASURES

Measure M-1: Outright Acquisition

Description: Single-Family homes located within high noise exposure areas were recommended for outright acquisition. Acquisition programs have been in effect at Sea-Tac Airport since 1972. This NCP measure, which was included in the 1985 NCP, was intended to focus on acquisition of single-family residences exposed to aircraft noise levels of 75 DNL or higher.

Status: This measure is complete. Approximately 1,400 single-family residences were acquired and residents were relocated, including 388 units that were acquired for construction of the new third parallel runway.

Measure M-2: Sound Insulation

Description: Install sound insulation in single-family residential units within the Noise Remedy boundary established in the 1985 Part 150 Study. This measure was amended in the 1993 NCP Update by Measures M-2a, M-2b, M-2c, and M-2d described below.

Measure M-2a: Standard Insulation

Description: Continuation of original Measure M-2 for sound insulation of eligible single-family residences. This measure was again amended in the 2002 NCP Update to focus efforts on residences more highly impacted residential uses; although, overall Remedy Program Boundary set in 1985 was not changed. Completion of the single family sound insulation program was also an element of the July 3, 1997 Record of Decision for the Master Plan Update for the inclusion of the new third runway.[2]

Status: This measure was approved by the FAA in the 2002 ROA and is ongoing. As of August 2012, over 9,300 single-family homes have been sound insulated.

Measure M-2b: Insulation of Schools

Description: This measure includes a sound insulation program for eligible schools. A pilot program was initiated according to the original measure from the 1993 NCP Update to determine the feasibility, procedural requirements, and costs, for sound insulating four public buildings based on the Building Committee recommendations. Following the pilot program, several private schools and classrooms at Highline Community College were insulated within the noise contour. This measure was amended in the 2002 NCP Update to develop a program to insulate schools within the Highline School District that fall within the DNL 65 dBA.

Status: This measure was approved by the FAA in the 2002 ROA and is ongoing. As of August 2012, sound insulation has been installed in seven schools within the Highline School District, with eight schools remaining. Thirteen of the eligible 22 buildings on the Highline Community College Campus have been sound insulated.

Measure M-2c: Multi-Family Developments

Description: This measure includes a sound insulation program for eligible multi-family residences. The 1993 NCP Update recommended a pilot project to sound insulate one multi-family unit similar to the criteria outlined in measure M-2. That pilot project was and the measure was amended in the

[2] United States Department of Transportation, Federal Aviation Administration, Record of Decision for the Master Plan Update Development Actions SEA-TAC International Airport, Seattle, Washington, July 3, 1997.

2002 NCP Update to include sound insulation for approximately 300 owner-occupied multi-family units within the 70+ DNL of the 1998 noise contour. Owner-occupied units (e.g. condominiums) were considered differently than renter-occupied units (e.g. apartments) for two major reasons: 1) apartments are considered a business because the units are rented for a profit and 2) they are typically not a permanent residence and the residents are generally more mobile, and the owner-occupied multi-family residents typically have more monetary investment in their residence. Structures must meet the same eligibility requirements as single-family homes within the noise remedy boundary.

Status: This measure was approved by the FAA in the 2002 ROA. This measure is complete. Approximately 246 units within five condominium complexes have been sound insulated.

Measure M-2d: Mobile Homes

Description: The 1993 NCP Update recommended that the Port offer financial assistance for the removal of mobile homes for residents within a manufactured/mobile home park (MMHP) in which the owner has decided to close. In exchange for this assistance, the MMHP owner would sign an avigation easement to ensure that a noise compatible use would be developed to replace the MMHP. This measure was amended in the 2002 NCP Update in two ways: 1) the Port will purchase MMHPs within the 70+ DNL of the 1998 noise contour and provide relocation assistance to the residents in accordance with the Uniform Relocation and Property Acquisition Policies Act, as amended; and 2) the Port will continue to offer financial assistance for the removal of mobile homes for residents residing in parks, where the park owner has decided to close the park, located in the 65 to 70 DNL of the 1998 noise contour.

Status: This measure was approved by the FAA in the 2002 ROA. This measure is complete. The Port acquired five mobile home parks with a total of 359 mobile homes units. Owners of those homes were relocated with financial and advisory assistance from the Port.

Measure M-3: Transaction Assistance

Description: Formerly referred to as "purchase assurance" this measure is now termed transaction assistance in keeping with its primary function. The intent of the measure is to provide financial and technical assistance to owner-occupants of single-family residences who desire to sell and move away from areas of relatively high noise exposure. If the various forms of assistance to be made available do not result in an acceptable sales transaction, the Port could acquire the property at fair market value as a "buyer of last resort." Following necessary improvements (which could include sound insulation), the Port would resell the property to a willing buyer with an avigation easement attached to the deed.

Status: This measure is ongoing. It was approved in the 1985 NCP and amended in the 1993 NCP (see Measures M-3a and M-3b).

Measure M-3a: Special Purchase Option

Description: This measure modified the Transaction Assistance program to include a Special Purchase Option (SPO) for residents who have owned their home for more than five years and are adjacent to Port property have the option to sell their property to the Port based on fair market value. The Port will then insulate the residence and offer it for resale. This SPO can occur only once per property.

Status: Due to the lack of community response for this program it was discontinued.

Measure M-3b: Insulation Requirement

Description: This measure modified the Transaction Assistance program to require that to be eligible for the program, a homeowner must first have the property sound insulated. If, after sound insulation is completed, the homeowner still wishes to relocate, they will be eligible for transaction assistance.

Status: Due to the lack of community response for this program it was discontinued.

Measure M-4: Easement Acquisition

Description: The Port should obtain avigation easements in return for sound insulation or transaction assistance, as well as for situations of specialized nature. For some residences, the Port could purchase an avigation easement from an eligible owner of an owner-occupied residence who desires to continue living in the same location, even though the home cannot be satisfactorily sound insulated. Other situations in which avigation easements may be appropriate include churches. The easement fee paid by the Port could be used to provide some measure of sound insulation of noise-sensitive areas of church structures.

Status: This measure is ongoing, but has been modified from the original description. The Port does not purchase avigation easements for owner-occupied homes that cannot be effectively sound insulated. [3]

[3] Note that this provision differs from completed Measure M-2d in which the Port would offer an avigation easement to owners of mobile home lots in return for removing the mobile home.

Measure M-5: Property Advisory Service

Description: This measure provides residents and property owners within the Airport Environs with access to timely and factual information concerning 1) what noise remedies they may be eligible for, 2) assistance with making decisions when they are eligible for multiple options, 3) information regarding rumors about the mitigation program (either good or bad), and 4) assurances that the various programs are indeed aimed at improving the living, working and leisure-time environment. This two-way communication can also provide the Port with information about the concerns of residents/property owners and can provide a means by which the success or failure of programs can be monitored.

Status: This measure is ongoing.

Measure M-6: Local Government Remedy Support

Description: By insulating homes and assisting with real estate transactions, the Port can participate in making Sea-Tac Airport and surrounding residents better neighbors. However, the Port alone cannot accomplish all program goals. Local governments, with land use jurisdiction must also participate if the program is to be a success, especially in the long term. Under this measure, the Port will encourage local jurisdictions to undertake projects, provide services, and adopt laws that reinforce neighborhoods and make them compatible with Sea-Tac Airport. The Port will also work with jurisdictions in coordinating activities and exchanging information.

Status: This measure is ongoing.

Measure M-7: Funding for Land Use / Noise Compatibility Planning

Description: This measure enables public agencies (defined as a state, municipality or other political subdivision, or Native American Tribe) having planning authority within the DNL 65 dBA noise contour to be able to apply for reimbursable funding of specific off-airport land use/noise compatibility planning efforts which are consistent with the principles and guidelines of 14 CFR Part 150 and the Port noise compatibility goals.

Status: This measure is ongoing.

Measure M-8 was previously considered but not recommended for inclusion in the NCP.

Measure M-9: Community Planners Forum

Description: The Port will initiate the formation of a committee to allow planning representatives from all jurisdictions within the DNL 65 dBA noise contour, or other invited jurisdictions with interest, to meet on a regular basis to share information pertaining to comprehensive planning, community and airport planning, land use issues, and noise mitigation efforts.

Status: The Planning Committee was formed and met for several years but has since disbanded due to lack of interest by the forum.

Measure M-10: Operations Review and NEM Updates

Description: The Part 150 Study is a five-year program recommended to be reevaluated at the end of the five-year period. In addition, if there is a significant change in either aircraft types or numbers of operations, or significant new facilities, then it is recommended that the Study will be reevaluated prior to the end of the five-year time frame.

Status: This measure was approved by the FAA in the 2002 ROA. This measure is ongoing. This Part 150 Study Update represents the continuation of this measure, which is occurring at this time due to the recent opening of the third parallel runway.

Measure M-11: Approach Transition Zone Acquisition

Description: This measure recommended that the Port purchase residential properties experiencing noise levels of DNL 65 dBA or greater, and located within the Approach Transition Zones (ATZ) of Runway 16R/34L.

Status: This measure was approved by the FAA in the 2002 ROA"…with respect to those areas located within the most recent official Part 150 NEMs." This measure is ongoing. A total of 69 residential parcels and two mobile home parks within the North ATZ have been purchased and residents relocated and the program is complete in this area. A reevaluation of the third runway's South Approach Transition Zone will be conducted as part of the current Part 150 Update. There are 16 single-family residences and six apartment buildings remaining in the south ATZ.

Measure M-12: Prepare Cooperative Development Agreements

Description: The Port and the surrounding jurisdictions should work towards development of cooperative development agreements concerning land use, redevelopment, and infrastructure of the ATZ, as well of other redevelopment areas as necessary.

Status: This measure was approved by the FAA in the 2002 ROA and is ongoing. As of March 2011, the Port has worked with Burien on the North East Redevelopment Area north of Runway 16R/34L and has signed a Development Agreement with the City of Des Moines on the Des Moines Creek Business Park.

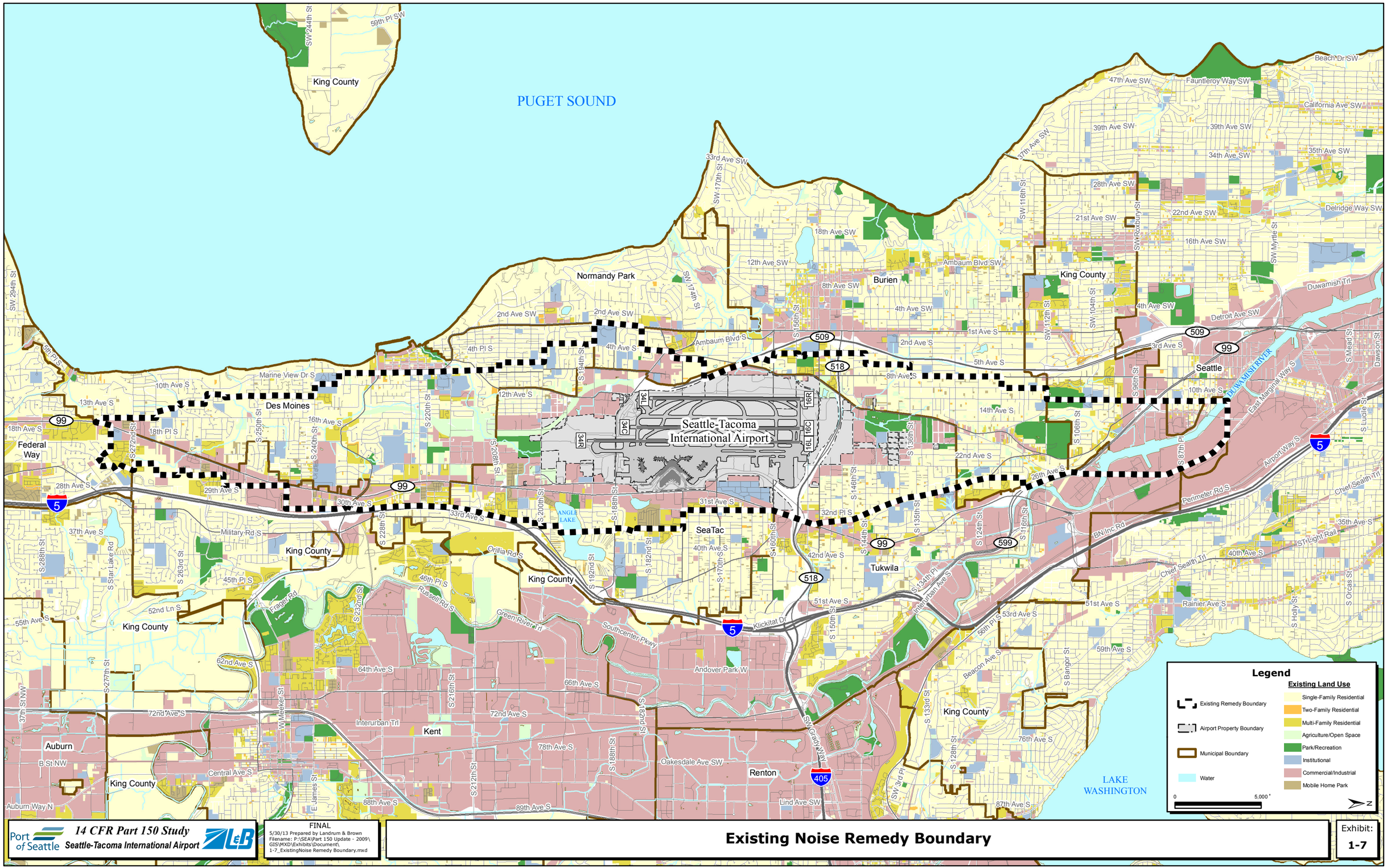
Measure M-13: Amend Community Plans and Zoning Ordinances

Description: The Port will work with the jurisdictions to amend zoning Maps, as necessary to reflect ATZ and mobile/manufactured home park recommendations that may not be consistent with existing Maps and to take into consideration 14 CFR Part 77 height requirements. Such changes shall work towards discouraging the location of additional mobile/manufactured homes that cannot be insulated within 1998 DNL 65 dBA contour.

Status: This measure was approved by the FAA in the 2002 ROA. This measure is complete. All of the residential parcels purchased by the Port have been re-zoned as "airport noise compatible," which means that if and when they are redeveloped they can only be used for industrial/commercial purposes, not residential. The Port also evaluated residential building code requirements for all jurisdictions within the 1998 DNL contour and found that they either met or exceeded the FAA's noise reduction standards.

Since the adoption of the Noise Mediation recommendations and the 2002 Part 150 Update, the Noise Acquisition Program, now completed, has resulted in the acquisition of approximately 1,328 homes and 103 vacant lots at a cost of approximately $119 million. As recommended by the 2002 Part 150 Update, more than 60 homes within the North Approach Transition Zone located in Burien were acquired and approximately 100 units within the Town & Country Mobile Home Park in the City of SeaTac were acquired and the residents relocated. An additional 388 homes were acquired for the construction of the third parallel runway.

The Noise Remedy Program offers soundproofing to approximately 10,000 homes within the existing program boundaries. By the end of 2009, 9,319 homes had been insulated for a cost of approximately $227 million. Sound insulation and other related improvements are ongoing at 15 eligible schools within the Highline School District. Building #19 at Highline Community College was sound insulated and other buildings on the campus are being evaluated for eligibility. The Noise Remedy Boundary Map is shown on **Exhibit 1-7, *Existing Generalized Noise Remedy Boundary***.


PUGET SOUND
King County
Normandy Park
Burien
King County
Seattle
Des Moines
Federal Way
Seattle-Tacoma International Airport
SeaTac
King County
Tukwila
King County
Kent
Auburn
King County
Renton
King County
LAKE WASHINGTON
ANGLE LAKE
SW 244th St
59th Pl SW
SW 294th St
5th Pl S
Marine View Dr S
10th Ave S
13th Ave S
18th Ave S
18th Pl S
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S 250th St
S 240th St
16th Ave S
28th Ave S
29th Ave S
30th Ave S
33rd Ave S
37th Ave S
S 288th St
S Star Lake Rd
Military Rd S
S 263rd St
45th Pl S
52nd Ln S
55th Ave S
S 277th St
62nd Ave S
37th St NW
72nd Ave S
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Interurban Trl
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Fager Rd
Russell Rd S
46th Pl S
Orillia Rd S
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33rd Ave SW
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12th Ave SW
18th Ave SW
8th Ave SW
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2nd Ave S
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S 135th St
S 124th St
S 116th St
S 106th St
S 96th St
S 87th Pl
S 133rd St
S 128th St
S 150th St
S 134th Pl
Interurban Ave S
SW 116th St
SW 112th St
SW 104th St
SW Roxbury St
SW Myrtle St
47th Ave SW
37th Ave SW
39th Ave SW
34th Ave SW
28th Ave SW
21st Ave SW
4th Ave SW
Ambaum Blvd SW
Beach Dr SW
Fauntleroy Way SW
California Ave SW
35th Ave SW
Delridge Way SW
22nd Ave SW
16th Ave SW
Duwamish Trl
Detroit Ave SW
East Marginal Way S
DUWAMISH RIVER
S Mead St
Dawson St
S Lucile St
Airport Way S
Perimeter Rd S
Chief Seath Trl
BNInc Rd
ST Light Rail
35th Ave S
40th Ave S
Rainier Ave S
S Holly St
S Orcas St
S Bangor St
Beacon Ave S
Andover Park W
Oakesdale Ave SW
Lind Ave SW
SW Grady Way
SW 3rd Pl
Southcenter Pkwy
Klickitat Dr
Green River Trl
99
5
509
518
599
405
34L
34C
34R
16R
16C
16L
Legend
Existing Land Use
Existing Remedy Boundary
Airport Property Boundary
Municipal Boundary
Water
Single-Family Residential
Two-Family Residential
Multi-Family Residential
Agriculture/Open Space
Park/Recreation
Institutional
Commercial/Industrial
Mobile Home Park
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Port of Seattle
14 CFR Part 150 Study
Seattle-Tacoma International Airport
FINAL
5/30/13 Prepared by Landrum & Brown
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Existing Noise Remedy Boundary
Exhibit:
1-7

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1.6 NOISE COMPLAINT HISTORY

The Sea-Tac Airport Noise Abatement Office receives airport noise complaints and other inquiries from residents in communities around Sea-Tac Airport. These complaints/inquiries are received in the form of phone calls, letters, e-mails, or in person and are logged and compiled in the ANOMS database. Complaint data generally includes the name and address of the person who reports the complaint or makes an inquiry, time of the occurrence and reason for the complaint/inquiry. However, in some cases, a full household address is not provided, and therefore, the specific location cannot be found.

Table 1-6, Noise Complaints and Inquiries, lists the total annual complaints/inquiries and the number of complaints/inquiries per household from January 1, 2005 through June 1, 2012. During this timeframe, the Noise Abatement Office received 17,330 aircraft noise complaints or inquiry. **Exhibit 1-8, *Noise Complaints/Inquiries by Location***, shows the noise complaint/inquiry locations (households), by total number of complaints per household, within the Airport Environs.

In 2009, the first full year in which Runway 16R/34L was open, Sea-Tac Airport received 5,383 airport noise complaints from 869 different households. Eighty-four of these complaints/inquiries did not have a known address because either the individual did not provide an address or the address provided could not be verified. Of the 869 households that reported at least one noise complaint, 799 households reported one to five noise complaints, 59 households reported six to 50 noise complaints, 10 households reported 51 to 502 noise complaints, and one household reported 2,050 noise complaints. The average number of noise complaints reported per complaining household was approximately six. Exhibit 1-8 shows the total number of complaints/inquiries by location. **Exhibit 1-9, *Noise Complaints/Inquiries – Study Area***, graphically depicts the mapped locations of noise complaints/inquiries within the Study Area (SA).

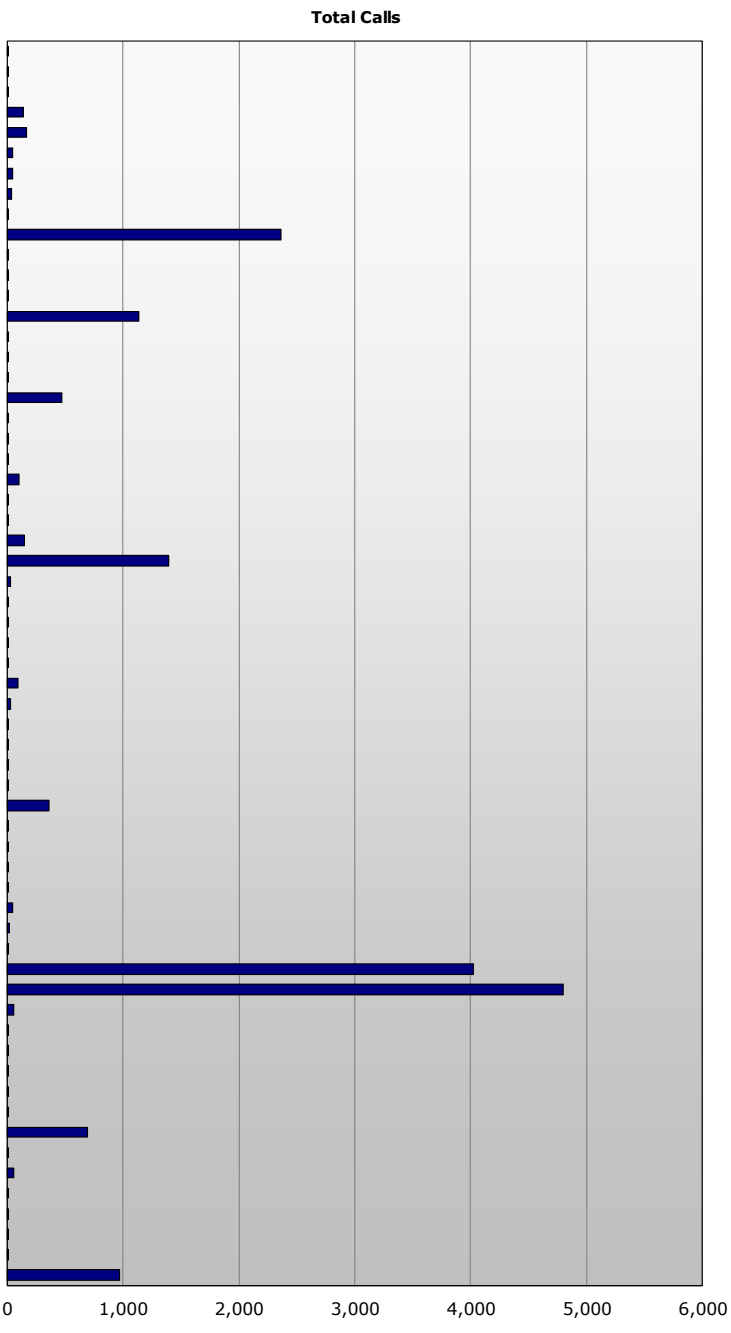
Table 1-6
NOISE COMPLAINTS AND INQUIRIES
Seattle-Tacoma International Airport

YEAR	NUMBER OF COMPLAINTS/ INQUIRIES	NUMBER OF HOUSEHOLDS THAT LOGGED COMPLAINTS[1]	COMPLAINTS FROM UNKNOWN LOCATIONS	MAXIMUM COMPLAINTS PER HOUSEHOLD
2005	1,459	215	533	222
2006	1,273	175	317	321
2007	2,170	379	291	738
2008	1,929	472	318	328
2009	5,383	869	84	2,050
2010	2,489	500	65	682
2011	1,788	117	23	484
2012	839	215	3	222

Note: Includes complaints/inquiries from January 1, 2005 through June 1, 2012.
[1/] Includes only households with known address.
Source: Seattle-Tacoma International Airport Noise Abatement Office, 2012.

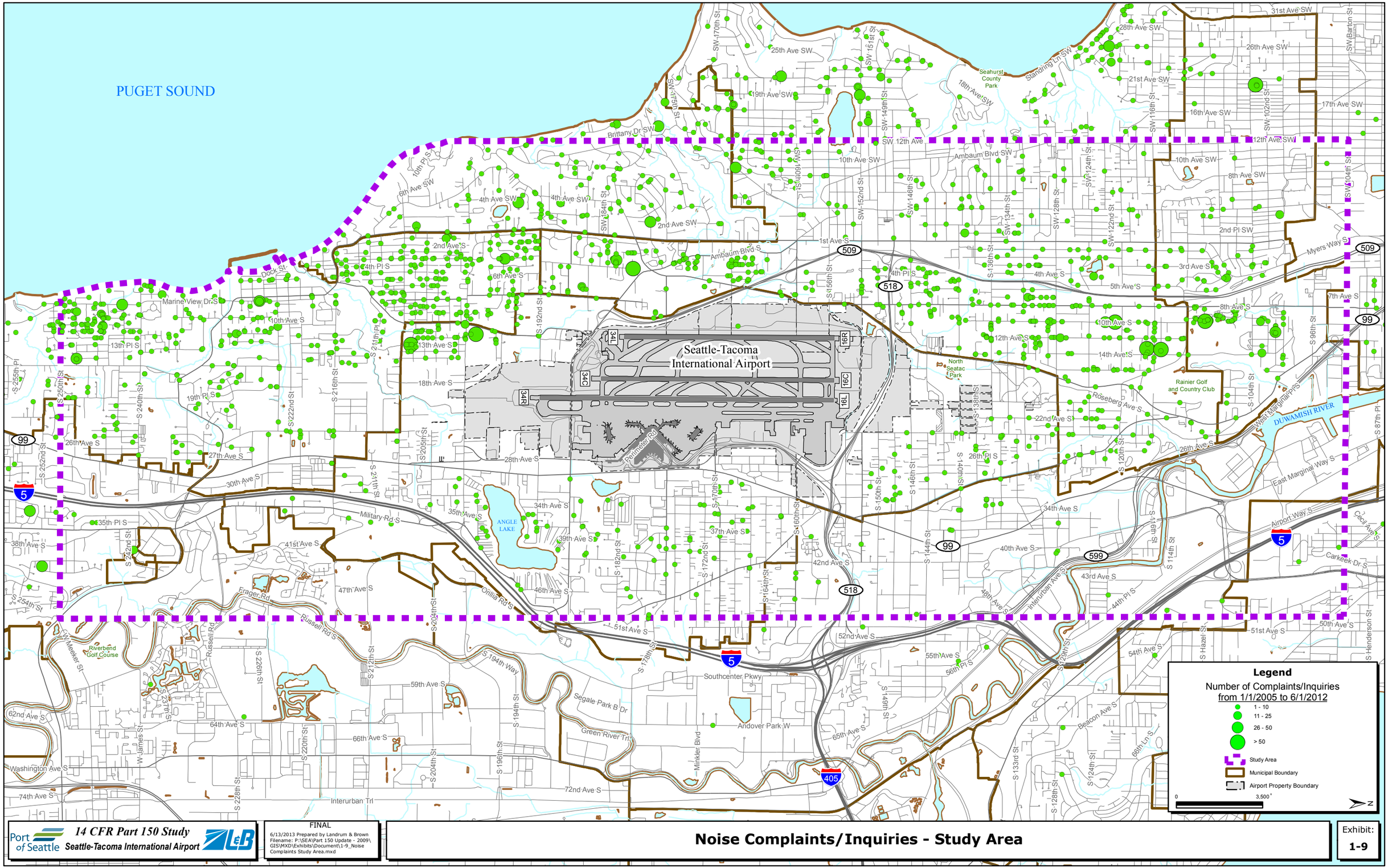
Exhibit 1-8
NOISE COMPLAINTS/INQUIRIES BY LOCATION
Seattle-Tacoma International Airport

Location	Number of Callers	Total Calls
Alderwood Manor	1	1
Allyn-Grapeview	3	3
Arlington	1	1
Artondale	129	138
Auburn	93	166
Bainbridge Island	39	43
Bellevue	49	51
Black Diamond	35	37
Bremerton	1	1
Burien	1,609	2,359
Carnation	1	1
Clyde Hill	5	5
Covington	9	9
Des Moines	999	1,132
Duvall	2	2
Edgewood	3	3
Enumclaw	2	2
Federal Way	400	468
Gig Harbor	1	1
Indianola	1	2
Island County	1	2
Issaquah	76	100
John Sam Lake	3	3
Kenmore	8	9
Kent	114	152
King County	721	1,391
Kirkland	21	28
Kitsap County	6	6
Lake Forest Park	12	14
Maltby	7	9
Maple Valley	4	5
Medina	89	94
Mercer Island	30	31
Milton	1	1
Mountlake Terrace	1	1
Mukilteo	1	1
Newcastle	3	3
Normandy Park	316	361
Paine Field-Lake Stickney	1	1
Picnic Point-North Lynnwood	1	1
Pierce County	7	7
Port Orchard	1	1
Redmond	44	44
Renton	19	23
Sammamish	3	4
SeaTac	491	4,024
Seattle	3,036	4,797
Shoreline	44	58
Silverdale	2	2
Snohomish County	2	2
South Hill	2	2
Sumner	1	1
Suquamish	1	1
Tacoma	606	696
Thurston County	3	3
Tukwila	51	56
West Lake Stevens	1	1
Whatcom County	1	1
Woodinville	1	1
Yarrow Point	2	2
Other/Unknown	914	966



Note: Includes complaints/inquiries from January 1, 2005 through June 1, 2012.

Source: Sea-Tac Airport Noise Abatement Office; Landrum & Brown analysis, 2012.



Legend

Number of Complaints/Inquiries
from 1/1/2005 to 6/1/2012

- 1 - 10
- 11 - 25
- 26 - 50
- > 50
- Study Area
- Municipal Boundary
- Airport Property Boundary

0 3,500'

Port of Seattle — *14 CFR Part 150 Study* — Seattle-Tacoma International Airport — LEB

FINAL

6/13/2013 Prepared by Landrum & Brown
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Noise Complaints/Inquiries - Study Area

Exhibit: **1-9**

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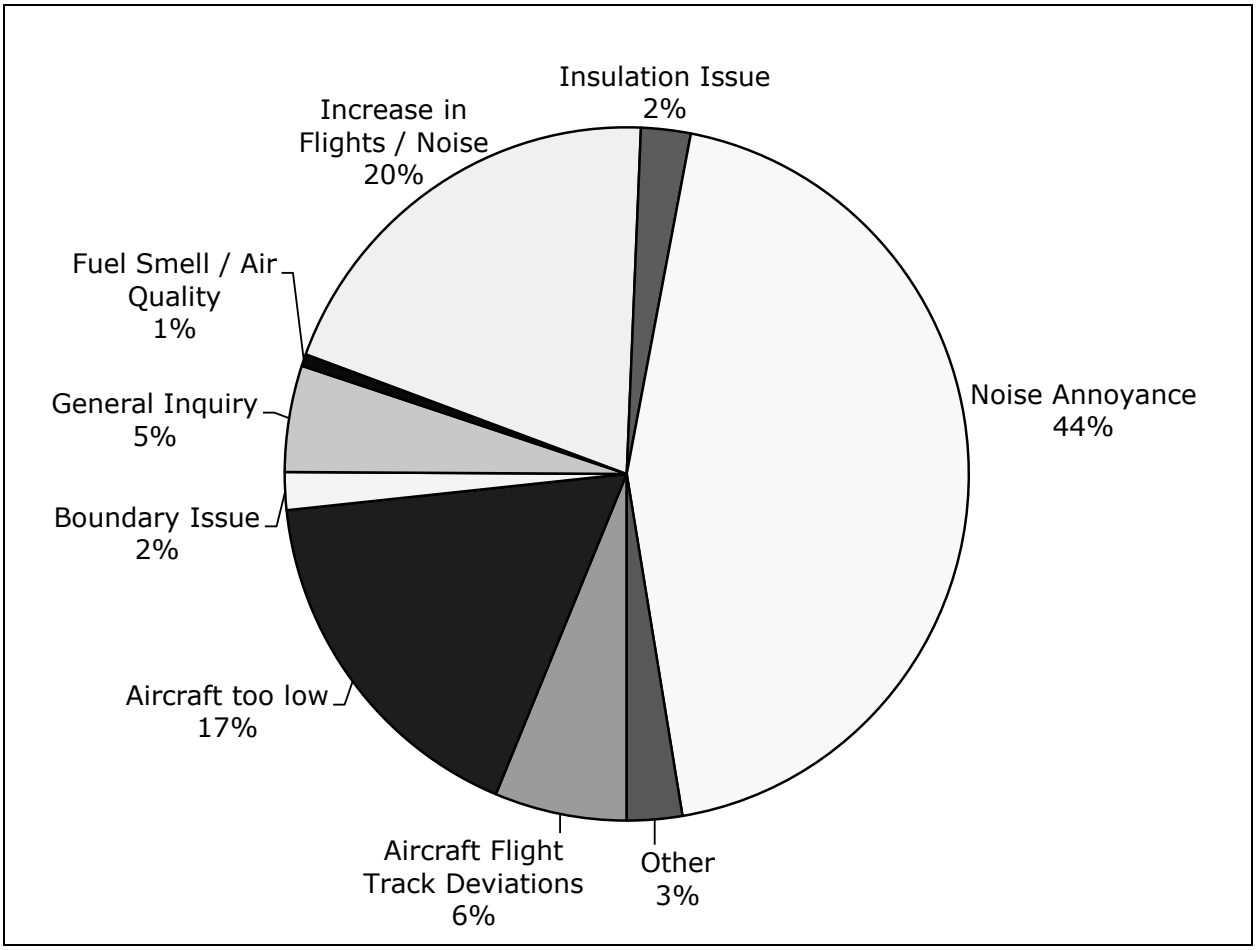
Not all communication with the Noise Abatement Office is regarding noise complaints. In some cases the communication is an inquiry of some kind, such as a request for information about the airport operations or the noise remedy program or a program boundary issue. **Exhibit 1-10, *Noise Complaints/Inquiries by Type***, shows the nature of each complaint/inquiry from January 1, 2005 through June 1, 2012. The majority of the communication (44 percent) is regarding noise annoyance issues, while another 20 percent is due to concern over an increase in noise and/or aircraft operations. Concerns about aircraft at low altitude and flight track deviations comprise 17 percent and six percent of the complaints/inquiries, respectively. Other communications were related to air quality issues, sound insulation and mitigation boundary issues and other general inquiries.

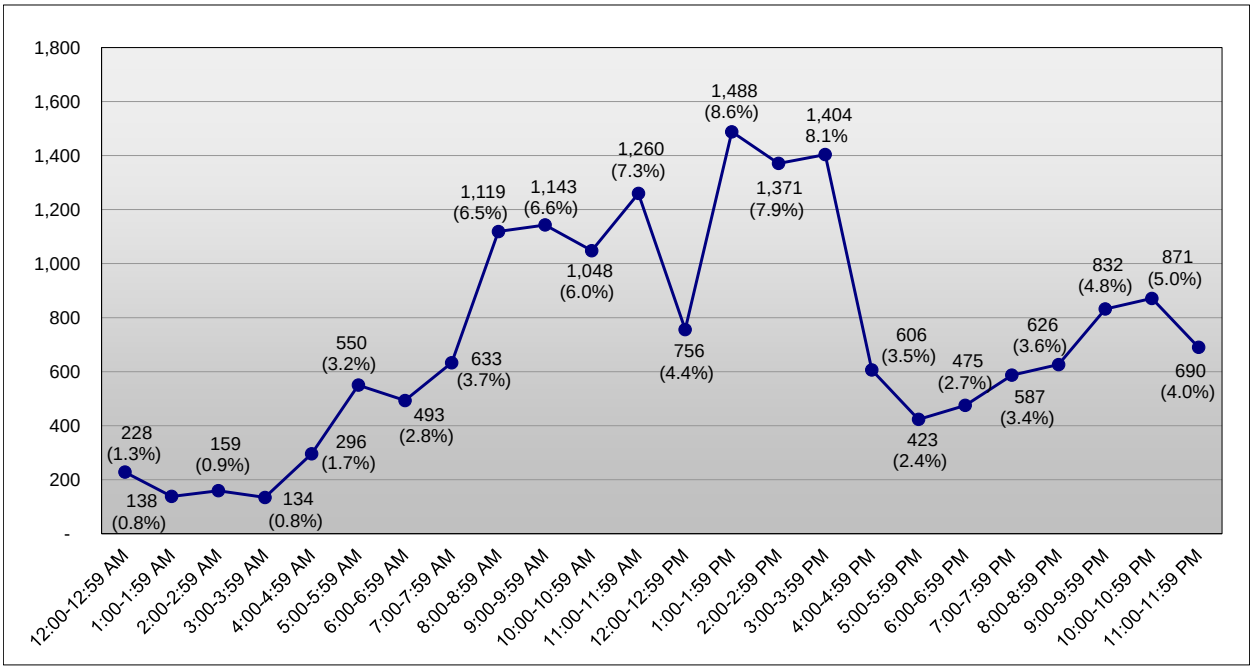
Exhibit 1-10
NOISE COMPLAINTS/INQUIRIES BY TYPE
Seattle-Tacoma International Airport



Note: Includes complaints/inquiries from January 1, 2005 through June 1, 2012.
Source: Sea-Tac Airport Noise Abatement Office; Landrum & Brown analysis, 2012.

Exhibit 1-11, *Noise Complaints/Inquiries by Time of Day*, shows times of day when people have made noise complaints and/or inquiries from January 1, 2005 through June 1, 2012. During this timeframe, the highest number of complaints/inquiries occurred in the early to mid-afternoon. A total of 1,488 complaints/inquiries (8.6%) were logged between 1:00 p.m. and 1:59 p.m. The lowest number of complaints/inquiries occurred in the early morning hours when people are typically asleep and limited aircraft activity occurs. It should be noted that in some cases the time of the complaint may not directly correspond to the time of the event that triggered the complaint. In some cases, time may pass between the event that triggered the complaint and when the person actually called the noise abatement office or submitted their complaint/inquiry.

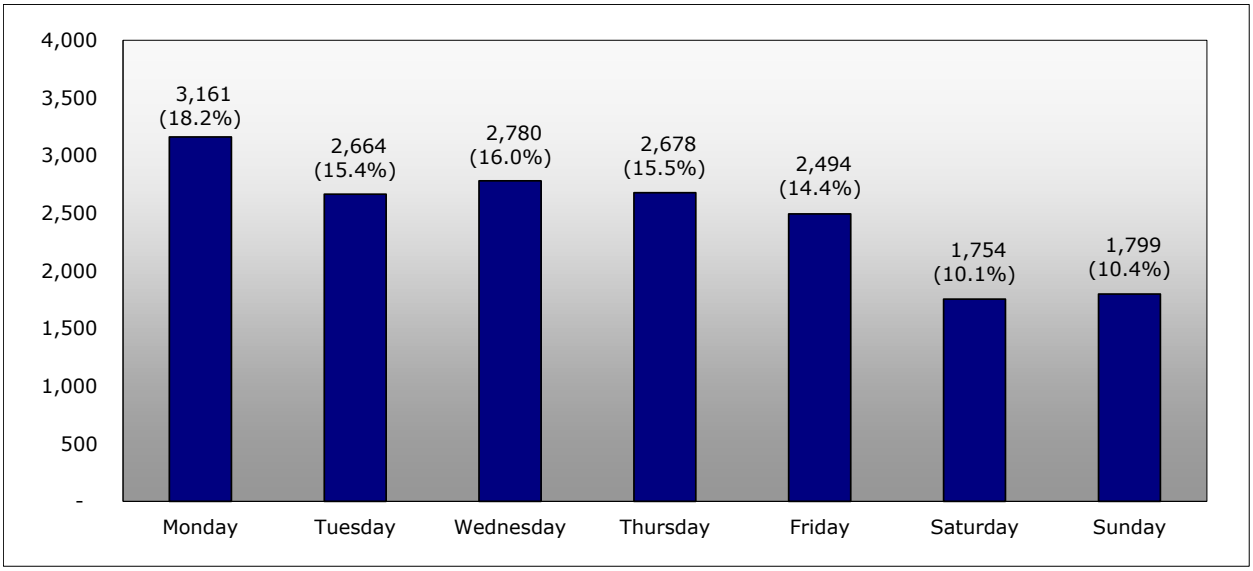
Exhibit 1-11
NOISE COMPLAINTS/INQUIRIES BY TIME OF DAY
Seattle-Tacoma International Airport



Note: Includes complaints/inquiries from January 1, 2005 through June 1, 2012.
Source: Sea-Tac Airport Noise Abatement Office; Landrum & Brown analysis, 2012.

Exhibit 1-12, *Noise Complaints/Inquiries by Day of the Week*, shows the distribution of complaints/inquiries by day of the week from January 1, 2005 through June 1, 2012. During this timeframe, more complaints/inquiries occurred on weekdays (Monday through Friday) than on weekends (Saturday and Sunday).

Exhibit 1-12
NOISE COMPLAINTS/INQUIRIES BY DAY OF THE WEEK
Seattle-Tacoma International Airport

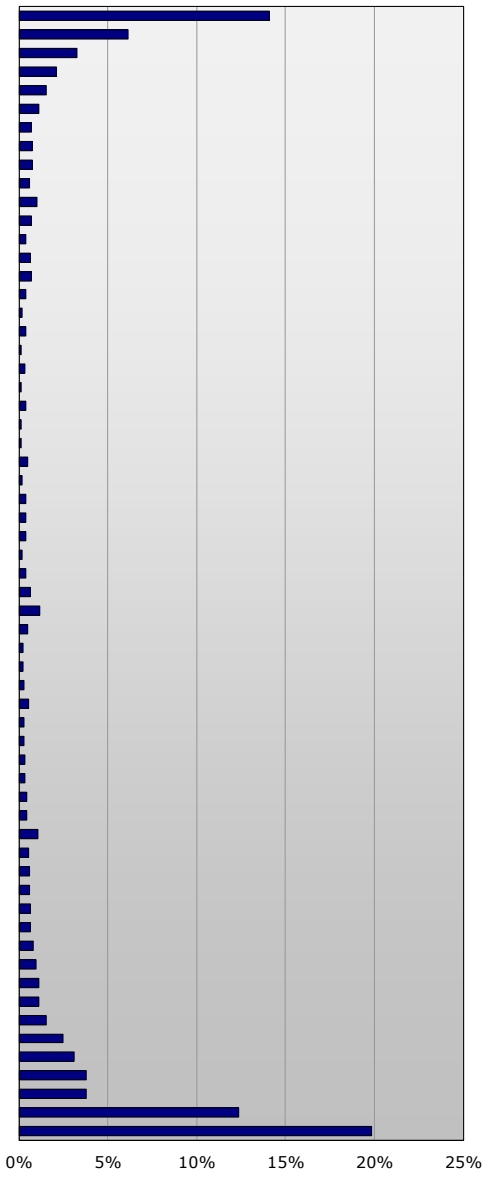


Source: Sea-Tac Airport Noise Abatement Office; Landrum & Brown analysis, 2012.

Exhibit 1-13, *Noise Complaints/Inquiries by Individual*, shows the total number of complaints/inquiries per individual. A total of 3,525 individuals have logged 17,330 complaints/inquiries from January 1, 2005 through June 1, 2012. A total of 2,446 individuals made only one complaint/inquiry (approximately 14 percent of the total 17,330 complaints/inquiries). Conversely, a small number of individuals logged repeated complaints/inquiries, including one individual who logged 3,441 total complaints/inquiries (approximately 20 percent of the total).

Exhibit 1-13
NOISE COMPLAINTS/INQUIRIES BY INDIVIDUAL
Seattle-Tacoma International Airport

Complaints/ Inquiries per Individual	Total Individuals	Total Complaints/ Inquiries	Percent of Individuals	Percent of Complaints/ Inquiries
1	2,446	2,446	69%	14%
2	534	1,068	15%	6%
3	189	567	5%	3%
4	92	368	3%	2%
5	54	270	2%	2%
6	33	198	<1%	1%
7	17	119	<1%	<1%
8	16	128	<1%	<1%
9	15	135	<1%	<1%
10	10	100	<1%	<1%
11	16	176	<1%	1%
12	10	120	<1%	<1%
13	5	65	<1%	<1%
14	8	112	<1%	<1%
15	8	120	<1%	<1%
16	4	64	<1%	<1%
17	2	34	<1%	<1%
18	4	72	<1%	<1%
19	1	19	<1%	<1%
20	3	60	<1%	<1%
21	1	21	<1%	<1%
22	3	66	<1%	<1%
25	1	25	<1%	<1%
26	1	26	<1%	<1%
28	3	84	<1%	<1%
31	1	31	<1%	<1%
32	2	64	<1%	<1%
33	2	66	<1%	<1%
34	2	68	<1%	<1%
35	1	35	<1%	<1%
36	2	72	<1%	<1%
37	3	111	<1%	<1%
40	5	200	<1%	1%
41	2	82	<1%	<1%
43	1	43	<1%	<1%
45	1	45	<1%	<1%
47	1	47	<1%	<1%
49	2	98	<1%	<1%
50	1	50	<1%	<1%
53	1	53	<1%	<1%
56	1	56	<1%	<1%
61	1	61	<1%	<1%
76	1	76	<1%	<1%
80	1	80	<1%	<1%
92	2	184	<1%	1%
99	1	99	<1%	<1%
102	1	102	<1%	<1%
103	1	103	<1%	<1%
112	1	112	<1%	<1%
113	1	113	<1%	<1%
136	1	136	<1%	<1%
165	1	165	<1%	<1%
192	1	192	<1%	1%
193	1	193	<1%	1%
269	1	269	<1%	2%
433	1	433	<1%	2%
536	1	536	<1%	3%
653	1	653	<1%	4%
655	1	655	<1%	4%
2,143	1	2,143	<1%	12%
3,441	1	3,441	<1%	20%
Total	**3,525**	**17,330**	**100%**	**100%**



Source: Sea-Tac Airport Noise Abatement Office; Landrum & Brown analysis, 2012.

1.7 AIRPORT ENVIRONS

Sea-Tac Airport is located in the City of SeaTac in King County, Washington. The Airport Environs refers to the regional area that may experience broader effects from the noise of aircraft operations beyond the DNL 65 dBA noise exposure contour. Within the Airport Environs, a Part 150 Study Area has been established as described below.

1.7.1 STUDY AREA (SA)

The SA is defined as the area that experiences direct overflights of aircraft at lower altitudes. The SA was determined by examining the boundaries of previous DNL 65 dBA noise exposure contours (the FAA-defined threshold for significant noise impacts), and by reviewing flight tracks of aircraft operating in the airport vicinity and/or under the control of the Sea-Tac ATCT. The SA, as shown in Exhibit 1-8, is the area in which detailed land use analysis will be conducted. The SA includes the all or parts of the cities of Burien, Des Moines, Kent, Normandy Park, Seattle, Tukwila, and portions of unincorporated King County.[4]

The SA is depicted on **Exhibit 1-14, *Study Area – Generalized Existing Land Use***. To the north of Sea-Tac Airport, the SA extends approximately four miles from the ends of Runways 16L/16R/16C to 104th Street in Seattle. To the west, the SA extends approximately 1.5 miles from the centerline of Runway 16R/34L to 12th Avenue in Burien and to the Puget Sound. To the east, the SA extends approximately 1.6 miles from the centerline of Runway 16L/34R almost to 51st Avenue in SeaTac and Tukwila. To the south, the SA extends approximately 3.7 miles from the end of Runway 34R to 250th Street in Kent and Des Moines.

1.7.2 EXISTING LAND USE

Existing land use within the Airport Environs is shown on **Exhibit 1-15, *Existing Noise-Sensitive Public Facilities***. Existing land use immediately north of Sea-Tac Airport is a mixture of airport-related development, commercial, and single- and multi-family residential development. To the south of Sea-Tac Airport there is open space, single-family residential, a number of large areas of multi-family residential, and public facilities uses. Immediately east of Sea-Tac Airport, specifically along International Boulevard, there is commercial development with a mixture of multi-family residential, further east the land use is primarily single-family residential with a mixture of multi-family residential, commercial, and institutional land uses. West of Sea-Tac Airport is predominantly single-family residential development with commercial and institutional uses to the northeast and southwest.

[4] Representatives of these communities are participating members of the Technical Review Committee (TRC) for the Sea-Tac Airport Part 150 Study. The Highline Forum, which is also a participant in this update to the Sea-Tac Airport Part 150 Study, includes a number of these same communities; Des Moines, Burien, Normandy Park, SeaTac, Tukwila and Federal Way and the Highline School District and Port of Seattle. More information regarding the public consultation process is included in Chapter Six, *Consultation*.

In summary, significant areas of potential existing incompatible land uses occur within the immediate proximity to Sea-Tac Airport and areas of aircraft overflight. These incompatible land uses are primarily residential. Off each of the runway ends and along the eastern and western airport property boundary there is a buffer area of commercial and park/recreational land uses followed by large expanses of residential land use. Many of the residential structures are included in the existing Sea-Tac Airport Noise Remedy Program.[5]

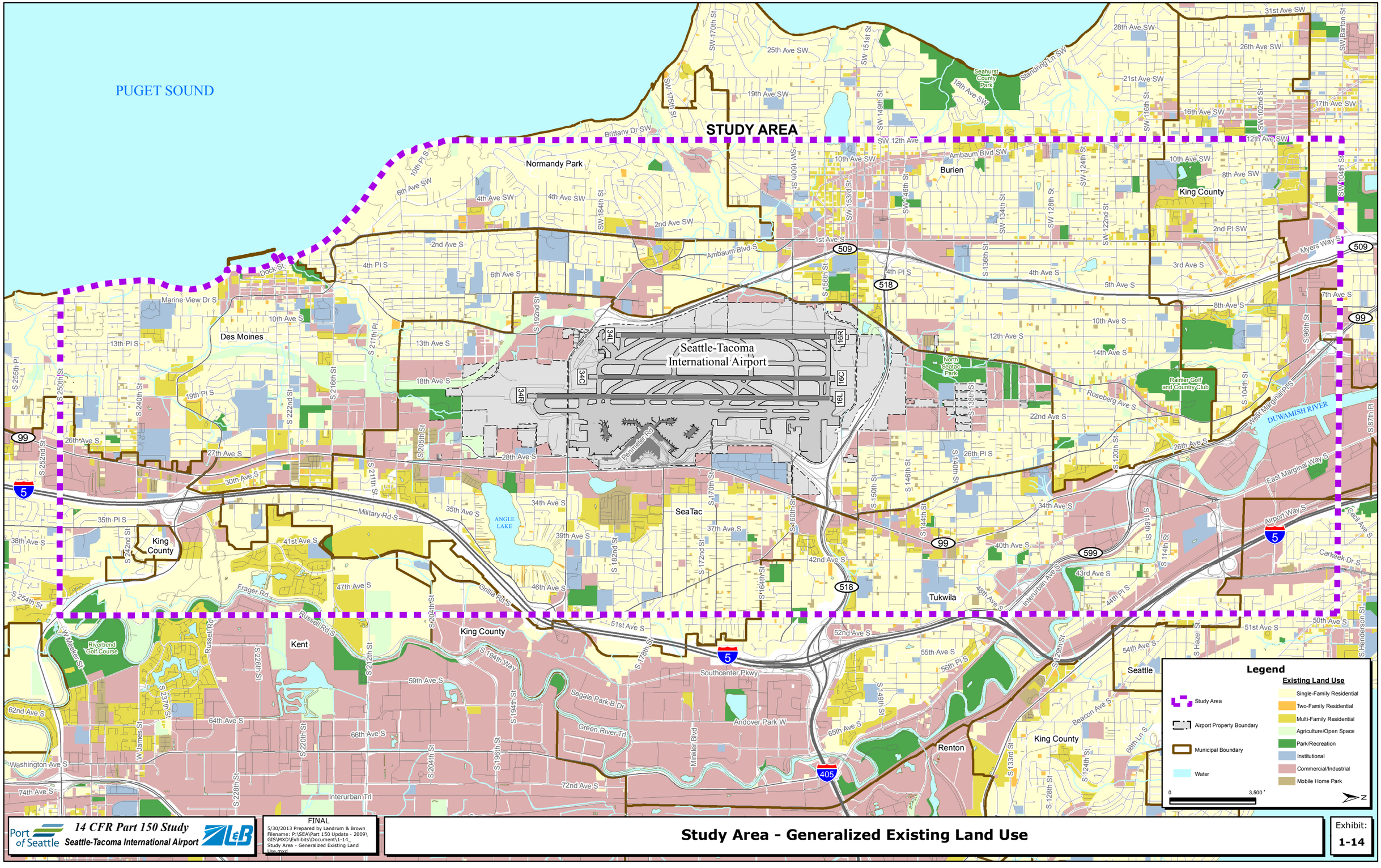
1.7.3 NOISE-SENSITIVE PUBLIC FACILITIES

Noise-sensitive public facilities, as defined by 14 CFR Part 150, include schools, churches, libraries, hospitals, and nursing homes. The number and location of noise-sensitive public facilities within the SA were derived from a number of different sources, including Port records and local jurisdictions. Noise-sensitive public facilities are shown on Exhibit 1-15. The noise-sensitive public facilities within the SA are identified in **Table 1-7, *Noise-Sensitive Public Facilities***.

1.7.4 HISTORIC SITES

Sites of historic significance within the SA are identified through a search of the National Register of Historic Places (NRHP). The NRHP is the official list of properties recognized by the Federal government as worthy of preservation for their local, state, or national significance in American history, architecture, archaeology, engineering, or culture. Although the National Register is a program of the National Park Service, it is administered at the state level by each respective state. In Washington, the National Register program is administered by the State Department of Archaeology and Historic Preservation. The location of historic sites is shown on **Exhibit 1-16, *Existing Historic Sites*** and the sites are listed in **Table 1-8, *Historic Sites***.

[5] More information on the ongoing noise remedy program is included in Section 1.5 of this chapter.


PUGET SOUND
STUDY AREA
Normandy Park
Burien
King County
Des Moines
Seattle-Tacoma International Airport
SeaTac
Kent
King County
Tukwila
King County
Renton
Seattle
ANGLE LAKE
DUWAMISH RIVER
Seahurst County Park
North Seatac Park
Rainier Golf and Country Club
Riverbend Golf Course
Legend
Existing Land Use
Study Area
Airport Property Boundary
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Water
Single-Family Residential
Two-Family Residential
Multi-Family Residential
Agriculture/Open Space
Park/Recreation
Institutional
Commercial/Industrial
Mobile Home Park
0
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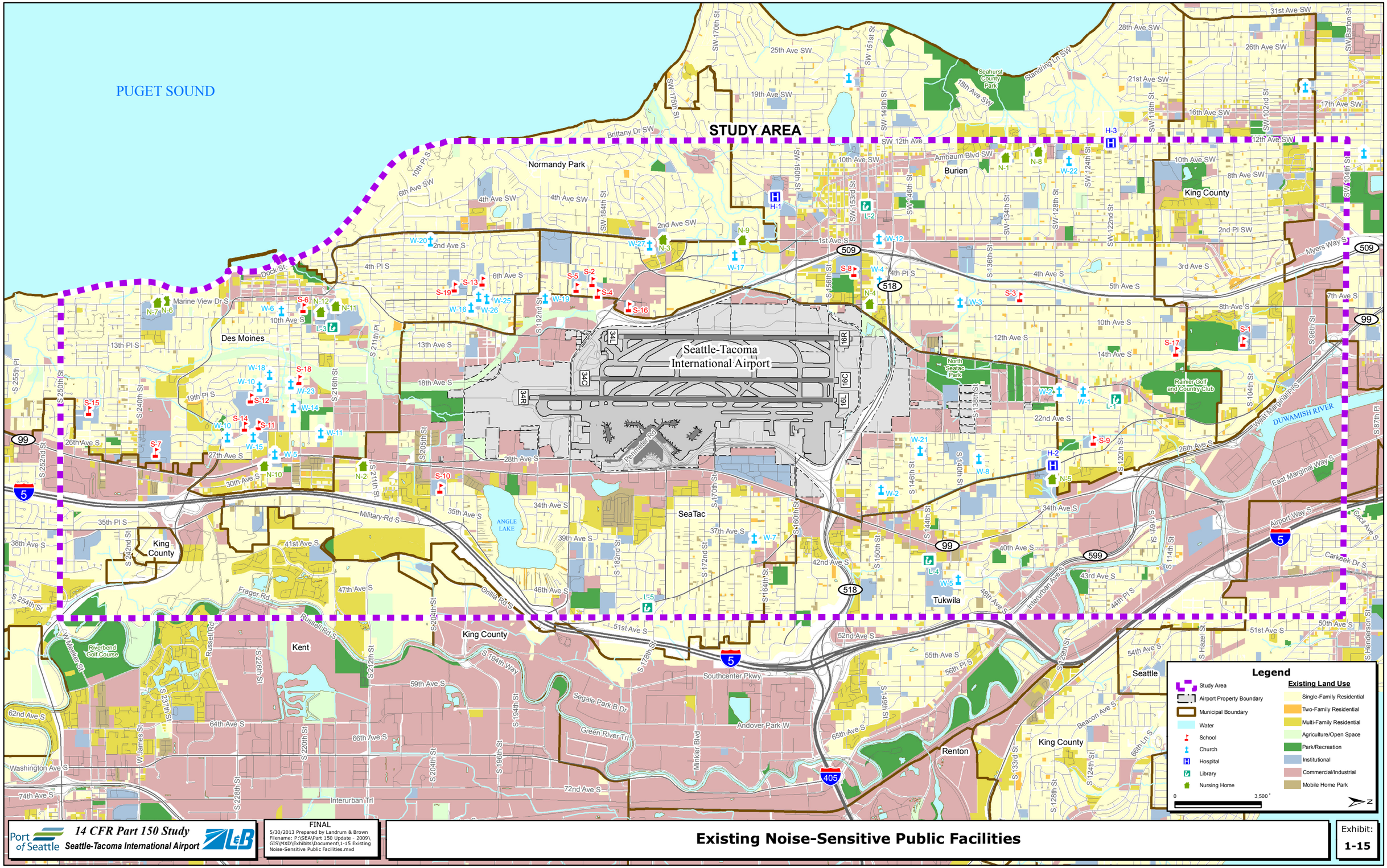
PUGET SOUND
STUDY AREA
Normandy Park
Burien
King County
Des Moines
Seattle-Tacoma International Airport
SeaTac
Tukwila
Kent
King County
Renton
King County
Seattle
DUWAMISH RIVER
ANGLE LAKE
Legend
Study Area
Airport Property Boundary
Municipal Boundary
Water
School
Church
Hospital
Library
Nursing Home
Existing Land Use
Single-Family Residential
Two-Family Residential
Multi-Family Residential
Agriculture/Open Space
Park/Recreation
Institutional
Commercial/Industrial
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Existing Noise-Sensitive Public Facilities
Exhibit:
1-15

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Table 1-7
NOISE-SENSITIVE PUBLIC FACILITIES
Seattle-Tacoma International Airport

MAP ID	FACILITY NAME	JURISDICTION	SOUND INSULATED
SCHOOLS			
S-1	Beverly Park Elementary	King County	Scheduled
S-2	Bow Lake Elementary	Burien	
S-3	Cedarhurst Elementary	Burien	Completed
S-4	Choice Academy - Homeschool Center	Burien	
S-5	Community Chapel Christian School	Burien	
S-6	Des Moines Elementary	Des Moines	Scheduled
S-7	Highline Community College	Des Moines	
S-8	Highline High School	Burien	Scheduled
S-9	Hilltop Elementary	King County	Scheduled
S-10	Madrona Elementary	SeaTac	Completed
S-11	Midway Elementary	Des Moines	Completed
S-12	Mt Rainier High School	Des Moines	Completed
S-13	North Hill Primary	Des Moines	Completed
S-14	Pacific Middle School	Des Moines	Scheduled
S-15	Parkside Primary	Des Moines	Completed
S-16	Sea-Tac Occupational Skills Center	Burien	Scheduled
S-17	Southern Heights Elementary	King County	Scheduled
S-18	St. Philomena Primary	Des Moines	
S-19	Aviation High School (scheduled for relocation)	Des Moines	
LIBRARIES			
L-1	Boulevard Public Library	Seattle	n/a
L-2	Burien Library	Burien	n/a
L-3	Des Moines Library	Des Moines	n/a
L-4	Foster Library	Tukwila	n/a
L-5	Valley View Library	SeaTac	n/a
HOSPITALS			
H-1	Highline Medical Center	Burien	n/a
H-2	Regional Hospital Respiratory-Complex Care	Tukwila	n/a
H-3	Schick Shadel Hospital	Seattle	n/a
NURSING HOMES			
N-1	El Dorado West Retirement Community	Burien	n/a
N-2	Falcon Ridge Assisted Living	SeaTac	n/a
N-3	Fernwood at The Park	Normandy Park	n/a
N-4	High West Residence	Burien	n/a
N-5	Highline Physical Rehab Center	Tukwila	n/a
N-6	Judson Park Retirement Center	Des Moines	n/a
N-7	Landmark on The Sound	Des Moines	n/a
N-8	Life Care Center of Burien	Burien	n/a
N-9	Normandy Park Senior Living	Burien	n/a
N-10	Stafford Healthcare	Des Moines	n/a
N-11	Wesley Holmes	Des Moines	n/a
N-12	Wesley Homes Health Center	Des Moines	n/a

Table 1-7, *Continued*
NOISE-SENSITIVE PUBLIC FACILITIES
Seattle-Tacoma International Airport

MAP ID	FACILITY NAME	JURISDICTION	SOUND INSULATED
PLACES OF WORSHIP			
W-1	Apostolic Bible Church Of Jesus Christ	Burien	n/a
W-2	Boulevard Park Presbyterian	Burien	n/a
W-3	Burien Church Of Christ	Burien	n/a
W-4	Burien Free Methodist Church	Burien	n/a
W-5	Citadel Church	Des Moines	n/a
W-6	Des Moines United Methodist Church	Des Moines	n/a
W-7	Ethiopian Muslim Association Of Seattle	Seatac	n/a
W-8	Faith Deliverance Assembly	Seatac	n/a
W-9	First Baptist Church	Des Moines	n/a
W-10	Grace Lutheran Church	Des Moines	n/a
W-11	Highline 7th Day Adventist Church	Des Moines	n/a
W-12	Highline Christian Church	Burien	n/a
W-13	Islamic Center Of Seattle	Seatac	n/a
W-14	Lifepoint Foursquare Church	Des Moines	n/a
W-15	Midway Community Covenant Church	Des Moines	n/a
W-16	Normandy Christian Church	Des Moines	n/a
W-17	Our Savior's Lutheran Church	Burien	n/a
W-18	Primera Iglesia Bautista	Des Moines	n/a
W-19	Prince Of Peace Lutheran Church	SeaTac	n/a
W-20	Resurrection Lutheran Church	Des Moines	n/a
W-21	Riverton Heights Baptist Church	Seatac	n/a
W-22	Saint Bernadette Church	Burien	n/a
W-23	Saint Philomena Church	Des Moines	n/a
W-24	Saint Thomas Church	Tukwila	n/a
W-25	Samoan Christian Fellowship	Des Moines	n/a
W-26	Southminster Presbyterian Church	Des Moines	n/a
W-27	The Evergreen Church	Burien	n/a

Note: n/a = land use type was not identified as eligible for sound insulation.
Source: Port of Seattle, King County, Landrum & Brown, 2013.

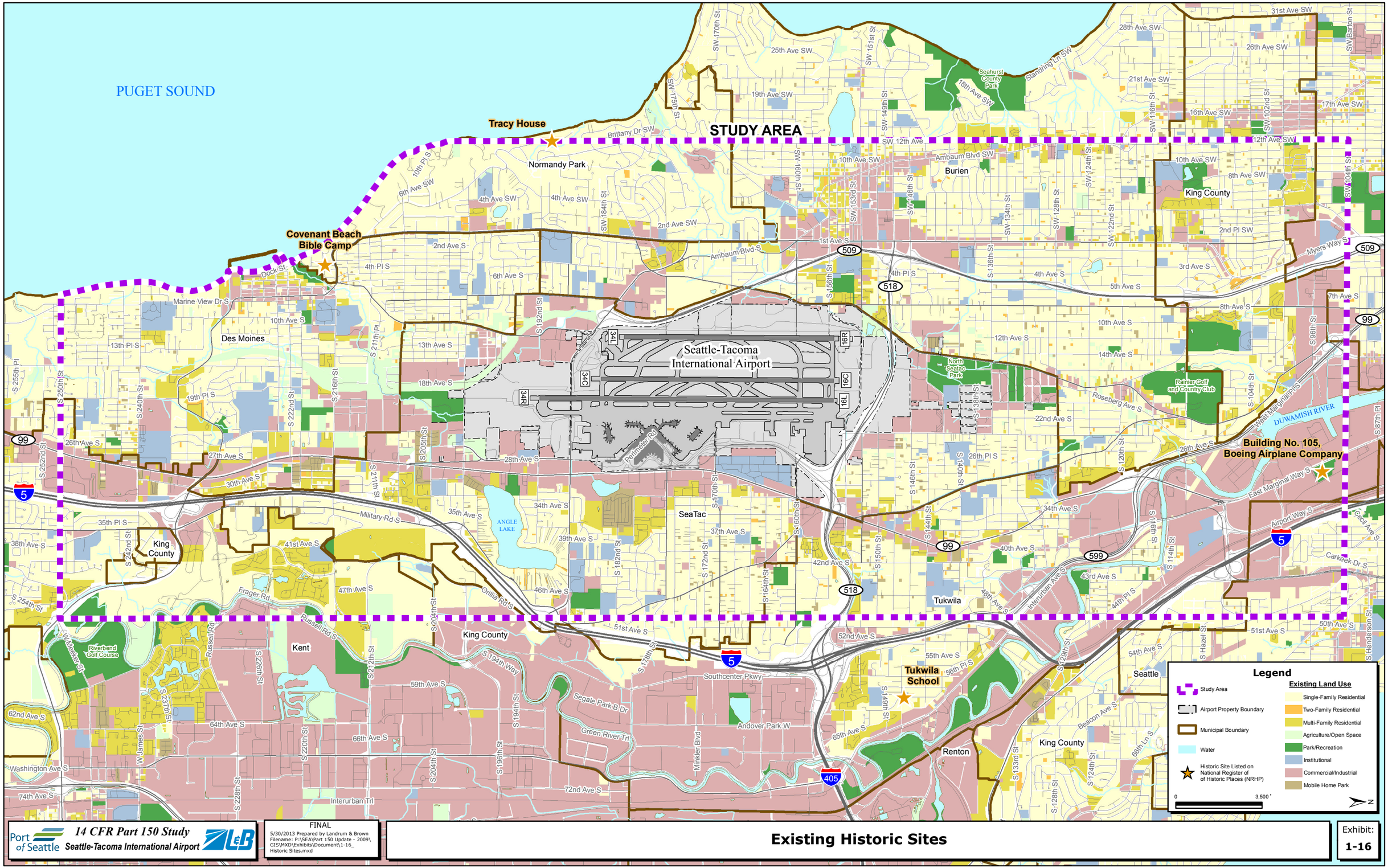
PUGET SOUND
STUDY AREA
Tracy House
Covenant Beach Bible Camp
Normandy Park
Burien
King County
Des Moines
Seattle-Tacoma International Airport
Building No. 105, Boeing Airplane Company
SeaTac
Kent
Tukwila
Renton
Seattle
Tukwila School
ANGLE LAKE
DUWAMISH RIVER
Legend
Study Area
Airport Property Boundary
Municipal Boundary
Water
Historic Site Listed on National Register of Historic Places (NRHP)
Existing Land Use
Single-Family Residential
Two-Family Residential
Multi-Family Residential
Agriculture/Open Space
Park/Recreation
Institutional
Commercial/Industrial
Mobile Home Park
0
3,500 '
Port of Seattle
14 CFR Part 150 Study
Seattle-Tacoma International Airport
FINAL
5/30/2013 Prepared by Landrum & Brown
Filename: P:\SEA\Part 150 Update - 2009\GIS\MXD\Exhibits\Document\1-16_Historic Sites.mxd
Existing Historic Sites
Exhibit:
1-16

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Table 1-8
HISTORIC SITES
Seattle-Tacoma International Airport

FACILITY NAME	CURRENT USE
Building No. 105, Boeing Airplane Company	Museum
Covenant Beach Bible Camp	Outdoor recreation facility
Tracy House	Single-family residence
Tukwila School	Museum and Cultural Center

Source: National Park Service, U.S. Department of Interior, 2011.

1.7.5 LOCAL COMPATIBLE LAND USE PLANNING

In 1990, the Washington State Legislature passed the Growth Management Act (GMA), RCW 36.70A, to create a method for comprehensive land use planning involving citizens, communities, counties, cities, and the private sector to prevent uncoordinated and unplanned growth. The GMA requires that King County, and all cities within King County prepare a comprehensive plan. According to the Washington Administrative Code (WAC) 365-196-400, a comprehensive plan must include a Comprehensive Plan (Future Land Use) Map.

Many of the jurisdictions surrounding Sea-Tac Airport have included goals and policies related to the Airport and noise/land use compatibility in their comprehensive plans. The following sections describe the comprehensive planning efforts of the jurisdictions within the SA. Where applicable, goals and policies related to Sea-Tac Airport from each jurisdiction's most recent comprehensive plan are included. The format and numbering and use of acronyms is that of each individual plan, and therefore does not necessarily follow the format of this document. For example, some jurisdictions refer to the Seattle-Tacoma International Airport as STIA.

1.7.5.1 City of SeaTac

The City of SeaTac surrounds Sea-Tac Airport and is approximately 3 square miles in area. The City adopted its Comprehensive Plan in December 1994. The Comprehensive Plan includes a Comprehensive Plan Map that shows recommended land uses within the City. Each year the City updates its Plan to meet changing conditions, and invites the public to participate in this process. At the same time, the City accepts proposals from the public for changes to the City's development regulations. Development regulations are the controls placed on development and use of land. These include the Zoning Code, the Subdivision Code, and related procedures (see Section 1.8.2.1). Updating the zoning code involves a two-step process. First, the zoning change must be consistent with the Comprehensive Plan Map. If the proposed zoning change is inconsistent, the Comprehensive Plan Map must be updated before the zone change can occur.

The *City of SeaTac Comprehensive Plan* was most recently updated by ordinance on November 22, 2011.[6] The existing Plan includes the discussion and map exhibit showing the 65+ DNL[7] noise exposure contours from the *Seattle-Tacoma International Airport FAR Part 150 Study Update (dated July 2002).* The Plan includes policies that identify land uses which are compatible or incompatible within the 65 to 75 DNL noise exposure contours and applicable construction standards for interior noise attenuation (see Goal 1.6 and Policies 1.6A and 1.6B). The Plan identifies Sea-Tac Airport as an essential public facility and contains land use and transportation policies for the area immediately surrounding the Airport. The Plan contains the following Airport-Related Land Use goals and policies:

GOAL 1.6

To achieve a reasonable level of compatibility between airport activities and adjacent land uses.

Policy 1.6A

Encourage land uses adjacent to Sea-Tac International Airport that are compatible with Airport operations.

Discussion: The FAA standards under the Part 150 identify compatible land uses for areas immediately adjacent to an airport. Improving land use compatibility in areas near the Airport enables the City to take better advantage of the job and tax revenue benefits of the Airport, maintain and enhance the Airport's role as an essential public facility, and help reduce the negative impacts to City residents.

Land uses essential to the aviation function of an airport are considered an Essential Public Facility (EPF), (*see* Goal 1.7), and are subject to provisions of the Interlocal Agreement (ILA) between the City and the Port of Seattle for Seattle-Tacoma International Airport originally signed 9/4/97 and updated and reauthorized in 2005. The parties of the ILA adopted the listed of Airport Master Plan projects and uses to settle their dispute over Airport expansion. The ILA does not determine whether the listed uses are EPFs under the Growth Management Act.[8] The ILA reserves the City's rights under prescribed circumstances to challenge whether a proposed development at the Airport is an EPF.

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6 *City of SeaTac Comprehensive Plan*, Fifteenth Seventeenth Annual Update, City of SeaTac Department of Planning and Community Development, November 22, 2011, Ordinance No. 1011-10131020.

7 The *Seattle-Tacoma International Airport FAR Part 150 Study Update* (dated July 2002) used the acronym Ldn which is the symbol for day-night average sound level (DNL). DNL is the acronym use in this study update. DNL "means the 24-hour average sound level in decibels, for the period from midnight to midnight, obtained after the addition of ten decibels to sound levels for the period between midnight and 7:00 a.m. and between 10:00 p.m. and midnight, local time." Source: 14 CFR Part 150 §150.7, *Definition of Day-Night Average Sound Level*.

8 The Washington Growth Management Act (GMA) requires cities to prepare comprehensive plans that contain, at a minimum, elements pertaining to land use, housing, transportation, capital facilities, and utilities. It also requires local plans to address 13 State goals: urban growth, reduce sprawl, transportation, housing, economic development, property rights, permits, natural resource industries, open space and recreation, environment, citizen participation, public facilities and services, and historic preservation.

Policy 1.6B

Encourage the development of Airport-compatible activities in the Aviation Business Center (ABC) area.

Discussion: The ABC district, created in 1991, encourages a wide mix of Airport-related businesses southeast of the Airport. This district provides needed space for Airport-related activities, which play a key role in the City's economy. The land uses within the ABC district are intended to be compatible with Airport operations.

Policy 1.6C

Work with the Port of Seattle to implement the Interlocal Agreement (ILA) between the City and the Port of Seattle for the Airport, adopted 9/4/97.

Discussion: The City of SeaTac and Port of Seattle entered into the ILA to establish a mutually satisfactory process and set of development standards for Port projects and mitigation for the Airport Master Plan. The ILA resolves land use jurisdictional issues and establishes a basis for working toward compatibility between City and Airport land uses.

GOAL 1.7

To address the siting of essential public facilities.

Policy 1.7A

Administer a process consistent with both the Washington Growth Management Act and the Countywide Planning Policies to address the siting of essential public facilities (EPF). Any EPF facility must be consistent with the City's goals and policies.

Discussion: The Washington Growth Management Act defines essential public facilities as being "those facilities that are typically difficult to site..." King County's Comprehensive Plan defines an essential public facility as a facility that either: (a) meets the Washington Growth Management Act definition of an essential public facility; (b) is on a State, County or local community list of essential public facilities; (c) serves a significant portion of the County or metropolitan region or is part of a Countywide service system; or (d) is difficult to site or expand.

The Washington Growth Management authorizes municipalities to have some input into the siting process, but does not grant cities the right to prohibit essential public facilities. A few essential public facilities identified in the *City of SeaTac Comprehensive Plan* include: airports and State/regional transportation facilities. Differing levels of review and City involvement will be applied to different types of essential public facilities.

GOAL 2.1

To preserve SeaTac's existing residential neighborhoods and foster a high degree of pride in residency or ownership.

Policy 2.1C

Encourage the insulation of noise impacted housing units through the Port of Seattle/FAA Noise Remedy Program.

- Discussion: Homes within noise impacted areas may be eligible for insulation.

GOAL 2.3

To increase housing opportunities for all economic segments of the community.

Policy 2.3A

Identify, maintain and enhance the existing affordable housing stock in SeaTac.

Discussion: SeaTac's existing housing stock serves as one of the most affordable housing alternatives in the greater Seattle area, and its preservation is an appropriate affordable housing mechanism. This policy is particularly important since some loss of affordable stock may occur because certain residential areas of the City that are impacted by Airport noise may transition to other uses.

1.7.5.2 City of Des Moines

The City of Des Moines is located on the Puget Sound just north of Federal Way, south of Normandy Park and Burien, southwest of the City of SeaTac and south of Sea-Tac Airport. The City amended the *City of Des Moines Comprehensive Plan* on January 5, 2012.[9] The Plan identifies goals, background/context, policies, and strategies for the following elements:

1. General Planning
2. Land Use
3. Transportation
4. Conservation
5. Capital Facilities, Utilities, and Public Services
6. Parks, Recreation, and Open Space
7. Housing
8. Community Character

[9] The City of Des Moines Comprehensive Plan was adopted in 1995 and was entitled the *Greater Des Moines Planning Area Comprehensive Plan*. The original plan has been amended 12 times, most recently on January 5, 20122010 by Ordinance No. 15321499). Since 1995, the majority of potential annexation areas surrounding the City have been annexed by Des Moines and surrounding cities. To reflect this change in conditions, the name of the plan document was changed to the *City of Des Moines Comprehensive Plan*.

The Plan recognizes that "growth and development within Des Moines are influenced by activities outside the city, including: Seattle-Tacoma International Airport, regional economic trends, regional transportation systems and commuting patterns, regional development plans, development within bordering jurisdictions and state regulations." The following goals, background/context, policies, and strategies are related to ensuring compatibility with Airport operations.

General Planning Background and Context 1-02-03

Growth and development within Des Moines are influenced by activities outside the city, including: Seattle-Tacoma International Airport (STIA), regional economic trends, regional transportation systems and commuting patterns, regional development plans, development within bordering jurisdictions and state regulations.

Land Use Policy 2-03-11

Regulate the siting of incompatible uses adjacent to Sea-Tac Airport, as defined in Revised Code of Washington (RCW) 36.70.547 and the Washington State Department of Transportation's *Airports and compatible land Use Volume 1* (1999).

Capital Facilities Strategy 5-04-04

Utilize the plans of public facility and utility providers, and the Des Moines Capital Improvement Plan, to identify lands useful for public facility or utility purposes. Essential Public Facilities as defined by RCW 36.70A.200 are processed as Unclassified Use Permits (UUP) unless the use is permitted outright in a given zoning classification. Cooperatively work with surrounding municipalities and King County during the siting and development of facilities of regional significance. As permitted by state and federal law, including the lawful exercise by the City of its SEPA authority pursuant to RCW 43.21C.060, City approvals related to facilities, operations and activities within the City of Des Moines associated with Sea-Tac International Airport, including but not limited to, necessary support activities, connected-actions and projects, may include conditions which are necessary to mitigate specific adverse environmental impacts on the City of Des Moines identified in environmental documents prepared pursuant to SEPA. The City may decide not to approve such facilities or operations if the City finds: (a) the proposal would likely result in a significant adverse environmental impact(s) identified in a final or supplemental environmental impact statement prepared under SEPA, and (b) reasonable mitigation measures capable of being accomplished are insufficient to mitigate the identified impact(s).

Housing Background and Context 7-02-08

Much of Des Moines is impacted by aircraft noise related to Sea-Tac International Airport (STIA). Virtually all of the City of Des Moines is within the 65 Ldn noise contour, and large portions of the City are within the 70 or 75 Ldn noise contour (STIA Existing Noise Exposure Map, 1991).[10] Existing and projected noise contours constrain the amount of land appropriate for residential use. As part of the Port of Seattle (POS) Noise Remedy Program, hundreds of dwellings in Des Moines have been purchased and relocated outside Des Moines by the POS. While land uses within the City of Des Moines will be urban in nature as directed by Adopted Nov. 12, 2009 by Ordinance No. 1469 7-3 2009 City of Des Moines Comprehensive Plan Housing Element GMA and the Countywide Planning Policies, residential densities will be less than would occur in the absence of STIA.

Housing Background and Context 7-02-09

Environmental noise levels generated by STIA operations necessitated that Des Moines adopt Sound Transmission Control requirements (Chapter 14.08 Des Moines Municipal Code (DMMC)[11], International Building Code). These construction standards, which require interior noise reduction levels of 30-35 dBA, contribute to housing construction costs within Des Moines. As a result, opportunities to provide housing affordable to all segments of the community may be constrained by existing noise levels.

Housing Policy 7-03-07

In order to protect new dwellings from existing noise impacts associated with STIA, ensure that new residential construction includes Sound Transmission Control Requirements.

Community Character Background and Context 8-02-01: Residential Neighborhood Preservation

(3) The Environmental Protection Agency (EPA) has found environmental sound exposure levels in excess of Ldn of 55 dBA may be incompatible with residential land uses.

Community Character Background and Context 8-02-02: Historic Preservation

(6) Average noise levels above 65 dBA are incompatible with the preservation and enjoyment of historic properties and archeological sites.

[10] Housing Policy 7-02-08 of the *City of Des Moines Comprehensive Plan* should be amended upon the FAA approval of this Part 150 update to include the updated noise exposure map for existing and future conditions.

[11] City of Des Moines Municipal Code: Building Code Chapter 14.08, Article I. Sound Control Requirements.

Community Character Background and Context 8-02-04: Noise

(1) Noise can be generated from numerous sources -- sounds from musical instruments, audio sound systems, band sessions, social gatherings, motor vehicles, aircraft, industrial and construction activities, and other sources.

(2) Noise can interrupt and degrade sleep, cause stress-related psychological and physiological disorders, interfere with speech, interrupt and degrade education, reduce residential and commercial property values, reduce the use, enjoyment, and value of public recreational facilities, and reduce the use, enjoyment and value of historic and other cultural resources.

(3) Federal regulations establish that the responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise levels rests solely with the City of Des Moines.

***Community Character Policy 8-03-01*: Residential Neighborhood Preservation**

(3) To the extent permitted by state and federal law, maintain appropriate plans, zoning, development and building regulations and review procedures to ensure that designated residential neighborhoods will not be exposed to environmental noise levels that exceed an Ldn of 55 dBA, or existing noise levels as of April 20, 1995, whichever is greater. To the extent permitted by state and federal law, a reduction in the environmental noise level (greater than 55 Ldn) that existed as of April 20, 1995 should become the new maximum environmental level.

***Community Character Policy 8-03-02*: Historic Preservation**

(3) To the extent permitted by state and federal law, in order to minimize adverse impacts related to noise, protect historic properties and archeological sites of local significance from environmental noise exposure levels that exceed an Ldn of 55 dBA, or existing levels as of April 20, 1995, whichever is greater. To the extent permitted by state and federal law, a reduction in the environmental noise level (greater than 55 Ldn) that existed as of April 20, 1995 should become the new maximum environmental level.

***Community Character Policy 8-03-03*: Property Acquisition Areas**

(1) Continue to require that all land within Des Moines acquired by public entities be subject to the City's zoning and planning jurisdiction.

***Community Character Policy 8-03-04*: Noise**

(1) Discourage the introduction of noise levels that are incompatible with current or planned land uses. Encourage the reduction of incompatible noise levels, and discourage the introduction of new land uses into areas where existing noise levels are incompatible with such land uses.

(2) Encourage the reduction of noise from Seattle-Tacoma International Airport.

(3) Campaign aggressively for the development of new and quieter aircraft engines as well as modifications and/or retrofitting programs that promote the greatest reductions possible in aircraft noise emission levels.

(4) Require that noise levels generated from all land uses be restricted to the most stringent standard allowed by federal, state, or local standards.

(7) Within the North Central Neighborhood, encourage land uses and construction techniques that are tolerant of and compatible with the high noise and vibration levels generated by aircraft.

Community Character Strategy 8-04-01: Residential Neighborhood Protection

(1)(b) To the extent permitted by state and federal law, ensuring that land use changes and infrastructure improvements do not subject residential neighborhoods to environmental noise exposure levels which exceed an Ldn of 55 dBA, or existing levels as of April 20, 1995 or the date of this plan, whichever is greater.

(1)(c) To the extent permitted by state and federal law, ensuring that land use changes and infrastructure improvements do not subject residential neighborhoods to environmental noise exposure levels which exceed an Ldn of 55 dBA, or existing levels as of April 20, 1995, or the date of this plan, whichever is later.

Community Character Strategy 8-04-02: Historic Preservation

(1)(d) To the extent permitted by state and federal law, ensuring that land use and transportation proposals do not subject historic and archeological sites of local significance to environmental noise exposure levels of Ldn of 65 dBA, or existing levels as of April 20, 1995, whichever is higher. To the extent permitted by state and federal law, a reduction in the environmental noise level (greater than 65 Ldn) that existed as of April 20, 1995 or the date of this plan, whichever is later, should become the maximum environmental noise level.

(1)(e) To the extent permitted by state and federal law, requiring sponsors of any land use or transportation proposal that would expose historic and archeological properties of local significance to environmental noise levels of an Ldn of between 55 dBA and 65 dBA to submit a site-specific study addressing the uses of the particular resource, its historic or cultural significance, and the direct and indirect effect which noise may have upon the resource.

***Community Character Strategy 8-04-04*: Noise**

(1)(a) Enacting city-wide land use compatibility guidelines and criteria for the consideration of noise impacts in all planning and zoning decisions.

(1)(b) Taking appropriate legislative and regulatory action to ensure that environmental noise levels not exceed the most stringent of federal, state, and local standards.

(1)(e) Taking advantage of every opportunity to work with the Port of Seattle and the Federal Aviation Administration to promote the development and implementation of airport operational procedures that will decrease the adverse noise effects of airport operations on the City and its residents.

(1)(f) Maintaining a noise attenuation program through the incorporation of structural modifications to reduce sound transmissions from both inside and outside sources.

(1)(g) Maintaining an ordinance requiring insulation and other noise reducing construction techniques as part of the building permit process.

1.7.5.3 City of Normandy Park

The City of Normandy Park is located on the Puget Sound south of Burien, west of the City of SeaTac and Sea-Tac Airport, and north of the City of Des Moines. The City adopted the City of Normandy Park Comprehensive Plan in December 1995. It was amended and readopted as the *City of Normandy Park 2004 Comprehensive Plan* on November 9, 2004 (Ordinance No. 742). Normandy Park worked closely with neighboring jurisdictions Burien and Des Moines to coordinate planning efforts.

According to the Plan, the city has a responsibility to exercise its influence, when warranted, to protect its residents from potential impacts of land use planning and development activities in jurisdictions surrounding and adjacent to the City of Normandy Park. County-wide Planning Policy LU-35 allows jurisdictions to identify Potential Impact Areas (PIA) in other jurisdictions. In identifying PIAs, Normandy Park provides other local governments and decision makers an opportunity to review and comment on the potential impacts of the City's pending land use planning and permitting decisions. One of the City of Normandy Park PIA's is the airport related lands under the jurisdiction of the Port.

Normandy Park is a mature community in terms of land use. Most of the buildable land within the city limits has been developed and the majority of land is devoted to single-family detached housing. Due to its proximity to Sea-Tac Airport, the City has identified that unwanted noise sources can interrupt and degrade sleep, cause stress related psychological and physiological disorders, interfere with speech, interrupt and degrade education, reduce residential and commercial property values, reduce the use, enjoyment and value of public recreational facilities, and reduce the use, enjoyment and value of historic and other cultural resources. Therefore, the City has determined that the mitigation of noise should be considered for all land development.[12]

The Plan contains goals, objectives, and policies that address Sea-Tac Airport as part of the regional community. The goals, policies, and objectives related to the Airport and noise compatibility are listed below:

[12] The *City of Normandy Park 2004 Comprehensive Plan,* Land Use Element, II. INVENTORY AND ANALYSIS, G. Noise, p. 1-12. November 9, 2004.

Objective 1.7: Historic Preservation

The Washington State Growth Management Act (RCW 36.70A.020(13)) states that local jurisdictions are to develop comprehensive plans which "identify and encourage the preservation of lands, sites, and structures that have historical or archaeological significance." The King County Countywide Planning Policy Framework-26 states that "significant historic, archaeological, cultural, architectural and environmental features shall be respected and preserved."

As it is in the public interest to protect historic properties and sites from incompatible land uses and associated activities, and average noise levels above 55 dBA are incompatible with the preservation and enjoyment of historic properties and sites, the city should continue to identify historic properties and sites, and continue to enforce noise regulations.

> Policy 1.7.3: Protect historic properties and sites of local significance from exterior noise exposure levels which exceed an Ldn of 55 dBA, or the levels existing at the date of adoption of relevant plans or regulations, whichever is greater.

Objective 1.9: Noise

As federal regulations establish that the responsibility for determining acceptable and permissible land uses and the relationship between specific properties and specific noise levels rests with city government, the city should continue to monitor and regulate noise issues.

Policy 1.9.1: Discourage the introduction of noise levels that are incompatible with current or planned land uses, encourage the reduction of incompatible noise levels, and discourage the introduction of new land uses into areas where existing noise levels are incompatible with those land uses.

Policy 1.9.2: Encourage the reduction of noise from Seattle-Tacoma International Airport.

Policy 1.9.3: Aggressively campaign for the development of new and quieter aircraft engines as well as modifications or retrofitting programs that promote the greatest reductions possible in aircraft noise emission levels.

Policy 1.9.4: Take advantage of every opportunity to work with the Port of Seattle and the Federal Aviation Administration to promote the development and implementation of airport operational procedures that will decrease the adverse noise effects of airport operations on the city and its residents.

Policy 1.9.5: Continue to enforce noise level regulations.

Policy 1.9.6: Require buffering from noise-generating land uses through substantial berming, landscaping, setbacks, tree planting, and building construction and siting methods.

1.7.5.4 City of Burien

The City of Burien is bordered on the west by several miles of Puget Sound shoreline, bordered on the north by unincorporated King County, on the east by the City of SeaTac and Sea-Tac Airport, and on the south by Normandy Park and Des Moines. The City's first Comprehensive Plan was adopted in November 1997 and it is amended annually. Requests for amendments must be submitted by June 1 and the Planning Commission makes its recommendations on the amendments in July for City Council's consideration. The Plan was last revised in December 2010. The City of Burien is currently updating its Comprehensive Plan, which should be complete by the end of 2012.

The Burien Plan—The Comprehensive Plan for the City of Burien, Washington contains policies that address Sea-Tac Airport and some of the policies presented in the Burien Plan are very similar to the policies of the City of Des Moines and the City of Normandy Park. The 2010 Burien Plan states "…the airport expansion is both ill-advised and inconsistent with the requirements of the Washington State Growth Management and State Environmental Policy Acts,…" The airport expansion has occurred with the opening of Runway 16R/34L in November 2008. Some sections of the Burien Plan have not been updated to reflect the opening of Runway 16R/34L, referred to as "the third runway".

The goals and policies of the Burien Plan that are related to Sea-Tac Airport include the following:

Land Use

Goal LU.1: Establish a development pattern that is true to the vision for Burien by supporting the neighborhoods and preserving the character of the well-established neighborhoods as defined by the Neighborhood Plans, enhancing the attractiveness and vitality of the downtown core, and preserving the City's small town character.

> **Policy LU 1.9:** The City is aware that under the Growth Management Act the City may not preclude the siting of the third runway if the runway is determined by the courts to be an "essential public facility." The City also notes that the Growth Management Act, the Central Puget Sound Growth Management Hearings Board, the Countywide Planning Policies, the State Environmental Policy Act and other policies, laws and regulations authorize that there be appropriate and reasonable mitigation for communities and elements of the environment adversely impacted by the siting of an essential public facility. Under certain circumstances, permit applications can be conditioned or denied if significant adverse environmental impacts are not mitigated. If the third runway is constructed, significant adverse impacts should be mitigated to the maximum extent allowed by law.

Residential Neighborhoods

Goal RE.1: Provide a variety of attractive, well-designed housing choices that reinforce the character of the neighborhoods and meet the needs of existing and future City residents.

Policy RE 1.2: The planned densities for single family development should encourage a lower development potential in areas with development constraints.

Discussion: Within the City, potential development constraints include, but are not limited to, critical areas, such as areas along the coastline that are susceptible to landslides, areas with wetlands or areas prone to flooding; areas with stormwater drainage problems; exposure to exterior noise levels that exceed an Ldn of 55 dBA; or deficiencies in the type or level of services necessary for urban development, such as transportation facilities (roadway and pedestrian), sewer, or water.

Pol. RE 1.5 The Low Density Residential Neighborhood designation will provide for low-density residential development. Development within this designation includes existing neighborhoods that are zoned for four units per acre or less.

Allowed Uses and Description: The Low Density Residential Neighborhood designation allows single family residential uses and their accessory uses at a density of 4 units per acre or less, due to the constraints posed by critical areas. This policy may be implemented by more than one zoning category, based on the ability of the land and public facilities to support development. Development standards, for such items as impervious surfaces, streetscapes, sidewalks and stormwater drainage, may vary within each zoning category based on the existing character of the area.

Designation Criteria: Properties designated Low Density Residential Neighborhood should reflect the following criteria:

1. The area is already generally characterized by single family residential development at four units per acre or less; and
2. Relative to other residential areas within the City, the area is characterized by lower intensity development as shown on Map LU-2.
3. The land is designated as a potential landslide hazard area, steep slope area, or wetland on the City of Burien's Critical Areas Map,
4. The existing and planned public facilities for the area cannot adequately support a higher density.
5. The area is subject to existing impacts from high levels of airport-related noise.

Industrial & Manufacturing Uses

Goal IN.1: Provide opportunities for the development of attractive Business Park, Warehouse, Manufacturing and Airport-Related uses in the northeast part of the City where impacts on the surrounding environment can be minimized.

Policy IN 1.1: The Northeast Special Planning Area identified on Map LU-1 is an overlay land use designation that recognizes a potential opportunity for economic development in the northeastern part of the City, in areas affected by aircraft noise from Sea-Tac International Airport. Development of Uses in the Northeast Special Planning Area should be low scale, landscaped and buffered, have access to Des Moines Memorial Drive, meet the designation criteria under this policy and meet the performance criteria set forth in policies IN 1.3 and 1.4.

Allowed Uses and Description: Business Park, Warehouse, Manufacturing uses are storage within a building, production, light industrial, processing and distribution-related businesses with minimal environmental and land use impacts. Since the area is in close proximity to Sea-Tac International Airport, the uses in this classification could be airport-oriented. In addition, studio space for artists is also encouraged as a part of these developments, to the extent allowed by FAA restrictions.

Character: Uses in the Northeast Special Planning Area should be contained entirely within a structure. Only limited outside storage, or other external activity is appropriate. Developments should be clustered together and sited so that they have internal circulation, minimizing the number of access points to Des Moines Memorial Drive. Sites should be designed and located in a way that minimizes traffic, congestion, visual, noise or other impacts on adjacent residential uses or environmentally critical areas.

Designation Criteria: Properties designated for the Northeast Special Planning Area shall reflect the following criteria:

1. The area is located in the northeastern corner of Burien, and is currently or anticipated to be subjected to high levels of noise from airport-related activities, and therefore, less suitable for residential development.
2. The area must be a minimum of 2 acres in size, although smaller lots may be aggregated to meet this requirement.
3. The area shall be located near major transportation corridors with adequate highway access.
4. The area should be free of or able to appropriately accommodate significant amounts of environmentally critical areas.
5. The existing or planned public facilities are or will be adequate to support the level and intensity of proposed development.

Special Planning Areas

Goal SE.1: Designate Special Planning Areas to provide the City with the ability to support, encourage and achieve the community vision for specific areas of the downtown. These areas have distinctive geographic characteristics that the City's existing land use designations cannot adequately address.

Discussion: Special Planning Areas are used as a planning tool to create policies, regulations and criteria for development within defined geographic areas of the City that have special characteristics. These characteristics could include special design elements, gateways, large-lot public or semi-public facilities, or master-planned areas. A Special Planning Area can be established when the City's traditional Plan designations and zoning regulations are inadequate to address the development of an area. Within Special Planning Areas, special regulations are designed to ensure that development supports and achieves the desired character and stated goals and policies for the area.

Policy SE 1.5: The Northeast Redevelopment Area (NERA) is an approximately 158 acre area located in the northeastern part of Burien that has been affected by Sea-Tac International Airport operations. The NERA provides near and long term opportunities for economic development. Allowed Uses and Description: The NERA has been divided into two land use designations: Airport Industrial (AI) and Professional Residential (PR).

Airport Industrial: The purpose of this designation is to facilitate economic development and provide flexibility for airport-compatible uses in a campus-like setting with internal circulation to minimize the number of access points to Des Moines Memorial Drive. Allowed uses include, but are not limited to flex-tech, professional offices, light manufacturing, production, processing and distribution-related businesses; warehousing, utilities, retail, and new car auto sales developed in an auto mall configuration in designated locations. New residential uses are not allowed.

Professional Residential: The purpose of this designation is to provide flexibility by allowing both single-family homes and small businesses in an area near but not directly under Sea-Tac International Airport's third runway. Allowed uses include, but are not limited to moderate density residential, small office, small scale retail, art studios, and other similar uses that would be compatible with single-family homes.

Natural Environment

Goal EV.4: Conserve fish and wildlife resources and maintain bio-diversity.

Policy EV 4.10: In order to minimize adverse impacts related to noise, unless prohibited by federal or state law, fish and wildlife habitat conservation areas within the City should be protected from exterior noise levels which exceed 55 dBA Ldn.

Noise

Goal NO.1: Prevent community and environmental degradation by limiting noise levels, and to safeguard the health and safety of the residents of the City by ensuring that the City's physical and human environments are protected and enhanced as progress and change take place within and outside of its municipal boundaries.

Policy NO 1.1: The City shall;

1. Discourage the introduction of noise levels which are incompatible with current or planned land uses;
2. Encourage the reduction incompatible noise levels; and
3. Discourage the introduction of new land uses into areas where existing noise levels are incompatible with such land uses.

Policy NO 1.2: The City shall work with other jurisdictions and agencies to, encourage the reduction of noise from Seattle-Tacoma International Airport.

Policy NO 1.3: The City shall aggressively campaign for the development of new and quieter aircraft engines as well as modifications and/or retrofitting programs which promote the greatest reductions possible in aircraft noise emission levels.

Policy NO 1.4: The City shall take advantage of every opportunity to work with the Port of Seattle and the Federal Aviation Administration to promote the development and implementation of airport operational procedures that will decrease the adverse noise effects of airport operations on the City and its residents.

Housing

Goal HS.1: Encourage the provision of a variety of attractive, well-designed housing types and densities that reinforce and retain the character of the neighborhoods and meet the needs of existing and future City residents, while recognizing the need for a range of affordable housing.

Policy HS 1.8: The City's affordable housing strategy shall place a high priority on conserving and improving the City's existing housing stock. The City should accomplish this through code enforcement, appropriate zoning, and participation in housing rehabilitation programs.

Discussion: The comprehensive plan recognizes the existing housing stock as the most affordable form of housing within the community. Burien's existing housing stock is some of the most affordable in the Greater Seattle region, and its preservation is an appropriate mechanism for pursuing affordable housing choices for residents. This policy is particularly important because certain residential areas could transition to other uses due to airport noise, disinvestment, or other impacts.

Policy HS 1.12: Existing mobile home parks in the City provide an important affordable housing choice for low-income residents and should be protected from closures without adequate relocation plans. The City should ensure that sufficient relocation plans are in place prior to closure of any housing that serves low-income residents.

Discussion: Within Burien, mobile home parks could be closed in the future due to airport noise or redevelopment. In such cases, mobile home park residents must either sell their home or relocate it. The costs of relocating a mobile home can be prohibitive for many low and moderate income residents. By state law, mobile home park owners must give a year's notice before closing their park.

The City will require mobile home park owners to prepare a relocation plan that outlines the options available to each tenant, and includes information on locations and phone numbers of mobile home parks with vacancies, apartment complexes with rent levels equivalent to monthly housing payments in mobile home parks, and data on any available state or regional relocation funding programs. In cases where the mobile home park is noise impacted, and the park owner requests a rezone, the City will require cooperation with the Port's Noise 150 program that passes relocation funding assistance to tenants before a rezone is granted.

Historic Preservation

Goal HT 1: Ensure that historic properties and sites are identified, protected from undue adverse impacts associated with incompatible land uses or transportation facilities, and protected from detrimental exterior noise levels.

Policy HT. 1.5: In order to minimize adverse impacts related to noise, unless prohibited by federal or state law, historic properties and sites of local significance should be protected from exterior noise exposure levels that exceed a Ldn (DNL) of 55 dBA.

Neighborhood Preservation

Goal NP.1: Continue to provide the residents of the City with stable and quiet residential neighborhoods by maintaining an adequate residential tax base and assuring that:

- Residential neighborhoods are protected from undue adverse impacts associated with incompatible land uses or transportation facilities, including, but not limited to, noise, air and water pollution, glare, excessive traffic and inadequate on-street parking;
- Residential neighborhoods are identified and protected from detrimental exterior noise levels;
- Residential streets are protected from heavy commercial traffic that inhibits the free flow of traffic or that exceeds prescribed weight limits.

Policy NP 1.3: The City shall adopt appropriate plans, zoning, development and building regulations and review procedures to ensure that residential neighborhoods, to the extent allowed by federal and state law, will not be exposed to exterior noise levels which exceed an Ldn of 55 dBA at the property line.

Parks Recreation and Open Space

Goal PRO.4: Ensure that park, recreation and open space areas of local or regional significance are identified and protected. Also, ensure that existing and planned park, recreation and open space areas are protected from adverse impacts associated with incompatible land uses and/or transportation activities. Such adverse impacts may include traffic congestion, inadequate parking, surface water runoff, vibration, air and water pollution, noise among others.

Policy PRO 4.4: In order to minimize adverse impacts related to noise, unless prohibited by federal or state law, Burien's park, recreation and open space areas of local or regional significance should be protected from exterior noise exposure levels which exceed an Ldn of 55 dBA, except that outdoor amphitheaters and music shells should be protected from exterior noise exposure levels which exceed an Ldn of 50, unless prohibited by federal or state law, and except that golf courses, ball fields, outdoor spectator sports areas, amusement areas, riding stables, nature trails, wildlife refuges, auditoriums and concert halls should be protected from exterior noise exposure levels which exceed and Ldn of 60 dBA unless prohibited by federal or state law.

1.7.5.5 City of Tukwila

The City of Tukwila is located to the east/northeast of Sea-Tac Airport, north and east of the City of SeaTac, and is bisected by Interstate-5 and Interstate-405. The City adopted a Comprehensive Land Use Plan in December 1995 and updated that Plan in December 2008. The City has adopted several policies addressing aircraft noise, very similar to other communities surrounding Sea-Tac Airport. The goals, policies, and implementation strategies of the Tukwila Plan that are related to the airport operations include the following:

GOAL 7.2

Noise Abatement

Residential neighborhoods protected from undue noise impacts, in order to ensure for all residents the continued use, enjoyment and value of their homes, public facilities and recreation, and the outdoors.

Policies

7.2.1 Prevent community and environmental degradation by limiting noise levels.

7.2.2 Discourage noise levels which are incompatible with current or planned land uses, and discourage the introduction of new land uses into areas where existing noise levels are incompatible with such land uses.

7.2.3 Require building contractors to limit their construction activities to those hours of the day when nearby residents will not be unreasonably disturbed.

Implementation Strategy

- Noise regulations

7.2.4 Discourage noise levels incompatible with residential neighborhoods.

Implementation Strategies

- Coordinate with the Washington Department of Transportation
- Noise reduction and buffering regulations
- Berming, landscaping, setbacks, tree planting
- Building construction and siting methods
- Home occupations standards

7.2.5 Encourage the reduction of noise from Seattle-Tacoma International Airport and King County Airport, by promoting the development of new or the retrofit and modification of existing aircraft engines which are quieter, and operational procedures that help reduce aircraft noise emission levels.

7.2.6 Work with the Port of Seattle, King County Airport and the Federal Aviation Administration to promote the development and implementation of airport operational procedures that will decrease the adverse noise effects of airport operations on Tukwila and its residents.

Implementation Strategies

- Lobbying the Federal Aviation Administration to develop and implement airport operational procedures to reduce noise impacts.
- Coordinate with other jurisdictions surrounding airports to ensure common purpose and implementation strategies.
- Work with King County International Airport/Boeing Field to establish an appropriate noise monitoring system, including better identification of noisy flight events, counseling/education of pilots about quieter flying techniques, flight patterns that avoid noise-sensitive areas and other strategies.

7.2.7 Ensure that urbanization and development do not negatively impact current neighborhood noise levels or E.P.A. standards.

Implementation Strategy

- WSDOT coordination in advance of roadway improvements
- City-wide study on current noise levels
- Establish City program and standards

GOAL 9.2

Residential Areas

Unique residential neighborhoods and housing opportunities that serve a broad range of ages, family mixes, lifestyles and incomes.

9.2.1 Emphasize noise attenuation, pedestrian access and high quality building and landscape treatment in development review for residential uses.

1.7.5.6 City of Kent

The City of Kent adopted the City of Kent Comprehensive Plan in April 1995 by Ordinance Number 3222, with the most recent update in May 2006 (Ordinance Numbers 3794-3797). The Plan contains goals and policies for community development, and a Land Use Plan Map that depicts generalized future land uses. The Plan does not contain any goals or policies addressing Sea-Tac Airport or any noise-exposure contours associated with the Airport.

1.7.5.7 King County

King County adopted the King County Comprehensive Plan in 1964 and has updated it several times since the enactment of the Growth Management Act by the State of Washington in 1990. The Plan is typically updated annually with significant revisions being conducted every four years. The most recent significant revision occurred in 2008, with a minor update in 2010. The Plan contains the following policies pertaining to airport noise and land use compatibility:

Policy U-126: King County shall not support requests for residential density increases on lands located within the outer boundaries of the Noise Remedy Area as identified by Seattle-Tacoma International Airport.

Policy T-115: Recognizing that certain noise reduction measures are contingent on ongoing and future FAA funding, King County shall implement those actions, under its control and identified in the Part 150 Noise and Land Use Compatibility Plan. King County shall encourage other entities to implement those measures under their control and also identified in the Part 150 Noise and Land Use Compatibility Plan.

1.7.5.8 City of Seattle

The City of Seattle, the largest city in Washington State, is located north of the cities of Tukwila and Burien and Sea-Tac Airport. The City adopted the City of Seattle Comprehensive Plan, *Toward a Sustainable Seattle*, in July 1994 and has amended it annually, with major updates occurring every few years. The Plan includes goals and policies related to the protection of the environment, including noise pollution.

1.7.6 ZONING

All of the jurisdictions in the vicinity of Sea-Tac Airport have adopted traditional land use zoning ordinances to control the types of land uses within their jurisdiction. The ordinances divide a jurisdiction into zoning districts and prescribe certain requirements for allowable uses within those districts. The various elements of the zoning codes from each jurisdiction pertaining to airport-related activities are presented in the following paragraphs. **Exhibit 1-17, *Generalized Existing Zoning***, presents the zoning districts for the jurisdictions around Sea-Tac Airport, in terms of general zoning classification (e.g. residential, commercial, industrial, institutional, etc.).

The area to the immediate north of the runways at Sea-Tac Airport within the jurisdiction of the City of SeaTac is generally zoned commercial/industrial. The area to the northeast of the runways within the City of SeaTac is zoned residential. The area to the immediate east of Sea-Tac Airport, along the SR 99 corridor, is zoned commercial. The areas further east, generally east of 32nd Avenue, are zoned residential. To the south of the runways within the City of SeaTac, land is primarily zoned residential and commercial. Immediately west of the Airport, land within the City of SeaTac is zoned residential and commercial.

Burien has generally zoned the majority of its jurisdiction as single- and multi-family residential, with a commercial center generally bounded by State Route 509 to the east, SW 148th Street to the north, 10th Avenue to the west, and SW 152nd Street to the south. Land to the immediate west of the Airport within the City of Burien is primarily zoned residential, with some industrially-zoned areas located to the west and northwest of the Airport.

Des Moines is generally zoned for single-family housing except for the downtown and marina areas, and along Pacific Highway South (State Route 99), and arterial streets where commercial and multi-family development is permitted.

Tukwila permits a variety of business, industrial and residential development at various densities.

According to their 2004 Comprehensive Plan Future Land Use Map, the City of Normandy Park primarily permits residential land uses, with some areas of neighborhood commercial and mixed-use along 1st Avenue.

The zoning for each of these communities as it relates to airport operations and compatibility is discussed in the following sections.

1.7.6.1 City of SeaTac

The City of SeaTac adopted a zoning ordinance on October 17, 1992, which has been updated periodically and is included as Title 15 of the SeaTac Municipal Code. The ordinance contains two use zones that address the Airport directly, Airport Use Zone and Aviation Business Center Zone.

Aviation Operations (AVO): The purpose of this designation is to create a zone for development of the range of facilities that provide for safe and efficient commercial operations and support, together with security, access, the needs and convenience of the traveling public, and handling of air cargo.

Aviation Commercial (AVC): The purpose of this designation is to create a zone for development that provides support to operations of the airport, the traveling public, and air cargo, and for other development that provides economic benefit to the airport and community while maintaining compatibility with airport operations and activities.

These districts allow for and encourage aviation and aviation-related development such as aviation facilities, utilities, access roads, hotels and conference centers, and parking facilities.

The Code also contains the following General Performance Standard provision addressing noise.

Section 15.18.020(C): Due to the proximity of the Airport facilities, residential construction shall have sound attenuated or limited as consistent with adopted Port of Seattle/FAA noise remedy programs within significant DNL contours. (Ord. 92-1041 § 1)

PUGET SOUND

STUDY AREA

Normandy Park

Burien

King County

Des Moines

Seattle-Tacoma International Airport

SeaTac

Tukwila

Kent

Renton

Seattle

Legend

Generalized Zoning

- Study Area
- Airport Property Boundary
- Municipal Boundary
- Water
- Residential
- Agriculture/Open Space
- Park/Recreation
- Commercial/Industrial
- Mobile Home
- Mixed Use

0 3,500 '

Port of Seattle — 14 CFR Part 150 Study — Seattle-Tacoma International Airport — LeB

FINAL

5/30/2013 Prepared by Landrum & Brown
Filename: P:\SEA\Part 150 Update - 2009\GIS\MXD\Exhibits\Document\1-17_Generalized Existing Zoning.mxd

Generalized Existing Zoning

Exhibit: 1-17

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In addition to the above provisions, the City of SeaTac and the Port of Seattle entered into an Interlocal Agreement concerning several issues of importance to both entities, one of which was land use and zoning. The original Agreement was adopted on September 4, 1997 and has been amended several times. The 1997 Agreement included provisions for the inclusion of the zoning districts (listed above) in the City of SeaTac's zoning ordinance. A new Agreement was adopted on February 16, 2006. The following statement related to Land Use/Zoning is included in the Agreement:

> 2. Land Use/Zoning: The City and Port adopt the planning, land use and zoning provisions set forth in Exhibit A hereto and shall implement the same. Both parties acknowledge that the Airport's 2005 Comprehensive Development Plan (CDP) is under development, and that mitigation of environmental impacts of the CDP will be addressed in the programmatic and project-specific stages of the CDP environmental process. Both parties further acknowledge that it is important City concerns of CDP implementation be addressed in the earliest stages. The Port agrees to notify the City at least three months prior to the issuance of any environmental documents or determination about any planned construction of any CDP project, and agrees to collaboratively work with the City to identify and resolve City concerns. Where differences may remain regarding the approach to be used in the proposed CDP to minimize ramifications on the City, the Dispute Resolution process described in Section 13 shall apply-

1.7.6.2 City of Des Moines

The City of Des Moines has an adopted zoning ordinance, with the latest revision being in March 2011. The code contains a Noise Levels Chapter, 18.38 with two sections dealing with noise levels in residential neighborhoods.

18.38.020: *Limit on noise impacts on residential neighborhoods* - Residential neighborhoods shall not be subject to adverse land uses, activities or traffic that generate exterior noise exposure levels exceeding 55 Ldn dBA, or existing levels as of April 20, 1995, whichever is greater. A reduction in the exterior noise level (greater than 55 Ldn) that existed as of April 20, 1995 shall become the new maximum exterior noise level.

18.38.030: *Requirement for noise mitigation plan* - Proponents of projects that will increase exterior noise levels to which residential areas are exposed to levels exceeding those existing on April 20, 1995, or to levels exceeding an Ldn of 55 dBA, whichever is greater, must submit a noise mitigation plan to the community development department of the city for review and approval before required permits are issued to allow the project to proceed.

1.7.6.3 City of Normandy Park

Title 18 of the Normandy Park Municipal Code sets forth the City's zoning regulations. Similar to the City of Des Moines, Normandy Park has specific sections that address noise levels within residential neighborhoods. In addition, the zoning code addresses noise levels at parks and other landmarks. These sections of the zoning code are outlined below.

Chapter 18.68: Residential Neighborhoods – Noise Protection

Section 18.68.030: *Limit on noise impacts* – Residential neighborhoods shall not be subject to adverse land uses, activities or traffic which generate exterior noise exposure levels exceeding an Ldn of 55 dbA, or existing levels as of the effective date of the ordinance codified in this chapter, whichever is greater.

Section 18.68.040: *Requirement for noise mitigation plan* - Proponents of projects which will increase exterior noise levels to which residential areas are exposed above those existing on the effective date of the ordinance codified in this chapter, or above an Ldn of 55 dbA, whichever is higher, must submit a noise mitigation plan to the city planning department for review and approval before required permits are issued to allow the project to proceed.

Chapter 18.72: Landmark Protection and Preservation

18.72.040: *Limit on noise impacts to significant sites, districts, buildings, structures and objects* - Significant sites, districts, buildings, structures and objects shall not be subject to adverse land uses which generate exterior noise exposure levels exceeding an Ldn of 55dbA, or existing levels as of the effective date of the ordinance codified in this chapter, whichever is greater.

18.72.050: *Requirement for noise mitigation plan* - Proponents of projects that will increase exterior noise levels to which significant sites, districts, buildings, structures are exposed to levels exceeding those existing on the effective date of the ordinance codified in this chapter, or above an Ldn of 55 dBA, whichever is higher, must submit a noise mitigation plan to the city planning department for review and approval before required permits are issued to allow the project to proceed.

Chapter 18.76: Parks of Local Significance

Section 18.76.020 Exterior noise levels.

(1) Except for golf courses, ball fields, outdoor spectator sports areas, amusement areas, riding stables, nature trails and wildlife refuges, park and recreation areas designated as being of local significance as specified by the city shall not be subjected to adverse land uses which result in exterior noise level exposures which exceed an Ldn of 55 dBA, or the existing Ldn level as of the effective date of the ordinance codified in this chapter, whichever is greater.

(2) Golf courses, ball fields, outdoor spectator sports areas, amusement areas, riding stables, nature trails and wildlife refuges designated as being of local significance as specified by the city shall not be subjected to adverse land uses which result in exterior noise level exposures which exceed an Ldn of 60 dBA or the existing Ldn level as of the effective date of the ordinance codified in this chapter, whichever is greater.

(3) Proponents of projects which will increase noise levels to which park and recreation areas are exposed above those existing on the effective date of the ordinance codified in this chapter, or above an Ldn of 55 dBA (or 60 dBA for golf courses, ball fields, outdoor spectator sports areas, amusement areas, riding stables, nature trails and wildlife refuges), whichever is higher, must submit a noise mitigation plan to the city for review and approval before the required permits may be issued to allow the project to proceed.

1.7.6.4 City of Burien

The City of Burien last updated its zoning code in December 2010. The code contains provisions for Airport Industrial Zones, height limitations, and noise restrictions as described below:

Section 19.15.070: *Airport Industrial Zones* – The Airport Industrial (AI) zone implements the Airport Industrial Comprehensive Plan designation within the Northeast Redevelopment Area. The purpose and intent of this designation is to facilitate economic development and provide flexibility for airport-compatible uses in a campus-like setting with internal circulation to minimize the number of access points to Des Moines Memorial Drive.

Section 19.17.140: *Height Limits near major airports* – No building or structure shall be erected nor shall any tree be allowed to grow to a height in excess of the height limit established by the airport height maps for the Seattle-Tacoma International Airport.

Section 19.85.020: *Limit on noise impacts to significant sites, districts, buildings, structures, and objects* – Significant sites, districts, buildings, structures, and objects shall not be subject to adverse land uses which generate exterior noise exposure levels exceeding 55 dbA Ldn.

Section 19.85.030: *Requirement for noise mitigation plan* – Proponents of projects which will increase exterior noise levels to which significant sites, districts, buildings, structures, and objects are exposed above an Ldn of 55 dbA must submit a noise mitigation plan to the city of Burien department of community development for review and approval before required permits are issued to allow the project to proceed. The city manager, with the assistance of the director of the department of community development, is authorized and directed to develop criteria for such review and approval. Such criteria shall be available in writing to applicants and shall, at minimum, require that the best available technology be employed to achieve no more than the maximum allowable noise standard set forth in this section.

1.7.6.5 City of Tukwila

The City of Tukwila has adopted a zoning ordinance; however, it does not include provisions that address aircraft-related noise issues in relationship to land uses.

1.7.6.6 City of Kent

The City of Kent has an adopted zoning ordinance which addresses noise in general but does not specifically address aircraft noise levels.

1.7.6.7 King County

King County has an adopted zoning ordinance that addresses land use development within unincorporated areas of King County, which is included as Title 21A of the King County Code. The Code was last amended in December 2010. The Code contains the following provisions related to airports and land use compatibility.

21A.38.160: *Special District Overlay - Aviation Facilities*

A. The purpose of the aviation facilities special district overlay is to protect existing non-commercial airports from encroaching residential development. An aviation facilities special district overlay shall only be established in the area up to 1/4 mile around airports and shall be zoned UR or RA.

B. The following development standards shall apply to uses locating in aviation facilities special overlay districts:

   On the title of all properties within pending short subdivisions or subdivisions and binding site plans, the following statement shall be recorded and be shown to all prospective buyers of lots or homes:

   "This property is located near the (name of airport) which is recognized as a legitimate land use by King County. Air traffic in this area, whether at current or increased levels, is consistent with King County land use policies provided it conforms to all applicable state and federal laws."

21A.12.190: *Height limits near major airports* - No building or structure shall be erected nor shall any tree be allowed to grow to a height in excess of the height limit established by the Airport Height Maps for the Seattle-Tacoma International Airport and the King County Airport (Boeing Field).

21A.37.030: *Transfer of development rights (TDR) program - receiving sites*

D. Property located within the outer boundaries of the Noise Remedy Areas as identified by the Seattle-Tacoma International Airport may not accept development rights.

1.7.6.8 City of Seattle

The City of Seattle has an adopted zoning ordinance which addresses noise in general but does not specifically address aircraft noise levels.

1.7.7 SOUND ATTENUATION REQUIREMENTS

The Cities of Burien, Des Moines, and SeaTac, and King County have building code provisions for sound attenuation of new structures within the vicinity of Sea-Tac Airport. Copies of these provisions are in Appendix J, *Sound Reduction Codes*.

1.7.7.1 City SeaTac

The City of SeaTac enacted a Sound Transmission Code,[13] which establishes sound attenuation requirements for new construction and additions to existing structures within the Port's Noise Remedy Area Boundary. Within the Noise Remedy Boundary, two sub-areas have been established, a Neighborhood Reinforcement Area and a Standard Insulation Area. The requirements in the Neighborhood Reinforcement Area are for bedrooms to achieve a 35-decibel reduction and all other areas must achieve a 30-decibel reduction. In the Standard Insulation Area, bedrooms must achieve a 30-decibel reduction and all other areas must achieve a 25-decibel reduction. The code identifies specific construction methods and materials to achieve the prescribed interior sound attenuation requirements.

1.7.7.2 City of Des Moines

The City of Des Moines adopted sound control requirements for new construction or additions to existing structures intended for human occupancy.[14] The ordinance identifies two different sound transmission control areas. Area 1 includes all portions of the City north of S 252nd Street; and Area 2 includes all areas south of S 252nd Street. Area 1 requires a 35-decibel reduction and Area 2 requires a 30-decibel reduction of interior noise levels for new construction. The City has adopted specific requirements to achieve these reductions.

1.7.7.3 City of Normandy Park

The City of Normandy Park does not have provisions in its building code related to sound attenuation for aircraft noise compatibility.

1.7.7.4 City of Burien

The City of Burien adopted an aircraft noise reduction ordinance establishing minimum requirements regulating the design, construction, and/or setting on site of buildings for human occupancy in the vicinity of Sea-Tac Airport.[15] The code

[13] City of SeaTac Municipal Code, Chapter 13.240; (Ord. 04-1008 § 3).
[14] City of Des Moines Municipal Code, Chapter 14.08; (Ord. 1407 § 43, 2007)
[15] City of Burien Municipal Code, Chapter 15.12, *Aircraft Noise Reduction*; (Ordinance 408 § 1, 2004)

divides the City into three sections, in which new construction and additions of all inhabited structures must meet certain interior noise reduction standards. New construction within those portions of the city, east of First Avenue South extended from the northern to the southern city limits and to the eastern city limits must achieve a 35 dB interior noise level reduction. New construction within those portions of the City, between First Avenue South and 12th Avenue S.W. extending from the northern to the southern City limits must achieve a 30 dB interior noise level reduction. New construction within all remaining areas must achieve a 25 dB interior noise level reduction. The code contains specific construction materials and methods to meet the interior noise level reduction standards.

1.7.7.5 City of Tukwila

The City of Tukwila does not have provisions in its building code related to sound attenuation for aircraft noise compatibility.

1.7.7.6 City of Federal Way

The City of Federal Way does not have provisions in its building code related to sound attenuation for aircraft noise compatibility.

1.7.7.7 King County

King County requirements are similar to the City of SeaTac and reference the same Noise Remedy Boundary. Within the Noise Remedy boundary, the following requirements have been established:

(a) Neighborhood Reinforcement Area:

1) Bedrooms must comply with standards designed to achieve a noise reduction of 35 dB.

2) All other living and working areas must comply with standards designed to achieve a noise reduction level of 30 dB.

(b) Cost-Share Insulations Area:

1) Bedrooms must comply with standards designed to achieve a noise reduction of 30 dB.

2) All other living and working areas must comply with standards designed to achieve a noise reduction level of 25 dB.

1.7.7.8 City of Seattle

The City of Seattle does not have provisions in its building code related to sound attenuation for aircraft noise compatibility.

1.8 LAND USE CONTROLS EVALUATION

The evaluation of land use planning techniques is intended to address the potential for future development in areas located inside and in the vicinity of the DNL 65 dBA noise exposure contour where aircraft overflights continue.[16] The responsibility for controlling and managing the development and redevelopment of land outside the airport boundary is the responsibility of each community. Therefore, it is incumbent upon the local planning and elected officials to monitor and plan for new development in a manner that is compatible with aircraft operations.

According to an FAA land use guidance manual, *Land Use Compatibility and Airports*,[17] the FAA recognizes that aircraft noise does not stop at the DNL 65 dBA noise exposure contour.

> *"While the FAA can provide assistance and funding to encourage compatible land development around airports, it has no regulatory authority for controlling land uses that would protect airport capacity. The FAA recognizes that state and local governments are responsible for land use planning, zoning and regulation, including that necessary to provide land use compatibility with airport operations. However, pursuant to the Federal Airport and Airway Development Act, as a condition precedent to approval of an FAA-funded airport development project, the airport sponsor must provide the FAA with written assurances that "…appropriate action, including the adoption of zoning laws have been or will be taken, to the extent reasonable, to restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations including the landing and takeoff of aircraft…"*
>
> *FAA has required the phasing out of noisy Stage 1 and Stage 2 aircraft consequently, the aviation industry has spent substantial monies to meet this requirement. To assist in the compatible land use efforts, the FAA, local airport sponsors, and state aviation agencies have expended significant funds related to airport planning and off-airport noise and land use compatibility planning throughout the United States. Airport master plans have been prepared to identify the near-term and long-range projections for airport activity and the development necessary to meet these activity demands. In addition, noise and land use studies (Part 150 studies) have been conducted to evaluate ways to minimize impacts of aircraft noise, and the FAA and airport sponsors have financed land acquisitions and other noise compatibility measures throughout the United States."*

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[16] Note that per Part 150 regulations, all land uses are compatible with outdoor noise levels below DNL 65 dBA; however, local planning efforts may, at the discretion of local jurisdictions, consider noise below DNL 65 dBA independent of the Part 150 process.

[17] *Land Use Compatibility and Airports: A Guide for Effective Land Use Planning*, FAA Airports Division, Southern Region Office, Atlanta, Georgia, Jacqueline Sweatt-Essick, et al, July 1999. http://www.faa.gov/about/office_org/headquarters_offices/aep/planning_toolkit/media/III.B.pdf

Therefore, the FAA encourages airport sponsors and local governments to work together to establish local land use controls in areas adjacent to an airport and within the flight corridors that extend beyond the DNL 65 dBA contour.[18] A brief discussion of typical preventive land use management techniques, and their application by the jurisdictions within the Airport Environs, is provided in the following sections.

1.8.1 COMPREHENSIVE PLANNING

A comprehensive plan sets the land use and development policies and goals for a community and is the guide for land use policy implementation. King County and the communities surrounding Sea-Tac Airport have adopted future land use plans to guide development based on Washington Statutes.

Washington cities and counties have prepared comprehensive plans for many years. With the passage of the GMA by the Washington Legislature in 1990, growth management took on new meaning.[19] The GMA addresses the issues of rapid population growth and uncoordinated planning efforts throughout the state. The legislation seeks to ensure that population growth and planning for transportation, housing, open space, and other essential services and infrastructure make sense and are compatible. The Act provides a process for siting "Essential Public Facilities" including airports. Two principles of the Act are "consistency" and "concurrency." This means that not only consistent planning policies are required among various county and regional jurisdictions, but that the timing of such planning must occur in a manner that promotes the policies.

King County is one of 29 counties in the State of Washington that are either required to fully plan under the GMA or have chosen to do so. The GMA provides a framework for regional coordination and county-wide planning policies to establish urban growth areas. Local comprehensive plans must include the following elements: land use, housing, capital facilities, utilities, transportation, and, for counties, a rural element. Shoreline master program policies are also an element of local comprehensive plans.

The GMA establishes the primacy of the comprehensive plan. The comprehensive plan is the starting point for any planning process and the centerpiece of local planning. Development regulations (zoning, subdivision, and other controls) must be consistent with comprehensive plans. State agencies are required to comply with comprehensive plans and development regulations of jurisdictions planning

[18] Note that per Part 150 regulations, all land uses are compatible with outdoor noise levels below DNL 65 dBA; however, local planning efforts may, at the discretion of local jurisdictions, consider noise below DNL 65 dBA independent of the Part 150 process.

[19] Municipal Research and Services Center of Washington, *Comprehensive Planning and Growth Management*, website updated 05/09; Source: http://www.mrsc.org/subjects/planning/compplan.aspx

under the GMA. The Port participates as an ex-officio member of the King County Growth Management Policy Council to facilitate coordination of land use and transportation planning.[20]

A comprehensive plan in and of itself does not and cannot control development or relieve noise impacts/incompatibilities without implementing a development plan, but there are other tools available, which are discussed subsequently.

1.8.2 LAND USE PLANNING

The formal adoption of a local land use plan by the jurisdictions within the Airport Environs provides the basis for zoning determinations and evaluations regarding the suitability of various development proposals for implementation. The land use plan element of the comprehensive community plan should take into account the compatibility of proposed development and the identification of developable lands taking into account the existing and anticipated aircraft noise levels and plan future land uses accordingly. The land use plan should serve as the basis to guide the development of the community's Capital Improvement Program.

1.8.3 GENERAL PURPOSE ZONING

Zoning is one of the primary tools available to local communities to ensure land use compatibility. Zoning ordinances and regulations are intended to promote public health, safety, and welfare by regulating the use of the land within a jurisdiction based on factors such as land use compatibility and existing and expected socioeconomic conditions.

The regulation of land through a zoning ordinance is premised as part of the police power inherent in the state and delegated to the local jurisdiction through state enabling legislation. King County and various communities surrounding Sea-Tac Airport do have the statutory authority to adopt zoning ordinances and maps.[21] The communities surrounding Sea-Tac Airport have adopted zoning ordinances and do control the land use within their respective boundaries.

Zoning is useful for controlling land use development and promoting compatibility while supporting private land ownership. Zoning cannot be relied upon as a "corrective land use management measure" as it can only be applied prospectively and not retroactively. Also, because zoning is a creature of a political body and subject to changing conditions and situations, the zoning classification of any particular tract of land is always subject to change and its implementation and enforcement must be monitored to ensure continuing compatibility.

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[20] *King County Countywide Planning Policies*, King County Department of Development and Environmental Services, updated October, 2008. Source: http://your.kingcounty.gov/ddes/compplan/CPP-current.pdf

[21] Revised Code of Washington, Title 36 *Counties*, §36.70.010, §36.70A.040 and Title 35 *Cities and towns* §35.63.080; and Washington State Constitution, Article XI *County, City, and Township Organization* Section 5 County Government, Amendment 12—Article 11 Section 5 COUNTY GOVERNMENT.

Zoning can be used to regulate the height of objects around airports to prevent hazards to navigation. Washington Statutes specifically allow airport sponsors to implement height hazard zoning in certain designated areas within an airport's environs to prevent the establishment of hazards[22] and the Attorney General has stated that zoning of building heights near an airport is a proper use of police power.[23] The State of Washington has no specific enabling legislation to allow airports or airport sponsors to enact zoning ordinances based on aircraft noise or noise contours.

Master Planned Development District

A Master Planned Development (MPD) district is intended to accommodate development that may be difficult if not impossible to carry out under otherwise applicable zoning district standards. Examples of MPD include Enhanced Protection of Natural Resources Areas, in which a planned development offers enhanced protection of natural resources and sensitive environmental features, and Mixed-use Development Areas, in which developments contain a complementary mix of residential and nonresidential uses. The different types of MPDs are intended to promote different planning goals. In general MPDs are intended to promote flexibility and creativity in responding to changing social, economic, and market conditions and could results in greater public benefits than could be achieved using conventional zoning and development regulations. MPD zoning is typically for proposed developments that cannot be reasonably accommodated by other available regulations of a development ordinance, and would result in a greater benefit to the city as a whole than would development under conventional zoning district regulations. Such greater benefit may include the implementation of adopted planning policies, neighborhood/community amenities, urban design, natural resource preservation, or a general level of development quality.

Airport Overlay Zoning District

An Airport Noise Overlay Zone or District establishes a set of development guidelines on areas designated as highly sensitive to aircraft noise. Such a district would lie as an overlay of the underlying land use zoning and would impose various guidelines on the development of land within its boundaries. These constraints may include a requirement for the sound insulation of new or rehabilitated properties, disclosure of the susceptibility of the property to elevated aircraft noise levels, the dedication of an avigation easement for new development, the requirement of development densities for incompatible uses in concordance with the level of noise exposure, the coordinated review of development proposals, etc. The boundaries of the district may be established by the local jurisdiction having land use control at any level deemed to be appropriate to the management of the risk of adverse effects and incompatibility between aircraft and noise-sensitive development.

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[22] Revised Code of Washington, Title 14 *Aeronautics*, Chapter 14.12 Airport zoning.

[23] Washington State Office of the Attorney General, AGO 53-55 No. 298; Opinions—Don Eastvole—1953-1956—Attorney General of Washington; MUNICIPAL CORPORATIONS – ZONING – HEIGHT LIMITATIONS – AIRPORTS. Zoning of building heights near an airport is a proper exercise of the police power. Source: http://atg.wa.gov/AGOOpinions/Opinion.aspx?section=archive&id=11310

1.8.4 COORDINATED PROJECT REVIEW PROCESS (DISCRETIONARY REVIEW)

The coordinated review of proposals for zoning changes, subdivision development, or building permits may be activated as a means for consideration of the potential effects of aircraft noise on proposed development actions. The coordination assumes the review by both airport and land use management personnel of project compatibility, and may result in a report on each item under consideration which is attached to the project file and reported to the governing bodies as part of their consideration of the suitability of the project action for approval or denial. Such measures may be included in a NCP as separate measures or incorporated into a broader measure such as an Airport Overlay Zoning District.

1.8.5 FULL DISCLOSURE POLICY

A program can be developed to insure that the buyers of residential property within the airport environs receive full disclosure of the location of the property relative to the airport. This would require that the sellers of residential property in the airport environs deliver to buyers a purchase disclosure notice consisting of a copy of the Noise Overlay District Ordinance and Map with a statement that the property is located within the Airport Noise Overlay District. It may also require that all advertisements and listings for sale of residentially zoned or improved property in the Noise Overlay District include a statement about aircraft noise, such as, "Not recommended for persons who may easily be disturbed by aircraft noise." Finally, solicitation of the voluntary inclusion of the notice in the Multiple Listing Services by the real estate profession alerts potential buyers of property to aircraft noise conditions.

1.8.6 SUBDIVISION REGULATIONS

Subdivision regulations apply in cases where a parcel of land is proposed to be divided into lots or tracts. They are established to ensure the proper arrangement of streets, adequate and convenient open space, efficient movement of traffic, adequate and properly-located utilities, access for fire-fighting apparatus, avoidance of congestion, and the orderly and efficient layout and use of land.

Subdivision regulations can be used to enhance noise-compatible land development by requiring developers to plat and develop land so as to minimize noise impacts or reduce the noise sensitivity of new development. The regulations can also be used to protect the airport proprietor from litigation for noise impacts at a later date. The most common requirement is the dedication of a noise or avigation easement to the local government by the land subdivider as a condition of the development approval. The easement authorizes overflights of the property with the noise levels attendant to such operations. Subdivision regulations may also require the developer to disclose the aircraft noise levels over the property or to provide information on noise insulation criteria to be used in the construction of any building on the property.

Subdivision regulations for each of the jurisdictions within the Study Area for Sea-Tac Airport were examined. None of the jurisdictions require notice of any kind on subdivision plats that the subdivision is within the vicinity of an airport and may experience aircraft noise and/or overflight. In addition, there is no requirement to grant an avigation easement for aircraft overflights as a condition of approval for land subdivision/development in any of the subdivision regulations.

1.8.7 BUILDING CODES

Building codes regulate building construction and construction practices ensuring that all safety standards are met and resulting in the issuance of a building permit from the local governing body. (A building code is most easily enforced through a local building permit process.) Sound insulation may be required in new homes, offices, and institutional buildings to mitigate the effects of high aircraft noise levels. Building code requirements intended for energy efficiency may also provide acoustical insulation benefits. Caulking of joints, continuous sheathing, dead air spaces, ceiling and wall insulation, solid core doors, and double-pane windows can attenuate aircraft noise while conserving energy used for home heating and cooling.

Not all sound insulation needs are met by typical energy-conserving building methods. For example, field research has found that some modern and highly energy-efficient storm window designs are less efficient for sound insulation than some older designs that allow for larger dead air spaces. Other sound insulation measures that may not be justifiable for energy efficiency are vent baffling and year-round, closed-window ventilation systems.

Building codes apply to existing buildings only when remodeling or expansion is contemplated. Amendments to building codes do not help to correct noise problems in developed areas. Within the Study Area, the cities of Burien, SeaTac, and Des Moines, and King County have specific building code provisions addressing sound attenuation for airport noise compatibility.

1.8.8 TRANSFER OF DEVELOPMENT RIGHTS

The Transfer of Development Rights (TDR) is a land use regulatory tool under which development rights can be severed from a tract of land and sold in a market transaction. The parcel from which the rights are transferred is then permanently restricted as to future development, and the purchaser of the rights may assign them to a different parcel to gain additional density. A TDR program would allow landowners in a designated "sending" area to transfer the development rights assigned to their property to a landowner in a designated "receiving" area where the community would like to concentrate development. In this case, the designated "sending" district would be residentially-zoned land located in areas substantially affected by aircraft noise. The designated "receiving" district would be in a location not greatly affected by airport noise. The designated "receiving" area would be allowed to develop at a higher density than would be permitted by the underlying zoning. Though the community defines the requirements and parameters

associated with establishing the sending and receiving districts, any actual transfer is negotiated between the landowner in the sending district and landowner in the receiving district.

1.8.9 CAPITAL IMPROVEMENTS PROGRAMS

Capital improvements programs are multi-year plans typically covering five or six years that list major capital improvements planned to be undertaken during each year. Most capital improvements have no direct bearing on noise compatibility; few municipal capital improvements are noise-sensitive. The obvious exceptions to this are schools and, in certain circumstances, libraries, medical facilities, and cultural/ recreational facilities.

Some capital improvements may have an indirect, but more profound, relationship to noise compatibility. For instance, the development of new sewer and water facilities may open up large vacant areas for the private development of noise-sensitive residential uses.

In contrast, the same types of facilities, sized for industrial users, could commit to industrial development in a noise-impacted area that might otherwise be attractive for residential development.

1.8.10 GROWTH RISK ASSESSMENT

Before evaluating the impact of aircraft noise within the airport environs, it is important to understand the likelihood for the future development of residential and other noise-sensitive land uses, especially in the planning timeframe. Understanding development trends in the airport vicinity is of critical importance in noise compatibility planning, because future residential growth can potentially constrain airport operations, if that growth occurs beneath aircraft flight tracks and within areas subject to high noise levels.

The growth risk analysis focuses primarily on undeveloped land which is planned and zoned for residential use. It is recognized that additional development may occur through in-filling and redevelopment of currently developed areas.

The methodology for analyzing potential growth risk is as follows:

- Identify all vacant, unplatted tracts of land zoned for future residential development with the greatest potential for being developed within the next five years.
- Calculate the area of the tracts; apply a factor accounting for development inefficiencies and the platting of streets; multiply by dwelling unit densities specified in the zoning ordinance; and multiply by household size to obtain the population holding capacity of presently vacant, unplatted land.
- Sum the above population holding levels to determine the total population holding capacity of the study area.

The final step in the growth risk analysis is to estimate whether the development is likely to occur before or after the year for which future noise exposure has been calculated. This tends to be quite speculative and should be regarded only as a general indicator of the potential risk of increases in land use incompatibility.

1.8.11 STATE LEGISLATION

The following are State of Washington statutes included in the WAC that may affect land use planning and compatibility with aircraft operations and airports. It should be noted that the statute specifically notes that aircraft noise levels are exempt from these regulations; therefore, the following is provided for informational purposes only for use in future land use planning.

Maximum Permissible Environmental Noise Levels

LAND USE OF NOISE SOURCE	LAND USE OF RECEIVING PROPERTY		
	RESIDENTIAL	COMMERCIAL	INDUSTRIAL
Residential	55 dBA	57 dBA	60 dBA
Commercial	57 dBA	60 dBA	65 dBA
Industrial	60 dBA	65 dBA	70 dBA

Notes: The maximum permissible levels are:
- Reduced by 10 decibels at night (10 pm to 7 am) when the receiving land use is residential.
- Increased by 15 dBA for up to 1.5 minutes, 10 dBA for up to 5 minutes and 5 dBA for up to 15 minutes.

Sounds created by aircraft in flight are exempt.
Sounds from engine testing and maintenance are exempt between the hours of 7:00 a.m. and 10:00 p.m., provided that aircraft testing and maintenance shall be conducted at remote sites whenever possible.

Source: State of Washington, Chapter 173-60 WAC

State of Washington WAC 246-366-030: *Site Approval (Schools)*

1. Before a new school facility is constructed, an addition is made to an existing school facility, or an existing school facility is remodeled, the board of education shall obtain written approval from the health officer that the proposed development site presents no health problems. The board of education may request the health officer make a survey and submit a written health appraisal of any proposed school site.
2. School sites shall be of a size sufficient to provide for the health and safety of the school enrollment.
3. Noise from any source at a proposed site for a new school, an addition to an existing school, or a portable classroom shall not exceed an hourly average of 55 dBA (Leq 60 minutes) and shall not exceed an hourly maximum (Lmax) of 75 dBA during the time of day the school is in session; except sites exceeding these sound levels are acceptable if a plan for sound reduction is included in the new construction proposal and the plan for sound reduction is approved by the health officer.

CHAPTER TWO
FORECAST

A forecast of aviation activity was prepared for the purpose of developing noise exposure contours for projected future conditions for this Part 150 Noise Compatibility Study Update. This forecast projected activity levels through 2021 and was submitted to the Federal Aviation Administration (FAA) for approval in July 2010. The FAA approved the use of this forecast for this Part 150 Study in a letter dated August 19, 2010. A copy of this approval letter is included in Appendix N, *Forecast Approval*. The following sections include the information that was included in the forecast document that was submitted to the FAA in July 2010. This forecast was used to develop input data representative of 2018 conditions, which was used to prepare the noise exposure contour for the Future (2018) Noise Exposure Map (NEM).

2.1 INTRODUCTION

This document was prepared to provide a forecast of future aviation characteristics and operating levels to support the requirements of the Part 150 planning process for Seattle-Tacoma International Airport (Sea-Tac Airport). The year 2009 was used as the base year for forecast purposes. The key benchmark year for the forecast is 2018, which corresponds to the 5-year projection from the Existing (2013) NEM.

The aviation forecasts are presented for the following types of activity at Sea-Tac Airport:

1. Commercial Passenger
2. Air Cargo
3. Air Taxi and General Aviation
4. Military

2.2 COMMERCIAL PASSENGER

This section provides a summary of historical passenger enplanements at Sea-Tac Airport, an overview of current domestic and international air service offered at Sea-Tac Airport, passenger and operation forecasts and passenger aircraft fleet mix.

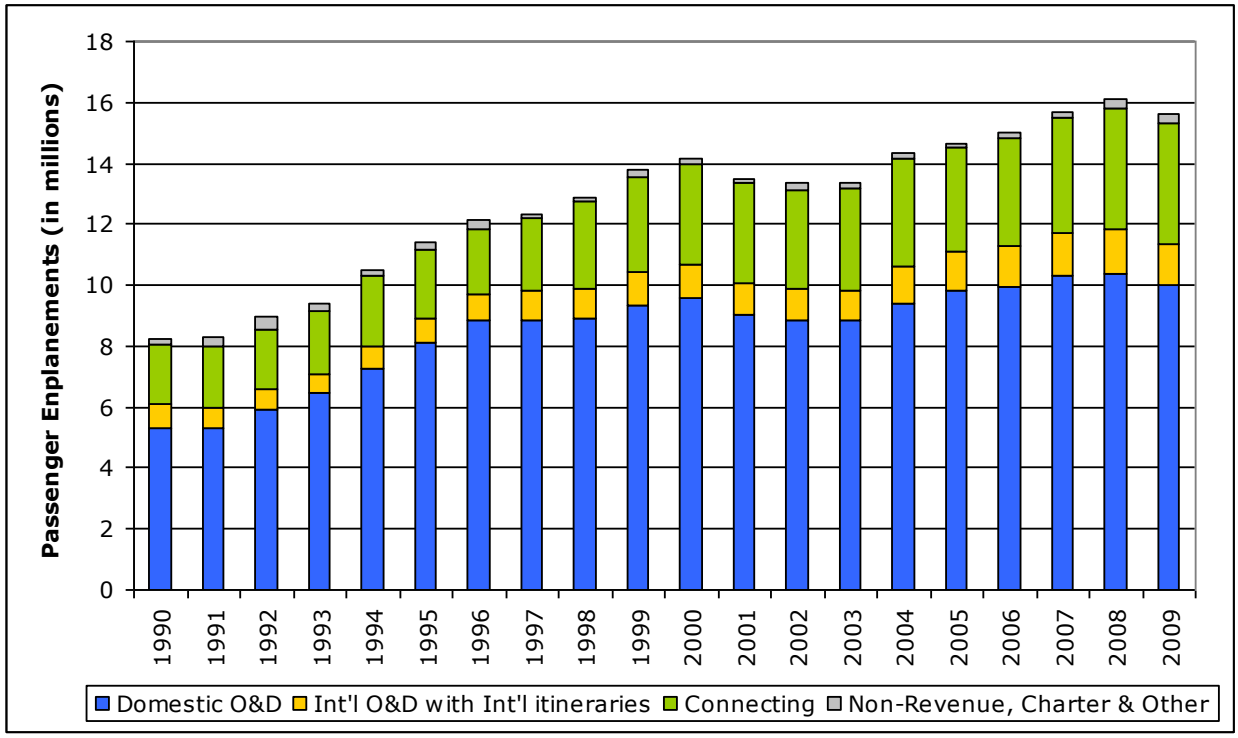
The purpose of reviewing historical enplanements and air service trends is to start building a context for the forecast. Historical data can answer questions such as who are the major airline operators from Sea-Tac Airport and what markets are served from Sea-Tac Airport? The past is not always a good predictor of the future; however, an analysis of historical data provides the opportunity to understand those factors which have caused traffic to increase or decrease and how those factors may change in the future, thus influencing the forecast. While the socio-economic base is one of the fundamental underpinnings of the forecast, demand

cannot be realized without air service at a price that induces demand. Ultimately, understanding the historical relationships between the economy and aviation activity at Sea-Tac Airport will form the building blocks of the forecast. The projected aircraft fleet mix will be used in the development of the noise exposure contours in the Part 150 study.

2.2.1 HISTORICAL ENPLANEMENT OVERVIEW

Sea-Tac Airport enjoys a relatively diverse base of passenger operations. According to the *Official Airline Guide* (OAG), in 2009, 28 scheduled airlines provided 421 daily departures to 104 airports from Sea-Tac Airport. Passenger enplanements at Sea-Tac Airport increased significantly from 8.2 million in 1990 to 14.2 million in 2000 representing an average annual growth rate of 5.6 percent. Between 2000 and 2009, passenger traffic increased at a slower rate of 1.1 percent per year reaching 15.6 million by 2009 (see **Exhibit 2-1, Historical Enplaned Passengers**). Components of passenger enplanements at Sea-Tac Airport remained relatively constant between 1990 and 2009. In 2009, domestic Origin & Destination (O&D[1]) accounted for 64.3 percent, international O&D with international itineraries accounted for 8.5 percent, connecting passengers accounted for 25.2 percent, and non-revenue, charter and other accounted for 2.1 percent.

Exhibit 2-1
HISTORICAL ENPLANED PASSENGERS
Seattle-Tacoma International Airport



Sources: Airport records; USDOT, Air Passenger Origin-Destination Survey; Landrum & Brown analysis

[1] Originating and destination passengers – passengers who start or end their trip at the airport.

2.2.2 HISTORICAL AIR SERVICE TRENDS

In order to provide a historical context for the forecast of aircraft operations, airline schedule filings published in the OAG as of February 5, 2010 were analyzed to understand changes in air service patterns at Sea-Tac Airport. **Table 2-1** and **Table 2-2** provide a summary of air service trends by carrier for domestic and international markets.

Domestic air service accounted for 91 percent of scheduled passenger operations at Sea-Tac Airport in 2009. Alaska Airlines has accounted for a dominant share of the traffic since 1995. Alaska Airlines accounted for 51.4 percent of scheduled domestic seats and provided service to 61 U.S. airports in 2009. In 2009, Southwest, United, and Delta accounted for 10.8 percent, 7.8 percent and 5.7 percent of total scheduled domestic seats, respectively.

Table 2-1
DOMESTIC AIR SERVICE TRENDS
Seattle-Tacoma International Airport

		Airports Served				Departing Flights				Departing Seats				AAG
Rank	Airline	1995	2000	2009	2010	1995	2000	2009	2010	1995	2000	2009	2010	95-09
1	Alaska	38	46	61	59	83,073	101,138	77,236	76,761	6,725,216	8,477,952	9,106,467	8,879,383	2.2%
2	Southwest	8	12	14	16	9,235	13,186	14,084	13,688	1,261,925	1,797,767	1,914,688	1,855,216	3.0%
3	United	15	16	8	8	32,689	37,325	12,738	13,622	2,820,119	2,756,930	1,383,366	1,333,792	-5.0%
4	Delta	11	7	6	9	7,362	6,979	6,673	7,749	1,374,198	1,262,637	1,007,475	1,160,872	-2.2%
5	Northwest	7	4	5	4	6,497	6,290	4,547	2,995	1,366,552	1,290,204	896,854	547,612	-3.0%
6	Continental	4	4	4	4	2,194	3,497	4,494	4,446	318,666	506,594	774,135	721,513	6.5%
7	American	5	9	4	4	5,799	8,075	5,190	5,143	902,750	1,177,382	764,844	744,958	-1.2%
8	US Airways	4	3	4	3	1,825	2,682	3,795	2,920	316,768	447,261	586,482	444,610	4.5%
9	Virgin America	-	-	2	2	-	-	2,593	1,808	-	-	361,112	246,523	n.a.
10	jetBlue	-	-	4	3	-	-	1,847	1,454	-	-	273,500	212,300	n.a.
11	Hawaiian	1	2	2	2	375	628	917	887	114,000	190,912	231,084	223,524	5.2%
12	Frontier	-	1	2	1	-	1,348	1,447	1,444	-	177,826	191,654	172,642	n.a.
13	AirTran	-	-	3	3	-	-	952	657	-	-	130,424	90,009	n.a.
14	Sun Country	-	1	2	1	-	365	255	158	-	66,230	40,608	25,518	n.a.
15	Midwest	-	-	1	1	-	-	365	365	-	-	36,076	35,770	n.a.
16	Kenmore Air	-	-	4	-	-	-	1,991	-	-	-	15,928	-	n.a.
	Other	20	12	-	-	10,433	5,592	-	-	1,519,259	850,569	-	-	-100.0%
	Total	**66**	**73**	**83**	**76**	**159,482**	**187,105**	**139,124**	**134,097**	**16,719,453**	**19,002,264**	**17,714,697**	**16,694,242**	**0.4%**

Source: *Official Airline Guide*

Alaska Airlines accounted for nearly 40 percent of international seats in 2009. Between 1995 and 2009, Alaska Airlines gained four additional markets and its scheduled seats increased at an average growth rate of 7.7 percent per year. Northwest[2], Air Canada, and British Airways accounted for 12.0 percent, 9.4 percent and 7.6 percent of scheduled international seats, respectively.

[2] Northwest was merged into Delta in April 2008. Northwest continued to operate as an independent carrier (as a Delta Air Lines subsidiary) until January 2010 (the completion of the merger). The combined airline now uses the Delta name and branding.

Table 2-2
INTERNATIONAL AIR SERVICE TRENDS
Seattle-Tacoma International Airport

Rank	Airline	Airports Served				Departing Flights				Departing Seats				AAG
		1995	2000	2009	2010	1995	2000	2009	2010	1995	2000	2009	2010	95-09
1	Alaska	5	8	9	9	6,113	13,055	8,061	7,929	236,560	584,096	668,956	643,061	7.7%
2	Northwest	3	3	3	4	714	1,003	735	691	264,212	321,399	209,290	189,286	-1.7%
3	Air Canada	1	2	3	3	3,439	2,492	2,930	3,040	127,243	151,593	164,818	171,178	1.9%
4	British Airways	1	1	1	1	364	363	511	365	98,826	106,662	133,139	97,885	2.2%
5	United	2	2	1	2	1,711	2,561	362	366	246,161	160,278	93,396	94,352	-6.7%
6	EVA	3	2	1	1	886	732	231	260	310,677	272,304	77,924	88,040	-9.4%
7	Korean Air	-	-	2	1	-	-	250	251	-	-	74,795	75,551	n.a.
8	Lufthansa	-	-	1	1	-	-	327	342	-	-	72,267	75,582	n.a.
9	Asiana	1	1	2	1	92	157	212	247	23,920	43,960	65,321	76,570	7.4%
10	Air France	-	-	1	1	-	-	288	309	-	-	63,337	69,844	n.a.
11	SAS	1	1	1	-	316	363	155	-	79,316	91,113	37,975	-	-5.1%
12	Hainan Airlines	-	-	1	1	-	-	169	162	-	-	37,518	35,964	n.a.
13	Aeromexico	-	-	2	1	-	-	205	10	-	-	25,550	1,240	n.a.
14	Icelandair	-	-	1	1	-	-	90	229	-	-	17,010	43,281	n.a.
15	Royal Air Maroc	-	-	1	-	-	-	23	-	-	-	3,519	-	n.a.
16	Delta	-	-	-	4	-	-	-	462	-	-	-	118,302	n.a.
	Other	7	4	-	-	1,927	501	-	-	255,970	119,828	-	-	-100.0%
	Total	**18**	**18**	**24**	**21**	**15,562**	**21,227**	**14,549**	**14,663**	**1,642,885**	**1,851,233**	**1,744,815**	**1,780,136**	**0.4%**

Source: *Official Airline Guide*

Table 2-3 presents top domestic and international markets from Sea-Tac Airport in 2009. The largest domestic destinations from Sea-Tac Airport were San Francisco accounting for 11.0 percent of total scheduled domestic seats in 2009, Los Angeles accounting for 9.7 percent, and Anchorage accounting for 5.7 percent. The top international markets from Sea-Tac Airport were Vancouver, Canada accounting for 17.4 percent of total scheduled international seats, Tokyo, Japan accounting for 11.3 percent, and Seoul, Korea accounting for 7.9 percent.

Table 2-3
2009 TOP MARKETS - SCHEDULED SEATS
Seattle-Tacoma International Airport

Rank	Domestic Market	Seats 2009	% Share	Rank	International Market	Seats 2009	% Share
1	San Francisco	1,956,842	11.0%	1	Vancouver, Canada	303,915	17.4%
2	Los Angeles	1,719,438	9.7%	2	Tokyo(Narita), Japan	197,486	11.3%
3	Anchorage	1,001,650	5.7%	3	Seoul, Korea	137,933	7.9%
4	Chicago	821,155	4.6%	4	Victoria, Canada	134,384	7.7%
5	Denver	815,279	4.6%	5	London(Heathrow), UK	134,354	7.7%
6	Spokane	698,116	3.9%	6	Calgary, Canada	109,500	6.3%
7	Phoenix	692,510	3.9%	7	Amsterdam, Netherlands	103,985	6.0%
8	Las Vegas	644,982	3.6%	8	Taipei	77,924	4.5%
9	Portland	635,016	3.6%	9	Kelowna, Canada	76,886	4.4%
10	New York	628,321	3.5%	10	Edmonton, Canada	72,520	4.2%
11	Minneapolis/St. Paul	627,921	3.5%	11	Frankfurt, Germany	72,267	4.1%
12	Dallas/Ft. Worth	561,447	3.2%	12	Paris, France	63,337	3.6%
13	Salt Lake City	480,670	2.7%	13	Los Cabos, Mexico	41,091	2.4%
14	Atlanta	456,459	2.6%	14	Toronto, Canada	39,618	2.3%
15	Sacramento	442,498	2.5%	15	Copenhagen, Denmark	37,975	2.2%
16	Houston	421,731	2.4%	16	Beijing, China	37,518	2.2%
17	San Diego	408,430	2.3%	17	Puerto Vallarta, Mexico	30,870	1.8%
18	Honolulu	363,688	2.1%	18	Cancun, Mexico	27,318	1.6%
19	Washington	324,130	1.8%	19	Reykjavik, Iceland	17,010	1.0%
20	Boise	273,117	1.5%	20	Mexico City, Mexico	15,304	0.9%
	Other	3,741,297	21.1%		Other	13,620	0.8%
	Total	**17,714,697**	**100.0%**		**Total**	**1,744,815**	**100.0%**

Source: *Official Airline Guide*

2.2.3 PASSENGER ENPLANEMENT FORECAST

The passenger enplanement forecast provides a critical path for the commercial passenger operations forecast which is derived based on assumptions related to average aircraft size and load factor. The passenger forecasts are presented for the key years 2018 and 2021, with 2009 as the base year.

Passenger traffic at Sea-Tac Airport was divided into five main segments for the purpose of developing the detailed forecast:

(1) domestic O&D passengers that travel on purely domestic itineraries,

(2) O&D passengers that board domestic flights at Sea-Tac Airport and travel to another U.S. gateway to connect with international flights (bound for international destinations),

(3) O&D passengers that board international flights at Sea-Tac Airport on purely international itineraries,

(4) connecting passengers, and

(5) non-revenue, charter, and other passengers.

2.2.3.1 Passenger Forecast Methodology

Table 2-4 summarizes the overall approach and methodology used to develop the passenger enplanement forecast. The domestic O&D and bound for international destinations forecasts were developed using an econometric approach which ties traffic volumes to historical and forecast economic data for the Seattle-Tacoma-Bellevue Metropolitan Statistical Areas (Seattle MSA). The international O&D forecast was developed based on analysis of existing bound for international traffic that could potentially become international O&D. The connecting traffic forecast was derived from the resulting domestic O&D enplanements forecast.

Table 2-4
ENPLANEMENT FORECAST METHODOLOGY
Seattle-Tacoma International Airport

Traffic Segment	Short-Term (2010-2013)	Long-Term (2014-2021)
Domestic O&D	✈ Incorporates recession impact and subsequent recovery	✈ Based on statistical relationship between historical traffic and personal income and yield
Bound for Int'l Destinations	✈ Initial decline, reflecting the state of the world economy	✈ Based on statistical relationship between historical traffic and GDP for each world region
International O&D	✈ Initial decline, reflecting the state of the world economy	✈ Reflects growth in bound for int'l destinations segment and new non-stop destinations
Connections	✈ Incorporates recession impact and subsequent recovery	✈ Derived from resulting domestic O&D

Source: Landrum & Brown analysis

Domestic Origin & Destination (O&D)

A short-term 3-year forecast (2010 through 2013) was developed for domestic O&D. This approach provided the opportunity to incorporate a more appropriate year-to-year estimate of the impact of the current economic crisis and subsequent recovery on passenger traffic levels. The short-term forecast takes into account current airline schedule filings for 2010, which are important indicators of anticipated near-term demand levels, as well as annual economic forecasts promulgated by the U.S. Federal Reserve Board.

A long-term forecast (2014 through 2021) was developed based on the statistical relationship between historical demographic data and economic activity in the Seattle MSA and domestic originating passenger traffic at Sea-Tac Airport.

Independent variables considered for use in the regression included population, employment, personal income, per capita personal income (PCPI), gross regional product (GRP), and yield[3] for the Seattle MSA. **Table 2-5** presents historical and future socio-economic variables for the Seattle MSA. All socio-economic variables are projected to grow at slower rates between 2009 and 2021 compared to the average annual growth rates during the 1990 to 2009 period.

According to the local forecasts provided by the Office of Financial Management (OFM), State of Washington, the socio-economic forecasts are generally in line with the Woods & Poole (W&P) forecasts. Population forecasts for the Seattle MSA are expected to grow at the same rate of 1.1 percent per year between 2009 and 2021. Over the same period, per capita personal income provided by the OFM for the State of Washington is projected to grow at a slightly higher rate of 1.8 percent per year versus 1.1 percent in the W&P forecast. The OFM projects employment in the State of Washington to grow at 1.0 percent annually versus 1.3 percent in the W&P forecast.

Table 2-5
SOCIO-ECONOMIC VARIABLES
Seattle MSA

Calendar Year	Population (in thousands)	Employment (in thousands)	Personal Income (millions; $2004)	PCPI (2004 $)	GRP (millions; $2004)
Historical					
1990	2,579	1,665	$78,460	$30,425	$101,826
1995	2,815	1,762	$89,972	$31,966	$115,956
2000	3,052	2,064	$124,871	$40,908	$163,697
2005	3,197	2,124	$132,948	$41,580	$174,004
2006	3,254	2,191	$141,648	$43,531	$180,882
2007	3,298	2,263	$150,102	$45,510	$189,659
2008	3,345	2,290	$151,098	$45,174	$191,882
2009	3,384	2,260	$150,968	$44,616	$189,461
Forecast					
2010	3,423	2,314	$154,717	$45,201	$193,913
2016	3,663	2,479	$176,633	$48,227	$218,945
2018	3,745	2,537	$184,720	$49,330	$228,018
2021	3,868	2,626	$197,643	$51,094	$242,351
Average Annual Growth Rates					
1990-1995	1.8%	1.1%	2.8%	1.0%	2.6%
1995-2000	1.6%	3.2%	6.8%	5.1%	7.1%
2000-2005	0.9%	0.6%	1.3%	0.3%	1.2%
2005-2009	1.4%	1.6%	3.2%	1.8%	2.2%
1990-2009	1.4%	1.6%	3.5%	2.0%	3.3%
2009-2016	1.1%	1.3%	2.3%	1.1%	2.1%
2016-2021	1.1%	1.2%	2.3%	1.2%	2.1%
2009-2021	1.1%	1.3%	2.3%	1.1%	2.1%

Source: Woods & Poole Economics, Inc. 2010
Note: Seattle-Tacoma-Bellevue MSA includes three counties which are King, Pierce, and Snohomish Counties.

[3] Yield is defined as the average revenue an airline obtains from carrying a passenger one mile. It reflects fare, length of haul, the level of competition, carrier costs, and other factors. Yield is a commonly accepted measure of the price of air travel.

In addition to these socio-economic variables, regression models oftentimes include dummy variables to consider unusual events that do not correlate to the independent variables. The only unusual event that had a noticeable impact on Sea-Tac Airport traffic was the September 11, 2001 terrorist attacks. This event had the effect of depressing traffic at U.S. airports and throughout the world for several years. The use of a dummy variable corrects for the downturn in traffic that is not reflected in the standard socio-economic variables used to forecast future aviation activity.

Several regressions of various combinations of these independent variables were tested but ultimately rejected for various reasons, such as:

- Inadequate test statistics (i.e. low r-squared values or other inadequate regression statistics) which indicates that the independent variables are not good predictors of Sea-Tac Airport traffic.
- Poor forecast results (Regression models produce "forecasts" of historical data. A satisfactory model will generate estimates that are close to actual values.)
- Theoretical contradictions (e.g. the model indicates that Gross Domestic Product (GDP) growth is negatively correlated with traffic growth).
- Overly aggressive or low forecast results that are incompatible with historical averages.

A 20-year history from 1990 to 2009 was used in the regression model. Different time periods (such as 1985-2009, 1995-2009) were also tested but these time periods resulted in inadequate regression statistics.

In the evaluation of the various regressions, a log regression using personal income, the average yield at Sea-Tac Airport, and a dummy variable to take into account the September 11, 2001 terrorist attacks proved to correlate best with the total domestic O&D traffic of the Seattle MSA. Average yield for 2009 was based on the 12 months ended September 2009. The forecast of average yield was based on the FAA's national yield forecast. Personal income for the Seattle MSA was projected by Puget Sound Economic Forecaster to grow at an average of 3.0 percent per annum between 2009 and 2021. The resulting econometric model statistics are presented in **Table 2-6**.

Table 2-6
DOMESTIC O&D ECONOMETRIC MODEL STATISTICS
Seattle-Tacoma International Airport

Time Period:
1990-2009

Independent Variables:
Yield, Personal Income, Dummy

Regression Equation:
Domestic O&D Enpax = $e^{14.12}$ + Yield$^{-0.56}$ + Personal Income$^{0.66}$ + Dummy*$e^{-0.09}$

Regression Statistics:

Adj. R^2 = 0.89	R^2 = 0.91
T-stat (constant) = 6.97	P-value (constant) = 0.00
T-stat (Yield) = -1.85	P-value (yield) = 0.08
T-stat (PI) = 2.46	P-value (PI) = 0.02
T-stat (Dummy) = -1.12	P-value (Dummy) = 0.28

Source: Landrum & Brown analysis

Table 2-7 provides the historical yield, personal income, and dummy variable data used in the regression as well as the resulting forecast values. Based on the short-term and long-term forecasts discussed above, domestic O&D enplanements are expected to decline initially by 1.6 percent in 2010 and recover to 2008 level by 2013 and then grow at an average annual rate of 2.7 percent from 2013 to 2021. Domestic O&D enplanements are forecast to total 12.9 million in 2021.

Table 2-7
DOMESTIC O&D ENPLANED PASSENGER FORECAST
Seattle MSA

		Independent Variable			
	Year	Adj. Yield ($2005)(cents)	Personal Income (billions; $2005)	Dummy Variable	Domestic O&D Enpax
Actual	1990	19.47	$86	0	5,269,650
	1995	13.16	$99	0	8,069,090
	2000	12.64	$136	0	9,533,350
	2001	11.01	$136	1	8,988,850
	2002	9.97	$137	1	8,815,900
	2003	9.94	$137	1	8,800,950
	2004	9.58	$146	0	9,387,760
	2005	9.89	$146	0	9,791,010
	2006	10.45	$155	0	9,936,230
	2007	10.12	$164	0	10,271,720
	2008	9.85	$165	0	10,354,990
	2009	8.71	$162	0	10,011,560
Forecast	2010	8.85	$165	0	9,850,700
	2016	8.42	$200	0	11,366,900
	2018	8.23	$211	0	11,959,200
	2021	7.97	$230	0	12,913,100
Average Annual Growth Rates:					
1990-2009		-4.1%	3.4%	n/a	3.4%
2009-2021		-0.7%	3.0%	n/a	2.1%

Sources: Puget Sound Economic Forecaster; U.S. DOT, *Air Passenger Origin-Destination Survey*; Federal Aviation Administration; Landrum & Brown analysis

Bound for International Destinations

The Bound for International Destinations category refers to passengers traveling to or from the Seattle local area that board a domestic flight at Sea-Tac Airport and fly to another U.S. gateway airport in order to make a connection to an international destination.

Nearly 1.4 million Sea-Tac Airport O&D enplaned passengers had an international itinerary in 2009. Forty-three percent of these passengers flew through another U.S. gateway prior to arriving at their final international destination (i.e. bound for an international destination). The forecast for the "bound for international destinations" category was developed using an econometric approach which correlated this traffic segment with anticipated growth in the world economy.

A number of regression analyses were developed that correlated growth in passengers "bound for international destinations" with world economic growth at the aggregate level and by world region using GDP forecasts[4] provided by the FAA. The world economic growth rates were weighted to take into account the historical market share of specific world regions for this traffic segment in the Seattle market. Based on this approach, traffic is expected to grow 2.9 percent annually from 452,600 enplanements in 2009 to 641,100 enplanements in 2021. Latin America is expected to be the fastest growing segment and a portion of the traffic is expected to become a new international O&D service to/from Sea-Tac Airport.

International O&D

The "international O&D enplanements" forecast was developed based on assumptions regarding growth in existing international services at the Airport and the potential for airlines to add new international service to certain international markets as demand reaches a critical mass to be served non-stop from Sea-Tac Airport. Indeed, the higher the level of "bound for international destinations" enplanements in a particular region, the greater the potential for non-stop service. Therefore, the forecast of international O&D enplanements was based on the following key considerations:

- Two additional weekly non-stop flights to Latin America are forecast to be in place by 2011 using narrow-body jet aircraft (157 seats) with an average load factor of 75 percent. This service is projected to increase to 18 weekly flights (2 daily- and 4 weekly- flights) by 2021.
- In addition to potential new markets from existing bound for international destinations, there will also be new service opportunities to Japan due to the new U.S.-Japan open-skies agreement that will provide U.S. carrier access to Haneda for the first time since 1978. With the location advantage of Sea-Tac Airport, it was assumed that Delta or other airlines will start a new daily flight to Asia using B767s (214 seats) with an average load factor of 80 percent in 2011. This service is projected to increase to 2 daily flights in 2012 and to 3 daily flights in 2015.

[4] *FAA Aerospace Forecasts* 2009-2025

International O&D enplanements initially declined in 2009, reflecting the state of the world economy. International O&D enplanements are expected to return to positive growth rates in 2010. Based on these assumptions about the new markets and a statistical regression of GRP[5] for Seattle MSA and international O&D at Sea-Tac Airport between 1990 and 2009, international O&D enplanements are forecast to grow by 3.5 percent per year from 866,700 enplanements in 2009 to 1,307,100 enplanements by 2021.

Connections

The volume of connecting passengers occurs largely as a result of airline network management strategies. Connecting enplanements have accounted for 18 to 25 percent share of total enplanements at Sea-Tac Airport over the historical period. The majority of the connecting traffic is from Alaska Airlines. It is assumed that Alaska Airlines will continue to operate a hub at the Airport over the forecast period, maintaining 24-26 percent connections at Sea-Tac Airport. Connecting enplanements are forecast to reach nearly 4.7 million in 2021, averaging an annual growth rate of 1.5 percent between 2009 and 2021.

Table 2-8
INTERNATIONAL O&D ENPLANEMENTS FORECAST
Seattle-Tacoma International Airport

	Year	GRP (millions; $2004)	Regression of International O&D Enplanements	New Air Service	International O&D Enplanements Forecast
Actual	1990	101,826	600,680		600,680
	1995	115,956	559,499		559,499
	2000	163,697	737,574		737,574
	2005	174,004	825,974		825,974
	2006	180,882	858,109		858,109
	2007	189,659	906,756		906,756
	2008	191,882	945,526		945,526
	2009	189,461	866,679		866,679
Forecast	2010	193,900	900,690		900,690
	2011	197,900	919,600	59,000	978,600
	2012	201,900	938,500	118,000	1,056,500
	2013	206,000	957,900	135,100	1,093,000
	2014	210,200	977,800	154,700	1,132,500
	2015	214,500	998,100	177,000	1,175,100
	2016	218,900	1,018,900	177,000	1,195,900
	2018	228,000	1,062,000	177,000	1,239,000
	2021	242,400	1,130,100	177,000	1,307,100
Average Annual Growth Rates:					
1990-2009		3.3%	1.9%	n.a.	1.9%
2009-2016		2.1%	2.3%	n.a.	4.7%
2016-2021		2.1%	2.1%	0.0%	1.8%
2009-2021		2.1%	2.2%	n.a.	3.5%

Notes: Adjusted R2 = 0.87; t-stat = 11.48; p-value = 0.000000001

Sources: Airport Records; Woods & Poole Economics, Inc. 2010; Landrum & Brown analysis

[5] Gross Regional Product (GRP) historical and forecast data from Woods & Poole Economics, Inc. 2010

Non-Revenue, Charter, & Other

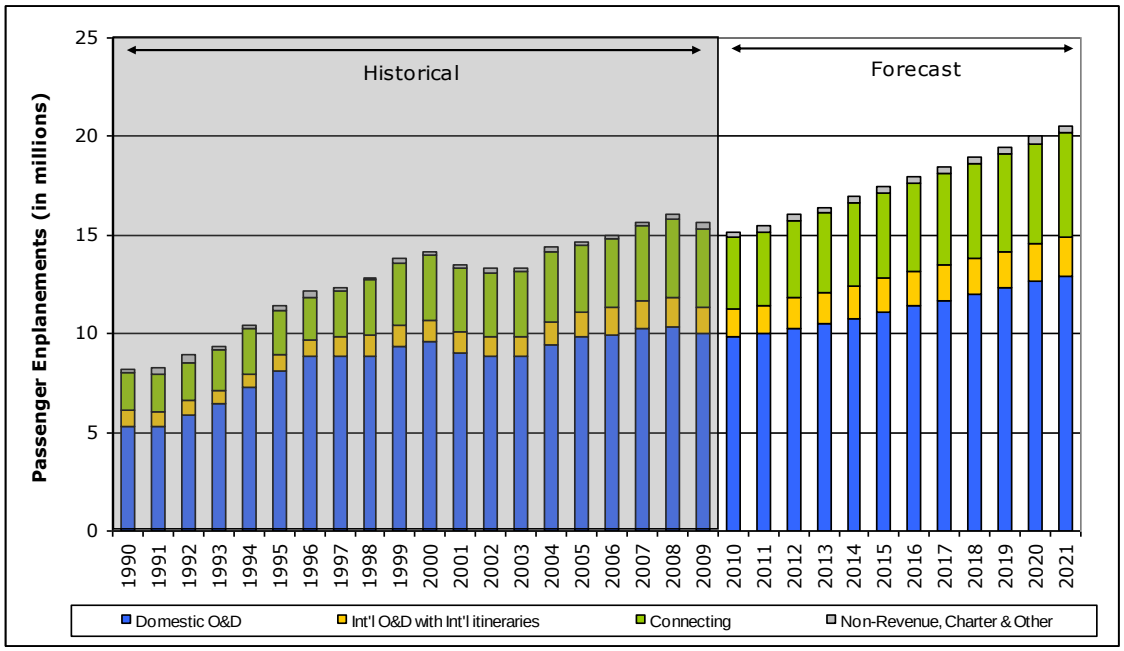
The airport reported total enplanements in 2008 that were 1.7 percent higher than the number of enplanements reported by the airlines to the U.S. Department of Transportation (DOT). This difference reflects non-scheduled charter and non-revenue traffic which is not reported to U.S. DOT. Non-revenue traffic includes airline employees and flight crew commuting to/from their assigned routes. It is assumed that this category of traffic is exclusively domestic in nature.

Since 1995, this traffic has accounted for between 1.0 and 3.4 percent of domestic O&D enplanements at Sea-Tac Airport. This category of traffic is forecast to maintain the same relationship at 2.9 percent of domestic O&D throughout the forecast period, resulting in 376,700 enplanements in 2021.

2.2.3.2 Enplanements Forecast Summary

A summary of the enplaned passenger forecast is shown on **Exhibit 2-2**. Total enplanements are forecast to increase from 15.6 million enplanements in 2009 to 20.5 million enplanements by 2021, an average annual growth rate of 2.3 percent. Domestic O&D enplanements are expected to continue to account for the largest share of passenger traffic throughout the forecast period, making up 66 percent of total enplanements in 2021. Passengers with international itineraries (either connecting through another gateway or flying non-stop from Sea-Tac Airport) will increase in share from 8.4 percent of total enplanements in 2009 to 9.5 percent in 2021.

Exhibit 2-2
ENPLANEMENTS FORECAST SUMMARY
Seattle-Tacoma International Airport



Source: Landrum & Brown analysis

For purposes of forecasting aircraft operations, the enplaned passenger forecast was segmented into air carrier and commuter categories for domestic and international traffic (see **Table 2-9**). The "bound for international destinations" segment is included in the domestic category because the immediate down line city on departure or up line city on arrival is in the continental U.S., Alaska, Hawaii, or a U.S. territory.

The forecast calls for domestic air carrier enplanements to grow at a rate of 2.1 percent annually over the forecast period and domestic commuter enplanements grow at a slightly higher rate of 2.6 percent. Air carrier enplanements made up about 85 percent of domestic activity in 2009; this split is expected to remain relatively unchanged through 2021.

Air carrier activity accounted for 68 percent of international activity in 2009. International air carrier enplanements are forecast to grow at a rate of 3.6 percent per annum through 2021 due to the expected introduction of new non-stop service to Latin America and Asia. The air carrier segment will make up 70 percent of international activity in 2021. International commuter enplanements are expected to average growth of 2.7 percent annually between 2009 and 2021.

Table 2-9
ENPLANEMENTS FORECAST BY AIR CARRIER AND COMMUTER
Seattle-Tacoma International Airport

	Domestic			International			Total		
Year	Air Carrier	Commuter	Total	Air Carrier	Commuter	Total	Air Carrier	Commuter	Total
Actual									
1995	9,266,842	1,303,830	10,570,672	511,958	307,891	819,849	9,778,800	1,611,721	11,390,521
2000	11,363,720	1,598,858	12,962,578	756,322	454,852	1,211,174	12,120,042	2,053,710	14,173,752
2005	11,845,337	1,562,596	13,407,933	844,329	379,835	1,224,164	12,689,666	1,942,431	14,632,097
2006	12,159,227	1,604,807	13,764,034	868,578	357,981	1,226,559	13,027,805	1,962,788	14,990,593
2007	12,433,289	1,880,038	14,313,327	918,231	429,625	1,347,856	13,351,520	2,309,663	15,661,183
2008	12,574,745	2,072,704	14,647,449	960,616	476,840	1,437,456	13,535,361	2,549,544	16,084,905
2009	12,251,188	2,044,830	14,296,018	891,808	422,361	1,314,169	13,142,996	2,467,191	15,610,187
Forecast									
2010	11,853,300	1,978,400	13,831,700	909,300	417,800	1,327,100	12,762,600	2,396,200	15,158,800
2016	13,825,800	2,379,600	16,205,400	1,235,300	546,590	1,781,890	15,061,100	2,926,190	17,987,290
2018	14,590,700	2,536,680	17,127,380	1,284,800	561,310	1,846,110	15,875,500	3,097,990	18,973,490
2021	15,802,600	2,788,640	18,591,240	1,363,300	584,280	1,947,580	17,165,900	3,372,920	20,538,820
Average Annual Growth Rates:									
1995-2009	2.0%	3.3%	2.2%	4.0%	2.3%	3.4%	2.1%	3.1%	2.3%
2009-2016	1.7%	2.2%	1.8%	4.8%	3.8%	4.4%	2.0%	2.5%	2.0%
2016-2021	2.7%	3.2%	2.8%	2.0%	1.3%	1.8%	2.7%	2.9%	2.7%
2009-2021	2.1%	2.6%	2.2%	3.6%	2.7%	3.3%	2.3%	2.6%	2.3%

Sources: Airport Records; Landrum & Brown analysis

In summary, domestic passenger traffic is forecast to increase at an average of 2.2 percent per year between 2009 and 2021. International passenger enplanements are forecast to increase at an average annual growth rate of 3.3 percent over the same period. Total enplanements are expected to increase from 15.6 million in 2009 to 20.5 million in 2021, an average annual growth rate of 2.3 percent.

2.2.4 COMMERCIAL PASSENGER OPERATION FORECAST

The aggregate number of commercial operations at an airport depends on three factors: total passengers, average aircraft size, and average load factor (percent of seats occupied). The relationship is shown in the equation below.

$$\text{Operations} = \frac{\text{Total Passengers}}{\text{Average Load Factor x Average Aircraft Size}}$$

After developing the enplanement projections, assumptions were developed for average aircraft size and load factor in order to develop operations counts at the air carrier and commuter level. Once the aggregate level operations forecasts were developed for air carrier and commuter activity, a top-down approach was employed to allocate these operations to aircraft groups and specific aircraft types The fleet mix was developed to match aggregate level average seats per flight targets for air carrier and commuter categories. The detailed fleet mix also allowed for the calibration of those assumptions and, where appropriate, modifications were made prior to finalizing the assumptions presented below. The air carrier and commuter assumptions related to aircraft size and load factor are shown in **Table 2-10.**

Table 2-10
AIRCRAFT GAUGE AND LOAD FACTOR ASSUMPTIONS
Seattle-Tacoma International Airport

	Gauge (Average Seats Per Departure)					
	Domestic			International		
Year	Air Carrier	Commuter	Total	Air Carrier	Commuter	Total
Actual						
1995	152	31	106	243	38	110
2000	148	37	102	261	41	91
2005	151	47	120	230	44	102
2006	152	47	121	235	46	102
2007	153	53	123	229	54	109
2008	153	57	125	221	63	116
2009	154	65	129	223	67	120
Forecast						
2010	150	68	127	227	67	122
2016	152	73	132	228	67	126
2018	153	73	132	228	67	127
2021	153	73	132	229	67	128
Average Annual Growth Rates:						
1995-2009	0.1%	5.4%	1.4%	-0.6%	4.2%	0.7%
2009-2016	-0.1%	1.6%	0.3%	0.3%	0.1%	0.6%
2016-2021	0.1%	0.0%	0.1%	0.1%	0.0%	0.4%
2009-2021	0.0%	0.9%	0.2%	0.2%	0.0%	0.5%
	Load Factor					
	Domestic			International		
Year	Air Carrier	Commuter	Total	Air Carrier	Commuter	Total
Actual						
1995	62.7%	68.9%	63.4%	38.2%	80.4%	47.6%
2000	70.6%	56.5%	68.5%	60.3%	68.3%	63.1%
2005	77.2%	77.2%	77.2%	72.8%	77.1%	74.1%
2006	77.9%	81.9%	78.3%	78.4%	70.4%	75.9%
2007	78.3%	79.9%	78.5%	79.6%	71.8%	77.0%
2008	77.8%	85.8%	78.8%	82.1%	72.9%	78.8%
2009	81.5%	80.3%	81.3%	82.1%	67.0%	76.5%
Forecast						
2010	82.0%	80.3%	81.8%	82.1%	67.0%	76.6%
2016	79.8%	80.3%	79.9%	80.7%	68.6%	76.5%
2018	79.1%	80.3%	79.3%	80.2%	69.2%	76.5%
2021	78.0%	80.3%	78.3%	79.5%	70.0%	76.4%
Average Annual Growth Rates:						
1995-2000	2.4%	-3.9%	1.6%	9.6%	-3.2%	5.8%
2000-2009	1.6%	4.0%	1.9%	3.5%	-0.2%	2.2%
1995-2009	1.9%	1.1%	1.8%	5.6%	-1.3%	3.4%
2009-2016	-0.3%	0.0%	-0.3%	-0.2%	0.3%	0.0%
2016-2021	-0.5%	0.0%	-0.4%	-0.3%	0.4%	0.0%
2009-2021	-0.4%	0.0%	-0.3%	-0.3%	0.4%	0.0%

Sources: Airport Records, *Official Airline Guide*; Landrum & Brown analysis.

Domestic Air Carrier Gauge and Load Factor Assumptions

Domestic air carrier gauge increased from 152 in 1995 to 154 seats per departure in 2009. This reflects the historical deployment of narrow-body jet aircraft in the mid-1990s at Sea-Tac Airport in the 120 to 160 seat range, such as the Boeing 737s by Alaska, Southwest, Delta, American and Continental. Alaska Airlines, which accounts for the largest proportion of the domestic air carrier operations at Sea-Tac Airport, currently operates five series of B737 aircraft. Similarly, Southwest, the second largest air carrier airline at Sea-Tac Airport, currently operates three series of B737 aircraft at the Airport and has no stated plans to diversify its fleet in the future. Indeed, the assumed evolution of the domestic air carrier fleet at Sea-Tac Airport is primarily towards similarly sized, next generation replacement aircraft (e.g. Boeing 737-700 replacing the Boeing 737-300 or Boeing 737-800 replacing MD80 aircraft) rather than wholesale fleet changes. The following assumptions were made as a basis for the domestic air carrier commercial passenger operations forecast at Sea-Tac Airport:

- Alaska Airlines will continue to replace its B737-400s with B737-800s.
- Southwest will continue to replace its B737-300s and B737-500s with B737-700s.
- United Airlines will focus its Sea-Tac Airport fleet on A319s and A320s. United is expected to replace B757-200s with A320s by 2018.
- Delta is expected to replace B757-200s with B787-800s and B737-800s. MD90 operated by Delta will be replaced with A320s by 2018.
- MD80 operated by American Airlines will be replaced with B737-800s by 2018.
- B767-300s operated by Hawaiian Airlines is expected to be replaced with A330-200s by 2021.

As a result of these assumptions, the domestic air carrier gauge is expected to decrease from 154 seats in 2009 to 150 in 2010 and forecast to increase to 153 seats by 2021.

Domestic air carrier load factors have increased from 62.7 percent in 1995 to 81.5 percent in 2009. The average domestic air carrier load factor is expected to increase slightly to 82.0 percent in 2010, reflecting a continued tightening of airline capacity and then decline slightly reaching 78.0 percent in 2021.

Domestic Commuter Gauge and Load Factor Assumptions

The domestic commuter gauge grew from 31 seats per departure in 1995 to 65 seats per departure in 2009 due to the increased deployment of regional jets at Sea-Tac Airport. In the mid-1990s, airlines used mainly small turboprop equipment (19-seat to 30-seat aircraft) such as Dash 8, British Aerospace Jetstream 31, Fairchild SA26 and Piper aircraft. By the beginning of the 21st century, the airlines had shifted from these small turboprop aircraft to larger 30-seat to 70-seat regional jet aircraft, such as the Q400 and CRJ7. In 2009, Horizon retired all of its Dash

8-100/200 (37-seat) aircraft and replaced them with the Q400 (74-seat). Horizon is planning to "transition to an all-Q400 fleet, but as market conditions have hindered the remarketing efforts on the CRJ-700 aircraft, Horizon is delaying the deliveries of Q400 until the market condition improved".[6] Therefore, over the forecast period, Horizon will continue to deploy both Q400 and CRJ-700 aircraft at Sea-Tac Airport. United Express (SkyWest) is expected to replace all EMB-120 at Sea-Tac Airport with CRJ-700 aircraft by 2013. Domestic commuter load factors increased dramatically from 68.9 percent in 1995 to 80.3 percent in 2009.

Larger regional jets/turboprops in the 69-seat to 90-seat range are increasingly being used by airlines in the U.S. As a result of these assumptions, the average domestic commuter aircraft gauge is expected to increase to 73 seats per departure in 2021. Over the forecast period, the average load factor for domestic commuter activity is forecast to remain at 80.3 percent.

International Air Carrier Gauge and Load Factor Assumptions

Since 1995, the international air carrier average seats per departure (ASPD) has varied significantly depending on the service offerings. International gauge has increased from 243 seats per departure in 1995 to 261 in 2000. This reflects the use of large aircraft such as B747, DC10 and MD11 in the mid-1990s, followed by a greater use of B737s by Alaska Airlines and B330s by Delta/Northwest and B777 by United and British Airways between 2000 and 2009. International air carrier load factors have increased from less than 50 percent in 1995 to 60.3 percent in 2000 and 82.1 percent in 2009.

International air carrier ASPD ratio is expected to increase from 223 seats in 2009 to 229 seats by 2021. International load factors are expected to decline slightly over the forecast period. The decline in international air carrier load factor is expected because the new services are assumed to have lower load factors than the existing service. The load factors for the new services include 75 percent load factor for service to Latin America and 80 percent load factor for service to Asia. The load factors for the existing international O&D service are expected to decline to 80.0 percent in 2021. As a result, International load factors are expected to decline to 79.5 percent in 2021.

International Commuter Gauge and Load Factor Assumptions

Alaska and Air Canada Jazz are currently providing international commuter service at Sea-Tac Airport. Alaska Airlines operates its international commuter flights mainly to Canada using CRJ7 and Q400. Air Canada Jazz is also serving Canada using Dash8-100 and CRJ 100/200. Over the forecast period, it is assumed that the two carriers will continue to operate using the same fleet at Sea-Tac Airport. As a result, the international commuter ASPD is expected to remain at 67 seats through 2021. International commuter load factors are expected to increase from 67 percent in 2009 to 70 percent by 2021. **Table 2-11** provides a summary of the commercial passenger operations forecast at Sea-Tac Airport.

[6] Alaska Airlines 10K SEC filing February 19, 2010

Table 2-11
COMMERCIAL PASSENGER OPERATIONS FORECAST
Seattle-Tacoma International Airport

	Domestic			International			Total		
Year	Air Carrier	Commuter	Total	Air Carrier	Commuter	Total	Air Carrier	Commuter	Total
Actual									
1995	194,400	120,600	315,000	11,000	20,400	31,400	205,400	141,000	346,400
2000	217,800	151,600	369,400	9,600	32,600	42,200	227,400	184,200	411,600
2005	203,170	85,332	288,502	10,076	22,332	32,408	213,246	107,664	320,910
2006	205,936	83,388	289,324	9,436	22,136	31,572	215,372	105,524	320,896
2007	207,570	88,292	295,862	10,086	22,018	32,104	217,656	110,310	327,966
2008	211,658	84,542	296,200	10,606	20,738	31,344	222,264	105,280	327,544
2009	195,540	77,796	273,336	9,742	18,792	28,534	205,282	96,588	301,870
Forecast									
2010	193,400	72,600	266,000	9,800	18,600	28,400	203,200	91,200	294,400
2016	227,400	81,000	308,400	13,400	23,600	37,000	240,800	104,600	345,400
2018	241,600	86,400	328,000	14,000	24,000	38,000	255,600	110,400	366,000
2021	264,400	95,000	359,400	15,000	24,800	39,800	279,400	119,800	399,200
Average Annual Growth Rates:									
1995-2000	2.3%	4.7%	3.2%	-2.7%	9.8%	6.1%	2.1%	5.5%	3.5%
2000-2009	-1.2%	-7.1%	-3.3%	0.2%	-5.9%	-4.3%	-1.1%	-6.9%	-3.4%
1995-2009	0.0%	-3.1%	-1.0%	-0.9%	-0.6%	-0.7%	0.0%	-2.7%	-1.0%
2009-2016	2.2%	0.6%	1.7%	4.7%	3.3%	3.8%	2.3%	1.1%	1.9%
2016-2021	3.1%	3.2%	3.1%	2.3%	1.0%	1.5%	3.0%	2.8%	2.9%
2009-2021	2.5%	1.7%	2.3%	3.7%	2.3%	2.8%	2.6%	1.8%	2.4%

Sources: Airport Records; Landrum & Brown analysis

The result of the foregoing assumptions regarding load factors and ASPD ratios is that domestic air carrier operations are forecast to grow from 195,540 operations in 2009 to 264,400 operations by 2021, representing average annual growth of 2.5 percent. Domestic commuter operations are expected to increase from 77,796 operations in 2009 to 95,000 operations by 2021 (average annual growth rate of 1.7 percent). International air carrier operations are expected to grow 3.7 percent per year from 9,742 operations to 15,000 operations by 2021 as a result of the expected introduction of Latin American and Asia services. International commuter operations are forecast to increase from 18,792 operations in 2009 to 24,800 operations by 2021. Total annual aircraft operations at Sea-Tac Airport are expected to increase from 301,870 in 2009 to 399,200 in 2021 averaging an average growth rate of 2.4 percent per year.

2.2.5 COMMERCIAL PASSENGER OPERATIONS FLEET MIX

Once the operations forecast was developed for domestic air carrier, domestic commuter, international air carrier, and international commuter activity, these operations were allocated to aircraft groups and specific aircraft types. The fleet mix was developed to match the ASPD targets for each of the four components of commercial passenger demand presented in the previous subsections. The process of developing the fleet mix allowed for the calibration of those assumptions and, where appropriate, modifications were made prior to finalizing the assumptions presented in the preceding subsections. The allocation of domestic commercial passenger operations by aircraft type is shown in **Table 2-12**.

Table 2-12
DOMESTIC PASSENGER OPERATION FLEET MIX
Seattle-Tacoma International Airport

Aircraft Type	Acft. Gauge	Aircraft Operations						% of Domestic Operations					
		2000	2009	2010	2016	2018	2021	2000	2009	2010	2016	2018	2021
Domestic Total		**369,400**	**273,336**	**266,000**	**308,400**	**328,000**	**359,400**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Air Carrier		**217,800**	**195,540**	**193,400**	**227,400**	**241,600**	**264,400**	**59.0%**	**71.5%**	**72.7%**	**73.7%**	**73.7%**	**73.6%**
Wide Body Jet		**12,570**	**2,777**	**2,790**	**3,080**	**3,150**	**3,240**	**3.4%**	**1.0%**	**1.0%**	**1.0%**	**1.0%**	**0.9%**
B747-400	373	6	-	-	-	-	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
B747	372	727	-	-	-	-	-	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
A330-200	305	-	-	-	-	796	2,048	0.0%	0.0%	0.0%	0.0%	0.2%	0.6%
A330-300	298	-	-	2	-	-	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
DC10	279	5,877	-	-	-	-	-	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%
B777	258	1,179	-	-	-	-	-	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
B767-400	246	-	4	2	-	-	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
B767-300	240	4,115	2,621	2,699	2,997	2,303	-	1.1%	1.0%	1.0%	1.0%	0.7%	0.0%
B767	214	664	152	87	83	51	-	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%
B787	202	-	-	-	-	-	1,192	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%
B767-200	168	2	-	-	-	-	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Narrow Body Jet		**205,230**	**192,763**	**190,610**	**224,320**	**238,450**	**261,160**	**55.6%**	**70.5%**	**71.7%**	**72.7%**	**72.7%**	**72.7%**
B757-300	226	-	6,179	3,570	6,843	7,287	8,002	0.0%	2.3%	1.3%	2.2%	2.2%	2.2%
B757	183	28,559	9,363	6,915	793	-	-	7.7%	3.4%	2.6%	0.3%	0.0%	0.0%
A321	183	-	2,116	1,053	2,619	2,789	3,062	0.0%	0.8%	0.4%	0.8%	0.9%	0.9%
B757-200	182	-	9,067	6,264	-	-	-	0.0%	3.3%	2.4%	0.0%	0.0%	0.0%
B737-900	172	-	15,161	7,882	18,689	19,901	21,855	0.0%	5.5%	3.0%	6.1%	6.1%	6.1%
B727	170	680	-	-	-	-	-	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
B737-800 (Winglets)	157	-	42,417	32,811	61,148	76,453	88,469	0.0%	15.5%	12.3%	19.8%	23.3%	24.6%
B737-800	155	5,716	7,336	9,919	20,335	22,510	24,970	1.5%	2.7%	3.7%	6.6%	6.9%	6.9%
MD90	150	8	977	612	-	-	-	0.0%	0.4%	0.2%	0.0%	0.0%	0.0%
B727-200	149	4,509	-	-	-	-	-	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%
B737-400 (Mixed Config)	148	-	1,408	1,490	812	-	-	0.0%	0.5%	0.6%	0.3%	0.0%	0.0%
A320	146	10,194	14,922	17,350	38,537	41,036	45,064	2.8%	5.5%	6.5%	12.5%	12.5%	12.5%
B737-400	144	40,001	21,757	38,530	12,548	3,577	-	10.8%	8.0%	14.5%	4.1%	1.1%	0.0%
MD83	140	-	8,044	5,430	-	-	-	0.0%	2.9%	2.0%	0.0%	0.0%	0.0%
MD80	140	53,951	-	2,771	-	-	-	14.6%	0.0%	1.0%	0.0%	0.0%	0.0%
A319/320	132	-	136	-	-	-	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
B737-300	137	34,689	10,137	10,254	5,470	2,385	-	9.4%	3.7%	3.9%	1.8%	0.7%	0.0%
B737-700	131	14,519	32,299	33,071	43,603	49,968	55,962	3.9%	11.8%	12.4%	14.1%	15.2%	15.6%
A319	124	5,221	8,016	7,529	10,177	10,837	11,901	1.4%	2.9%	2.8%	3.3%	3.3%	3.3%
B737-700 (Winglets)	124	-	2	-	-	-	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
B737-500	122	5,288	2,108	2,779	1,143	-	-	1.4%	0.8%	1.0%	0.4%	0.0%	0.0%
A318	120	-	295	137	-	-	-	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%
B737 (Advanced)	114	753	-	-	-	-	-	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
B737 (Mixed Config)	111	1,142	-	-	-	-	-	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
B717	99	-	614	-	-	-	-	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%
E190	98	-	409	2,243	1,603	1,707	1,875	0.0%	0.1%	0.8%	0.5%	0.5%	0.5%
Commuter		**151,600**	**77,796**	**72,600**	**81,000**	**86,400**	**95,000**	**41.0%**	**28.5%**	**27.3%**	**26.3%**	**26.3%**	**26.4%**
Large Regional Jet		**27,090**	**13,467**	**10,910**	**14,540**	**15,510**	**17,050**	**7.3%**	**4.9%**	**4.1%**	**4.7%**	**4.7%**	**4.7%**
CRJ-900	70	-	956	2,591	3,453	3,684	4,049	0.0%	0.3%	1.0%	1.1%	1.1%	1.1%
CRJ-700	68	-	12,511	8,319	11,087	11,826	13,001	0.0%	4.6%	3.1%	3.6%	3.6%	3.6%
F28	60	27,090	-	-	-	-	-	7.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Small Regional Jet		**-**	**463**	**290**	**560**	**590**	**650**	**0.0%**	**0.2%**	**0.1%**	**0.2%**	**0.2%**	**0.2%**
CRJ-200	50	-	463	290	560	590	650	0.0%	0.2%	0.1%	0.2%	0.2%	0.2%
Turboprop/prop		**124,510**	**63,866**	**61,400**	**65,900**	**70,300**	**77,300**	**33.7%**	**23.4%**	**23.1%**	**21.4%**	**21.4%**	**21.5%**
DHC8-400	74	-	52,431	52,692	65,900	70,300	77,300	0.0%	19.2%	19.8%	21.4%	21.4%	21.5%
DHC8-100/200	37	72,827	-	-	-	-	-	19.7%	0.0%	0.0%	0.0%	0.0%	0.0%
EMB-120	30	40,604	7,716	8,708	-	-	-	11.0%	2.8%	3.3%	0.0%	0.0%	0.0%
Cessna (Single Turboprop)	11	11,079	-	-	-	-	-	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Cessna (Light Aircraft)	8	-	3,719	-	-	-	-	0.0%	1.4%	0.0%	0.0%	0.0%	0.0%

Sources: Airport Records; *Official Airline Guide*; Landrum & Brown analysis

Over the forecast period, wide-body jet activities at Sea-Tac Airport are expected to decline from 1.0 percent in 2009 to 0.9 percent in 2021. Narrow-body jet operations are expected to continue to account for the largest share of domestic passenger aircraft fleet in 2021.

- B737-400s operated by Alaska Airlines will continue to be replaced with B737-800s.
- B737-300s and B737-500s operated by Southwest Airlines will continue to be replaced with B737-700s.

- B737-300s and B737-500s operated by United Airlines were replaced with A319s in 2009. B757-200s operated by United are expected to be replaced with A320s by 2018.
- B757-200s operated by Delta are expected to be replaced with B787-800s and B737-800s. MD90 operated by Delta will be replaced with A320s by 2018.
- MD80 operated by American Airlines will be replaced with B737-800s by 2018.
- B767-300s operated by Hawaiian Airlines are expected to be replaced with A330-200s by 2021.

Domestic commuter aircraft fleet is expected to remain relatively the same as the 2009 fleet. Alaska Airlines replaced all of the Dash 8-100/200 (37 seat-aircraft) with Q400 (74 seat-aircraft) at Sea-Tac Airport in 2009. Q400 aircraft operated by Alaska Airlines are expected to continue to account for the largest share of more than 85 percent of domestic commuter aircraft through 2021. EMB 120 operated by United Express (SkyWest) at Sea-Tac Airport is expecting to be replaced with CRJ-700 aircraft by 2013.

Table 2-13 presents international commercial passenger operations by aircraft type. The international passenger aircraft fleet is expected to remain generally unchanged and commuter aircraft will continue to account for the largest share of international passenger aircraft fleet.

In 2010, Northwest/Delta is replacing all of the A330-200 aircraft from its international fleet at Sea-Tac Airport with A330-300 and B767 aircraft. Alaska Airlines continues to replace B737-400 with B737-800. Other airlines will continue using the same aircraft fleets.

Table 2-13
INTERNATIONAL PASSENGER OPERATION FLEET MIX
Seattle-Tacoma International Airport

Aircraft Type	Acft. Gauge	Aircraft Operations						% of International Operations					
		2000	2009	2010	2016	2018	2021	2000	2009	2010	2016	2018	2021
International Total		**42,200**	**28,534**	**28,400**	**37,000**	**38,000**	**39,800**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Air Carrier		**9,600**	**9,742**	**9,800**	**13,400**	**14,000**	**15,000**	**22.7%**	**34.1%**	**34.5%**	**36.2%**	**36.8%**	**37.7%**
Wide Body Jet		**7,810**	**6,551**	**7,250**	**9,370**	**9,790**	**10,490**	**18.5%**	**23.0%**	**25.5%**	**25.3%**	**25.8%**	**26.4%**
B747	372	3,152	174	207	238	245	257	7.5%	0.6%	0.7%	0.6%	0.6%	0.6%
747-400 (Mixed Config)	367	352	-	-	-	-	-	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%
B777-300ER	316	-	282	305	372	389	418	0.0%	1.0%	1.1%	1.0%	1.0%	1.1%
B777-200	301	-	479	494	641	667	710	0.0%	1.7%	1.7%	1.7%	1.8%	1.8%
B747-400	299	69	493	423	902	944	1,014	0.2%	1.7%	1.5%	2.4%	2.5%	2.5%
DC10	273	1,428	-	-	-	-	-	3.4%	0.0%	0.0%	0.0%	0.0%	0.0%
A330-300	273	-	1,740	2,110	2,907	3,043	3,270	0.0%	6.1%	7.4%	7.9%	8.0%	8.2%
A340-300	272	-	316	81	131	223	348	0.0%	1.1%	0.3%	0.4%	0.6%	0.9%
B777	268	1,697	1,644	1,499	1,833	1,915	2,052	4.0%	5.8%	5.3%	5.0%	5.0%	5.2%
B767-300	244	814	-	-	-	-	-	1.9%	0.0%	0.0%	0.0%	0.0%	0.0%
A330	222	-	333	319	430	454	494	0.0%	1.2%	1.1%	1.2%	1.2%	1.2%
A330-200	219	-	912	528	569	500	413	0.0%	3.2%	1.9%	1.5%	1.3%	1.0%
B767	214	298	-	833	1,113	1,165	1,251	0.7%	0.0%	2.9%	3.0%	3.1%	3.1%
B757-200 (Winglets)	189	-	178	451	234	245	263	0.0%	0.6%	1.6%	0.6%	0.6%	0.7%
Narrow Body Jet		**1,790**	**3,191**	**2,550**	**4,030**	**4,210**	**4,510**	**4.2%**	**11.2%**	**9.0%**	**10.9%**	**11.1%**	**11.3%**
B757-300	236	-	14	-	-	-	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
B757-200	182	-	-	2	-	-	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
A321	176	-	6	-	-	-	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
B737-900	172	-	609	229	803	842	902	0.0%	2.1%	0.8%	2.2%	2.2%	2.3%
B737-800 (Winglets)	157	-	922	439	1,155	1,309	1,474	0.0%	3.2%	1.5%	3.1%	3.4%	3.7%
B737-800	150	-	10	-	443	463	497	0.0%	0.0%	0.0%	1.2%	1.2%	1.2%
A320	146	418	-	-	-	-	-	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%
B737-400	144	513	120	557	159	55	-	1.2%	0.4%	2.0%	0.4%	0.1%	0.0%
MD80	140	323	-	-	-	-	-	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%
B737	124	-	395	20	-	-	-	0.0%	1.4%	0.1%	0.0%	0.0%	0.0%
B737-700	124	137	274	425	362	378	406	0.3%	1.0%	1.5%	1.0%	1.0%	1.0%
A319	120	399	-	-	-	-	-	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%
E190	93	-	841	878	1,108	1,163	1,231	0.0%	2.9%	3.1%	3.0%	3.1%	3.1%
Commuter		**32,600**	**18,792**	**18,600**	**23,600**	**24,000**	**24,800**	**77.3%**	**65.9%**	**65.5%**	**63.8%**	**63.2%**	**62.3%**
Large Regional Jet		**4,720**	**2,890**	**2,000**	**1,820**	**1,850**	**1,910**	**11.2%**	**10.1%**	**7.0%**	**4.9%**	**4.9%**	**4.8%**
CRJ-700	70	-	2,890	2,000	1,820	1,850	1,910	0.0%	10.1%	7.0%	4.9%	4.9%	4.8%
F28	60	4,720	-	-	-	-	-	11.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Small Regional Jet		**-**	**1,298**	**1,300**	**1,680**	**1,650**	**1,690**	**0.0%**	**4.5%**	**4.6%**	**4.5%**	**4.3%**	**4.2%**
CRJ-200	50	-	1,298	1,300	1,680	1,650	1,690	0.0%	4.5%	4.6%	4.5%	4.3%	4.2%
Turboprop		**27,880**	**14,604**	**15,300**	**20,100**	**20,500**	**21,200**	**66.1%**	**51.2%**	**53.9%**	**54.3%**	**53.9%**	**53.3%**
DHC8-400	74	-	11,007	11,619	15,573	15,883	16,425	0.0%	38.6%	40.9%	42.1%	41.8%	41.3%
DHC8-300	50	3,587	3,597	3,681	4,527	4,617	4,775	8.5%	12.6%	13.0%	12.2%	12.2%	12.0%
DHC8-100/200	37	19,564	-	-	-	-	-	46.4%	0.0%	0.0%	0.0%	0.0%	0.0%
DHC8-100	37	506	-	-	-	-	-	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%
EMB-120	30	4,223	-	-	-	-	-	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Sources: Airport Records; *Official Airline Guide*; Landrum & Brown analysis

2.3 AIR CARGO

This chapter presents an overview of the air cargo industry, historical trends in air cargo at Sea-Tac Airport, and air cargo forecasts for the key years of 2018 and 2021, with 2009 as the base year.

2.3.1 AIR CARGO INDUSTRY

The air cargo industry has experienced many changes in the last decade. The general U.S. economic downturn that began in 2000 adversely affected U.S. air cargo activity. After the terrorist attacks of September 11, 2001, cargo activity in the U.S. was immediately impacted. Critical impacts included an increased use of trucks, an escalation of insurance costs, consolidation among smaller firms, failure of many small cargo airlines and smaller support firms, higher security costs, longer processing time because of security, and increased available freighter capacity which drove down rates. The cargo industry recovered by 2003 and posted strong growth for several years.

Growth in U.S. air cargo activity began to slow down in 2006 as the price of oil began to rise to record high levels (ultimately peaking at $145 per barrel in July 2008), causing shipping by other modes to become more attractive. While oil prices declined significantly in the 4th quarter of 2008, economic activity deteriorated in late 2008 and the resulting global recession limited the positive impact of the lower oil prices. In fact, FedEx, the largest all-cargo carrier at Sea-Tac Airport experienced a decrease in domestic volumes in 2008 and in 2009. FedEx reports on a fiscal year ending May 31. FedEx Express average daily domestic volumes for Fiscal Year 2009 (June 1, 2008 through May 31, 2009) were down 13 percent over Fiscal Year 2008. Average daily international volumes declined by only 2.4 percent in Fiscal Year 2009, but the international segment makes up only about one third of the average daily total volumes. Average daily domestic volumes for the first three quarters of Fiscal Year 2010 (June 1, 2009 through February 28, 2010) were down only 1.6 percent over the same period last year.[7] **Exhibit 2-3** illustrates the historical growth by U.S. cargo carriers as measured in revenue ton miles (RTMs). U.S. revenue ton miles declined 3 percent from 2007 to 2008 and declined 21 percent between 2008 and 2009.

The impact of high oil prices and the economic recession is not limited to the U.S. According to Boeing statistics, growth in world air cargo traffic in the 2005 to 2007 timeframe marked "the weakest growth period for the industry since the first Gulf War, 1990-1992."[8] World air cargo traffic, as measured in revenue ton kilometers (RTKs), increased by 1.7 percent in 2005, 3.2 percent in 2006, and 5.1 percent in 2007. Although growth in world cargo traffic in 2005 to 2007 was slower than in the past, it was still positive growth. Worldwide cargo activities for 2008 and 2009 were not available at the time of this analysis, however, early reports from the carriers "point to either continuing weak or negative growth."[9]

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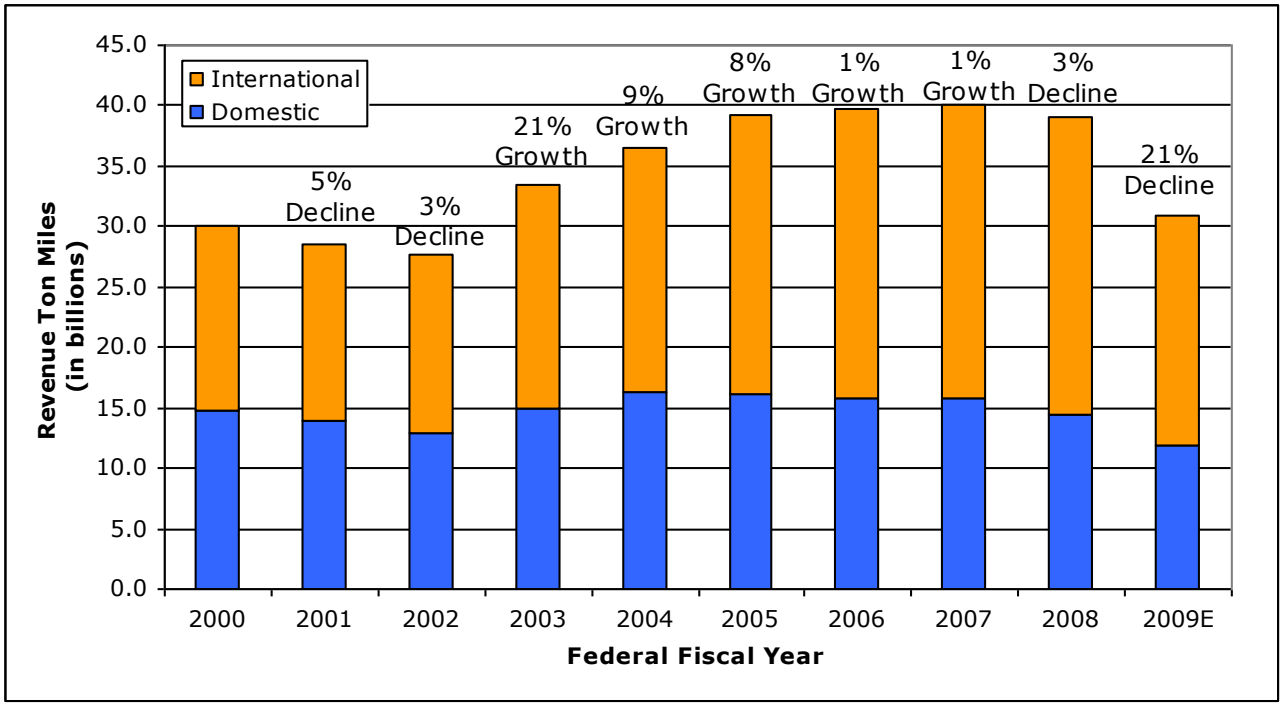
7 *FedEx Corporation Financial and Operating Statistics, Third Quarter Fiscal 2010*, March 18, 2010
8 Boeing *World Air Cargo Forecast 2008-2009*, Introduction
9 Boeing *World Air Cargo Forecast 2008-2009*, Introduction

Exhibit 2-3
HISTORICAL REVENUE TON MILES
U.S. COMMERCIAL CARGO CARRIERS

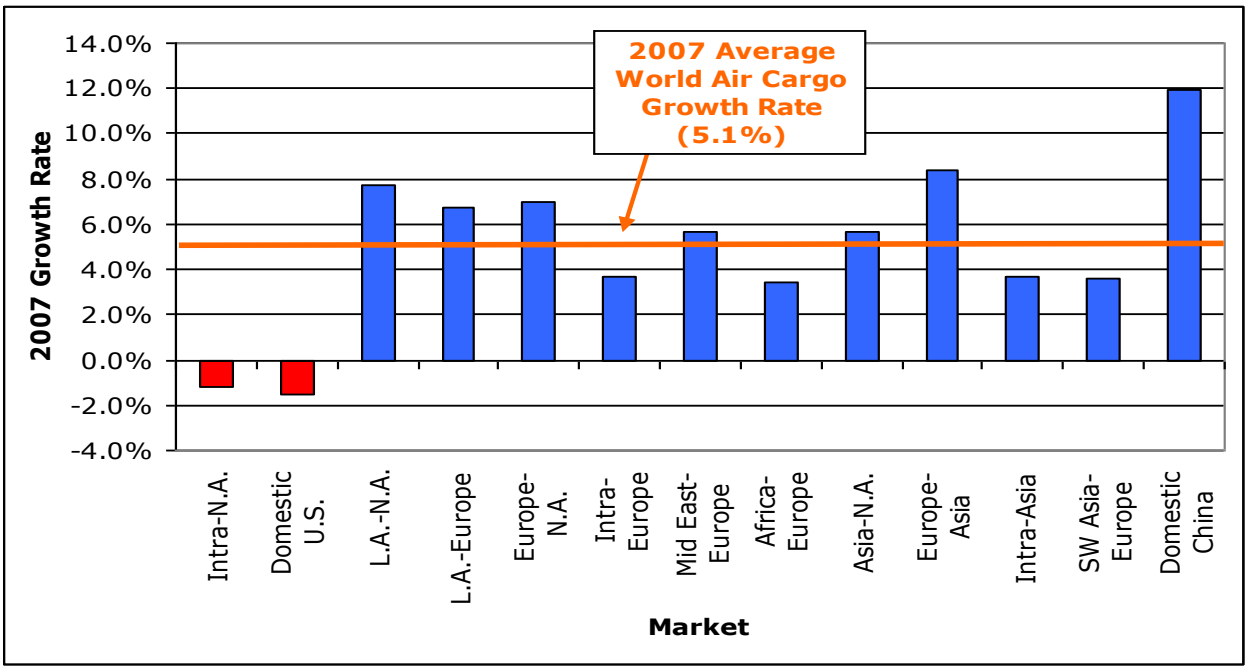


H:\STL\Aviation Forecast\Cargo Forecast\[Other cargo forecasts.xls]comp to STL

Sources: *FAA Aerospace Forecast*, Fiscal Years 2009-2025 and 2010–2030; Landrum & Brown analysis

In contrast, intra-North America cargo traffic shrunk by 1.2 percent and the domestic U.S. market declined by 1.5 percent in 2007 (see **Exhibit 2-4**). International shipments to and from the U.S. increased as the Latin America-North America, Europe-North America, and Asia-North America markets all experienced growth in 2007 that exceeded the world average. The highest growth market in 2007 was the domestic China market (almost 12 percent growth over 2006).

Exhibit 2-4
2007 AIR CARGO GROWTH BY MAJOR MARKET
(Revenue Ton Kilometers)



Sources: *Boeing World Air Cargo Forecast 2008-2009*; Landrum & Brown analysis

2.3.2 HISTORICAL AIR CARGO TRAFFIC

Air cargo volumes handled at Sea-Tac Airport increased at an average growth rate of 3.8 percent per year from 313,460 metric tons in 1990 to 456,920 metric tons in 2000. Since 2000, air cargo tonnage at Sea-Tac Airport has been declining; reaching 269,337 metric tons in 2009 (see **Table 2-14**). Domestic air cargo accounted for more than 70 percent of the traffic at Sea-Tac Airport. In 2009, about 65 percent of air cargo at Sea-Tac Airport was carried by all-cargo operators while the remainder was transported in the belly compartments of passenger aircraft. Belly cargo declined significantly between 2004 and 2009 at an average annual rate of 7.6 percent per year. All-cargo tonnage has been declining at a slower rate of just 3.3 percent per year over the same period.

Table 2-14
AIR CARGO TONNAGE (FREIGHT & MAIL; IN METRIC TONS)
Seattle-Tacoma International Airport

	Air Cargo (in metric tons)			Percent
Year	Total	Belly	All-cargo	All-cargo
1990	313,460	n.a.	n.a.	
1995	408,198	n.a.	n.a.	
2000	456,920	n.a.	n.a.	
2001	401,535	n.a.	n.a.	
2002	374,753	n.a.	n.a.	
2003	351,418	n.a.	n.a.	
2004	347,517	140,224	207,293	59.6%
2005	338,590	132,800	205,790	60.8%
2006	341,984	125,465	216,519	63.3%
2007	319,013	120,872	198,141	62.1%
2008	290,768	107,977	182,791	62.9%
2009	269,337	94,471	174,866	64.9%
Average Annual Growth Rates:				
1990-2000	3.8%			
2000-2009	-5.7%			
2004-2009	-5.0%	-7.6%	-3.3%	1.7%
1990-2009	-0.8%			

Note: Belly/all-cargo splits estimated based on "*All-cargo and total landed weight by airline*" airport records.

Sources: Airport Records; Landrum & Brown analysis

Table 2-15 presents freight tonnage by operation type and airline. According to airport records, FedEx is the largest all-cargo operator at Sea-Tac Airport and accounted for 42.4 percent of total freight handled in 2009. Alaska is the largest belly cargo operator and accounted for 10.7 percent of total freight in 2009. Nearly 80 percent of Alaska's total freight was carried in the belly of passenger flights.

Table 2-15
FREIGHT TONNAGE BY AIRLINE (IN METRIC TONS)
Seattle-Tacoma International Airport

		All-Cargo Freight Tonnage						2009	AAG
Rank	Airline	2004	2005	2006	2007	2008	2009	% Share	04-09
1	Fedex	106,791	114,379	114,485	112,586	103,417	97,695	43.3%	-1.8%
2	China Airlines	5,692	5,285	4,517	5,165	4,526	10,178	4.5%	12.3%
3	Korean Airlines	-	-	8,754	14,533	12,824	9,873	4.4%	n.a.
4	Cargolux	13,057	12,607	13,333	13,414	11,800	9,353	4.1%	-6.5%
5	EVA Air	315	189	101	323	5,931	6,883	3.0%	85.3%
6	Alaska	6,936	9,165	8,299	7,795	6,063	5,000	2.2%	-6.3%
7	Martinair Holland	9,020	9,371	9,390	9,167	7,129	4,996	2.2%	-11.1%
	Other	28,287	22,086	24,185	5,179	2,905	2,665	1.2%	-37.7%
	Total	**170,098**	**173,082**	**183,064**	**168,162**	**154,595**	**146,643**	**64.9%**	**-2.9%**
		Belly Freight Tonnage						**2009**	**AAG**
Rank	**Airline**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**% Share**	**04-09**
1	Alaska	23,604	20,589	17,453	15,619	16,247	19,093	8.5%	-4.2%
2	Northwest	12,568	14,113	11,360	12,261	12,052	8,492	3.8%	-7.5%
3	British Airways	8,922	6,720	7,059	8,173	8,729	6,855	3.0%	-5.1%
4	United	15,624	14,357	16,161	12,519	7,747	6,660	2.9%	-15.7%
5	Southwest	6,472	7,350	7,527	7,582	8,313	5,911	2.6%	-1.8%
6	Delta	12,034	11,707	9,314	8,227	6,799	5,603	2.5%	-14.2%
7	Lufthansa	-	-	-	-	3,124	4,113	1.8%	n.a.
8	Hawaiian	5,059	5,201	4,944	5,290	4,945	3,811	1.7%	-5.5%
9	Continental	4,002	3,746	3,905	3,994	3,123	3,289	1.5%	-3.8%
10	Air France	-	-	-	1,645	2,978	3,129	1.4%	n.a.
	Other	26,779	27,910	28,356	27,274	17,264	12,268	5.4%	-14.5%
	Total	**115,064**	**111,693**	**106,079**	**102,584**	**91,321**	**79,224**	**35.1%**	**-7.2%**
Total Freight Tonnage		**285,162**	**284,775**	**289,143**	**270,746**	**245,916**	**225,867**	**100.0%**	**-4.6%**

Notes: Freight tonnage does not include mail; Belly/all-cargo splits are estimated based on carrier detail from airport records
AAG= average annual growth rates

Sources: Airport Records; Landrum & Brown analysis

2.3.3 AIR CARGO TONNAGE FORECAST

The FAA, Boeing, and Airbus forecasts expect domestic growth to range from 2.6 percent to 3.0 percent annually. The Boeing forecast predicts the U.S. domestic market will grow at a rate of 2.9 percent annually between 2007 and 2017 and 2.3 percent through 2027 in the base scenario. All-cargo and belly tonnages were forecast separately.

All-cargo tonnage was divided into FedEx and other. In 2010, cargo tonnage at Sea-Tac Airport is expected to remain at the 2009 level. Cargo tonnage handled by FedEx is expected to increase at Boeing growth rates and half of the Boeing growth rate is expected for other all-cargo operators. By applying the growth rates, all-cargo tonnage is expected to reach 223,700 metric tons in 2021 averaging an annual growth rate of 2.1 percent between 2009 and 2021 (see **Table 2-16**).

Air cargo tons per operation are expected to remain at the 2009 level throughout the forecast period. As a result, cargo operations are forecast to increase to 12,140 in 2021 with an average annual growth rate of 1.8 percent.

Table 2-16
ALL- CARGO FORECAST (FREIGHT & MAIL; IN METRIC TONS)
Seattle-Tacoma International Airport

		All-cargo Tonnage			Tons per operation			All-cargo operations		
	Year	FedEx	Other	Total	FedEx	Other	Total	FedEx	Other	Total
Actual	2004	130,142	77,151	207,293	22.0	11.6	16.5	5,904	6,678	12,582
	2005	135,994	69,796	205,790	21.0	12.8	17.3	6,470	5,432	11,902
	2006	135,407	81,112	216,519	21.0	14.3	17.8	6,460	5,670	12,130
	2007	132,657	65,484	198,141	20.6	16.5	19.0	6,426	3,978	10,404
	2008	122,279	60,512	182,791	19.6	18.0	19.0	6,240	3,366	9,606
	2009	116,497	58,369	174,866	19.8	14.8	17.8	5,874	3,942	9,816
Forecast	2010	116,500	58,400	174,900	19.9	14.8	17.8	5,860	3,940	9,800
	2016	138,400	63,700	202,100	20.3	14.8	18.2	6,830	4,300	11,130
	2018	145,700	65,300	211,000	20.4	14.8	18.3	7,140	4,410	11,550
	2021	156,000	67,700	223,700	20.6	14.8	18.4	7,570	4,570	12,140
Average Annual Growth Rates:										
2004-2009		-2.2%	-5.4%	-3.3%	-2.1%	5.1%	1.6%	-0.1%	-10.0%	-4.8%
2009-2016		2.5%	1.3%	2.1%	0.3%	0.0%	0.3%	2.2%	1.2%	1.8%
2016-2021		2.4%	1.2%	2.1%	0.3%	0.0%	0.3%	2.1%	1.2%	1.8%
2009-2021		2.5%	1.2%	2.1%	0.3%	0.0%	0.3%	2.1%	1.2%	1.8%

Sources: Airport Records; Landrum & Brown analysis

The share of belly cargo at Sea-Tac Airport has declined from more than 40 percent in 2004 to 35 percent in 2009. This reduction in belly cargo share is consistent with national trends. According to FAA statistics, the domestic U.S. belly cargo share has declined from 30 percent in 2000 to 14 percent in 2009. The FAA predicts that the belly cargo share for the U.S. as a whole will continue to decline and reach 10 percent in 2030 due to increases in the capacity of cargo aircraft and new security regulations.[10]

[10] *FAA Aerospace Forecasts, Fiscal Years 2010-2030*

As a result, belly cargo volumes at Sea-Tac Airport are forecast to drop to 26 percent of total air cargo tonnage by 2021. Belly cargo tonnage will decrease from 94,471 metric tons in 2009 to 77,800 tons in 2021 averaging a declining rate of 1.6 percent per year (see **Table 2-17**). The total air cargo tonnage at Sea-Tac Airport is expected to be 301,500 metric tons in 2021.

Table 2-17
TOTAL CARGO TONNAGE (FREIGHT & MAIL; IN METRIC TONS)
Seattle-Tacoma International Airport

		Total Tonnage			
	Year	All-cargo	Belly	Total	% Belly
Actual	2004	207,293	140,224	347,517	40.4%
	2005	205,790	132,800	338,590	39.2%
	2006	216,519	125,465	341,984	36.7%
	2007	198,141	120,872	319,013	37.9%
	2008	182,791	107,977	290,768	37.1%
	2009	174,866	94,471	269,337	35.1%
Forecast	2010	174,900	93,000	267,900	34.7%
	2016	202,100	84,400	286,500	29.5%
	2018	211,000	81,700	292,700	27.9%
	2021	223,700	77,800	301,500	25.8%
Average Annual Growth Rates:					
2004-2009		-3.3%	-7.6%	-5.0%	-2.8%
2009-2016		2.1%	-1.6%	0.9%	-2.5%
2016-2021		2.1%	-1.6%	1.0%	-2.6%
2009-2021		2.1%	-1.6%	0.9%	-2.5%

Sources: Airport Records; Landrum & brown analysis

2.3.4 AIR CARGO OPERATION FLEET MIX

The air cargo tonnage forecast for the all-cargo operators was used to derive the all-cargo operations forecast, based on assumptions regarding the amount of air cargo tonnage handled per operation. Historical all-cargo operations by aircraft type were analyzed to better understand the fleet mix for the all-cargo carriers at Sea-Tac Airport. Additionally, aircraft orders for FedEx, the dominant cargo carrier at Sea-Tac Airport, were analyzed to evaluate how the cargo fleet mix might evolve in the future. Ultimately, these analyses allowed for the projection of all-cargo operations by aircraft type.

FedEx currently operates mainly MD10 and Cessna 208s at Sea-Tac Airport. Based on a review of fleet plans for FedEx, no major changes in the carriers' fleet deployment at Sea-Tac Airport are expected over the forecast period. In 2008, FedEx began phasing out all its B727s and A310-200s. In addition, the five remaining DC10s will be replaced by MD10s by 2011. The Cessna 208, operated by Empire Airlines (FedEx feeder), is expected to maintain relatively the same allocation throughout the forecast period.

Based on these fleet assumptions, the share of wide-body aircraft is forecast to increase from 41 percent of cargo fleet in 2005 to 65 percent by 2021, mainly due to the larger deployment of A300s and MD-10F by FedEx. Narrow-body aircraft are expected to decline to 0.7 percent of the cargo fleet by 2021. Turboprops are expected to remain relatively the same as the 2009 level.

As a result, all-cargo operations are forecast to increase from 9,816 in 2009 to 12,140 in 2021. This increase represents a 1.8 percent average annual growth rate.

Table 2-18
ALL-CARGO OPERATION FLEET MIX
Seattle-Tacoma International Airport

	Aircraft Operations				% of Total			
Aircraft	**2005**	**2009**	**2016**	**2021**	**2005**	**2009**	**2016**	**2021**
Total	**11,902**	**9,816**	**11,130**	**12,140**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Widebody Jet	**4,920**	**5,887**	**7,270**	**7,870**	**41.3%**	**60.0%**	**65.3%**	**64.8%**
A300-600F	946	539	630	700	7.9%	5.5%	5.7%	5.8%
A310F	74	-	-	-	0.6%	0.0%	0.0%	0.0%
B747F	996	3,042	3,940	4,190	8.4%	31.0%	35.4%	34.5%
B767-200/300F	73	10	10	10	0.6%	0.1%	0.1%	0.1%
B777F	-	-	-	-	0.0%	0.0%	0.0%	0.0%
MD-10F	2,065	1,764	2,050	2,270	17.4%	18.0%	18.4%	18.7%
MD-11F	766	532	640	700	6.4%	5.4%	5.8%	5.8%
Narrowbody Jet	**3,056**	**686**	**90**	**90**	**25.7%**	**7.0%**	**0.8%**	**0.7%**
B757-200F	14	4	10	10	0.1%	0.0%	0.1%	0.1%
B727F	699	-	-	-	5.9%	0.0%	0.0%	0.0%
B737F	2,071	670	70	70	17.4%	6.8%	0.6%	0.6%
DC-9F	13	12	10	10	0.1%	0.1%	0.1%	0.1%
DC-8F	255	-	-	-	2.1%	0.0%	0.0%	0.0%
L100-30F	2	-	-	-	0.0%	0.0%	0.0%	0.0%
MD-80F	2	-	-	-	0.0%	0.0%	0.0%	0.0%
Turboprop	**3,926**	**3,243**	**3,770**	**4,180**	**33.0%**	**33.0%**	**33.9%**	**34.4%**
ANTONOV 12	3	1	-	-	0.0%	0.0%	0.0%	0.0%
ATR-42	-	186	200	220	0.0%	1.9%	1.8%	1.8%
ATR-72	-	94	100	110	0.0%	1.0%	0.9%	0.9%
BEECH 18	524	419	490	540	4.4%	4.3%	4.4%	4.4%
CESSNA 208	3,154	2,543	2,980	3,310	26.5%	25.9%	26.8%	27.3%
F-27	245	-	-	-	2.1%	0.0%	0.0%	0.0%

Sources: Airport Records; USDOT, Schedule T-100; Landrum & Brown analysis

2.4 AIR TAXI AND GENERAL AVIATION

This section includes all operations which are not considered commercial, cargo, or military operations. Air taxi activity typically includes "for hire" aircraft chartered for specific trips on an on-demand basis. Air taxi operations are usually made up of larger General Aviation (GA) aircraft, such as large turboprop aircraft and an array of corporate jets. GA activity includes diverse uses that can range from recreational flying, flight training activities, business travel, news reporting, traffic observation, police patrol, emergency medical flights, and even crop dusting.

Air taxi and general aviation operations can be subdivided into two major subcategories: "itinerant" and "local" based on FAA classifications. Local operations are defined by the FAA as "operations remaining in the local traffic pattern, simulated instrument approaches at the Airport…and operations to or from the Airport and a practice area within a 20-mile radius of the tower."[11] Itinerant operations are all operations not classified as "local".

2.4.1 NATIONAL TRENDS

The FAA's forecast[12] projects the following trends in the U.S. general aviation industry from 2009 to 2030:

- The number of active general aviation aircraft is forecast to increase by 0.9 percent annually.
- Growth of 2.5 percent per annum is expected in the number of general aviation hours flown.
- The number of student pilots is expected to decline by 1.5 percent per annum through 2010 and then increase at a rate of 0.6 percent annually through 2030.
- General aviation operations at airports with air traffic control service are forecast to decline by 3.1 percent annually through 2010 before increasing by 1.3 percent annually through 2030.

2.4.2 HISTORICAL TRENDS

Sea-Tac Airport is a primary commercial service airport, serving 317,873 total annual operations in 2009, with air taxi and general aviation activities making up 2 percent of total operations. Air taxi and general aviation activities make up a relatively small percentage of the operations at Sea-Tac Airport because general aviation pilots often prefer not to operate at commercial service airports due to the congestion that typically occurs at these airports, the differences in approach speeds between general aviation aircraft and commercial aircraft, and wake turbulence issues.

[11] FAA Order 7210.3, Facility Operation and Administration, Section 2, Airport Operations Count
[12] *FAA Aerospace Forecast, Fiscal Years 2010-2030*

Air taxi and general aviation operations at Sea-Tac Airport declined from 18,136 in 2004 to 6,114 in 2009 (see **Table 2-19**). This represents an average decline of 19.5 percent annually. In 2009, air taxi and general aviation operations at Sea-Tac Airport were exclusively itinerant in nature. There have been no local operations recorded by the air traffic control tower since October 2007.

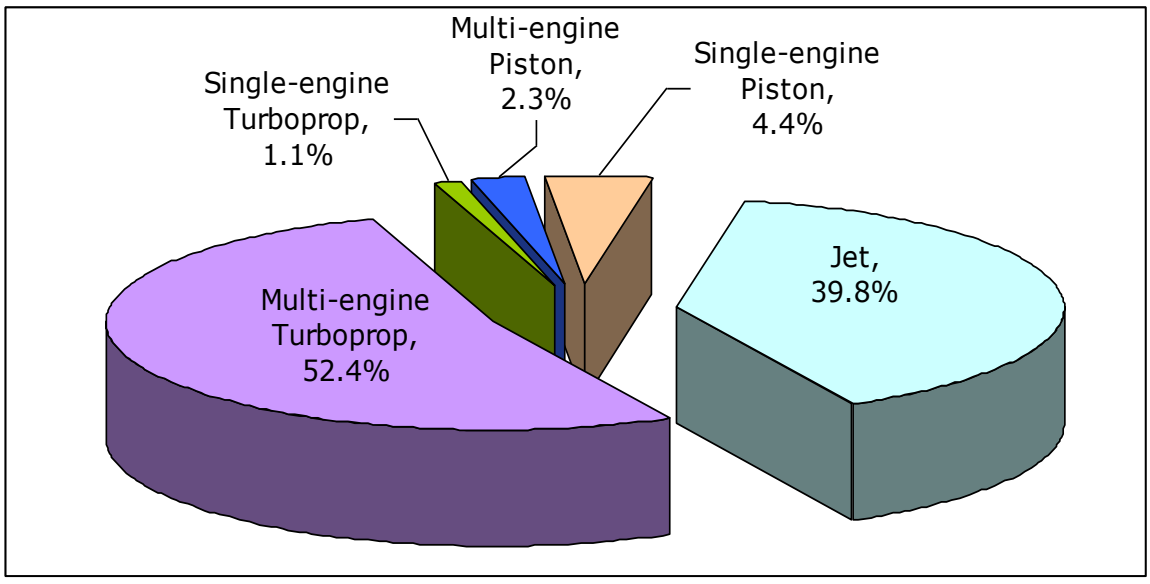
Table 2-19
HISTORICAL AIR TAXI AND GA OPERATIONS
Seattle-Tacoma International Airport

		Air Taxi and GA Operations		
	Year	Itinerant	Local	Total
Actual	2004	18,033	103	18,136
	2005	8,599	284	8,883
	2006	6,303	621	6,924
	2007	7,686	883	8,569
	2008	7,787	0	7,787
	2009	6,114	0	6,114
Average Annual Growth Rates:				
2004-2009		-19.5%	-100.0%	-19.5%

Sources: Airport Records; FAA ATADS

Exhibit 2-5 presents aircraft type allocations for air taxi and general aviation that operated at Sea-Tac Airport in 2009. Nearly 40 percent of the operations were jets and 53 percent were turboprop aircraft. The remaining 7 percent of operations were piston aircraft.

Exhibit 2-5
2009 AIR TAXI AND GA OPERATION FLEET MIX
Seattle-Tacoma International Airport



Sources: Radar data; Landrum & Brown analysis

2.4.3 AIR TAXI AND GENERAL AVIATION FORECAST

Nationally, the FAA Active Aircraft forecast in the *FAA Aerospace Forecasts, Fiscal Years 2010-2030* shows an initial decline of 0.2 percent annually in the number of active single-engine piston aircraft through 2018. The FAA expects single-engine piston aircraft to recover and grow at an average annual rate of 0.5 percent from 2018 to 2030. The number of multi-engine piston aircraft is expected to decline at an average annual rate of 0.8 percent from 2009 to 2030. Turboprops are forecast by the FAA to grow at rate of 1.4 percent annually while the number of jets is expected to grow the fastest at 4.2 percent annually.

Applying the FAA's national forecast to each aircraft type at Sea-Tac Airport results in an average annual growth rate of 2.5 percent between 2009 and 2021. Air taxi and general aviation aircraft operations are expected to reach 8,240 in 2021 (see **Table 2-20**).

Table 2-20
AIR TAXI AND GA OPERATION FLEET MIX
Seattle-Tacoma International Airport

	AT & GA Operations			% of total		
Aircraft Type	**2009**	**2018**	**2021**	**2009**	**2018**	**2021**
Jet	2,432	3,520	3,990	39.8%	46.2%	48.4%
Multi-engine Turboprop	3,206	3,630	3,780	52.4%	47.6%	45.9%
Single-engine Turboprop	68	77	80	1.1%	1.0%	1.0%
Multi-engine Piston	138	129	125	2.3%	1.7%	1.5%
Single-engine Piston	270	264	265	4.4%	3.5%	3.2%
Total	**6,114**	**7,620**	**8,240**	**100.0%**	**100.0%**	**100.0%**

Sources: Radar data; Airport Records; FAA Aerospace Forecasts Fiscal Years 2010-2030; Landrum & Brown analysis

2.5 MILITARY

Military operations ranged between 54 and 126 annually since 1996. There were 73 military operations in 2009, down from 110 in 2008. Based on an average of the past five years of military operations at Sea-Tac Airport, military operations are forecast to remain at 100 operations throughout the forecast period (see **Table 2-21**). According to radar data, there are two types of military aircraft recorded at Sea-Tac Airport in 2009: Lockheed 130 Hercules and Bombardier BD-700 Global Express. Bombardier BD-700 accounted for 75 percent of the total military operation in 2009.

Table 2-21
MILITARY OPERATIONS FORECAST
Seattle-Tacoma International Airport

	Year	Military Operations
Actual	1996	90
	1997	80
	1998	126
	1999	59
	2000	95
	2001	75
	2002	59
	2003	54
	2004	124
	2005	67
	2006	108
	2007	107
	2008	110
	2009	73
Forecast	2010	100
	2016	100
	2018	100
	2021	100
Average Annual Growth Rates:		
1996-2000		1.1%
2000-2009		-2.9%
2009-2016		4.6%
2016-2021		0.0%
2009-2021		2.7%

Sources: Airport Records; Landrum & Brown analysis

2.6 TOTAL AIRCRAFT OPERATIONS SUMMARY

Table 2-22 provides a summary of the operations forecast described in the previous sections for each of the primary components of aircraft operations at SEA. Aircraft operations are forecast to grow from 317,873 in 2009 to 419,680 in 2021, representing average annual growth of 2.3 percent.

Table 2-22
TOTAL AIRCRAFT OPERATIONS FORECAST
Seattle-Tacoma International Airport

	Calendar	Aircraft Operations				
	Year	Passenger	All-Cargo	Air Taxi & GA	Military	Total
Actual	2004	328,052	12,582	18,136	124	358,894
	2005	320,910	11,902	8,883	67	341,762
	2006	320,896	12,130	6,924	108	340,058
	2007	327,966	10,404	8,569	107	347,046
	2008	327,544	9,606	7,787	110	345,047
	2009	301,870	9,816	6,114	73	317,873
Forecast	2010	294,400	9,800	6,230	100	310,530
	2016	345,400	11,130	7,230	100	363,860
	2018	366,000	11,550	7,620	100	385,270
	2021	399,200	12,140	8,240	100	419,680
Average Annual Growth Rates:						
2004-2009		-1.6%	-4.8%	-19.5%	-10.1%	-2.4%
2009-2016		1.9%	1.8%	2.4%	4.6%	1.9%
2016-2021		2.9%	1.8%	2.6%	0.0%	2.9%
2009-2021		2.4%	1.8%	2.5%	2.7%	2.3%

Sources: Airport records; FAA, ATADS; Landrum & Brown analysis

2.5.1 COMPARISON TO FAA FORECASTS

The FAA develops Terminal Area Forecasts (TAF) on an annual basis for all active airports in the U.S. that are included in its National Plan of Integrated Airport Systems (NPIAS). The TAF is "prepared to meet the budget and planning needs of FAA and provide information for use by state and local authorities, the aviation industry, and the public."[13] The 2009 TAF was issued in December of 2009 and is compared to the Part 150 forecasts for Sea-Tac Airport in this section.

Table 2-23 provides a comparison of this Part 150 forecast with the FAA 2009 TAF for enplanements, commercial operations and total aircraft operations for the 5- and 10-year horizons. The Part 150 forecasts are within 10 percent of the 2009 TAF for the first 5 years and within 15 percent for the first 10 years.

[13] http://aspm.faa.gov/main/taf.asp

Table 2-23
AVIATION FORECASTS VERSUS FAA 2009 TAF
Seattle-Tacoma International Airport

	Year	Part 150 Forecast	2009 TAF	P150 Variance
Passenger Enplanements				
Base Yr.	2009	15,610,198	14,911,310	4.7%
Base Yr. + 5 Yrs.	2014	16,946,590	16,407,630	3.3%
Base Yr. + 10 Yrs.	2019	19,485,400	18,362,887	6.1%
Commercial Operations[1]				
Base Yr.	2009	311,686	317,420	-1.8%
Base Yr. + 5 Yrs.	2014	337,470	348,772	-3.2%
Base Yr. + 10 Yrs.	2019	388,740	386,959	0.5%
Total Operations[2]				
Base Yr.	2009	317,873	320,559	-0.8%
Base Yr. + 5 Yrs.	2014	344,420	352,012	-2.2%
Base Yr. + 10 Yrs.	2019	396,660	390,510	1.6%

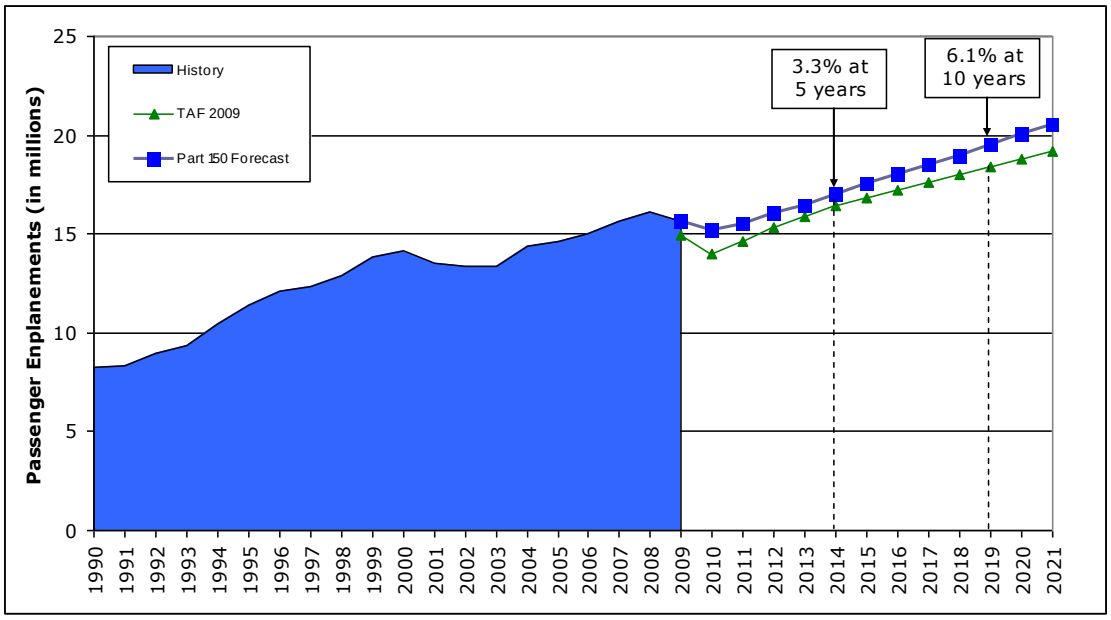
Notes: Part 150 data is on a calendar year basis. TAF data is shown on a fiscal year basis.
[1] Air taxi operations are included in the commercial operations totals for the TAF. The Part 150 forecast groups air taxi operations in the non-commercial category.
[2] Excludes overflights

Sources: Federal Aviation Administration 2009 Terminal Area Forecast; Airport Records; Landrum & Brown analysis

The 2009 TAF shows a 6 percent decline in enplanement levels in 2010 as a result of the economic recession and related decline in aviation activity, while the Part 150 forecast projects a slower decline of 3 percent in the traffic. The Part 150 Forecast expects passenger traffic will recover and grow at a slightly faster rate over the long-term compared to the 2009 TAF. The 2009 TAF predicts enplanements will increase at an average annual rate of 2.1 percent between 2009 and 2021. The Part 150 forecast projects an average annual growth rate of 2.3 percent over the same period. **Exhibit 2-6** provides a comparison between the enplanements forecast for this Part 150 forecast and the FAA 2009 TAF for Sea-Tac Airport. The difference in growth assumptions results in a 3.3 percent difference in enplanements in 2014 and a 6.1 percent difference in enplanements in 2019.

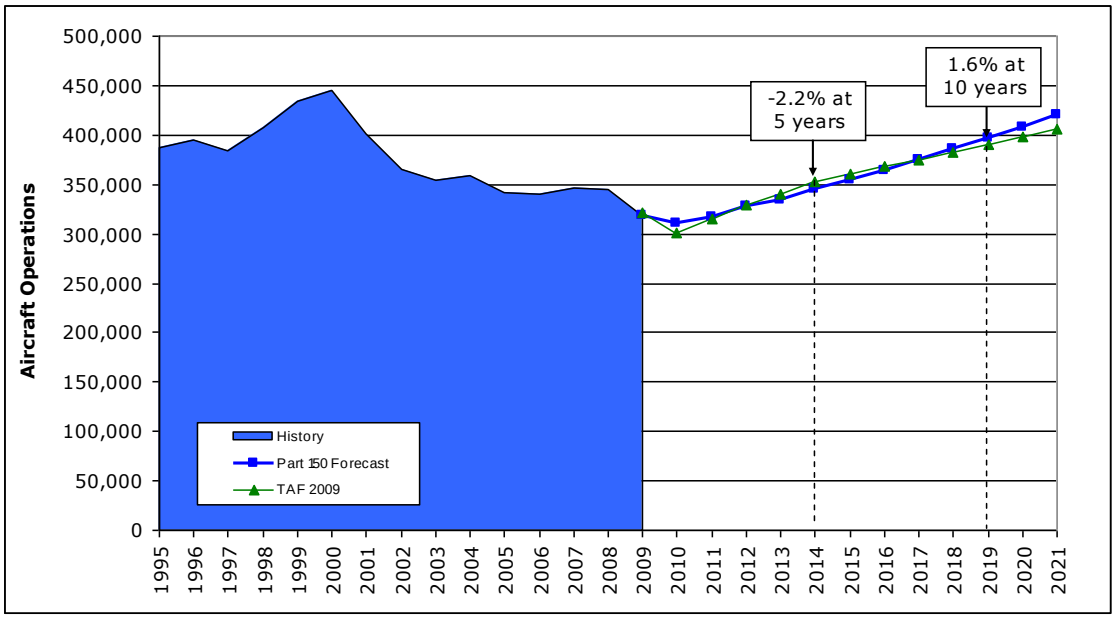
The 2009 FAA TAF predicts total aircraft operations at Sea-Tac Airport to grow 2.0 percent annually between 2009 and 2021. The Part 150 aircraft operations forecast assumes an average annual growth rate of 2.3 percent over the same period. As a result, total aircraft operations levels in the Part 150 forecast are 2.2 percent lower than the TAF in 2014 and 1.6 percent higher in 2019 (see **Exhibit 2-7**).

Exhibit 2-6
COMPARISON WITH FAA 2009 TAF – ENPLANEMENTS
Seattle-Tacoma International Airport



Sources: Federal Aviation Administration 2009 Terminal Area Forecast; Airport Records; Landrum & Brown analysis

Exhibit 2-7
COMPARISON WITH FAA 2009 TAF – OPERATIONS
Seattle-Tacoma International Airport

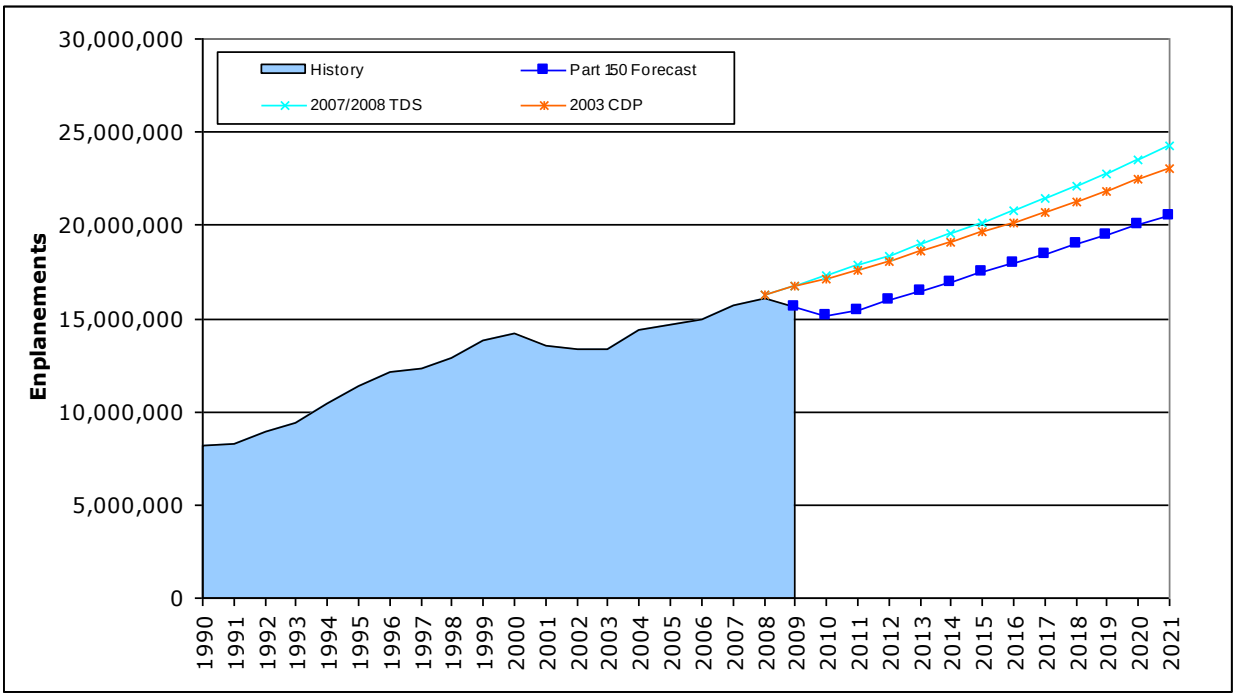


Sources: Federal Aviation Administration 2009 Terminal Area Forecast; Airport Records; Landrum & Brown analysis

2.5.2 REVIEW OF EXISTING FORECASTS

In addition to the comparison to the 2009 TAF, a review of other forecasts is also considered. There are two other forecasts reviewed and compared to the Part 150 forecast. **Exhibit 2-8** provides a comparison of passenger enplanement forecasts for 2003 CDP (Comprehensive Development Plan), 2007/2008 TDS (Terminal Development Strategy), and the Part 150 forecast. The 2003 CDP and the 2007/2008 TDS forecasts were done before the recession in 2008. Therefore, these forecasts did not reflect the traffic reduction in 2008 through 2010 or recovery period after 2010. The 2003 CDP forecast projected a 2.7 percent average annual growth rate between 2009 and 2021. The 2007/2008 TDS forecast projected a 3.1 percent average annual growth rate over the same period.

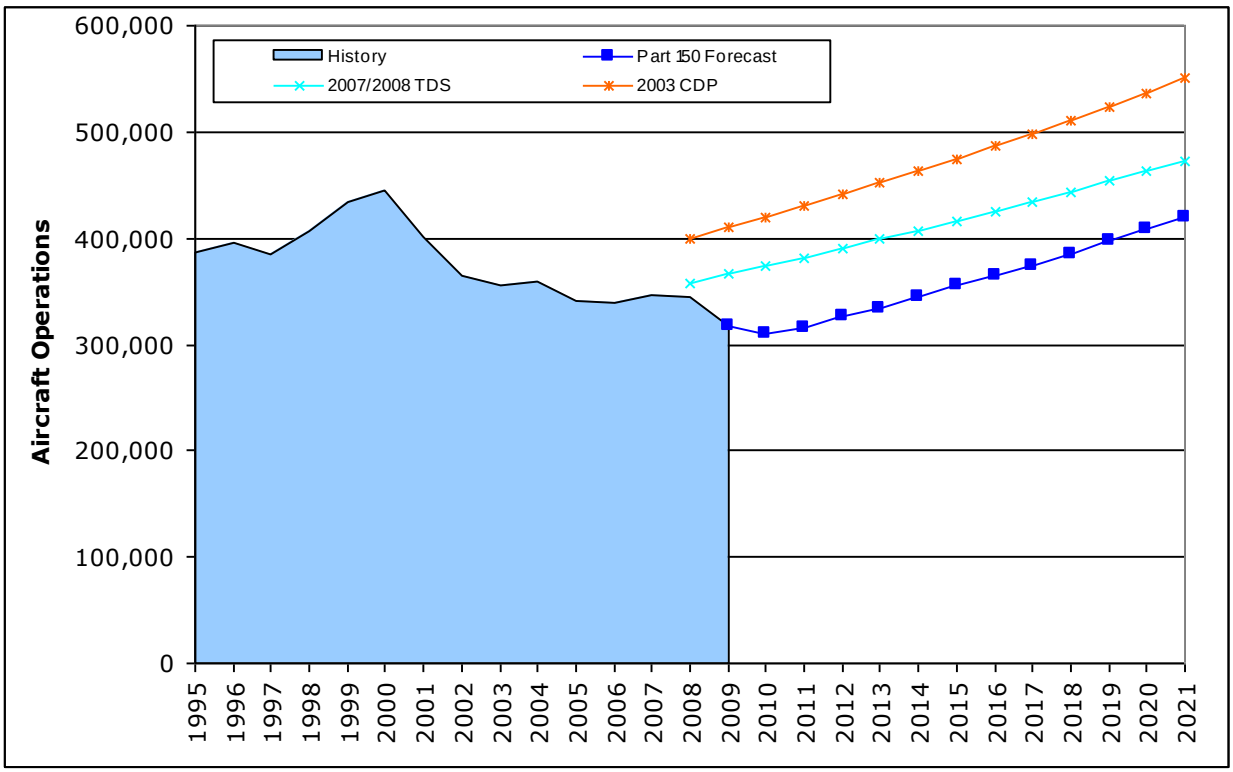
Exhibit 2-8
FORECASTS COMPARISON – ENPLANEMENTS
Seattle-Tacoma International Airport



Sources: 2007/2008 Activity and Forecasting Growth, April 1, 2008; Landrum & Brown analysis

Exhibit 2-9 provides a comparison of aircraft operation forecasts for 2003 CDP, 2007/2008 TDS, and the Part 150 forecast. The 2003 CDP and the 2007/2008 TDS forecasts projected a 2.5 percent and a 2.2 percent of average annual growth rates between 2009 and 2021 respectively. These two forecasts were well above the actual 2008 and 2009 levels. Consequently, the 2003 CDP and the 2007/2008 TDS forecasts predict much higher forecasts compared to the Part 150 forecast.

Exhibit 2-9
FORECASTS COMPARISON – OPERATIONS
Seattle-Tacoma International Airport



Sources: 2007/2008 Activity and Forecasting Growth, April 1, 2008; Landrum & Brown analysis

For purposes of ongoing business planning, the Airport maintains and periodically updates a long-range projection of aviation activity. Landrum & Brown reviewed the Airport's forecast and the underlying assumptions and determined that it was reasonable. The Part 150 forecast has a nearly identical average annual growth rate through 2015 as the Airport's business planning forecast. For the period 2018 through 2021, the Part 150 forecast is projecting more robust growth than the Airport's forecast. From a potential noise impact prospective, the Part 150 forecast is more conservative.

2.5.3 AVERAGE ANNUAL DAY HOURLY DISTRIBUTIONS

Part 150 analysis requires the classification of noise-modeled operations by daytime (7am-9:59pm) and nighttime (10pm-6:59am). In order to project daytime and nighttime operational proportions, an hourly distribution of traffic levels for the average annual day is provided in this section for each of the commercial passenger, air cargo, air taxi and general aviation, and military segments of the forecast.

Average annual day is developed based on annual aircraft operation forecasts for each segment divided by the number of days in the year. The average annual day operations for each segment are presented in **Table 2-24**. The total average annual day operations are projected to increase from 871 in 2009 to 1,151 in 2021.

Table 2-24
AVERAGE ANNUAL DAY
Seattle-Tacoma International Airport

Aircraft Operations
Seattle-Tacoma International Airport

Annual

	Calendar Year	Domestic Passenger Air Carrier Operations	Domestic Passenger Commuter Operations	International Passenger Air Carrier Operations	International Passenger Commuter Operations	Commercial Passenger Operations	All-Cargo Operations	AT & GA Operations	Military Operations	Total Operations
	2007	207,570	88,292	10,086	22,018	327,966	10,404	8,569	107	347,046
	2008	211,658	84,542	10,606	20,738	327,544	9,606	7,787	110	345,047
Base	2009	195,540	77,796	9,742	18,792	301,870	9,816	6,114	73	317,873
Forecast	2010	193,400	72,600	9,800	18,600	294,400	9,800	6,230	100	310,530
	2016	227,400	81,000	13,400	23,600	345,400	11,130	7,230	100	363,860
	2018	241,600	86,400	14,000	24,000	366,000	11,550	7,620	100	385,270
	2021	264,400	95,000	15,000	24,800	399,200	12,140	8,240	100	419,680

Average Annual Day

	Calendar Year	Domestic Passenger Air Carrier Operations	Domestic Passenger Commuter Operations	International Passenger Air Carrier Operations	International Passenger Commuter Operations	Commercial Passenger Operations	All-Cargo Operations	AT & GA Operations	Military Operations	Total Operations
	2007	569	242	28	60	899	29	23	-	951
	2008	578	231	29	57	895	26	21	-	942
Base	2009	536	213	27	51	827	27	17	-	871
Forecast	2010	530	200	28	50	808	28	16	-	852
	2016	622	221	38	64	945	30	20	-	995
	2018	662	237	38	66	1,003	32	21	-	1,056
	2021	725	260	42	68	1,095	34	22	-	1,151

Source: Landrum & Brown analysis

Hourly distribution for commercial passenger operations was derived from a flight schedule of a representative day (May 13, 2009) from *Official Airline Guide*. Radar data was used for cargo operation hourly distributions and a different day (May 12, 2009) was selected for cargo operation hourly distributions. Air taxi and general aviation operation hourly distribution was also derived from radar data of May 15, 2009. Selecting different days for each operation type can better represent an average day of the traffic at the Airport. The results show that 85 percent of total operations in 2009 were performed during daytime hours (see **Table 2-25)**. This day/night split is expected to remain at the 2009 level throughout the forecast period.

Table 2-25
AVERAGE ANNUAL DAY – DAY/NIGHT SPLITS
Seattle-Tacoma International Airport

		Domestic Passenger		International Passenger		Commercial				
		Air Carrier	Commuter	Air Carrier	Commuter	Passenger	All-Cargo	AT & GA	Military	Total
Year	Day/night	Operations	Operations	Operations	Operations	Operations	Operations	Operations	Operations	Operations
2009										
	Day	452	192	25	48	717	13	13	-	743
	Night	84	21	2	3	110	14	4	-	128
	Total	536	213	27	51	827	27	17	-	871
2016										
	Day	523	193	36	61	813	14	16	-	843
	Night	95	21	2	3	121	16	4	-	141
	Total	618	214	38	64	934	30	20	-	984
2021										
	Day	616	233	39	65	953	16	18	-	987
	Night	112	24	3	3	142	18	4	-	164
	Total	728	257	42	68	1,095	34	22	-	1,151
% Day Operations										
	2009	84.3%	90.1%	92.6%	94.1%	86.7%	48.1%	76.5%	n.a.	85.3%
	2016	84.6%	90.2%	94.7%	95.3%	87.0%	46.7%	80.0%	n.a.	85.7%
	2021	84.6%	90.7%	92.9%	95.6%	87.0%	47.1%	81.8%	n.a.	85.8%

Sources: Airport Records; Radar data; Official Airline Guide; Landrum & Brown analysis

Table 2-26 presents detailed average annual day hourly distributions for each key year broken down by each operations type.

Table 2-26
AVERAGE ANNUAL DAY – HOURLY DISTRIBUTIONS
Seattle-Tacoma International Airport

2009 Average Annual Day – Arrivals

	Domestic Passenger		International Passenger		Commercial				
2009	Air Carrier	Commuter	Air Carrier	Commuter	Passenger	All-Cargo	AT & GA	Military	Total
Hour	Arrivals	Arrivals	Arrivals	Arrivals	Arrivals	Arrivals	Arrivals	Arrivals	Arrivals
0	1	-	-	-	1	-	-	-	1
1	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-
3	1	-	-	-	1	2	-	-	3
4	1	-	-	-	1	-	-	-	1
5	5	-	-	-	5	5	-	-	10
6	1	6	-	1	8	1	-	-	9
7	3	8	1	3	15	-	-	-	15
8	7	6	1	1	15	-	-	-	15
9	14	8	1	2	25	-	-	-	25
10	20	8	-	-	28	-	-	-	28
11	20	5	3	2	30	-	-	-	30
12	15	6	1	1	23	-	-	-	23
13	18	4	1	3	26	-	1	-	27
14	17	6	-	2	25	-	-	-	25
15	10	8	-	1	19	-	-	-	19
16	15	6	1	1	23	2	-	-	25
17	11	7	-	-	18	2	1	-	21
18	17	7	1	4	29	2	1	-	32
19	14	8	2	2	26	-	-	-	26
20	23	7	1	1	32	-	2	-	34
21	22	3	1	1	27	-	3	-	30
22	18	2	-	-	20	-	-	-	20
23	15	1	-	-	16	-	1	-	17
Total	268	106	14	25	413	14	9	-	436

2009 Average Annual Day – Departures

	Domestic Passenger		International Passenger		Commercial				
2009	Air Carrier	Commuter	Air Carrier	Commuter	Passenger	All-Cargo	AT & GA	Military	Total
Hour	Departures	Departures	Departures	Departures	Departures	Departures	Departures	Departures	Departures
0	1	-	-	-	1	-	-	-	1
1	-	-	-	-	-	-	-	-	-
2	-	-	1	-	1	-	-	-	1
3	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	2	-	-	2
5	2	1	-	-	3	2	-	-	5
6	24	2	-	1	27	2	-	-	29
7	21	7	-	2	30	2	-	-	32
8	24	7	1	1	33	-	-	-	33
9	12	5	-	1	18	-	1	-	19
10	16	7	1	4	28	-	-	-	28
11	20	7	-	2	29	-	-	-	29
12	20	7	2	-	29	-	-	-	29
13	15	5	1	1	22	-	-	-	22
14	15	8	4	4	31	-	-	-	31
15	16	8	-	-	24	-	-	-	24
16	13	6	-	2	21	-	1	-	22
17	14	7	-	1	22	-	-	-	22
18	12	6	1	2	21	-	-	-	21
19	13	6	-	1	20	2	-	-	22
20	8	7	-	-	15	1	2	-	18
21	7	2	1	3	13	2	1	-	16
22	8	7	-	-	15	-	1	-	16
23	7	2	1	1	11	-	2	-	13
Total	268	107	13	26	414	13	8	-	435

2018 Average Annual Day – Arrivals

	Domestic Passenger		International Passenger		Commercial				
2016	Air Carrier	Commuter	Air Carrier	Commuter	Passenger	All-Cargo	AT & GA	Military	Total
Hour	Arrivals	Arrivals	Arrivals	Arrivals	Arrivals	Arrivals	Arrivals	Arrivals	Arrivals
0	1	-	-	-	1	-	-	-	1
1	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-
3	1	-	-	-	1	2	-	-	3
4	1	-	-	-	1	-	-	-	1
5	6	-	-	-	6	5	-	-	11
6	1	6	-	1	8	1	-	-	9
7	3	7	1	4	15	-	-	-	15
8	8	6	2	1	17	-	-	-	17
9	16	8	1	3	28	-	-	-	28
10	25	8	-	-	33	-	-	-	33
11	24	5	4	2	35	-	-	-	35
12	17	6	2	1	26	-	-	-	26
13	20	4	1	4	29	-	1	-	30
14	19	6	-	3	28	-	-	-	28
15	11	9	-	1	21	-	-	-	21
16	17	6	1	1	25	2	-	-	27
17	12	7	-	-	19	2	1	-	22
18	19	7	1	6	33	3	1	-	37
19	16	9	3	3	31	-	1	-	32
20	28	7	2	1	38	-	2	-	40
21	27	4	1	1	33	-	3	-	36
22	20	2	-	-	22	-	-	-	22
23	17	1	-	-	18	-	1	-	19
Total	309	108	19	32	468	15	10	-	493

2018 Average Annual Day – Departures

	Domestic Passenger		International Passenger		Commercial				
2016	Air Carrier	Commuter	Air Carrier	Commuter	Passenger	All-Cargo	AT & GA	Military	Total
Hour	Departures	Departures	Departures	Departures	Departures	Departures	Departures	Departures	Departures
0	1	-	-	-	1	-	-	-	1
1	-	-	-	-	-	-	-	-	-
2	-	-	1	-	1	-	-	-	1
3	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	2	-	-	2
5	2	1	-	-	3	3	-	-	6
6	28	2	-	1	31	3	-	-	34
7	25	6	-	3	34	2	-	-	36
8	28	7	2	1	38	-	-	-	38
9	14	5	-	1	20	-	1	-	21
10	18	7	1	5	31	-	-	-	31
11	24	7	-	3	34	-	-	-	34
12	24	7	3	-	34	-	-	-	34
13	17	5	2	1	25	-	-	-	25
14	17	7	6	5	35	-	-	-	35
15	18	9	-	-	27	-	1	-	28
16	15	6	-	3	24	-	1	-	25
17	16	7	-	1	24	-	-	-	24
18	14	6	1	2	23	-	-	-	23
19	15	6	-	1	22	2	-	-	24
20	9	7	-	-	16	1	3	-	20
21	7	2	2	4	15	2	1	-	18
22	9	7	-	-	16	-	1	-	17
23	8	2	1	1	12	-	2	-	14
Total	309	106	19	32	466	15	10	-	491

2021 Average Annual Day – Arrivals

	Domestic Passenger		International Passenger		Commercial				
2021	Air Carrier	Commuter	Air Carrier	Commuter	Passenger	All-Cargo	AT & GA	Military	Total
Hour	Arrivals	Arrivals	Arrivals	Arrivals	Arrivals	Arrivals	Arrivals	Arrivals	Arrivals
0	1	-	-	-	1	-	-	-	1
1	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-
3	1	-	-	-	1	3	-	-	4
4	1	-	-	-	1	-	-	-	1
5	7	-	-	-	7	5	-	-	12
6	1	7	-	1	9	1	-	-	10
7	4	9	1	4	18	-	-	-	18
8	9	7	1	1	18	-	-	-	18
9	18	9	1	3	31	-	-	-	31
10	29	9	-	-	38	-	-	-	38
11	28	7	5	3	43	-	-	-	43
12	21	8	2	1	32	-	-	-	32
13	24	5	2	4	35	-	1	-	36
14	22	8	-	3	33	-	-	-	33
15	13	11	-	1	25	-	-	-	25
16	20	7	2	1	30	2	-	-	32
17	15	8	-	-	23	3	1	-	27
18	22	8	1	7	38	3	1	-	42
19	18	10	3	3	34	-	1	-	35
20	33	8	2	1	44	-	2	-	46
21	32	4	1	1	38	-	4	-	42
22	24	2	-	-	26	-	-	-	26
23	20	1	-	-	21	-	1	-	22
Total	363	128	21	34	546	17	11	-	574

2021 Average Annual Day – Departures

	Domestic Passenger		International Passenger		Commercial				
2021	Air Carrier	Commuter	Air Carrier	Commuter	Passenger	All-Cargo	AT & GA	Military	Total
Hour	Departures	Departures	Departures	Departures	Departures	Departures	Departures	Departures	Departures
0	1	-	-	-	1	-	-	-	1
1	-	-	-	-	-	-	-	-	-
2	-	-	2	-	2	-	-	-	2
3	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	3	-	-	3
5	3	1	-	-	4	3	-	-	7
6	33	2	-	1	36	3	-	-	39
7	29	8	-	3	40	3	-	-	43
8	33	8	2	1	44	-	-	-	44
9	16	7	-	1	24	-	1	-	25
10	21	9	2	5	37	-	-	-	37
11	29	8	-	3	40	-	-	-	40
12	29	8	3	-	40	-	-	-	40
13	21	7	2	2	32	-	-	-	32
14	20	9	6	5	40	-	-	-	40
15	21	10	-	-	31	-	1	-	32
16	17	8	-	3	28	-	1	-	29
17	19	8	-	1	28	-	-	-	28
18	16	7	1	3	27	-	1	-	28
19	17	7	-	1	25	2	-	-	27
20	11	9	-	-	20	1	3	-	24
21	9	2	2	4	17	2	1	-	20
22	11	9	-	-	20	-	1	-	21
23	9	2	1	1	13	-	2	-	15
Total	365	129	21	34	549	17	11	-	577

Sources: Airport Records; Radar data; Official Airline Guide; Landrum & Brown analysis

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Exhibit 2

U.S. Department of Transportation
Federal Aviation Administration

Northwest Mountain Region
Office of the Regional Administrator

1601 Lind Avenue S.W.
Renton, WA 98057-3356

APR 10 2017

Mayor Lucy Krakowiak
City of Burien
400 SW 152nd Street, Suite 300
Burien, WA 98166

Dear Mayor Krakowiak:

Re: North Flow Departures from SeaTac Airport over the City of Burien

On March 28, 2017, the July 26, 2016 Approach Control Service and Coordination Procedures Letter of Agreement (LOA) between Seattle Terminal Radar Approach Control (S46) and Seattle Airport Traffic Control Tower (SEA) was amended. Specifically, the following paragraph from page 6 of the LOA has been removed:

5: PROCEDURES:

d. Departures. Tower must:

(9) Assign the following automatic turns to departing IFR Groups B, C, and D aircraft:

(b) North Flow:

3) 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.

This amendment removes the pre-coordinated 250° heading assigned to departing propeller-driven aircraft during north flow. There were no other changes made to the LOA.

The FAA is currently evaluating the use of this pre-coordinated 250° heading and conducting a comprehensive review of the historic use of this flight corridor. For many years, the FAA has utilized the 250° heading for propeller driven aircraft departures during north flow operations as a safe and efficient way to disperse and separate the propeller driven aircraft from jet aircraft. Before the July 26, 2016 LOA, S46 was required to manually coordinate with SEA to turn propeller driven aircraft. The coordination between S46 and SEA increased complexity and entered a safety risk into the National Airspace System. Therefore, the above paragraph was added to the LOA which resulted in increased safety and efficiency by eliminating the manual communication necessary to coordinate

each propeller driven aircraft heading assignment. The Seattle-Tacoma International Airport (Sea-Tac) has witnessed a nearly 9% increase in operations between 2015 and 2016. This increase in operations is projected to continue, due to greater demand and additional air carriers entering the market. The historical use of the westbound turn has allowed the FAA to improve safety and balance the additional demand at Sea-Tac.

The FAA would like to meet with you to discuss these departures. Please contact me or David C. Suomi, Deputy Regional Administrator, at (425) 227-2000 to arrange this meeting.

Sincerely,

KC Yanamura
Regional Administrator

Exhibit 3

Burien

City of Burien
400 SW 152nd Street
Suite 300
Burien, WA 98166-1911

P 206.241.4647
F 206.248.5539

burienwa.gov

November 15, 2017

David C. Suomi
Acting Regional Administrator
Federal Aviation Administration - Northwest Mountain Region
1601 Lind Avenue, S.W.
Renton, WA 98057

Dear Mr. Suomi:

I write on behalf of the City of Burien regarding the Federal Aviation Administration's (FAA's) proposal to establish an automatic heading for turboprop aircraft departing Seattle-Tacoma International Airport (Sea-Tac) during north flow conditions.

Over the last two years, this matter has been the subject of significant concern, substantial public controversy, and considerable discussion.

During the summer of 2016, without notice to the City or its residents, the FAA began experimenting with a new departure route assigning north flow turboprop aircraft to a 250-degree heading directly over the City. This new route resulted in substantial noise increases in City parks, schools, residential neighborhoods, and other noise-sensitive areas. The City and its residents spent considerable time and effort trying to obtain from the FAA information about the new route and the status of its implementation. The FAA formally responded to those inquiries on December 16, 2016, at which point it upheld — and refused to reconsider — the new route.

One February 14, 2017, the City filed a petition for judicial review of the FAA's actions in the United States Court of Appeals for the Ninth Circuit. In March, 2017, the FAA agreed to withdraw its authorization of the new route. Since that time, representatives of the City, the FAA, and the Department of Justice have regularly discussed the litigation under the auspices of the Ninth Circuit's mediation program. The City appreciates the FAA's (and Department of Justice's) participation in the mediation program, and remains hopeful that the litigation can be fully and finally resolved in a mutually-agreeable manner.

In June, 2017, the FAA issued a public notice proposing to re-adopt the new route (and its 250-degree heading over Burien). The notice invited public comment on the proposal and an

accompanying Draft Preliminary Environmental Assessment (PEA). The City timely submitted comments explaining that (i) the Draft PEA did not provide sufficient information to permit a detailed evaluation of the proposal; (ii) based on the limited information provided, the Draft PEA did not appear to satisfy the requirements of the National Environmental Policy Act (NEPA); and (c) the Draft PEA did not consider alternatives that would achieve the FAA's objectives while avoiding unnecessary impacts to the City and its residents. Our letter also indicated that while the proposed re-adoption of the new route does not avoid unnecessary impacts, alternative arrangements might.

We understand the agency also received more than 700 additional comments expressing concerns about the proposed re-adoption of the new route and disputing aspects of the Draft PEA. The outpouring further underscores the controversy attending this issue and the importance of working together to resolve it.

With that objective in mind, City representatives have met with you and your team to propose and discuss a series of potential alternatives that could address the objectives of both sides. We very much appreciate the opportunity to have these discussions with you, and we think they have served as a productive first step in working together toward a mutually-agreeable resolution.

We are now interested in taking the next step in that collaborative process. Our last meeting took place on September 14, 2017, at your office. Among other things, we discussed a variety of options capable of accommodating turboprops and missed approaches on various headings between 260 degrees and 320 degrees. At the close of the meeting, you and your team requested additional time to address some of those options. You indicated that you would then be in a position to schedule further meetings with the City.

We have not heard anything in the two months since. To ensure that we maintain as much forward momentum as possible, we believe it would be helpful to set a time for further discussion. The City's representatives would be happy to meet at your office if that would be convenient for you.

We remain committed to working with you and your team to identify and implement an alternative to the new route that is consistent with the interests of both the City and the FAA. We look forward to hearing from you soon.

Regards,

Lisa Marshall
City Attorney

Cc: Brian Wilson, City Manager
Patricia Deem, FAA
Pat Wells, FAA
Ven Neralla, Deputy Chief of Staff/Leg Director for Congresswoman Pramila Jayapal
Rachel Berkson, District Director for Congresswoman Pramila Jayapal
Matthew Adams, Dentons

Exhibit 4

From: Lisa Marshall <lisam@burienwa.gov>
Sent: Tuesday, February 06, 2018 12:35 PM
To: 'David.Suomi@faa.gov'
Cc: Patrick.J.Wells@faa.gov; Brian Wilson; Patricia.Deem@faa.gov; Adams, Matthew
Subject: RE: City of Burien FAA Discussions Regarding Flights over Burien

Hello David:

Thanks again for your update, below. We appreciate your willingness to confer in March, after the anticipated close of the review and decision process, and we look forward to that discussion. But would it also be productive to confer before the FAA decision-making process is complete? The City would like to make sure that it is continuing to be helpful in working toward a mutually-agreeable resolution.

I look forward to hearing from you soon,

Lisa Marshall
City Attorney

City of Burien
(206) 248-5535 office
(206) 641 -1182 cell
Lisam@burienwa.gov
Burienwa.gov

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From: David.Suomi@faa.gov [mailto:David.Suomi@faa.gov]
Sent: Monday, January 29, 2018 5:02 PM
To: Lisa Marshall <lisam@burienwa.gov>
Cc: Patrick.J.Wells@faa.gov; Brian Wilson <BrianW@burienwa.gov>; Patricia.Deem@faa.gov; matthew.adams@dentons.com
Subject: RE: City of Burien FAA Discussions Regarding Flights over Burien

Good afternoon, Lisa. This email is to update you as to where the FAA is on our environmental review and the expected schedule going forward concerning subject matter.

We are just finishing adjudicating the comments we received during the public notice process. During the month of February, we expect to have final environmental and facility review and executive signoff. Assuming our schedule projections are accurate, we expect to be reaching out to the City of Burien around the first week of March to schedule a meeting to share results and to answer any questions.

If you have any questions on the above, please do not hesitate to let me know.

Dave

David C. Suomi

Regional Administrator
Federal Aviation Administration - Northwest Mountain Region
1601 Lind Avenue, S.W.
Renton, WA 98057

425-227-2001

N.B. Effective April 1, 2018, we are relocating to a new facility. New contact information is as follows:

David Suomi, Regional Administrator
Federal Aviation Administration - Northwest Mountain Region
2200 South 216th Street
Des Moines, Washington 98198

Office Phone: 206-231-2001, David.Suomi@faa.gov
Duty Officer: 206-231-2000

From: Suomi, David (FAA)
Sent: Wednesday, November 22, 2017 12:33 PM
To: 'Lisa Marshall' <lisam@burienwa.gov>
Cc: Wells, Patrick J (FAA) <Patrick.J.Wells@faa.gov>; Brian Wilson <BrianW@burienwa.gov>; Deem, Patricia (FAA) <Patricia.Deem@faa.gov>; 'Adams, Matthew' <matthew.adams@dentons.com>
Subject: RE: City of Burien FAA Discussions Regarding Flights over Burien

Good afternoon, Lisa.

Thank you for your letter of November 15, 2017. The FAA is continuing to prepare the environmental review. This includes responding to the comments raised by Burien in response to the public notice to re-adopt the new route. We will plan to update you further in early January 2018 on our schedule.

I wish you a happy Thanksgiving holiday.

D

David C. Suomi

Regional Administrator
Federal Aviation Administration - Northwest Mountain Region
1601 Lind Avenue, S.W.
Renton, WA 98057

425-227-2002

From: Lisa Marshall [mailto:lisam@burienwa.gov]
Sent: Wednesday, November 15, 2017 12:36 PM
To: Suomi, David (FAA) <David.Suomi@faa.gov>
Cc: Wells, Patrick J (FAA) <Patrick.J.Wells@faa.gov>; Brian Wilson <BrianW@burienwa.gov>; Deem, Patricia (FAA) <Patricia.Deem@faa.gov>; 'Adams, Matthew' <matthew.adams@dentons.com>
Subject: City of Burien FAA Discussions Regarding Flights over Burien

Mr. Suomi:

Please see the attached letter. I look forward to hearing from you soon,

Lisa Marshall
City Attorney

City of Burien
(206) 248-5535 office
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Lisam@burienwa.gov
Burienwa.gov

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Exhibit 5

Leigh | Fisher

Port of Seattle

TECHNICAL MEMORANDUM No.7 FINAL

FACILITIES IMPLEMENTATION AND FINANCIAL FEASIBILITY

Seattle-Tacoma International Airport

Prepared for

Port of Seattle
Seattle, Washington

May 2018

Sustainable Airport Master Plan
Seattle-Tacoma International Airport

Leigh | Fisher Port of Seattle

TECHNICAL MEMORANDUM No.7 FINAL

FACILITIES, IMPLEMENTATION AND FINANCIAL FEASIBILITY

Seattle-Tacoma International Airport

Prepared for

Port of Seattle
Seattle, Washington

May 2018

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Introduction and Summary

The key results of the SAMP include a vision for long-term Airport development and a set of Near-Term Projects that is consistent with the Long-Term Vision, is compatible with the existing airfield, and is affordable.

1.1 Background

This *Technical Memorandum No. 7 – Facilities Implementation and Financial Feasibility* (TM-7) is the seventh in a series of memorandums which document the analyses, results, conclusions, and recommendations resulting from the Sustainable Airport Master Plan (SAMP) for Seattle-Tacoma International Airport (Airport). *Technical Memorandum No. 6 – Alternatives* (TM-6) determined an optimal layout of facilities required to satisfy the unconstrained 20-year forecast demand (Long-Term Vision). Airside modeling conducted to test the ability of the Long-Term Vision facilities to accommodate 20-year forecast demand is documented in TM-6. Airside modeling determined that, even with all Long-Term Vision improvements, airfield/airspace constraints resulted in severe congestion and aircraft delays as activity approached 15-year forecast demand (forecast to occur in 2029). Given these existing constraints, all improvements depicted in the Long-Term Vision that are not included in the Near-Term Projects will be subject to further study discussed in section 5 of this TM-7. The Long-Term Vision was refined as part of implementation planning and is illustrated in Figure 6-1 and further described in Section 6 of this TM-7.

1.2 Purpose

The purposes of this TM-7 are to:

- Determine a set of Near-Term Projects (NTP) resulting from the SAMP, which fit within the Long-Term Vision for Airport development as broadly defined in *Technical Memorandum No. 6 Alternatives* and illustrated on Figure 6-1.
- Summarize the results of the simulation analyses that confirmed the improvements included in the NTP can meet demand in the year that they would become operational.
- Confirm that the NTP is financially feasible.
- Recommend key follow-on actions, all related to the airfield/airspace system, which should be initiated as soon as practical.
- Document refinements to the Long-Term Vision resulting from implementation plan alternatives analysis.
- Document project phasing alternatives that were considered in determining the NTP.

1.3 Approach

The approach to conducting implementation planning and developing the NTP was significantly influenced by the physical constraints unique to the Airport and a recent, sustained increase in activity—among North American large hubs, the Airport experienced the highest growth (21.9%) in aircraft movements and the second highest growth (52.6%) in passenger traffic in the last 10 years. High passenger and cargo demand have strained existing facilities, leaving very few opportunities to relocate functions to underutilized areas and generating a pressing need to provide additional capacity in all key functional areas. The high utilization of the majority of existing facilities coupled with physical constraints results in difficult construction sequencing and long sequences of enabling projects, both of which increase program costs and delay the delivery of needed capacity. These factors drove the need to explore alternative project sequencing that could deliver capacity sooner and/or delay expensive enabling projects.

The implementation planning approach included the following guiding principles:

- Sequence projects to add gate and hardstand (designated aircraft parking) capacity for passenger operations as soon as possible.
- Program construction of a second terminal and landside access to align with construction of gates that can be readily connected to the Second Terminal.
- Sequence projects to add warehouse and hardstand capacity for cargo operations as soon as possible.
- Minimize impacts to existing cargo and aircraft maintenance facilities until additional capacity can be constructed.
- Minimize throwaway costs, by avoiding, where possible, building new facilities that will be impacted by subsequent construction.

1.4 Summary

This TM-7 documents the analysis and conclusions of the SAMP implementation planning and financial feasibility assessment. The SAMP Long-Term Vision identifies facility improvements required to satisfy unconstrained demand over the 20-year planning horizon. The implementation plan process began by establishing a baseline implementation plan to deliver needed capacity through a sequence of projects that concludes with the full build-out of the Long-Term Vision. Once the baseline plan was established, development and evaluation of alternative project sequencing then focused on Near-Term Projects to deliver capacity in response to dramatic growth in passenger and cargo activity. These alternatives were developed and evaluated within the context of the physical and financial constraints which were clarified early in implementation planning process. Alternative project sequencing and gate expansion options explored through the implementation planning process are documented in Appendix A.

Recent, sustained increased demand has strained existing facilities. High utilization of the majority of existing facilities and physical constraints limits opportunities for expansion or redevelopment of on-airfield facilities and often triggers the need to relocate existing functions in order to provide additional capacity to accommodate increased demand. The planning team established the guiding principles listed in Section 1.3 *Approach* in response to these constraints and used them to identify a financially feasible package of projects to accommodate near-term demand.

The Near-Term Projects (NTP) detailed in Section 2 *Near-Term Projects* and illustrated in Figure 2-1, include all enabling and capacity improvement projects required to accommodate forecast demand in 2027. The year 2027 corresponds to when substantial gate, hardstand and terminal capacity become operational. In addition to 19 new narrowbody equivalent gates connected to a second terminal, the NTP includes taxiway modifications to increase operational efficiency and the creation of new hardstands to boost capacity for passenger and cargo operations. These improvements were modeled using Total Airspace and Airport Modeler (TAAM) to confirm that they can accommodate forecast 2027 activity. TAAM modeling of the Near-Term Projects is detailed in Section 3 *Airfield Operational Feasibility*.

In addition to modeling the improvements to confirm they can accommodate forecast activity in 2027, the Port also conducted a financial feasibility assessment of the capital program costs to verify that the Port can feasibly finance these Near-Term Projects and other anticipate airport expenses through the year 2027. The analysis projected expenses and considered future airport debt and revenue to assess the Port's financial capabilities and future competitiveness with other airports in terms of Cost Per Enplanement (CPE). The analysis is documented in Section 4 *Financial Feasibility* and concluded that the Near-Term Projects are financially feasible.

As documented in Section 2.5 of *Technical Memorandum No. 6 Alternatives*, airfield modeling determined that, with all improvements included in the Long-Term Vision and no other changes to how the airfield/airspace is operated, the airfield/airspace as currently configured has insufficient capacity to meet the unconstrained 20-year forecast demand at an acceptable level of delay. The improvements included in the NTP fit within the Long-Term Vision and are stand-alone projects that are needed to satisfy near-term demand. While the Long-Term Vision includes airfield projects that improve the effectiveness of the airfield system, a comprehensive airfield/airspace study is needed to develop and assess alternatives to meet the unconstrained 20-year forecast demand. Given the existing airfield/airspace constraints, all improvements depicted in the Long-Term Vision that are not included in the Near-Term Projects will be subject to further study discussed in Section 5 *Key Actions Following Completion of the SAMP*. The Long-Term Vision was refined as part of implementation planning and is illustrated in Figure 6-1 and further described in Section 6 *Long-Term Vision*.

Near-Term Projects

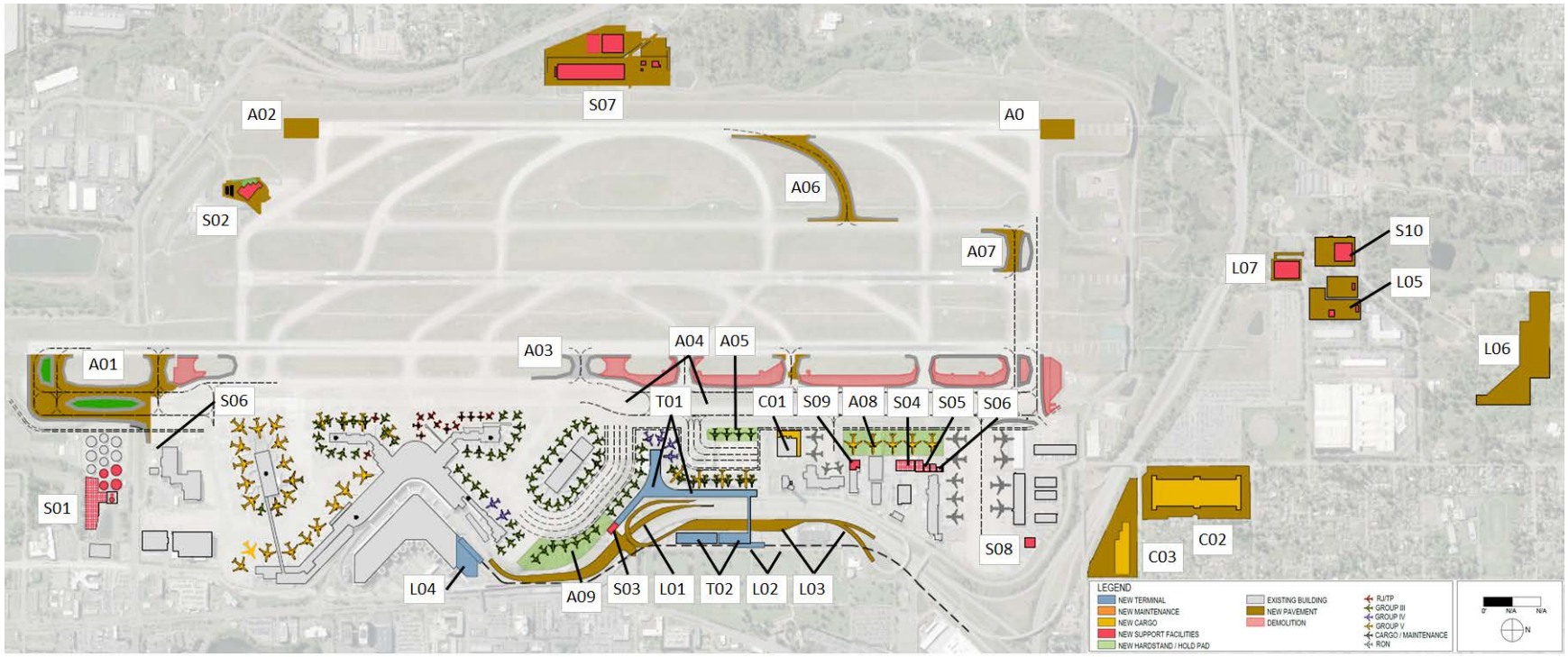
The Near-Term Projects (NTP) includes enabling and capacity projects, including a new north terminal and 19 new narrow-body gates, which will permit the Airport to accommodate approximately 56 million annual passengers.

2.1 Overview

The Near-Term Projects (NTP), illustrated on Figure 2-1, includes enabling and capacity improvement projects to satisfy facility requirements for forecast Airport activity through the year 2027 (approximately 56 million annual passengers). The Year 2027 corresponds to when substantial gate, hardstand and terminal capacity estimated to become operational. Airfield projects include taxiway modifications to increase operational efficiency and the creation of new hardstands to boost capacity for passenger and cargo operations. These improvements, along with added gate capacity, were modeled using Total Airspace and Airport Modeler (TAAM) to confirm that they can accommodate forecast 2027 activity. The TAAM modeling effort is documented in Section 3 *Airfield Operational Feasibility*. Figures 2-2, 2-3 and 2-4 illustrate the dimensions used to locate planned improvements and demonstrate compliance with separation requirements per AC 150/5300-13A- Airport Design.

Appendix A details alternative project sequencing and gate expansion options explored through the implementation planning process. The primary driver for the sequence of development included in Alternative 1 - *Baseline* and the exploration of other alternatives through the implementation planning process was the need to increase passenger and cargo facilities capacity as soon as possible. To that end, the planning team used the established guiding principles listed in Section 1.3 *Approach* to determine that Phase 1 of Alternative 2 - *Baseline with SASA deferred and Concourse B reconstruction removed* was the best package and sequence of projects to effectively accomplish this goal. The NTP also includes a number of landside improvements to provide access to the North Terminal; connectivity between the Rental Car Facility, Second Terminal and Main Terminal; expand employee parking; and expand ground transportation holding lots. Airport/airline support facility projects in the NTP primarily replace facilities displaced by passenger and cargo facility development, with the exception of projects S01 Fuel Farm Expansion (a capacity project) and S09 Centralized Receiving and Distribution Center (a security and operational efficiency project). Major project linkages and capacity drivers are discussed in more detail in Section 2.2. All projects included in the NTP are listed and described in Section 2.3 *Project Descriptions & Schedules*.

Figure 2-1
Near-Term Projects
Seattle-Tacoma International Airport



Airside

A01 Taxiway A/B Extension
A02 Runway 16R-34L Blast Pads
A03 Taxiway L Relocation *(Pre-SAMP project)*
A04 Taxiway B 500' Separation & RIM Mitigation
A05 North Hold Pad
A06 Runway 34L Highspeed Exit
A07 Taxiway D Extension
A08 Hardstand *(north)*
A09 Hardstand *(central)*
A10 Taxiway Fillets *(not shown)*
A11 Taxiway Q HS/RIM *(Pre-SAMP project)* *(not shown)*

Terminal

T01 North Gates
T02 Second Terminal & Parking

Cargo

C01 Cargo 4 South Redevelopment
C02 Off-site Cargo *Ph 1 (L-Shape)*
C03 Off-site Cargo *Ph 2 (L-Shape)*

Landside

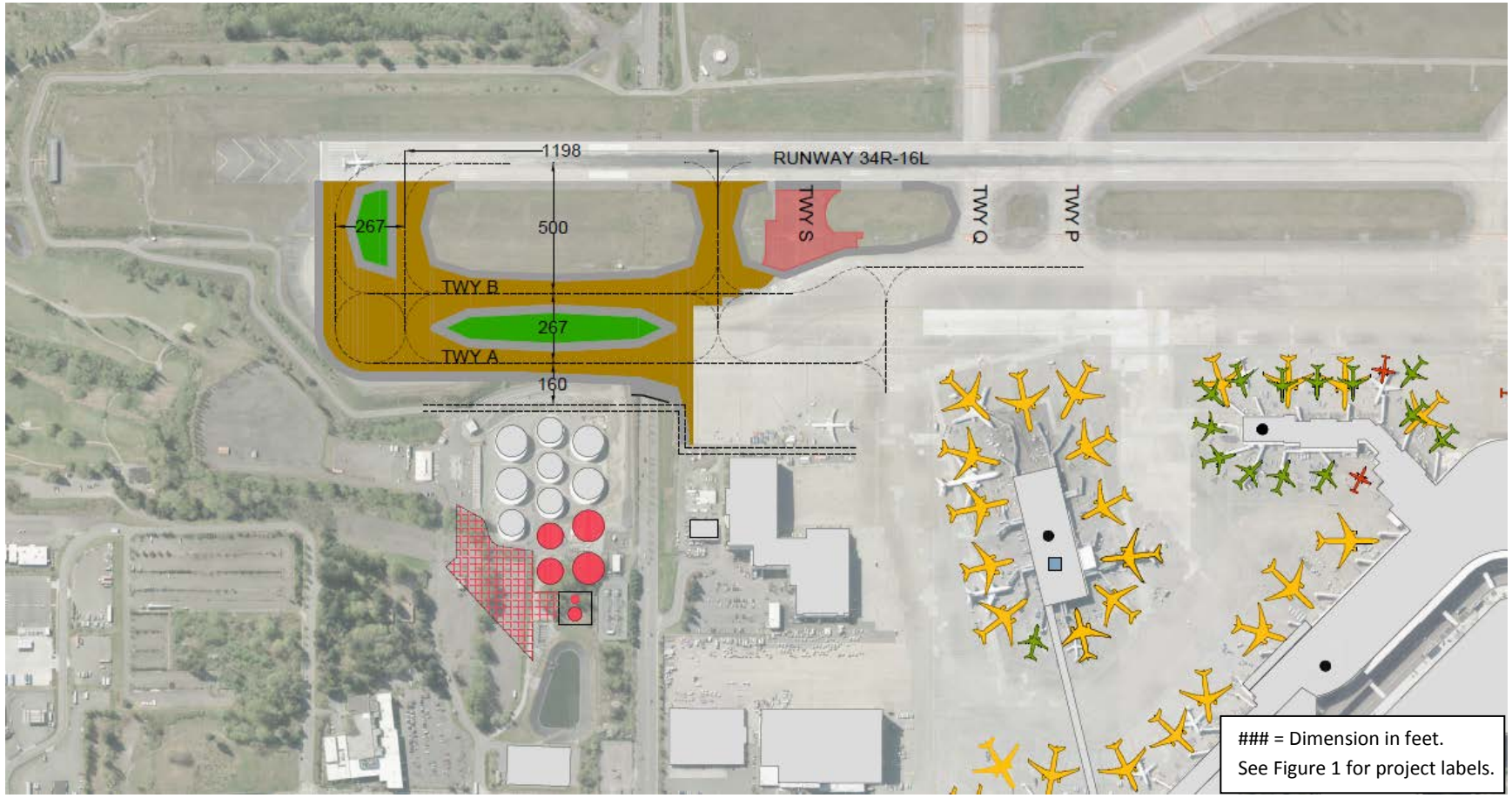
L01 NAE Relocation *(southbound lanes)*
L02 Elevated Busway & Stations
L03 Second Terminal Roads/Curbside
L04 Main Terminal North GT Lot
L05 North GT Holding Lot
L06 Employee Parking Surface Lot
L07 Employee Parking Structure

Airport/Airline Support

S01 Fuel Farm Expansion
S02 Primary ARFF
S03 Secondary ARFF
S04 Fuel Rack Relocation
S05 Triculator
S06 Consolidated De-icing Tanks
S07 Westside Maintenance Campus
S08 Airline Support *(north)*
S09 Airline Support *(west)*
S10 Centralized Rec. & Dist. Center

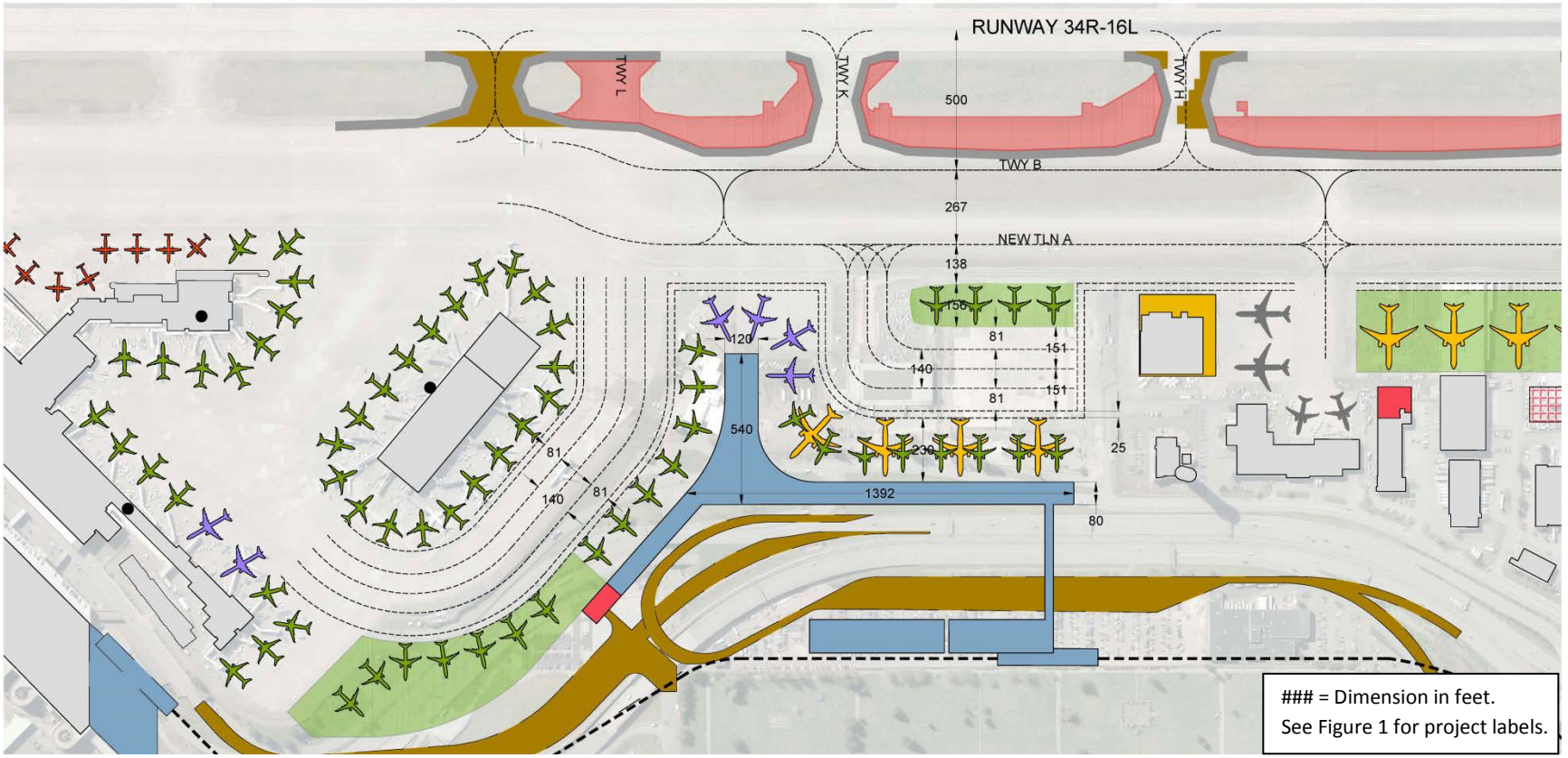
Source: Port of Seattle, 2017.

Figure 2-2
Near-Term Projects – Dimensions for Improvements South of the Existing Terminal Complex
Seattle-Tacoma International Airport



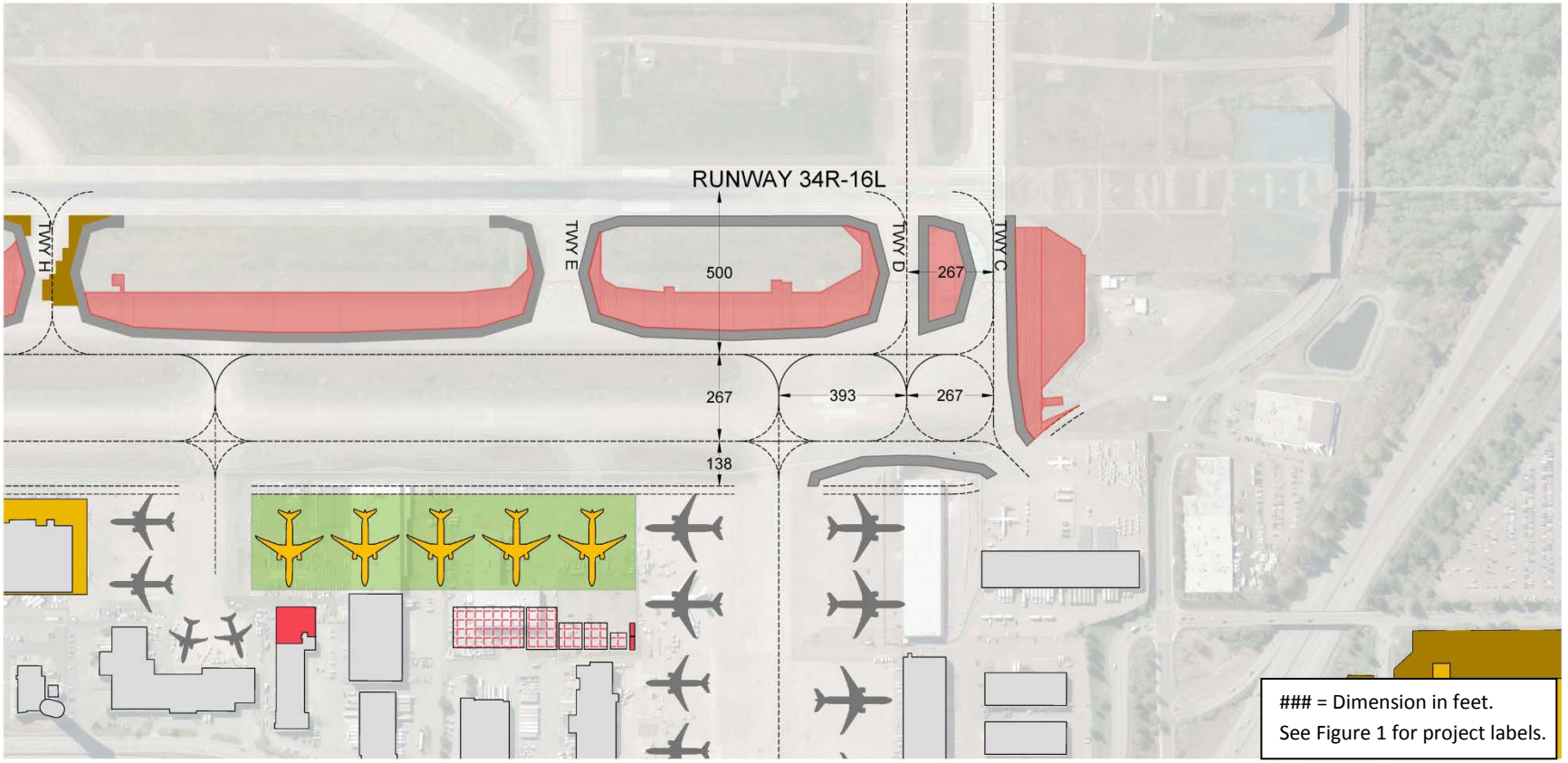
Source: Port of Seattle, 2017.

Figure 2-3
Near-Term Projects – Dimensions for Improvements in the area of the Existing Terminal Complex
Seattle-Tacoma International Airport



Source: Port of Seattle, 2017.

Figure 2-4
Near-Term Projects – Dimensions for Improvements North of the Existing Terminal Complex
Seattle-Tacoma International Airport



Source: Port of Seattle, 2017.

2.2 Major Project Linkages and Capacity Drivers

As described in Section 1.4 *Summary*, a primary purpose of conducting implementation planning is to determine a logical sequence of projects required to increase facility capacity and improve level of service in response to increased demand. Given the physical constraints surrounding the current airfield and high utilization of existing facilities, expansion or redevelopment of on-airfield facilities often triggers the need to relocate existing functions in order to provide additional capacity to accommodate increased demand. The subsections below describe enabling projects required to construct major NTP passenger and cargo capacity improvement projects.

2.2.1 Passenger Gates & Terminal

The schedule of projects in Figure 2-5 illustrates construction periods and includes the major capacity projects and enabling projects associated with providing additional passenger gates and terminal facilities. A number of enabling projects are required in order to clear an area for construction of gates hardstand for passenger operations. The critical path linkages between these enabling projects and the T01 North Gates and A09 Hardstand *(central)* projects are shown in red in Figure 2-5.

Figure 2-5
Schedule for Major Projects Associated With New North Gates and Second Terminal
Seattle-Tacoma International Airport

Source: Port of Seattle, 2017.

2.2.2 Cargo Warehouse & Freighter Hardstand

The schedule of projects in Figure 2-6 illustrates construction periods and includes the major capacity projects and enabling projects associated with providing cargo warehouse and freighter hardstands. Construction of hardstands for passenger operations, as a first phase of T01 North Gates construction, eliminates the Swissport cargo warehouse and two freighter parking positions in the Cargo 6 area. Reconstruction of the C01 Cargo 4 South building could potentially offset the loss of warehouse capacity at Cargo 6 and construction of new hardstand to the north (A08) would result in a net gain of hardstand capacity in the near-term. While not physically located on the airfield, new cargo warehouses and truck terminals constructed on the L-Shape property (C02 & C03) will be ideally situated to leverage this additional freighter hardstand capacity. Construction of the A08 Hardstand *(north)* requires removal of the Port Aviation Maintenance Facility (AMF) and the United Airlines

maintenance building. Replacement facilities for the AMF will be constructed in the S07 West-side Maintenance Campus. The United Airlines maintenance building includes shops for aircraft and Ground Service Equipment (GSE) maintenance and the Swissport building also includes GSE maintenance facilities. The NTP identifies two areas where these airline support functions can be accommodated (S08 & S09). Figure 2-6 identifies the construction of replacement Port maintenance facilities and the airline support facilities as critical path enabling projects for construction of the A08 Hardstand *(north)*.

Figure 2-6
Schedule for Major Projects Associated With Cargo Warehouse and Freighter Hardstand
Seattle-Tacoma International Airport

Source: Port of Seattle, 2017.

2.3 Project Descriptions & Schedules

2.3.1 Major Airside Projects

Major airside projects are described below and construction schedules are shown on Figure 2-7.

- A01 – Taxiway A/B Extension –Taxiway B is a full length Taxiway parallel to RWY 16L/34R and serves as a primary link to the runway and all gates. Taxiway A runs parallel to Taxiway B north of the terminal complex. This project would create a similar configuration south of the Cargo 7 hardstand by relocating Taxiway B south of Taxiway S to 500' runway/taxiway separation and provide a new parallel taxiway, Taxiway A. Taxiway A will be located 267' east of Taxiway B. The existing Taxiway B (Runway 16L-34R entry/exit taxiway) will also be split into two entry/exit taxiways, one at the runway threshold and a second 267' (centerline-to-centerline separation) north. All taxiways should be designed to Aircraft Design Group (ADG)-V / Taxiway Design Group (TDG)-6 standards aligning with the airports critical aircrafts. The taxiways should be equipped with in-pavement centerline lights and elevated taxiway edge lights. For Runway 16L-34R protection, the taxiway shall include hold position markings with in-pavement lights and elevated runway guard lights. Taxiway signage will be provided. To facilitate the taxiway work, the Runway 34R Glide Slope (GS) will need to relocated to the west side of Runway 16L-34R because it will be displaced by the Taxiway B construction. Relocation of the GS will require fill material to create a pad for the GS antenna and reflective plane that is at the runway elevation. Additional work that may also be required to facilitate the taxiway

construction is a new Vehicle Service Road (VSR) bridge over S 188 Street. The VSR will be placed outside of the proposed Taxiway A Object Free Area (OFA).

- A02 – Runway 16R-34L Blast Pads – A runway blast pad is a surface adjacent to a runway intended to provide erosion protection from aircraft jet blast. The existing blast pads on RWY 16R-34L will be expanded to standard 220'x400' blast pads. This project will require additional asphalt pavement and pavement markings.

- A03 – Taxiway L Relocation *(Pre-SAMP project)* –Taxiway L is a short east-west taxiway adjacent to the North Satellite. Taxiway L will shift approximately 400' to the south to resolve an issue with direct access between Runway 16L-34R and the North Satellite apron. The relocated Taxiway L will be designed to ADG-V / TDG-6 standards and will be equipped with in-pavement centerline lights and elevated taxiway edge lights. For Runway 16L-34R protection, the taxiway shall include hold position markings with in-pavement lights and elevated runway guard lights. Taxiway signage will be provided. Relocation of Taxiway L is anticipated to be completed during the 2018 construction season.

- A04 – Taxiway B 500' Separation & RIM Mitigation – To provide the standard 500' runway/taxiway separation, Taxiway B will be moved 100' to the east between Taxiway C (at the north end of the airfield) and the approximate location of the existing Taxiway L. Shifting Taxiway B will also result in Taxiway A being shifted east so that it is 267' (centerline-to-centerline separation) east of Taxiway B. Taxiway A will become a taxilane with 138' Taxiway Object Free Area (OFA) separation. Taxilanes can be either inside or outside of the movement area and the SAMP is not proposing to change the existing operational use of Taxiway A when it becomes the new Taxilane A. Taxiways C, D, E, H, and K between Taxiway B and Runway 16L-34R will need to be adjusted/extended to account for the shift in Taxiway B. Taxiways C and D will also be extended to Taxilane A and the expanse of pavement north of Taxiway C will be removed in an attempt to mitigate the existing RIM location. A phased approach to mitigating the RIM location by connecting Taxiways C and D perpendicularly to the existing Taxiway A and eliminating the expanse of pavement will be evaluated as part of ongoing planning and design activities with the intent to incrementally improve safety at this location. A phased approach appears feasible and may provide an opportunity to mitigate the RIM location earlier than shown in Figure 2-7. All taxiways should be designed to ADG-V / TDG-6 standards aligning with the airport's critical aircrafts. The taxiways should be equipped with in-pavement centerline lights and elevated taxiway edge lights. For Runway 16L-34R protection, all taxiway entrances/exits shall include hold position markings with in-pavement lights and elevated runway guard lights. Taxiway signage will be provided.

- A05 – North Hold Pad - In the northwest corner of the apron constructed as part of the T01 North Gates project is a hold pad capable of accommodating four ADG-III

aircraft. The hold pad would be used by aircraft waiting to take off or waiting for a gate, to reduce congestion on the taxiways and at the terminal.

- A06 – Runway 34L High-speed Exit – High-speed exits allow landing aircraft to exit the runway at relatively higher speeds, leading to less time on the runway. A new high-speed exit will be constructed for Runway 34L arrivals. The high-speed exit should be designed to ADG-V / TDG-6 standards aligning with the airport's critical aircrafts. The high-speed exit should be located between Taxiway J and Taxiway E, approximately 5,000' from the RWY 34L threshold. The high-speed exit should be equipped with in-pavement centerline lights and elevated taxiway edge lights. For Runway 16R-34L protection, the taxiway shall include a hold position marking with in-pavement lights. Taxiway signage will be provided. The Airport is currently updating from a Local-Area Augmentation System (LAAS) to a Ground Based Augmentation System (GBAS). As part of the update, a new location for the GBAS is being considered. If the GBAS utilizes the existing LAAS site, the GBAS will need to be relocated to facilitate construction of the high-speed exit.

- A07 – Taxiway D Extension – Taxiway D is currently a short taxiway between Runways 16C-34C and 16L-34R, and is used by aircraft waiting to take off from Runway 16C. This project will extend Taxiway D from Runway 16C-34C west to Taxiway T, which is a full-length taxiway between Runways 16C-34C and 16R-34L. Taxiway D should be designed to ADG-V / TDG-6 standards aligning with the airport's critical aircrafts. Taxiway D should be parallel to and located 267' (centerline-to-centerline separation) from Taxiway C. Taxiway D should be equipped with in-pavement centerline lights and elevated taxiway edge lights. For Runway 16C-34C protection, the taxiway shall include a hold position marking with in-pavement lights and elevated runway guard lights. Taxiway signage will be provided.

- A08 – Hardstand *(north)* – New hardstand (designated aircraft parking) is needed to accommodate increased cargo freighter demand. The hardstand will be constructed in the North Cargo area and located east of Taxiway A with all aircraft entering/exiting the hardstand via Taxiway A. The hardstand will be approximately 1,200' long with a depth of approximately 300' on the south and 500' on the north. The hardstand should be sufficient to accommodate approximately 5 ADG-V aircraft. This project requires the relocation of Airfield Maintenance Building (Project S07) and demolition of the United Airlines maintenance building.

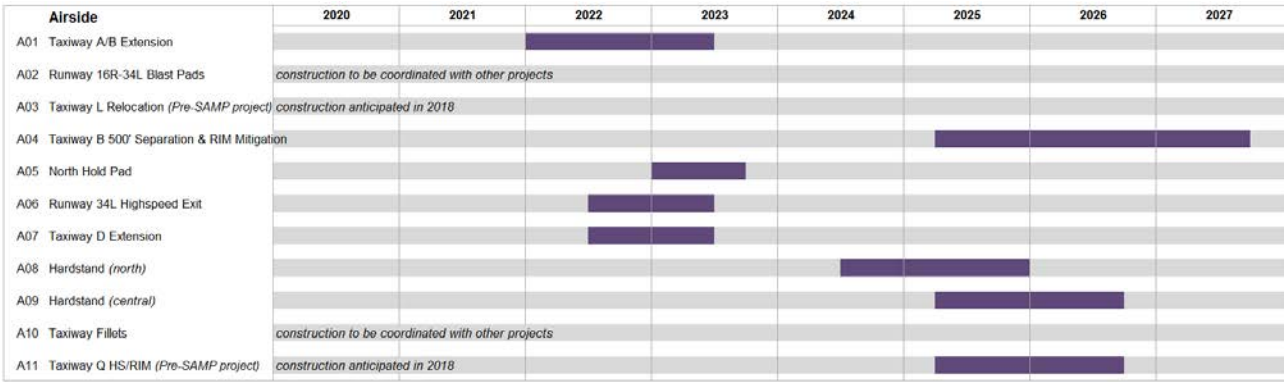
- A09 – Hardstand *(central)* – New hardstand is needed to accommodate increased demand for passenger hardstand operations and Remain Overnight parking of passenger aircraft (RON, used for aircraft parking at night so that they can be used for early-morning departures). Passengers will be bused to/from aircraft on the hardstand, primarily from the Concourse D hardstand holdroom and other holdrooms with bus access on the north side of the terminal complex. This project will create apron space for hardstand/RON operations north of Concourse D and East

of the North Satellite. The apron space should be sufficient to accommodate approximately 7 ADG-III aircraft. The depth and width of the apron varies. This project requires the relocation of the southbound lanes of the North Airport Expressway (Project L01). Following relocation of the roadway, fill will be required to increase the elevation in the area to provide a continuous expansion of the existing apron.

- A10 – Taxiway Fillets *[NOT SHOWN]* – Fillets are essentially rounded corners created with pavement and markings, and are used as part of taxiways to provide adequate distances between aircraft and the pavement edges. Fillets which currently do not meet TDG-6 standards will be improved when the fillet/area is in need of a reconstruction or impacted by a project. Adjustments to fillets will likely require adjustments to full strength pavement panels, shoulders, edge lighting, and signage.

- A11 – Taxiway Q Hot Spot/Runway Incursion Mitigation (HS/RIM) *(Pre-SAMP project) [NOT SHOWN]* – Adjustments will be made to the Taxiway Q centerline paint markings and in-pavement taxiway centerline lights to mitigate hot spots and runway incursions hazards. The Taxiway Q HS/RIM project is anticipated to be completed during the 2018 construction season.

Figure 2-7
Schedule for Major Airside Projects
Seattle-Tacoma International Airport



Source: Port of Seattle, 2017.

2.3.2 Major Terminal Projects

Major terminal projects are described below and construction schedules are shown on Figure 2-8.

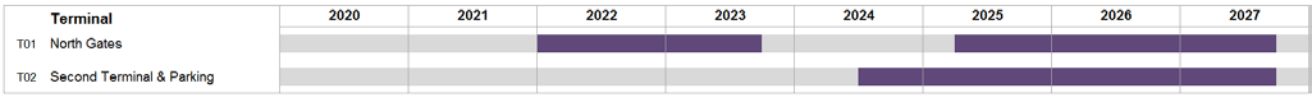
- T01 – North Gates – The North Gates project is a multi-level concourse connected to the Second Terminal via a pedestrian bridge and tunnel for baggage conveyance. In addition to gates, it includes an apron area for at gate aircraft parking, taxilanes, and a hold pad (A05 North Hold Pad). The multi-level concourse occupies an approximately 215,000 sf footprint and includes a ramp level for baggage/aircraft support functions; passenger concourse level with holdrooms, concessions, restrooms, etc.; and a mezzanine level with

office space and vertical circulation to the north terminal passenger walkway. The apron would accommodate up to 19 Aircraft Design Group (ADG)-III contact gates (sized for narrowbody aircraft such as the Boeing 737, but with the ability to be reconfigured for larger aircraft, and connected to the building) surrounded by dual ADG-III or a single ADG-V taxilane.

Construction of the North Gates and Apron requires the relocation of multiple facilities, including: the primary ARFF, fuel rack, the southbound lanes of the North Airport Expressway (NAE), Cargo 5 hardstand, Cargo 6 hardstand, deicing fluid storage, and the Swissport cargo building. The majority of facilities impacted by the North Gates will be relocated (Projects S02, S04, L01, S06, C02, and C03), with the exception of the Cargo 5 & 6 hardstands. Reconstruction/expansion of the Cargo 5 & 6 hardstands will be one of the initial phases for the North Gates project and will accommodate increased demand for hardstand operations and RON until the North Gates are activated and hardstand operations can be moved to contact gates.

- T02 – Second Terminal & Parking – A second terminal to the north is needed to support the planned North Gates. The Second Terminal will include facilities for passenger check-in; passenger and baggage screening; airline offices, baggage conveyance and claim; concessions; and restrooms. The Second Terminal and associated parking will be sized to support the new North Gates.

Figure 2-8
Schedule for Major Terminal Projects
Seattle-Tacoma International Airport



Source: Port of Seattle, 2017.

2.3.3 Major Cargo Projects

Major cargo projects are described below and construction schedules are shown on Figure 2-9.

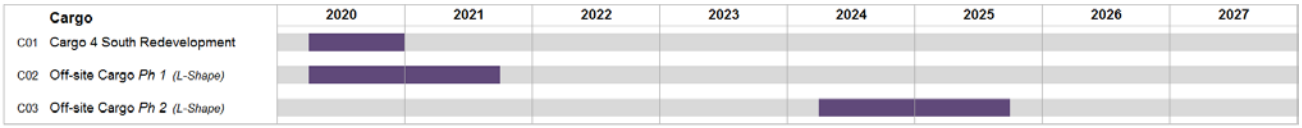
- C01 – Cargo 4 South Redevelopment – Additional cargo warehouse capacity is needed to accommodate growth in cargo activity. The Cargo 4 South site will be redeveloped to maximize warehouse capacity. New facilities will include a roughly 80,000 square foot building with warehouse and office space, truck terminals and parking for visitors and employees.

- C02 – Off-site Cargo Phase 1 *(L-Shape)* – Additional cargo warehouse capacity is needed to accommodate growth in cargo activity. New cargo facilities constructed on the Port owned L-Shape property in this first phase of development will include a roughly 330,000 square foot building with warehouse and office space, truck terminals and

parking for visitors and employees. While the L-Shape property is not located on the airfield and has no direct adjacency to freighter hardstands or secure warehouse access for cargo tugs, the close proximity of the L-Shape to the airfield provides the ability to transfer prescreened cargo pallets via trucks to/from the airfield. Cargo warehousing on the L-Shape will be used to build-up and breakdown cargo and will maximize the use of existing and planned freighter hardstand positions.

- C03 – Off-site Cargo Phase 2 *(L-Shape)* – Additional cargo warehouse capacity is needed to accommodate growth in cargo activity. New cargo facilities constructed on the Port owned L-Shape property in this second phase of development will include a roughly 90,000 square foot building with warehouse and office space, truck terminals and parking for visitors and employees. While the L-Shape property is not located on the airfield and has no direct adjacency to freighter hardstands or secure warehouse access for cargo tugs, the close proximity of the L-Shape to the airfield provides the ability to transfer prescreened cargo pallets via trucks to/from the airfield. Cargo warehousing on the L-Shape will be used to build-up and breakdown cargo and will maximize the use of existing and planned freighter hardstand positions.

Figure 2-9
Schedule for Major Cargo Projects
Seattle-Tacoma International Airport



Source: Port of Seattle, 2017.

2.3.4 Major Landside Projects

Major landside projects are described below and construction schedules are shown on Figure 2-10.

- L01 – North Airport Expressway (NAE) Relocation *(southbound lanes)* – Relocation of the southbound lanes of the NAE is required to clear the site for construction of A08 Hardstand *(central)* and T01 North Gates. The reconstructed southbound lanes will include the same number of lanes as exist today, and will result in the elimination of the cell phone waiting lot as well as Air Cargo Road and associated on/off ramps currently located south of Gate E125 and air traffic control tower. There are no suitable locations on Port property for relocation of the cell phone waiting lot which requires convenient and intuitive access to the freeway system. In the absence of a cell phone waiting lot, the Port will explore operational alternatives utilizing parking garages at the existing and future terminals.

- L02 – Elevated Busway & Stations – An elevated busway and stations are required to provide a landside connection for non-secure passengers accessing the Main Terminal,

Second Terminal, and Rental Car Facility (RCF). The Main Terminal busway station will be at the north end of the existing Main Parking garage and incorporated into the Main Terminal North Ground Transportation (GT) lot. The busway will extend north over the NAE and Light Rail to a Second Terminal station. The busway will extend north from the Second Terminal Station and ramp down to an at grade intersection at the S. 160th GT lot site where the existing RCF bus entrance will provide access to the RCF curb.

- L03 – Second Terminal Roads & Curbside – Landside improvements are required to provide ingress/egress to the Second Terminal and to connect the existing roadways system, providing access to/from the existing Main Terminal. Ingress is provided via a loop ramp from the southbound lanes of the NAE. Curbs for private and commercial vehicles are provided on a single level for arriving and departing passengers. Egress is provided via exit lanes/ramps connecting to the existing S. 160th St. Loop, westbound SR 518 on-ramp at S. 160th St., and the northbound lanes of the NAE.

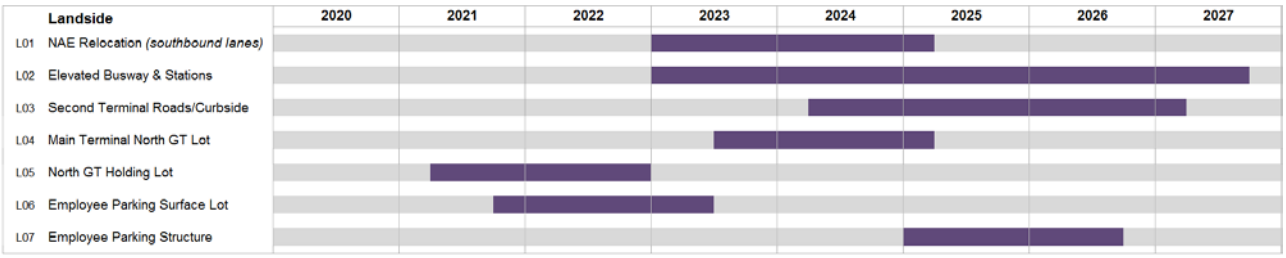
- L04 – Main Terminal North Ground Transportation (GT) Lot – Vertical expansion of the existing lot is required to accommodate increased bus demand including charter and cruise passenger buses. The expansion may include levels above for passenger circulation and office space with pedestrian bridge connection to the Main Terminal.

- L05 – North Ground Transportation (GT) Lot – A new GT lot is needed to accommodate increased demand and replace the S 160th St. GT lot displaced by the Elevated Busway. A new 180,000 square foot surface lot will be constructed on Port property north of SR 518.

- L06 – Employee Parking Surface Lot – A new surface parking lot is required to accommodate increased demand. A new 1,500 stall employee parking surface lot will be constructed on Port owned property north of SR 518.

- L07 – Employee Parking Structure – A new parking structure would provide additional capacity to accommodate increased demand and/or replace stalls displaced by potential cargo development on the existing North Employee Parking Lot (NEPL). A new parking structure of up to 2,000 stalls would be constructed on Port property adjacent to and west of NEPL.

Figure 2-10
Schedule for Major Landside Projects
Seattle-Tacoma International Airport



Source: Port of Seattle, 2017.

2.3.5 Major Airport/Airline Support Projects

Major airport/airline support projects are described below and construction schedules are shown on Figure 2-11.

- S01 – Fuel Farm Expansion – Expansion of the fuel farm includes additional settling tank capacity and construction of infrastructure to support the Ports biofuel initiative. The addition of four settling tanks adding approximately 10 million gallon storage capacity will require additional piping, expansion of the spill containment dike, and four above ground storage tanks. Infrastructure required to support the Ports Sustainable Aviation Biofuels (SAB) initiative includes a 500,000 gallon blending tank, 100,000 gallon neat SAB receipt tank, spill containment dike, fuel transfer pump, piping to transfer the fuel from the blending station to the existing/proposed settling tanks, and a truck fuel rack to support the delivery of SABs for blending. The infrastructure required for both projects will be located east of the existing fuel farm on the abandoned south end employee parking lot.

- S02 – Primary Air Rescue and Firefighting (ARFF) station – Relocation of the Primary ARFF station from its current location in the Cargo 6 area is required to clear the site for construction of T01 North Gates. The Primary ARFF will be relocated to the site of the existing secondary ARFF in the General Aviation Area. From this location, response times to the furthest runway can be achieved. The ARFF facility will be a multi-bay station that conforms to AC 150/5210-15A – Aircraft Rescue and Firefighting Station Building Design.

- S03 – Secondary ARFF – Relocation of the Primary ARFF station from its current location in the Cargo 6 area is required to clear the site for construction of T01 North Gates. With the relocation of the Primary ARFF station, a Secondary ARFF is needed to provide ambulatory response to the Terminals and Concourses; fuel spill and fire response to the concourse ramp areas, and back-up emergency response to the airfield. The secondary ARFF facility will be integrated with the North Gates at the southeast end of the concourse and will have both airside and landside access.

- S04 – Fuel Rack Relocation – Relocation of the fuel rack from its current location in the Cargo 6 area is required to clear the site for construction of T01 North Gates. The project will include extension of the fuel line to the future location in the North Cargo area east of the new A08 Hardstand *(north)*. The project will replace existing, displaced facilities and fuel truck parking.

- S05 – Triculator – The Triculator (or Triturator) is a waste grinding facility that requires water and sewer access to process the contents of ground service provider lavatory trucks. The Triculator is currently located east of the existing ARFF station and is an impediment to the A09 Hardstand *(central)* project. To facilitate the A09 Hardstand *(central)* project, the triculator will be relocated to the North Cargo area east of the new A08 Hardstand *(north)*.

- S06 – Consolidated De-icing Fluid Storage Tanks – In an effort to consolidate storage of aircraft deicing fluid and to clear a site for the construction of T01 North Gates, a set of deicing fluid tanks are proposed on both the north and south end of the airfield. The consolidated de-icing fluid storage tanks will be the common de-icing fluid racks from which all ground service providers can fill de-icing equipment with de-icing fluid. The southern set of tanks will replace and occupy the same location as the individual airline tanks that are currently located at Cargo 7. The northern set of tanks is to be located in the North Cargo area, east of the new A08 Hardstand *(north)* and will replace tanks that are displaced from the Cargo 6 area. Each site will have two tanks, one for Type I and the second for Type IV. Each set of tanks will also have a blending station.

- S07 – West-side Maintenance Campus – Relocation of the Port's Aviation Maintenance Facility (AMF) from its current location in the North Cargo area is required to clear the site for construction of the A08 Hardstand *(north) project*. The AMF will be located on the west side of the airport in the West-side Maintenance Campus and situated on a set of tiered platforms moving down the hill side. The new AMF will accommodate the relocation of current AMF facilities which includes a vehicle fuel rack, airfield deicer storage, and an approximate 135,000 square feet multi-bay building.

  The West-side Maintenance Campus will also accommodate relocation of the snow shed from the General Aviation area; relocation of the Port's Stormwater Lab and Wildlife Management Facility from Port property south of the airfield; and a new Consolidated Resource Recovery Facility (CRRF). The CRRF will be a fully enclosed building for consolidation of Airport waste materials to improve waste handling efficiency; enhance solid waste collection and storage capacity; and provide opportunities to optimize truck traffic. In addition, this facility will provide opportunities for environmental benefits through the sorting and recovery of compostable and non-compostable materials to enhance waste diversion from landfill. Materials will be processed to compact non-compostable waste and reduce the volume and weight of compostable materials through pulping and potentially anaerobic digestion or use of other waste-to-energy conversion technologies.

Due to the sites proximity to the Airport Surveillance Radar (ASR), and based on feedback from FAA Tech-Ops, the project assumes that no structure can be higher than the adjacent elevation of RWY 16R-34L. Today, the top platform closest to the runway sits approximately 20' below the runway elevation.

- S08 – Airline Support *(north)* & S09 – Airline Support *(west)* – To accommodate displaced Ground Service Equipment (GSE) maintenance and aircraft maintenance functions from the United Airlines maintenance building and Swissport cargo facility, and aircraft maintenance functions from the United Airlines maintenance building, two airline support buildings/expansions are planned. The first is a new building that would be located in the far northeast corner of the North Cargo area. The building will have an approximate 15,000 square feet footprint (S08 Airlines Support *(north)*). The second is an expansion of the existing AMB/AFCO III building to the west. The AMB/AFCO III building is currently being used for GSE maintenance functions. The proposed building expansion footprint is approximate 12,500 square feet (S09 Airlines Support *(west)*). Both buildings may be one or two stories depending on need/use.

- S10 – Centralized Receiving & Distribution Center (CRDC) – A new CRDC is needed to improve security and more efficiently screen and move supplies to concessionaires in the current and future passenger terminals. The new CRDC will be constructed on Port owned property north of SR 518 and will include a roughly 50,000 square foot building with warehouse and office space, truck terminals and parking for visitors and employees.

Figure 2-11
Schedule for Major Airport/Airline Support Projects
Seattle-Tacoma International Airport

Source: Port of Seattle, 2017.

Airfield Operational Feasibility

The airfield can support the Near-Term Projects at sustainable levels of annualized delay.

3.1 Background

Simulation modeling was performed to assess and confirm the ability of the airfield to support the proposed first phase of Airport development (i.e. the NTP).

3.2 Approach and Assumptions

As with all prior SAMP airfield simulation modeling, airfield simulation modeling related to the NTP was conducted using the Total Airspace and Airport Modeler (TAAM). With the exception of the facilities layout and flight schedule, the remaining modeling parameters were identical to the parameters used in prior simulations.

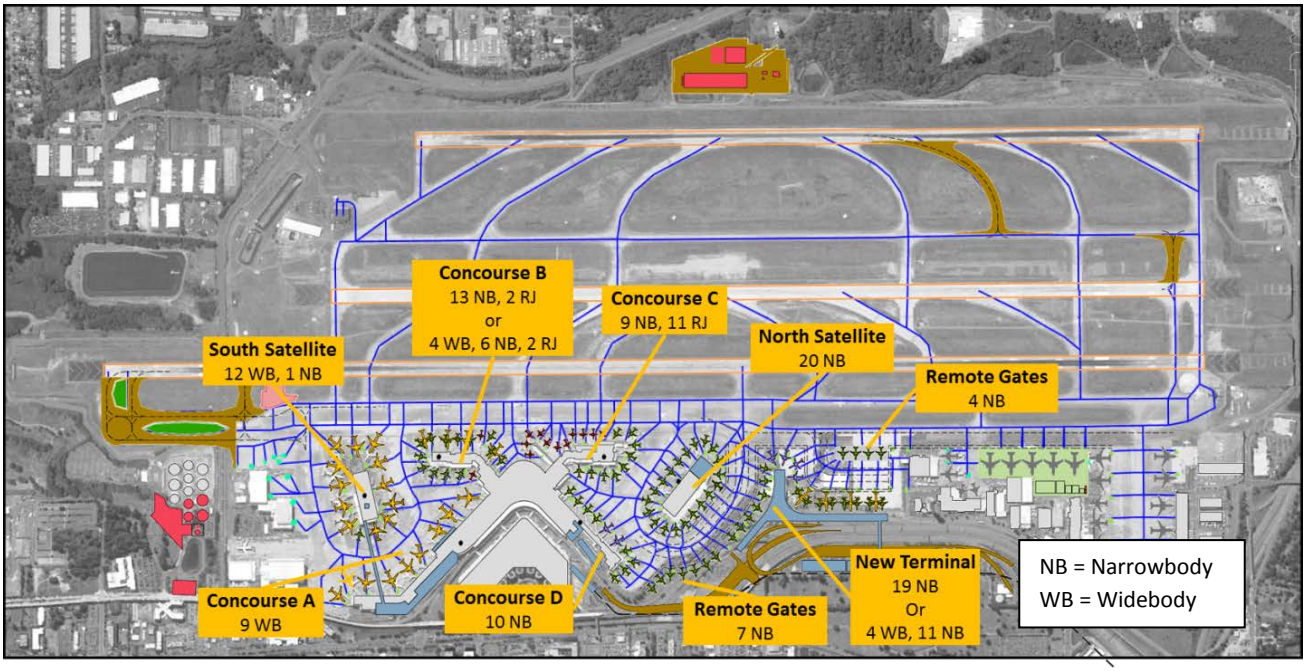
The facilities modeled are illustrated on Figure 3-1 and included NTP improvements to both the airfield and passenger terminal (please refer to Section 2.3 for descriptions of the improvements). Physical airfield improvements modeled included:

- A high-speed exit off Runway 34L between Taxiways E and J (A06 Runway 34L Highspeed Exit)
- An additional runway crossing at Taxiway D between Taxiway T and Runway 16C-34C (A07 Taxiway D Extension)
- Parallel Taxiways A and B located adjacent to the threshold of Runway 34R (A01 Taxiway A/B Extension)

Terminal improvements modeled included:

- A new International Arrivals Facility adjacent to Concourse A (IAF, *pre-SAMP project*)
- A newly renovated North Satellite (NorthSTAR, *pre-SAMP project*)
- 19 narrow-body aircraft gates (T01 North Gates)
- 7 hardstand positions located immediately north of Concourse D (A09 Hardstand *(central)*) and 4 hardstand positions located north and west of the new North Gates (A05 North Hold Pad)

Figure 3-1
Facilities Layout Modeled
Seattle-Tacoma International Airport



Source: Port of Seattle, 2017.

For the purposes of conducting modeling to test the ability of the airfield to support the NTP, a design day flight schedule (DDFS) representative of the year in which the NTP will be completed (2027) was developed. This flight schedule was (1) consistent with the other flight schedules used during the SAMP to assess facility requirements and for other TAAM modeling, and (2) contained activity estimated for 2027 (i.e., activity between PAL 2 (2024) and PAL 3 (2029)). Table 3-1 summarizes the activity contained in this 2027 flight schedule.

As with other SAMP simulations, simulations related to the NTP were conducted for five different weather and flow configurations and for two different airfield efficiency scenarios. The airfield efficiency scenarios simulate delays assuming that the future runway throughput would remain the same as today or with a moderate increase of 3-4 operations per hour (operations increase based on consultation with FAA staff). For more discussion on the simulated conditions and efficiency scenarios, please refer to Chapter 2 and Appendix G of *Technical Memorandum No. 6 – Alternatives*.

Table 3-1
Summary of Operations Included in 2027 Flight Schedule
Seattle-Tacoma International Airport

2027 Design Day Flight Schedule	Operation Type		
	Arrival	Departure	Total
Operations			
DDFS Operations	726	733	1459
Peak Hour Ops	68	63	108
Peak Hour Start	8:40 PM	10:36 AM	9:31 AM
Aircraft Type			
Wide Body	25	25	50
Narrow Body	448	456	904
Regional Jet	114	113	227
Turboprop	139	139	278
O/D Market Type			
Domestic	654	660	1314
International	27	28	55
Precleared	45	45	90

Source: LeighFisher, 2017.

3.3 Results and Conclusions

Table 3-2 summarizes the estimated average delays resulting from simulating the operation of the NTP assuming the 2027 flight schedule. Annualized weighting values were identified in consultation with FAA staff. When delay numbers for each model are weighted and totaled using the annualized weighting values shown, the average delay per operation is 22.0 minutes if there is no improvement in airfield efficiency and 16.6 minutes with medium improvement.

Table 3-2
Summary of Estimated 2027 Airfield Delay Associated with NTP
Seattle-Tacoma International Airport

Model	2027 No Improvement				2027 Medium Improvement			
	Arrival	Departure	Total	Weight	Arrival	Departure	Total	Weight
South VMC	11.7	12.3	12.0	0.3345	8.2	7.1	7.7	0.3345
South MMC	20.2	33.6	26.9	0.1099	19.4	17.5	18.5	0.1099
South IMC	21.2	54.8	37.8	0.2028	21.1	30.9	26.0	0.2028
North VMC	7.0	40.1	23.5	0.2496	7.7	35.6	21.7	0.2496
North IMC	110.9	107.7	109.4	0.0132	108.0	99.7	104.0	0.0132
Annualized				22.0				16.6

Source: LeighFisher, 2017.

Financial Feasibility

The Near-Term Projects are financially feasible.

4.1 Background and Objectives

This section summarizes the objectives, approach, results, and conclusions of an assessment conducted to determine the financial impacts and demonstrate the feasibility of the Near-Term Projects identified and described in Chapter 2 of this *Technical Memorandum No. 7*. The assessment was completed by Port of Seattle financial staff and incorporated existing forecasts of revenues, expenses, and planned capital improvements.

In order for the Near-Term Projects to be considered financially feasible, the financial forecast included in the assessment must demonstrate the Airport's ability to:

- Maintain debt service coverage consistent with bond covenants.
- Maintain debt levels within practical levels.
- Maintain cash reserves at levels consistent with current funding policy.
- Maintain a passenger airline cost per enplaned passenger (CPE) within a reasonable range of those projected at other large hub airports undergoing major capital programs.
- Maintain the capital capacity necessary for renewal and replacement of existing assets as well as ongoing maintenance costs.

4.2 Approach

The starting point for the assessment was the Port's financial forecast and funding plan for Sea-Tac Airport. This forecast includes assumptions relating to future revenues and operating and maintenance costs as well as future capital expenditures (excluding SAMP-related projects) and future operating and maintenance costs associated with new facilities. The funding plan for the existing capital program includes cash generated from airport operations, committed Airport Improvement Program and Transportation Security Administration grants and reasonable assumptions for future grants based on reviews with the FAA, Passenger Facility Charge (PFC) revenues continuing at the $4.50 level, Customer Facility Charge revenues to fund the debt service and operations of the consolidated rental car facility (in operation since 2012), and revenue bonds. Since most grants and PFCs in the coming years are committed to existing projects, the primary funding sources for SAMP projects will be cash from operations (net income) and new revenue bonds to be repaid from airport revenues.

Airline rates and charges were calculated consistent with the terms of the Signatory Lease and Operating Agreement (SLOA) that will go into effect June 1, 2018 (SLOA IV). The terms of SLOA IV are very similar to the prior agreement (SLOA III), with one notable change being the reduction of revenue sharing for 2018 and 2019 and the elimination of revenue sharing for 2020 and beyond. While the term of SLOA IV is for 2018 – 2022, the Port has assumed the terms of this agreement will continue throughout the forecast period. A continuing provision allows the Port to charge debt service coverage in the airline rate bases if needed to achieve total debt service coverage of 1.25x.

4.3 Results

The financial impacts of implementing the SAMP projects are reflected in Table 4-1 below.

Table 4-1
Financial Impacts of SAMP Near-Term Projects
Seattle-Tacoma International Airport

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2018-27 Total
Capital program ($M)											
Baseline	808	756	614	373	268	177	108	89	28	28	3,249
SAMP	--	1	56	158	487	720	810	1,017	855	361	4,465
Total	808	757	670	531	755	897	918	1,106	883	389	7,714
Key Measures											
CPE ($)	11.62	13.92	16.28	17.80	18.71	21.07	21.34	22.24	23.28	29.99	
D/S coverage	1.56	1.50	1.42	1.31	1.28	1.27	1.31	1.33	1.25	1.25	
Total Debt ($M)	2,703	3,229	3,747	4,121	4,731	5,381	6,215	7,108	7,811	7,827	
Debt/Enplanement ($)	110	130	149	163	186	209	236	267	286	280	
Cash ($M)	279	294	309	325	338	350	363	376	390	409	

Source: LeighFisher, 2017.

The baseline capital program includes all current projects and also includes an allowance for as yet undefined projects or budget changes to existing projects within the $3.25 billion. Based on a consultant's report on publicly available information on future CPE levels at the 30 large hub airports, it is the Port's judgment that by 2027 a number of large hub international gateway airports will have CPE in the $25 - $30 range, and some will likely be higher. Consequently, a projected CPE in this range will likely be competitive. Maintaining annual debt service coverage of at least 1.25x ensures the Port will meet its bond covenants. While less information is available about future debt levels at large hub airports, based on information obtained from the Port's bankers, it appears there will be multiple large hub airports with debt per enplaned passenger in the $250 - $300 range, and some above $300. Throughout the projection period, the Port is able to maintain a minimum cash balance equivalent to ten months of operating and maintenance costs (consistent with current target).

The financial projections include assumptions relating to future growth in non-aeronautical revenues as well as future operating and maintenance costs. Many factors can impact the actual costs the Port will incur and the actual revenues that the Port will generate. The costs of executing the capital program could also vary from current estimates. Clearly there are risks. Over a ten-year period, the Port will have opportunities to adjust course (change spending, alter fees) as conditions change in order to manage financial performance.

4.4 Conclusions

Based on the estimated costs of the Near-Term Projects, and the estimated timing of the expenditures, the assessment indicates that the Port's objectives can be met and that the plan is financially feasible.

The Port recognizes that undertaking this capital program will significantly increase airline costs at Sea-Tac, and significantly increase debt levels for the Port of Seattle. Information from peer airports suggest large hubs undertaking major expansions are increasing projected CPEs to levels that would have been considered "too high" a few years ago. Major expansions are very expensive, but the alternatives to expanding these large hubs are even more expensive to the cities and communities: foregoing airport expansion and suffering the economic consequences, or building or expanding another local airport.

In order to deliver the required capital improvements, and to potentially reduce the cost of construction, the Port will consider whether a public, private partnership (P3) of some kind could be advantageous to achieving the Port's objectives.

Another factor that could mitigate the cost impact of implementing the SAMP projects is if the project schedules are delayed, or if certain project elements are not deemed to be needed in the time frames currently planned. With each additional year that the project schedule is extended, Sea-Tac earns income from operations and PFCs that can be used to pay capital costs and therefore reduce the amount of revenue bonds needed to fund the program. Offsetting this, project delays can result in increased project costs due to cost escalation and increased project overhead, but on a net basis, there can still be savings.

Key Actions Following Completion of the SAMP

Increasing airfield/airspace operating efficiency is the most pressing long-range facility issue facing the Airport. Effective solutions will require a comprehensive process that should begin as soon as practical.

5.1 Introduction

In addition to actions directly related to environmental approvals, design, and construction of the NTP, the most significant actions following completion of the SAMP relate to the airfield/airspace system. As documented in Section 2.5 of *Technical Memorandum No. 6 Alternatives*, airfield modeling of the Long-Term Vision determined that with these improvements, and no other changes to how the airfield/airspace is operated, the airfield/airspace has insufficient capacity to meet the unconstrained 20-year forecast demand at a sustainable level of annualized delay. Airfield modeling of the NTP determined that with moderate efficiency gains over how the airfield/airspace is operated today (identified in consultation with FAA staff, see Section 3 – *Airfield Operational Feasibility*), the NTP improvements provide sufficient capacity to meet forecast demand in the year 2027 at a sustainable level of annualized delay. The improvements included in the NTP fit within the Long-Term Vision identified in the SAMP and are stand-alone projects that are needed to satisfy near-term demand. While the Long-Term Vision includes airfield projects that improve the effectiveness of the airfield system, a comprehensive airfield/airspace study is needed to develop and assess alternatives to meet the unconstrained 20-year forecast demand. Key findings and recommended actions are described in more detail below.

1. The airfield/airspace system, as it is currently configured and operated, has insufficient capacity to meet the unconstrained 20-year forecast demand at a sustainable level of annualized delay with all improvements in the SAMP Long-Term Vision. The primary constraint on the close-in airspace is the departure rate. The SAMP Long-Term Vision identifies several alternatives with the potential to improve the effectiveness of the airfield system. Such alternatives include, but are not limited to, end-around taxiways and modified runway use strategies. These requirements, constraints and alternatives for their resolution are discussed in *Technical Memorandum No. 5 Facility Requirements* and *Technical Memorandum No. 6 Alternatives.*

2. Design criteria issues are not unusual at U.S. airports; they occur for reasons such as the introduction of new aircraft, and are remedied either by physical changes or modifications to standards. Given the constraints to the airfield/airspace system, there are numerous airfield design criteria compliance issues that should be studied further in a comprehensive study of the airfield/airspace following the SAMP.

The significant design criteria compliance issues include those related to:

- Separation between Runway 16L-34R and Taxiway B (400 feet)
- Airfield intersection geometry
- Runway incursion and hot spot mitigation
- High-energy intersections
- Right-angle intersections
- Direct access to runway from apron
- Three-node concept

Design criteria compliance issues and alternatives for their resolution are discussed in *Technical Memorandum No. 5 Facility Requirements* and *Technical Memorandum No. 6 Alternatives*.

3. The most significant design criteria compliance issue is the non-standard centerline-to-centerline separation between Runway 16L-34R and Taxiway B of 400 feet. The standard separation based on current operations is 500 feet. The basis for this separation standard is low-visibility approaches to Runway 16L.*

   In a letter to the Airport Managing Director dated May 26, 2017 the FAA stated that the Port should initiate a study specifically designed to develop a plan to fully meet this separation standard in the long term. The facilities included in the Port's Long-Term Vision and NTP meet this standard by relocating both Taxiway A and Taxiway B in the areas of potential new construction north and south of the existing terminal complex. However, achieving 500 feet separation standard between Runway 16L-34R and Taxiway B in the area of the existing terminal complex would result in the loss of gates on the west side of both Concourse B and Concourse C.

5.2 Recommended Actions

The issues and potential solutions involving airfield/airspace system capacity and design criteria compliance are complex and involve benefit-cost tradeoffs. Therefore, additional study is required and should include a comprehensive systems and modeling approach and an inclusive stakeholder engagement process. The FAA and the Port should engage in this comprehensive study as soon as practical to assess the full range of issues and opportunities associated with reasonably improving airfield/airspace capacity and resolving design criteria compliance issues. The approach should be rigorous, analytical and involve airspace/airfield simulation modeling. The scope of the study should be limited to Sea-Tac airport and the close-in airspace and involve key stakeholders, including but not limited to: the Port, FAA, airlines, and the public. The Port and the FAA have committed to scoping the study in 2018.

*FAA advisory Circular 150/5300-13A *Airport Design* specifies that the separation required for an airplane design group V Taxiway B is 500 feet when airplanes in approach categories C, D, and E are conducting approaches with visibility minimums lower than ½ mile. The existing separation is 400 feet.

Long-Term Vision

Given existing airfield/airspace constraints, all improvements depicted in the Long-Term Vision that are not included in the NTP will be subject to further study.

6.1 Long-Term Vision

The vision for long-range development at the Airport is to provide facilities in all key functional areas (airfield, terminal, cargo, and airport/airline support facilities) to meet requirements for the unconstrained 20-year forecast of airport activity. The Long-Term Vision is the result of screening and analysis of a broad range of alternatives as documented in *Technical Memorandum No. 6 Alternatives* (TM-6). The alternatives analysis determined that the resulting Long-Term Vision is the most cost effective and operationally efficient layout of facilities to deliver balanced capacity to satisfy 20-year unconstrained demand within the conditions unique to Sea-Tac which constrain future Airport development.

Airside modeling conducted to test the ability of the Long-Term Vision facilities to accommodate 20-year forecast demand is documented in TM-6. Airside modeling determined that, even with all Long-Term Vision improvements, airfield/airspace constraints resulted in severe congestion and aircraft delays as activity approached 15-year forecast demand (forecast to occur in 2029). Given these existing constraints, all improvements included in the Long-Term Vision that are not included in the Near-Term Projects will be subject to further study discussed in section 5 of this TM-7. The Long-Term Vision is illustrated in Figure 6-1 and depicts all Near-Term Projects (shown in color) that would remain if development shown in grey were constructed. All Near-Term Projects included in the Long-Term Vision and described below are indicated by a project code and name. (e.g. A08 Hardstand *(north)*)

Given the physical constraints surrounding the current airfield and high utilization of existing facilities, expansion or redevelopment of on-airfield facilities often triggers the need to relocate existing functions in order to provide additional capacity to accommodate increased demand. The Long-Term Vision includes on-airfield facility expansion and redevelopment in the following areas:

- Modification of the airfield to improve safety and efficiency, including extension of Taxiway A/B in the southeast corner of the airfield (A01 Taxiway A/B Extension) and new end-around taxiways south and north of the airfield.
- Construction of aircraft hardstands to the south of the existing terminal in an area currently occupied by Alaska Airlines aircraft maintenance facilities to provide additional hold positions for passenger aircraft operations and remain overnight parking for passenger aircraft.

- Extension of Concourse D and gate expansion to the north of the existing terminal into an area currently occupied by cargo and airport/airline support facilities.

- Construction of new hardstands north of the future gate expansion, in an area currently occupied by the Port's Aviation Maintenance Facility (AMF) and United Airlines maintenance building (A08 Hardstand *(north)*). In the near-term, this hardstand provides additional cargo freighter parking positions and potential Remain Overnight parking for passenger aircraft (RON). With the development of additional cargo capacity in SASA, and reconfiguration/expansion of facilities in this area, this hardstand will eventually provide additional, flow-through hold positions for passenger aircraft operations.

- Construction of a new development "platform" in SASA by selectively excavating and filling the terrain. With the new platform, SASA would be capable of accommodating aircraft via a taxiway bridge to the existing airfield.

- Construction of new airline support facilities (e.g., ground support equipment and aircraft maintenance facilities) in SASA and the far north cargo area (S08 Airline Support *(north)* & S09 Airline Support *(west)*).

- Redevelopment of cargo facilities in the far north cargo area to maximize the efficiency of cargo operations in a limited footprint.

Facilities displaced by expansion and redevelopment of on-airfield facilities would be accommodated in three areas:

- SASA would accommodate relocated aircraft maintenance hangars and cargo facilities, as well as airline support facilities.

- The existing General Aviation (GA) area would accommodate relocated Primary Airport Rescue and Firefighting facility (S02 Primary ARFF).

- The future West-side Maintenance Campus would accommodate relocated airport support facilities, including the Port's Aviation Maintenance Facility (various shops/equipment storage), the Transportation Operations Center (bus maintenance), Distribution Center (parts warehouse), and the snow shed.

The plan also envisions improvements on Port property not contiguous to the airfield, including:

- Relocation of construction logistics facilities to vacant property south of S. 200th St.

- Expansion the existing Fuel Farm to the east (S01 Fuel Farm Expansion).

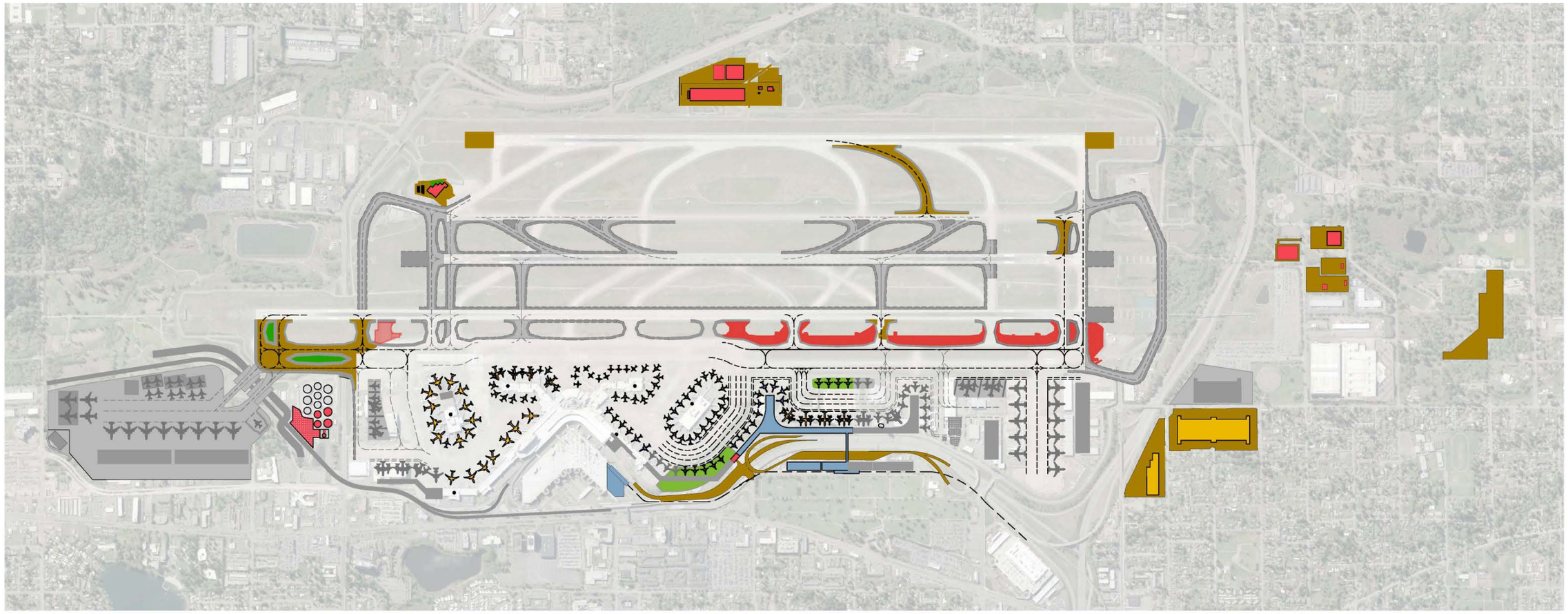
- Construction of a second terminal processor and associated passenger parking in an area currently occupied by the Doug Fox parking lot. In the near-term, the Second

Terminal and associated parking (T02 Second Terminal & Parking) would be sized to support gates constructed under the T01 North Gates project.

- Extensive roadway improvements to provide access to the Second Terminal and improve access to the Main Terminal (L01 North Airport Expressway Relocation & T03 Second Terminal Roads/Curbside).
- Construction of an elevated bus guideway to provide a landside connection between the Main Terminal, Second Terminal, and the Rental Car Facility (RCF) (L02 Elevated Busway & Stations).
- Expansion of the existing Main Terminal North Ground Transportation Lot (L04 Main Terminal North GT Lot).
- Relocation and expansion of employee parking to areas north of SR 518 (L06 Employee Parking Surface Lot & L07 Employee Parking Structure).
- Relocation and expansion of the existing S. 160th Street ground transportation holding lot to an area north of SR 518 (L05 North GT Holding Lot).
- Construction of a Centralized Receiving and Distribution Center (CRDC) in an area north of SR 518 (S10 Centralized Receiving and Distribution Center).
- Construction of cargo warehousing in an area north of SR 518 and adjacent to 24th Ave S (C02 & C03 Off-site Cargo *Ph1 & Ph2*).

The Long-Term Vision is illustrated in Figure 6-1 and depicts all Near-Term Projects (shown in color) that would remain if development shown in grey were constructed.

Figure 6-1
Vision for Comprehensive Long-range Airport Development
Seattle-Tacoma International Airport



Source: Port of Seattle and LeighFisher, 2016.

Leigh | Fisher

In association with

Synergy Consultants, Inc.

TECHNICAL MEMORANDUM No.1 FINAL

BACKGROUND, PROCESS, GOALS, AND OBJECTIVES

Seattle-Tacoma International Airport

Prepared for

Port of Seattle
Seattle, Washington

July 2015

Sustainable Airport Master Plan
Seattle-Tacoma International Airport

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Background and Process Overview

The Port of Seattle will strategically plan for sustainable growth at Seattle-Tacoma International Airport.

1.1 Introduction

In accordance with Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5070-6B, Airport Master Plans, and FAA Sustainability Guidance,* the Port of Seattle (the Port) is preparing a Sustainable Airport Master Plan (SAMP) for Seattle-Tacoma International Airport (Airport or Sea-Tac Airport). This Technical Memorandum describes the goals and objectives established by the Port of Seattle commission to guide the SAMP, the SAMP process, and how SAMP goals and objectives will guide preparation of a recommended development plan.

This Technical Memorandum is organized in the following four chapters:

1. Background and Process Overview
2. National, Regional, and Local Sustainability Goals and Plans
3. SAMP Sustainability Goals and Objectives
4. How SAMP Sustainability Goals and Objectives will Guide the Vision for Long-range Airport Development

1.2 Seattle-Tacoma International Airport and the Port of Seattle

The Airport, ranked according to 2014 FAA enplaned passenger data as the 13th busiest commercial service airport in the United States, is operated by the aviation division of the Port. The Port was created in 1911 and is overseen by five Commissioners elected at large by the voters of King County. Each Commissioner serves a four-year term; together they establish Port policy. The Port owns and operates the Airport as well as a wide range of maritime and logistics facilities. The Port's mission, vision, values, and commitment are summarized in the graphic on the following page.

1.3 Sustainable Airport Master Plan Process

This section describes previous master planning at the Airport, compares the process of preparing a traditional airport master plan with the process of preparing a sustainable airport master plan, and describes how sustainability will be integrated throughout the SAMP study and plan recommendations.

*http://www.faa.gov/airports/environmental/sustainability/

PORT OF SEATTLE MISSION, VISION, COMMITMENT, VALUES

Port Mission:

The Port of Seattle is a public agency that creates jobs by advancing trade and commerce, promoting industrial growth, and stimulating economic development.

Port Vision:

Over the next 25 years, we will add 100,000 jobs through economic growth led by the Port of Seattle, for a total of 300,000 Port-related jobs in the region, while reducing our environmental footprint.

Port Commitment:

The Port of Seattle creates economic opportunity for all, stewards our environment responsibly, partners with surrounding communities, promotes social responsibility, conducts ourselves transparently, and holds ourselves accountable. We will leave succeeding generations a stronger Port*

Port Values:

- We conduct business with the highest ethical standards.
- We honor our commitments to one another, the community, and our customers.
- We are capable, high-performing people who appreciate the privilege of public service.
- We embrace the richness of a diverse workplace and support employee development.
- We are responsible stewards of community resources and the environment**

* Port of Seattle website.

** Port of Seattle "Values in Action" http://www.portseattle.org/About/Pages/Values-in-Action.aspx

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1.3.1 Master Planning at Sea-Tac Airport

Typically, large air carrier airports undertake a master plan every 10-12 years or when conditions make it necessary. The Port last completed a master plan update for the Airport in 1997, which focused on the construction of the third runway (now operating as Runway 16R-34L). That master plan arose out of a prior Port study titled "Comprehensive Planning Review" that was conducted in 1988, as well as other regional studies designed to ensure that the Airport was the appropriate place for building the region's airfield capacity. While the 1997 study focused on the third runway, it also identified a long-range plan that was intended to enable the Airport to accommodate demand through 2010 as then forecast.

Airports operate in dynamic environments, as the air travel industry is subject to societal and economic changes from the global to local levels. The Port completed a Comprehensive Development Plan (CDP) in 2007 to identify a less costly and more-convenient alternative for terminal and landside improvements, which would reflect important changes in the aviation industry following its 1997 study. Those industry changes included the increased security requirements following the 9/11 terrorist events, the global financial crisis which had already begun to affect commercial air service, changes in passenger travel preferences and characteristics, and changes in the types of aircraft operating at the Airport.

Since 2007, both the air travel industry and the region Sea-Tac Airport serves have continued to change and grow (for example, advances in technology continue to redefine flight check-in processes and

facilities). Accordingly, in 2013, the Aviation Division of the Port initiated this SAMP and, at the beginning of the process, established three major goals:*

- Identify the facility requirements that would enable the Airport to satisfy air transportation demand through the next 20 years in a safe and efficient manner.
- Identify a long-term plan to achieve the Century Agenda and complement the Aviation Division Business Plan.
- Identify measures that enable the Port to build, manage, and operate facilities in ways that meet sustainability goals and objectives.

These goals were intended to guide development of the SAMP and to ensure that when concluded, the study effort has achieved its underlying objectives. The goals were targeted to the work products of the SAMP. They differ from the Port's sustainability mission and sustainability goals and objectives, which focus on issues broader than those related only to the Airport and that will likely endure after completion of the SAMP.

1.3.2 Traditional Airport Master Planning Process

An airport master plan, as defined by the FAA in AC 150/5070-6B *Airport Master Plans*, is a comprehensive study of an airport and results in airport development plans for the short-, medium-, and long-term (i.e., 5-, 10-, and 20-year planning periods). A typical airport master plan includes the following elements:

1. **Pre-Planning**—Identify need, establish goals and objectives, hire consulting team, and apply for funding, if appropriate.
2. **Public Involvement**—Establish a process and identify key stakeholders and issues.
3. **Existing Conditions Inventory**—Inventory information useful for subsequent analyses. Inventory information is collected from various sources and summarized in tables, graphs, and scaled drawings.
4. **Aviation Activity Forecasts**—Project number of passengers, volume of air cargo, and number of aircraft operations that must be accommodated in the planning periods. Typically, a forecast considers conditions 20 years into the future.
5. **Facility Requirements**—Identify types and locations of facilities needed in each of the airport's major functional areas to accommodate forecast aviation activity in the planning period. Requirements are developed using a variety of techniques ranging from spreadsheets to simulation modeling and are expressed in terms of both units (e.g., number of passenger aircraft gates) and area (e.g., a 50,000-square foot air cargo warehouse).

*SAMP goals were established by Port staff in consultation with the SAMP consultant team.

6. **Alternatives Development and Evaluation**—Develop alternatives for satisfying facility requirements during the planning period. Alternatives are (1) both physical (e.g., build a new roadway) and managerial (e.g., accommodate the demand elsewhere), (2) typically described in both narrative and graphic (i.e., drawings) formats, and (3) evaluated based on appropriate criteria (e.g., cost or environmental impact) for the purposes of comparison.

7. **Implementation Plan**—Describe proposed development plans for the planning periods, the cost of the plan elements, and triggers that will indicate need for specific facilities.

8. **Environmental Considerations**—Consider potential environmental impacts as development alternatives are identified and evaluated, and identify the likely environmental process that would be required to implement the recommended development plan.

9. **Financial Analysis**—Demonstrate how the recommended development plan will be financed, and its feasibility.

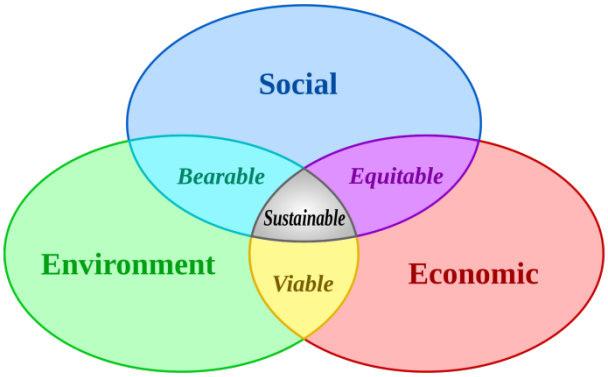
10. **Airport Layout Plan (ALP)**—Produce a set of drawings that graphically represent the plan and its conformance with FAA design criteria. The ALP is an official airport document that shows many items required by the FAA, as well as proposed future development.

1.3.3 Sustainable Airport Master Plans

This section describes how the traditional master planning approach is modified to include sustainability in the key steps of developing and screening alternatives. In the past, master planning typically focused on the financial bottom line and organizational needs/capabilities. Sustainable master planning, in contrast, captures local values as described below and incorporates environmental, social, and community outreach goals.

"Sustainability," as it relates to development, has many definitions, but generally has its origin in the 1987 United Nation's Commission on Environment and Development (known as the Brundtland Commission). The Brundtland Commission suggested that development was acceptable and necessary, but that it must be done in a sustainable manner. A plan or development is sustainable if it balances three – often competing – elements: economic/financial, environmental, and social. Development that accomplishes this is known as meeting the "Triple Bottom Line," as illustrated in Figure 1-1.

Figure 1-1
The Triple Bottom Line: Economic Environmental, and Social
Seattle-Tacoma International Airport



Source: "Sustainable development," Johann Dréo, Creative Commons, January, 2007.

Because the Airport received a grant from FAA to develop a SAMP, the FAA's approach and definition of sustainability and SAMP requirements also influence the process and integration of sustainability into the master plan. FAA defines as sustainable actions that:

- Reduce environmental impacts.
- Help maintain high, stable levels of economic growth.
- Help achieve "social progress," a broad set of actions that ensure organizational goals are achieved in a way that's consistent with the needs and values of the local community.*

The FAA also provides guidance for airports preparing sustainable airport master plans, stating that "Sustainability Master Plans (SAMPs) fully integrate sustainability into an airport's long-range planning [and] use(s) baseline assessments of environmental resources and community outreach to identify sustainability objectives that will reduce environmental impacts, realize economic benefits, and improve community relations."* For FAA funded sustainability planning efforts, the FAA requires **the sponsor to include the following:

- A written sustainability policy or mission statement.
- Categories or areas of focus as determined by each airport.
- Baseline inventory for each category.

*http://www.faa.gov/airports/environmental/sustainability/
**FAA, Airport Sustainability Master Plan, Memo from Elliot Black dated May 27, 2010 available at: http://www.faa.gov/airports/environmental/sustainability/media/interim_guidance_sustainable_master_plan_pilot.pdf

- Measureable goals for each category.
- Sustainability initiatives designed to achieve the goals.
- Public participation and community outreach.

Sustainability has been and will be integrated into the SAMP throughout the planning process in the following ways.

- Sustainability goals and objectives were developed from the Port's existing goals and objectives with guidance from the Port Century Agenda goals. This was completed during the first step of the SAMP and is documented in Chapter 3 of this Technical Memorandum.
- Sustainability goals and objectives will guide the development of alternatives and screening criteria that will be applied to identify preferred alternatives. The screening criteria will be developed considering the Airport's functional areas (e.g., terminal, airfield, landside, and cargo), potential alternatives for satisfying demand, and how objectives might be influenced by chosen alternatives.

For example, the Port has established a goal of reducing greenhouse gas emissions. Thus, the SAMP screening criteria will be used to assess the relative performance of alternatives with respect to changes in greenhouse gases. During implementation, the same criteria can be used to assess actual performance of chosen alternatives relative to all goals and objectives of the SAMP, to ensure that progress is made in a sustainable fashion.

The SAMP will include four categories of actions or initiatives that are designed to achieve the Port's sustainability goals and objectives. The four categories of actions are **what we build, where we build, how we build,** and **how we operate**. These actions:

- Involve construction (what, where, and how we build) and are reflected in the alternatives.
- Determine how the Port manages and operates the existing and future facilities (how we operate).

In a traditional master plan, the effort focuses on serving forecast demand with a preferred alternative that achieves the highest operational performance at the lowest cost. Sustainability Management Plans (SMPs) address how an airport can manage and/or operate its facilities in a sustainable fashion. The SAMP will contain alternative development actions and initiatives that will address where, what, and how the Port builds combined with how the Port manages and operates its airport facilities. All actions and initiatives will be evaluated for their contributions to achieving the sustainability goals and objectives.

The SAMP planning process parallels the traditional master plan process described in the previous section, but adds social considerations to most steps of the planning process. The SAMP process will

start with an inventory of existing conditions (across the financial/economic, environmental, and social/community outreach categories) and forecasts of aviation activity . Based on the forecasts, facility requirements (facilities needed to efficiently serve demand) will be identified. Then the planning effort will focus on how and where those requirements can be satisfied. In parallel, the planning team will begin to consider alternative management and operational initiatives to achieve the goals and objectives.

In the case of the SAMP, initial alternatives for meeting the needs of the various functional areas of the Airport (e.g., terminal, landside, cargo, etc.) will be identified. These alternatives will undergo high level screening relative to the SAMP objectives. The concepts that best achieve SAMP objectives will then continue through the planning process as preferred alternatives for functional areas.

The screening criteria for the various goals and objectives will be qualitative and quantitative, as appropriate. Criteria will be selected that best enable differentiation between alternatives, subject to a specific goal or objective. The screening results will then be summarized in a decision matrix, and either one or two alternatives will be selected as preferred based on overall performance relative to the criteria. Once preferred alternatives are selected for each functional area, initial long-range development alternatives will be developed, and one preferred alternative will be selected. The planning process will conclude with a vision for comprehensive long-range Airport development (Vision).

The Vision will reflect a balanced plan for satisfying goals and objectives across the entire Airport, rather than a plan for one or two functional areas. The Vision will identify the function, location, concept, and size of existing and planned facilities. The planning team will carefully review the Vision to determine how it performs relative to the SAMP goals and objectives (this process is referred to as a gap analysis). Any gaps between actual and desired performance will be identified and initiatives that would enable further optimization of the Vision will be identified.

Since a master plan does not include design or engineering, the sustainable facilities and gap analyses will identify initiatives that could enable the Port to further achieve SAMP objectives, further refining the preferred Vision. These initiatives may represent discrete changes in the plan as well as opportunities that a new or modified facility might enable as projects proceed into design. Total-cost-of-ownership (TCO) will be considered in light of sustainability principles.

Throughout the master planning process, the planning team and the Port will also identify existing and future management initiatives that support sustainable operations at the Airport and document their use in the Vision. These management initiatives will become the SMP portion of the SAMP and will result in an integrated Sustainability Management and Master Plan, which will be documented in Technical Memorandum No. 9. Also, Technical Memorandum No. 9 will contain the documentation requested by the FAA in its 2010 interim guidance memorandum about sustainable airport master plans, and will identify the implementation process (roles and responsibilities) for the various sustainability initiatives.

Before the Port can implement many of the recommendations of the SAMP, compliance with the National Environmental Policy Act (NEPA) and the Washington State Environmental Policy Act (SEPA)

will be required. Therefore, in tandem with preparing Technical Memorandum No. 9 to document the sustainability process and results, an Environmental Effects Overview will also be prepared. This review will provide a high level overview of the environmental effects of the Vision relative to the environmental resources considered in NEPA and SEPA, expanding upon the environmental categories reflected in the sustainability screening, and then will identify an approach to obtaining NEPA/SEPA clearance. This Environmental Effects Overview will be documented in Technical Memorandum No. 8.

This approach to including sustainability in the overall SAMP process is illustrated in Figure 1-2.

1.4 SAMP Scoping Process

Consistent with sustainability concepts, the SAMP was initiated with a series of scoping workshops involving the consultant team and both internal and external Port of Seattle stakeholders. Stakeholders included staff from the Port's Aviation Division, the Federal Aviation Administration (FAA), airlines, and local jurisdictions.

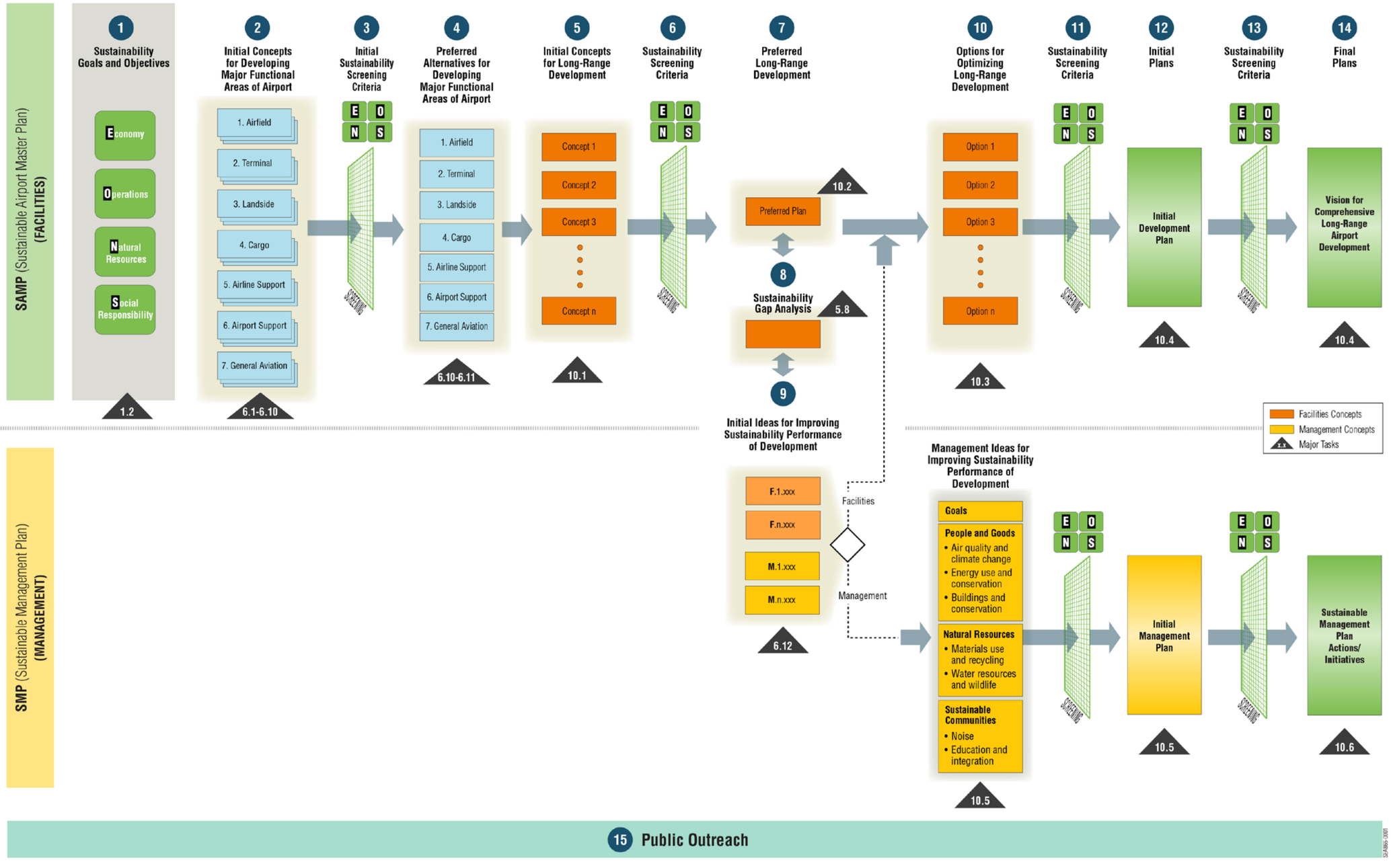
The objectives of the workshops were to acquaint the stakeholders with the master planning process and solicit input on issues of importance, which should be considered for inclusion the SAMP scope of work. The workshops were held in 2013, (July 24-26, July 30-August 1, and August 14). The results of the workshops are summarized in the document titled *Scoping Workshop Notes, Sustainable Airport Master Plan, Seattle-Tacoma International Airport*, August 7, 2013, Revised September 10, 2013.

Following the scoping workshops, a detailed draft study scope of work was prepared. The scope of work was organized by major tasks and, for each task, described:

- Objectives of the study process
- Approach
- Scope of Work
- Deliverables
- Coordination
- Schedule
- Responsibilities

The draft scope of work was the basis of an iterative process that involved (1) preparing a draft budget corresponding with the study draft scope of work, (2) comparing the study draft budget with the budget approved by the Port Commission, (3) revising the draft scope of work and budget, and (4) repeating the process until the budget was aligned with the budget approved by the Port Commission.

Figure 1-2
Process for Integrating Sustainability into the SAMP
Seattle-Tacoma International Airport



Source: LeighFisher, February, 2015

1.5 SAMP Documentation

The SAMP will be documented in nine Technical Memorandums, a summary report, an executive summary report, and an Airport layout plan. These documents and their purpose and content are summarized below.

- ***Technical Memorandum No. 1 Background, Process, Goals, and Objectives***—Defines the SAMP's purpose and desired outcome, (2) explains how the Port has made sustainability a strategic priority at the Airport, (3) communicates the results of the most recent sustainability goal-setting process as part of the SAMP, and (4) illustrates the integration of those sustainability goals into the SAMP process.

- ***Technical Memorandum No. 2 Inventory of Existing Conditions***—Documents drawings, plans and data that the planning team will use for subsequent requirements and alternatives analyses.

- ***Technical Memorandum No. 3 Air Cargo Market Assessment***—Documents (1) the composition of air carriers (and allied services) that forms the Airport's current air cargo operating environment, (2) improvements in facilities and services at the Airport that could stimulate air cargo growth beyond that reasonably expected through organic growth over the 25-year planning period, (3) competitive pressures from other gateways and other transport modes that could limit air cargo growth over the same planning period, (4) the commodity composition of exports and imports transported principally by air, as well as relevant intermodal combinations, (5) the international origins and destinations of commodities traversing regional gateways, and (6) the external economic factors that affect air cargo demand in the region.

- ***Technical Memorandum No. 4 Forecasts of Aviation Activity***—Documents forecasts of enplaned passengers, air cargo, based aircraft, and aircraft operations by type for use in the facility requirements analysis and the long-term development plan and strategy.

- ***Technical Memorandum No. 5 Facility Requirements***—Documents facilities and associated land areas required to accommodate future aviation activity for planning activity levels (PALs) corresponding with activity forecast for the 5-, 10-, 15-, and 20-year planning periods.

- ***Technical Memorandum No. 6 Alternatives***—Documents the alternatives for satisfying facility requirements that were assessed and identifies the vision for comprehensive long-range Airport development.

- ***Technical Memorandum No. 7 Facilities Implementation and Financial Feasibility***—Identifies the proposed Near-Term Projects (NTP; a subset of the Vision), their timing, phasing, cost, and rationale; summarizes the analyses that demonstrated the financial feasibility of the NTP; and recommends key actions following completion of the SAMP.

- ***Technical Memorandum No. 8 Environmental Overview***—Identifies any special purpose law that conflicts with the proposed SAMP recommendations, general project-related environmental effects (overview), and likely NEPA and SEPA processing requirements in areas such as wetlands, water quality, air quality, disturbed/ contaminated soil, site impacts to historical land, wildlife and endangered species, and noise.

- ***Technical Memorandum No. 9 Sustainability Planning and Management***—Synthesizes sustainability findings including: (1) gap analysis between impacts of forecasted growth and sustainability goals, (2) significant sustainability challenges faced by the Port, (3) important sustainability projects or project with a sustainability component identified by the SAMP, and (4) a roadmap that details the plan and processes for adopting the sustainability strategies and implementing initiatives through action plans, also known as the management plan.

- ***Executive Summary Report***—A concise document prepared to communicate essential SAMP conclusions and recommendations to the public.

- ***Airport Layout Plan***—The Airport layout plan is a set of drawings prepared according to FAA criteria. The ALP will reflect the development plan resulting from the SAMP and must be approved by the FAA.

National, Regional, and Local Sustainability Goals and Plans

The Port has already established sustainability goals, dedicated resources to achieve measurable outcomes, and reported on its progress to its stakeholders.

2.1 Introduction

This chapter further defines the concept of sustainability and identifies industry, federal, regional, and Port specific sustainability goals that were established prior to the start of the SAMP.

2.2 The Origin and Long-term Goals of Sustainability

Sustainability is related to global challenges recognized by the Port, which include climate change, economic stability, resource depletion, and environmental degradation among many others. All of these issues threaten the viability of the aviation industry, the Airport, and the communities the Port serves. The Port's challenges are also local in nature. Regional economic development, maintaining strong community relations, and investing in a healthy and prosperous workforce are crucial sustainability goals for the Port and are only achievable on the regional level. Because sustainability reflects local needs, the approach to sustainability varies from airport to airport.

The SAMP will translate the concept of sustainability into a framework useful for organizational decision-making, helping the Port understand dependencies, relationships, and trade-offs that exist when satisfying its business mission, serving its community, and protecting the environment.

Sustainability at the Airport is also shaped by external forces. Some of these are local, regional, and national government and policy organizations. Many of these organizations share the same broad vision and commitment to sustainability and some even share similar sustainability goals as the Port.

2.3 National and Airport Industry Sustainability Goals

The U.S. Federal Government exerts significant influence on sustainability programs at the Airport through regulation. In addition to regulatory influence, the U.S. Federal Government has established long-term sustainability-related goals in five focus areas: climate change, community and regional development, economy, energy, and environment. Twenty-four major Federal agencies identified these goals in their FY 2015 budgets and performance plans. At the federal level, the goals will be refined and reported against every two years.* A complete list of the federal goals can be found in Table A-1 in Appendix A.

*http://www.performance.gov/

In 2009, the Board of Directors of the Airports Council International – North America (ACI-NA) adopted a series of environmental goals. The Port is a member of ACI-NA and has been meeting many of ACI-NA's Environmental Goals.* One of two airport industry organizations, ACI-NA is the international organization that advocates policies and provides services that strengthen the ability of commercial airports to serve their passengers, customers and communities. Table A-2 in Appendix A lists ACI-NA's environmental goals, which are being updated in 2015, in the areas consistent with the Port's focus areas of: climate change and air quality, energy, environmental, noise, waste management, and water quality.

2.4 Puget Sound Region Sustainability Goals

Four major government and non-governmental organizations have set sustainability goals for the Puget Sound Region: City of Seattle, King County, Puget Sound Regional Council, and Washington State. Table A-3 in Appendix A summarizes the publicly available sustainability goals pursued by these organizations, by focus area. More information on each organization's sustainability goals can be found on their websites.

The State of Washington enacted sustainability goals through eight executive orders, as well as through regulations passed by several state agencies. These executive orders can be found in Table A-4 in Appendix A. Additional information can be found on the State of Washington Department of Ecology's sustainability website.**

In addition to what is listed in Table A-1 in Appendix A, the major focus areas and sub-focus areas of sustainability for Washington State are (1) Economic: Job Creation ("Enacting the Evergreen Jobs Act"); (2) Environmental: Climate Change, Environmentally Preferred Purchasing, Green Buildings, and Toxic Reduction; and (3) Social: Growth Management, Energy, and Affordable Housing.

2.5 The Port of Seattle Sustainability Goals

As mentioned in Section 1.1, the Port has undertaken a number of strategic planning exercises in the last five years to define its sustainability goals. The number and frequency of these separate strategic planning efforts demonstrate that the Port has strived to make sustainability local, i.e. addressing issues of particular importance to the Puget Sound Region and the Port's operation. The strategic planning exercises occurred at different levels of the organization, all offering relevant perspectives on how the Port can be more sustainable and what enhanced sustainability looks like. Furthermore, these efforts have revealed that what is considered "sustainable" is always changing. The SAMP is the next iteration in this process and will not be the last. Sustainability is built on a foundational culture of continuous performance monitoring and improvement.

The following sections describe past strategic planning exercises and present sustainability goals that were used to establish updated sustainability goals and objectives for the SAMP. Specific programs that

*http://www.aci-na.org/sites/default/files/board_enviro_goals_feb6.pdf
**http://www.ecy.wa.gov/sustainability/exeorders.html

resulted from the strategic planning exercises (1) illustrate how the Port manages and reports on sustainability and where the Port has focused efforts thus far in addressing sustainability, and (2) serve as a foundation for introducing the goals, objectives, and initiatives that were established during the SAMP sustainability goal-setting process discussed in Chapter 3.

2.5.1 Port Commission Century Agenda

As the Port neared its centennial of operation in 2011, the Port Commission undertook efforts to establish an agenda—known as the "Century Agenda"—for the next quarter century that would further its mission, vision, and commitment. The Century Agenda, shown in Table A-5 in Appendix A, includes the following strategies and objectives that relate to the Airport:

Position the Puget Sound region as a premier international logistics hub

- Triple air cargo volume to 750,000 metric tons.
- Triple the value of outbound cargo to over $50 billion.

Advance this region as a leading tourism destination and business gateway

- Make Seattle-Tacoma International Airport the West Coast "Gateway of Choice" for international travel.
- Double the number of international flights and destinations.
- Meet the region's air transportation needs at Seattle-Tacoma International Airport for the next 25 years and encourage the cost-effective expansion of domestic and international passenger and cargo service.

Use our influence as an institution to promote small business growth and workforce development

- Increase the proportion of funds spent by the Port with qualified small business firms on construction, goods and services to 40 percent of the eligible dollars spent.
- Increase workforce training, job and business opportunities for local communities in maritime, trade, travel and logistics.

Be the greenest, and most energy efficient port in North America

- Meet all increased energy needs through conservation and renewable sources.
- Meet or exceed agency requirements for storm water leaving Port-owned or operated facilities.
- Reduce air pollutants and carbon emissions: Reduce air pollutant emissions by 50 percent from 2005 levels. Reduce carbon emissions from all Port operations by 50 percent from 2005 levels and reduce aircraft-related carbon emissions at Sea-Tac Airport by 25 percent.

As a result of the Century Agenda, guiding principles and explicit strategic goals were developed for the Airport (these principles and strategic goals are summarized in Table A-6 in Appendix A). Furthermore, Port staff have included in their business plans actions to advance progress toward achieving the Century Agenda Vision, Strategies, and Objectives. These actions highlight the Port's individual business lines' contributions to the Century Agenda effort while increasing focus on their core businesses.

Because the Port Commission sets directives for the entire Port of Seattle, including the Airport, we refer to the Century Agenda Strategic Objectives as Century Agenda Goals for the purposes of the SAMP. Collectively, the Century Agenda goals and objectives are the foundation for the goals and objectives that will guide the SAMP.

2.5.2 Environmental Strategy Plan

The *Environmental Strategy Plan* (ESP), formulated in the context of the Century Agenda and completed in 2009, is a five-year roadmap for achieving greater environmental sustainability at the Airport. It established three high-level goals for the organization that could be addressed by activities related to the ESP:

- Move people and goods efficiently.
- Manage natural resources wisely.
- Promote sustainable communities.

Based on the ESP, the Port established the following focus areas or categories, each with specific goals: Air Quality and Climate Change, Energy Use and Conservation, Buildings and Infrastructure, Materials Use and Recycling, Water Resources and Wildlife, Noise, and Education and Integration. The focus areas and their goals are summarized in Table A-7 in Appendix A.

For each goal, the Port (1) identified key metrics, (2) summarized existing programs and progress to date on achieving the goal, and (3) set a target for achieving the goals by year 2014. Many elements of the ESP were leveraged during the process of establishing SAMP sustainability goals and objectives (discussed in more detail in Section 3.3).

2.5.3 25-Year Environmental Goals

As part of the Century Agenda, the Port also established Port-wide 25-year environmental goals that address pollution, energy, and land use issues most important to the Port. Many elements of the 25-year environmental goals were leveraged during the process of establishing SAMP sustainability goals and objectives, which is discussed in more detail in Section 3.3.

2.5.4 Aviation Business Plan, 2014

The *Aviation Business Plan* is a day-to-day strategic document that set the Airport's annual organizational goals across its business. A number of sustainability goals from the Aviation Business Plan were used to establish SAMP planning and sustainability goals. Table A-8 in Appendix A organizes

the Aviation Business Plan goals according to a related strategic goal in the Century Agenda and Sea-Tac Airport Purpose and Strategic Goals documents.

2.5.5 Other Historic Activities

In addition to its strategic planning exercises, the Port has implemented a number of sustainability policies and initiatives at the Airport since 2009.

The Airport's social responsibility programs are part of the Port's Office of Social Responsibility (OSR). The OSR seeks to ensure that the economic (job creation and development) and the environmental (healthy communities) gains made by the Port are done "within a framework of equity, inclusion and equal access." Social sustainability, as defined by the Global Reporting Initiative, "concerns the impacts the organization has on the social systems within which it operates."* These social systems are the communities that live within the local jurisdiction of SeaTac, Seattle, King County, and Washington State; business partners like airlines and contractors; and the Port's employees.

OSR programs and Airport specific programs are varied in size and scope. Yet, all programs strive to: (1) be a catalyst for change, (2) enhance human capital by giving people the ability to achieve their full potential, (3) remove barriers to participate in the economy, and (4) set an example in the community by reinforcing good behavior.**

The OSR goals and objectives establish broad direction on social responsibility for the Port. These goals do not easily translate into elements that can be used in the SAMP process. However, Technical Memorandum 9 will address how the recommendations of the SAMP will affect achievement of the Port's social goals.

*https://www.globalreporting.org
**http://www.portseattle.org/About/Organization/Documents/OSR_AnnualReport2014_EV1.pdf

SAMP Sustainability Goals and Objectives

Sustainability goals and objectives will help the Port achieve its sustainability vision as it develops, manages, and operates the Airport.

3.1 Introduction

The terms "goals" and "objectives" are used throughout this Technical Memorandum and the SAMP documentation. The roles in the development of these goals and objectives are summarized below, in order of the hierarchy related to their application.

- Port Commission—The Port Commission established goals for the Port and stated them in the Century Agenda (discussed in Chapter 2).
- Port Senior Management—Port senior management established the Airport's Purpose & Strategic Goals. These goals provide broad direction for the next five, ten, and twenty-five years.
- Aviation Division—the Aviation Division established goals and objectives specific to the Airport; these are reflected in the Aviation Division Business Plan, which articulates the Division's approach to achieving the Century Agenda and the Airport's strategic goals.
- Port Sustainability Team and SAMP Team— These Teams reviewed the goals and objectives established by the Port Commission, Port senior management, and the Aviation Division to determine the best way to apply them as the SAMP is developed. During this review, additional objectives were developed to better satisfy the goals, better differentiate among alternatives, and facilitate the screening of alternatives. This review, referred to as "the goal- setting process," generated sustainability goals and objectives.

This chapter summarizes the SAMP goal-setting process and key inputs and outputs and is organized in three sections

- Organization and formulation of sustainability goals and objectives.
- Summary of SAMP sustainability objectives and metrics.
- Sustainability management plan and its implementation.

It is expected that the sustainability goals and objectives will be modified over time, and will aid the Port in achieving its sustainability vision as it develops, manages, and operates the Airport. Later in the

SAMP process, initiatives will be identified that will improve performance related to meeting the sustainability goals and objectives.

3.2 Organization and Formulation of Sustainability Goals and Objectives

Following the triple-bottom line framework, the SAMP sustainability goals and objectives were organized and formulated according to three facets of sustainability: (1) Financial/Operational, (2) Environmental, and (3) Social/Community Outreach.

3.2.1 Financial/Operational Goals and Objectives

The Port's overall mission is to "create jobs by advancing trade and commerce, promoting industrial growth, and stimulating economic development" and it has established a public commitment to creating economic opportunities for all. Further, the Port has established its objective to "manage our finances responsibly." The following Aviation Business Plan goals guided the development of SAMP objectives:

- Maintain passenger airline cost per enplaned passenger (CPE) and forecasted CPE within the middle third of peer airports through 2019.
- Manage financial activity to achieve targeted metrics. Specific metrics for performance are: financial results, competitive airport costs, cash flow, liquidity, and leverage.
- Maximize non-aeronautical net operating income (NOI) consistent with current contracts, appropriate use of Airport properties, and market demand.

As noted in Chapter 1, airports in the U.S. have embraced sustainability, noting the importance of efficient airport operations within their financial/economic goals and objectives. The Port has established an operational policy of serving existing and future air travel while maintaining a safe and efficient airport. The Port's business plan matches up its Airport goals and objectives with the Commission's Century Agenda in the following way (those that are not applicable to the SAMP are not included):

- Triple air cargo volume to 750,000 metric tons (Century Agenda).
- Increase air cargo tonnage by 20 percent to a total of 364,000 metric tons in 2019. (Aviation Division Business Plan).
- Make Sea-Tac Airport the west coast "Gateway of Choice" for international travel (Century Agenda).
- Double the number of international flights and destinations (Century Agenda).
- Meet the region's air transportation needs at Sea-Tac Airport for the next 25 years (Century Agenda).
- Increase productivity of existing terminal facilities (Aviation Division Business Plan).

- Renew aging landside infrastructure. (Aviation Division Business Plan).
- Provide an efficient and updated baggage system that incorporates new technology and efficient conveyor systems necessary to improve system performance and allow for future growth. (Aviation Division Business Plan).

During meetings with Port staff managing the facilities in the functional areas of the Airport, the following objectives were identified that would assist with measuring progress toward achieving the Century Agenda and Commission goals:

- Enable the Port to achieve its financial goals in the business plan relative to Cost per Enplaned passenger (CPE) and Debt Per Enplaned passenger (DPE). It is believed that the following are important to achieving this primary objective:
  - Enable phased, incremental development.
  - Maximize use of technology to minimize the amount of new development.
  - Provide revenue-generating space in the terminal facilities in accordance with Port guidelines.
  - Ensure that that the cost of meeting facility needs does not exceed the Port's debt goals (i.e., overall affordability, but with total cost of ownership in mind).
- Minimize the effect of SAMP recommendations on cost center imbalances. This goal was identified as important because of the Airport lease agreement structure, which is based on cost centers, and it would affect the ability to afford future development.
- Reduce dwell time on the curb front and increase throughput to efficiently accommodate demand in the following ways:
  - Ensure capacity of public parking is adequate to enable the Port to increase revenue.
  - Provide cruise ship bus interfaces in ways that enhance customer service.
- Minimize aircraft taxi time and reduce airfield congestion associated with ground vehicles through the following measures:
  - Reduce runway crossings and reduce runway occupancy times.
  - Provide for efficient aircraft deicing.
  - Develop a Surface Area Management System.
  - Develop aircraft departure sequencing process vs. FAA first-come, first-served model.
  - With demand for Remain Over Night (RON) aircraft parking increasing, develop more versatile RON parking layouts and business arrangements.

- Satisfy the demand for air cargo in a manner that strives to consolidate cargo areas while minimizing congestion associated with the landside interfaces.
- Maximize efficient passenger and baggage movement throughout the passenger's trip through Sea-The Airport (garage/terminal-to-aircraft, and for connections, from aircraft to aircraft).
    - Maximize passenger throughput and level-of-service (LOS) in the terminal, including security checkpoints.
    - Maximize the passenger's ease of connection, and minimize wait time at security and check-in.
    - Maximize customer service by minimizing walking distances.
    - Minimize development by maximizing common use facilities.

When setting goals and objectives in the context of sustainability, it is important to also identify the metrics by which progress can be measured. In the case of financial objectives, those metrics would include: professional judgment, CPE, DPE, and NOI. Metrics associated with the operational goals are primarily aircraft taxi time, walking distances, wait times, level-of-service (LOS), and customer satisfaction. Technical Memorandum No. 5 will identify the facility requirements. Technical Memorandum No. 6 will identify the alternatives and their operational efficiency.

Technical Memorandum No. 9 (which presents the management plan for the sustainability plan) will identify quantifiable metrics, connected to objectives, that potentially can be used to measure and report on progress. Metrics may include: dwell/delay time, LOS, runway crossings, runway occupancy time, and customer satisfaction based on passenger surveys.

3.2.2 Environmental Goals and Objectives

Because the Airport's Environmental Strategy Plan expired in 2014, staff has been preparing the next phase of its environmental programs. This next phase would identify new objectives in light of the Century Agenda and new technological developments and ideas across the broad range of environmental sectors. The new objectives and initiatives designed to meet them will be presented in a new document entitled *Strategy for a Sustainable Sea-Tac* or S3.

Since the SAMP development timeline overlaps with S3, staff opted to integrate the two processes, and use the S3 objectives to help direct the sustainability aspects of the SAMP. The Port's S3 objectives-setting process took place in three stages. First, the Port staff working groups developed objectives and metrics to guide the continued development of the Airport's capital programs and operations. These new objectives were based on existing environmental sustainability objectives and progress to date, goals established in the Century Agenda (see earlier description), and the airport's strategic goal related to the environment. The high level goals are:

- Be the greenest and most energy efficient port in North America (Century Agenda).

- Lead the U.S. airport industry in environmental innovation and minimize the Airport's environmental impact. (Seattle-Tacoma International Airport Purpose and Strategic Goals).

The Port established working groups to structure organization-wide input into the Port's environmental objective-setting process. Each working group addressed one or more key focus areas that drive environmental performance of the Airport. Thirteen working groups were formed to guide refinement of environmental goals and objectives for use in the SAMP. The focus areas and proposed objectives from the working groups are summarized below.

Air Quality

- Reduce air pollutant emissions by 50 percent from 2005 levels by 2034.

Buildings and Infrastructure

- Seek LEED Silver for new construction, additions, and major renovations and minor renovations that modify mechanical, electrical, and plumbing systems, and encourage LEED certification for tenant improvements.

Climate Adaptation

- Complete a risk analysis of potential climate change impacts and implications for the Airport, and develop a strategic plan for avoiding/mitigating risks.

Climate Protection

- Reduce Airport-owned and controlled greenhouse gas emissions by 15 percent below 2005 levels by 2020, and 50 percent by 2034.

- Reduce aircraft-related greenhouse gas emissions by 25 percent below 2005 levels by 2034.

Construction Waste

- Divert to recycling 85 percent of construction waste by 2020, 90 percent by 2025, and reach zero waste by 2034.

Energy

- Meet all future growth in energy demand through the most practical and cost-effective conservation measures and renewable energy.

Fish and Wildlife

- Protect, enhance, and steward fish and wildlife habitat while maintaining air transportation safety.

Hazardous Waste

- Reduce the volume of hazardous waste generated from Port maintenance and operations to meet requirements for Small Quantity Generator Status by 2020.

Noise

- Increase the number of noise compatible units within the noise remedy boundary to 95 percent through the year 2030.

Terminal and Airfield Waste

- Divert 50 percent of terminal solid waste and 15 percent of airfield solid waste by 2020. (SAMP)

Transportation

- Increase the percentage of passengers accessing the Airport via environmentally-preferred modes of transportation from 60 percent in 2014 to 70 percent in 2020.

Water Conservation

- Reduce projected future consumption by 4 percent in 2020 and 12 percent in 2030.

Water Quality

- Contribute to the restoration of Puget Sound and local receiving waters by providing water quality treatment, flow control, and using green storm water infrastructure (where feasible) for Airport industrial storm water.

The working groups also established targets and metrics for each objective to monitor progress toward the goal(s). Similar to the financial/operational goals and objectives discussed in Section 3.3.1, metrics were also identified for the above SAMP goals and objectives. Metrics to be used in screening the SAMP alternatives could include professional judgment; anticipated natural resource consumption (i.e., water, energy); waste generation; emissions of criteria pollutants and greenhouse gases; filling wetlands and floodplains, etc. The initial screening of alternatives will likely occur by qualitative and professional judgment of environmental impacts. Once alternatives are narrowed to a smaller subset, it is expected that a more refined analysis of impacts will be conducted that would include selective quantification of the effects of the alternatives.

3.2.3 Social/Community Outreach

Social/community outreach, as it relates to sustainability and is defined by the Global Reporting Initiative, "concerns the impacts an organization has on the social systems within which it operates."* These social systems are the communities that live within the local jurisdiction of Sea-Tac, Seattle; King County; and Washington State; business partners like airlines, contractors, and tenants; and the Port's employees.

The Airport's social programs are part of the Port's larger Office of Social Responsibility (OSR), and are created to deliver on the Century Agenda Commitment: "The Port of Seattle creates economic opportunity for all, stewards our environment responsibly, partners with surrounding communities, promotes social responsibility, conducts ourselves transparently, and holds ourselves accountable."

*https://www.globalreporting.org

OSR ensures that gains in job creation and development made by the Port are done "within a framework of equity, inclusion and equal access." The OSR was consulted in preparing the SAMP, and three of its programs were identified in the social/community outreach goal-setting process.

The Port's goal-setting process for social/community outreach began with the existing social/community outreach goals and objectives found within the Century Agenda and Aviation Business Plan. Those goals and objectives include:

- Consistently Live by our Values (Century Agenda).
- Increase the proportion of funds spent by the Port with qualified small business firms on construction, goods and services to 25 percent of the eligible dollars spent (Century Agenda).
- Foster new aviation division opportunities for local businesses (Aviation Business Plan).
- Increase workforce training, job and business opportunities for local communities in maritime, trade, travel, and logistics (Century Agenda).
- Implement new aviation division programs that support Port-wide workforce development strategies and Commission Quality Jobs policies (Aviation Business Plan).
- Complete a Work Continuity and Succession Planning Departmental pilot program (Aviation Business Plan).
- Complete a Post-Graduate Fellowship pilot and produce recommendations for a follow on program (Aviation Division Business Plan).

In further refining the Port's overall social/community outreach goals and objectives, the following additional objectives were identified for use in the SAMP:

- Maximize the compatibility of new development with nearby lands.
- Identify benefits of proposed development to the local community.
- Enhance employee welfare, and facilitate diversity.
- Reduce off-Airport environmental impacts to nearby communities.
- Be transparent in public communications and increase outreach to the local community.

These additional goals and objectives will be measured with metrics such as jobs, payroll, economic output, environmental effects (using the metrics noted in the prior section on natural resource conservation and preservation), numbers of meeting and notices, and community feedback.

3.3 Summary of SAMP Goals and Objectives and Associated Metrics

Table 3-1 lists the SAMP objectives as well as the metrics that will be used in later Technical Memorandums to compare various alternatives and sustainability initiatives. To enable tracking the use and evolution of the goals and objectives, each is given a designation beginning with O and a sequential number (i.e., O1 through O23, with the O referring to Objective). Table B-1, located in Appendix B, summarizes how the SAMP goals and objectives in Table 3-1 relate to Port plans (i.e., the SAMP and SMP), functional areas of the Airport (i.e., airfield, terminal, landside, cargo, and support), and actions the Port can take to achieve its sustainability goals and objectives. These actions involve both construction (i.e., what, where, and how we build) and how the Port manages and operates its facilities.

Table 3-1
SAMP Goals and Objectives
Seattle-Tacoma International Airport

SAMP Goals / Objectives	Potential Metrics
O1: Enable the Port to achieve its financial goals in the business plan relative to Cost per Enplaned Passenger (CPE) and debt per enplaned passenger (DPE). The following are important to achieving this primary objective: • Enable phased, incremental development. • Maximize use of technology to minimize the amount of new development. • Provide revenue-generating space in the terminal facilities in accordance with Port guidelines. • Ensure that that the cost of meeting facility needs does not exceed the Port's debt goals (i.e., overall affordability, but with total cost of ownership in mind).	• Professional Judgment (cost, spatial allocation) • CPE • DPE • Total project capital costs • Estimated 20-year O & M costs • Total cost of ownership
O2: Minimize the effect of SAMP recommendations on cost center imbalances. This goal was identified as important, as given the Airport lease agreement structure that is based on cost centers. It would affect the ability to afford future development.	• Percentage of project cost allocated to airline cost center (for top 4 or 5 projects only)
O3: Reduce dwell time on the curb front and increase throughput to efficiently accommodate demand in the following ways: • Ensure capacity of public parking is adequate to enable the Port to increase revenue. • Provide cruise ship bus interfaces in a way that enhances customer service.	• LOS on curb front • Parking spaces • Average walk distance for cruise ship passengers—enplaning and deplaning • Average level changes for cruise ship passengers—enplaning and deplaning
O4: Minimize aircraft taxi time and reduce airfield congestion associated with ground vehicles in the following ways: • Reduce runway crossings and reduce runway occupancy times; • Provide for efficient aircraft de-icing. • Develop a Surface Area Management System. • Develop aircraft departure sequencing process vs. FAA First Come, First Serve model. • Develop more versatile parking, with RON demand increasing.	• Professional judgment (trade-offs among gate, RON, cargo, and deicing position productivity) • Professional judgment related to the availability of appropriately located runway exits, by airplane design group • Runway crossings • Runway occupancy times • Average aircraft taxi time • Average gate occupancy time during deice conditions

Table 3-1 *(continued)*
SAMP Goals and Objectives
Seattle-Tacoma International Airport

SAMP Goals / Objectives	Potential Metrics
O5: Satisfy the demand for air cargo in a manner that strives to consolidate cargo areas while minimizing congestion associated with the landside interfaces.	• Utilization ratio (metric tons per square foot of warehouse)
O6. Maximize efficient passenger and baggage movement throughout the passenger's trip through Sea-Tac Airport (garage/terminal – to-aircraft, and making connections from aircraft to aircraft): • Maximize passenger throughput and level-of-service (LOS) in the terminal, including security checkpoints. • Maximize the passenger's ease of connection, and minimize wait time at security and check-in. • Maximize customer service: Minimize walking distances. • Minimize development through maximize common use facilities.	• LOS (queuing, curbsides) • Minimum connect time • Average walking distance • Average SSCP wait time • Peak period SSCP wait time • Average distance—curb to bag drop; centroid of garage to bag drop • Last bag cutoff time
O7: Air Quality: Reduce air pollutant emissions by 50 percent from 2005 levels by 2034.	• Dwell time • Taxi time • Vehicle miles traveled • Emissions inventory (tons/year)
O8: Buildings and Infrastructure: Seek LEED Silver for new construction, additions, and major renovations and minor renovations that modify mechanical, electrical, and plumbing systems, and encourage LEED certification for tenant improvements.	• Square feet of buildings with LEED silver or higher certification.
O9: Climate Adaptation: Complete a risk analysis of potential climate change impacts and implications for the Airport, and develop a strategic plan for avoiding/mitigating risks.	• Complete risk analysis • Prepare strategic plan
O10: Climate Protection: Reduce Airport-owned and controlled greenhouse gas emissions by 15 percent below 2005 levels by 2020, and 50 percent by 2034.	• Energy consumption • Scope 1 & 2 Emissions inventory
O11: Climate Protection: Reduce aircraft-related greenhouse gas emissions by 25 percent below 2005 levels by 2034.	• Energy consumption • Scope 1 & 2 Emissions inventory
O12: Waste - Construction: Divert 85 percent of construction waste by 2020, 90 percent by 2025, and reach zero waste by 2034.	• percent of waste diverted.
O13: Waste - Terminal and Airfield: Divert 50 percent of terminal solid waste and 15 percent of airfield solid waste by 2020.	• Tons of Landfilled Waste • Tons of Recycled Waste
O14: Waste - Hazardous: Reduce the volume of hazardous waste generated from Port maintenance and operations to meet requirements for Small Quantity Generator Status by 2020.	• Kilograms of hazardous waste generated, rolling 180 days.

Table 3-1 *(continued)*
SAMP Goals and Objectives
Seattle-Tacoma International Airport

SAMP Goals / Objectives	Potential Metrics
O15: Energy: Meet all future growth in energy demand through the most practical and cost-effective conservation measures and renewable energy.	• Electricity (kWh) consumption per year • Percentage of electricity consumed that comes from renewable sources (kWhs from renewable/total kWhs). • Natural gas (therms) consumption per year • Percentage of natural gas consumed that comes from renewable sources (therms from renewable/total therms)
O16: Fish and Wildlife: Protect, enhance, and steward fish and wildlife habitat while maintaining air transportation safety.	• Acres of open space displaced • Acres of protected habitat displaced
O17: Noise: Increase the number of noise compatible units within the noise remedy boundary to 95 percent through the year 2030.	• Percentage of noise compatible units within the noise remedy boundary
O18: Transportation: Increase the percentage of passengers accessing the Airport via environmentally-preferred modes of transportation from 60 percent in 2014 to 70 percent in 2020.	• Percentage of passengers accessing the Airport under the various environmentally preferred modes (percentage of passengers using environmentally preferred modes relative to total O&D passengers) • Environmentally preferred modes: Daily parking, taxi, door-to-door van, hotel/motel courtesy vehicle, air porters, public transit, and charter/other bus.
O19: Water Conservation: Reduce projected future consumption by 4 percent by 2020 and 12 percent by 2030.	• Portable water consumption in gallons per year • Non-potable water reuse
O20: Water Quality: Contribute to the restoration of Puget Sound and local receiving waters by providing water quality treatment, flow control, and using green storm water infrastructure (where feasible) for Airport industrial storm water.	• Gallons of water treated by infiltration per year • Gallons of rainwater captured and reused per year
O21: Maximize the compatibility of new development with nearby lands.	• Consistency of propose project with existing zoning • Proximity to noise and light sensitive land uses
O22: Identify benefits of proposed development to the local community.	• Socioeconomic impact (jobs/payroll/regional economic input) • Roadway LOS/Congestion • Changes in environmental effects (O7 thru O20)
O23: Enhance employee welfare, and facilitate diversity.	• OSR office to determine – will not differentiate among MP alts
O24: Reduce off-Airport environmental effects to nearby communities.	• Changes in environmental effects (O7 thru O20)
O25: Be transparent in public communications and increase outreach to the local community.	• Number of interactions with the public (i.e., workshops) • Number of comments received

3.4 Sustainability Management Plan

The sustainability management plan will be documented in Technical Memorandum No. 9 and will include an integrated list of all goals and objectives and refinements as the SAMP progresses. It will also detail the SAMP initiatives recommended to achieve those goals and objectives, as well as action plans for accomplishing the initiatives.

SAMP initiatives will be discrete programs, actions, or investments that could be implemented to accomplish an objective. SAMP initiatives will be derived from S3, the Aviation Business Plan, and upon evaluation of needs as part of the SAMP study process.

The sustainability management plan will be organized using the Deming Cycle, a model for implementing organization change that relies on the repetition of four main steps of Plan, Do, Check, and Act:

- PLAN—The SAMP goal-setting process is the current iteration of planning work accomplished by the Port. The Port established objectives and metrics necessary to deliver results in –line with its goals.
- DO—The action plans created as part of the SAMP management plan will set the course for implementing the plan by executing initiatives.
- CHECK —As part of the S3, the Port will regularly study the results (identified by the metrics set in the objectives table in Section 3.4) and compare against the targets that were set during the Plan phase, in this case, the SAMP.
- ACT—Depending on the results of the Check phase, the Port can choose to adjust its strategy for pursuing the SAMP and any future goals it may establish. This includes any corrective actions on individual goals, objectives, targets, and initiatives as well as creating new initiatives to help achieve those goals and objectives.

In keeping with the Act step, through the SAMP, the Port has adjusted its environmental objectives (Section 3.3.2) to aid in further achieving its goals. As part of the implementation plan for the SAMP, the Port will continue to identify initiatives and actions that relate to managing the Port's environmental goals.

How SAMP Sustainability Goals and Objectives will Guide the Vision for Long-Term Airport Development

Recommendations for what and where we build, how we build, and how we operate Airport facilities will reflect the Port's sustainability goals and objectives.

4.1 Introduction

Chapter 1 of this Technical Memorandum describes the SAMP process, in which alternatives will be developed to meet the requirements for each functional area of the Airport. Requirements are the facilities and associated land areas needed to either accommodate future aviation demand or satisfy Port goals and objectives. Chapter 3 of this Technical Memorandum describes the sustainability goals and objectives to be used for the SAMP process.

As is discussed in Chapter 1, the Port intends to employ a three-part approach to achieving its sustainability goals and objectives. The first part of the approach is by building facilities, which is what a traditional master plan would consider. In the master planning process, what and where facilities would be built will be identified (**What and where we build**). The second part of the approach is to implement actions to manage the building process (**How we build**). The Port will also progress toward achieving its sustainability goals and objectives by improving the ways its facilities are managed and operated (**How we operate**); these actions are not dependent on construction. Thus, the SAMP addresses this three-part approach to sustainability.

As identified in Figure 1-2, sustainability goals and objectives will be used throughout the planning process to guide the development of physical alternatives for meeting requirements, inform the development of criteria used to screen the alternatives to a manageable number, and guide the refinement of the long-term development plan. This chapter provides conceptual examples that illustrate how SAMP sustainability goals and objectives will guide the planning process and development of the plan.

4.2 Developing Alternatives (What and Where to Build)

Developing alternatives is an iterative process. First, alternatives will be developed for each functional area of the Airport (e.g., the airfield, terminal, landside, cargo, airline support, airport support, and general aviation functions). This will consist of identifying the "what, where, and when" related to alternatives for satisfying functional requirements. Those alternatives will be screened and refined, which ultimately will result in identification of a preferred alternative for each functional area. The preferred functional area alternatives will then be assembled in different combinations to form long-

range Airport-wide development alternatives. Those alternatives will in turn be screened and refined, leading to identification of the vision for comprehensive long-range Airport development.

Goals and objectives will be used to guide the development of alternatives for both individual functional areas of the Airport and for the Airport as a whole. By understanding the Port's overall goals and objectives, the professionals developing the alternatives will have insight as to the Port's strategic direction. At the initial stage of the planning process, the influence of goals and objectives will be limited to "big picture" guidance such as the general purpose, location, and potential impact.

For example, the Century Agenda goal to "Meet the region's air transportation needs at Sea-Tac Airport for the next 25 years" will guide the planning team to identify alternatives that will accommodate all forecast air travel demand throughout the planning period. Technical Memorandum No. 4 *Aviation Activity Forecasts* presents the forecast prepared for the SAMP. Relative to the airfield functional area, for example, the planning team would interpret this goal as guidance to only identify airfield alternatives that efficiently accommodate all of the forecast activity. Alternatives that are unable to efficiently accommodate all of the forecast activity would not be developed.

4.3 Applying Screening Criteria to Identify the Vision (What, Where, and How to Build)

Two fundamental steps are involved in identifying the Vision: (a) alternatives will developed and screened in four stages, and (b) screening will occur in "rounds" (i.e., repetitions). These steps are described in the following sections.

4.3.1 Alternatives will be Identified, Refined, and Screened During a Four Stage Planning Process

Alternatives will be screened during each of four planning process stages with the objective of focusing subsequent project resources on the most promising alternatives and, ultimately, identifying the Vision. The four stages of the planning process and how they relate to the numbered process steps identified in Figure 1-2 are summarized below.

- Stage 1—Identify and screen initial alternatives for each functional area of the Airport relative to the ability to achieve the study goals and objectives. During this stage of development, experience shows that the greatest insight is learned about the performance of alternatives and the ability to achieve various goals and objectives. Stage 1 comprises steps 1 – 4 in Figure 1-2 and results in the identification of preferred alternatives for each functional area.

- Stage 2—Identify and screen initial alternatives for combining preferred functional area development into a preferred long-range Airport development plan. Stage 2 comprises steps 5 – 7 in Figure 1-2.

- Stage 3—Assess the preferred long-range Airport development plan against key sustainability goals (e.g., energy and water consumption and total cost of ownership) to identify performance gaps (i.e., failures to achieve the desired performance), and

alternatives for bridging the gaps and optimizing the preferred plan. It is expected that some of these alternatives will be discrete initiatives and others may be opportunities to be explored as the project moves into the design and engineering phase after completion of the SAMP. In Stage 3, how the facilities are built and how they are operated will be the focus. An example of how the plan might be optimized could be the application of the sustainable facilities model to identify opportunities to meet the SAMP goal of being the "greenest, most energy efficient port in North America." Stage 3 comprises steps 8 – 12 in Figure 1-2 and includes both physical plans (What and where we build) and management strategies for further improving performance related to sustainability objectives (How we operate).

- Stage 4—Screen final alternatives for opportunities to "fine tune" the preferred plan. The Vision will then be the plan that performs best relative to screening criteria across all sustainability criteria. Stage 4 comprises steps 13 – 14 in Figure 1-2 and could include both physical plans (What and where we build) and management strategies for further improving performance related to sustainability objectives (How we operate).

4.3.2 Screening will Occur in Rounds

Screening will occur in rounds within each stage of the planning process using criteria based on the sustainability goals and objectives and conditions unique to each functional area or alternative being considered. The objective will be to identify promising alternatives and move to the next stage of the process as efficiently as possible, thus making the most effective use of project resources.

The number of rounds of screening will vary, as appropriate, by functional area of the Airport (the issues to be resolved in the functional areas vary from inconsequential to complex) and by stage of the planning process. After each round of screening, both the remaining alternatives and subsequent screening criteria will be refined based on what was learned.

Early, the screening criteria will rely more on qualitative measures such as experience and professional judgment. In situations where many alternatives must be quickly reduced to a manageable number, the screening criteria may represent "threshold" tests—i.e., the criteria may represent minimum performance that must be achieved to warrant further consideration (for example, if a gate layout alternative does not deliver the required number of gates, it will be eliminated). As the number of alternatives is reduced, the depth of evaluation will increase and screening criteria will involve more quantitative measures and the use of high-level analytical tools (e.g., a gate, terminal, airfield, or roadway simulation model). Criteria derived from sustainability goals objectives will aid in comparing how well alternatives achieve desired results.

During each round of screening, attempts will be made to balance the number of criteria being considered relative to the three elements of sustainability—economic, environmental, and social. In many cases, it will not be possible to ensure an equal number of criteria for each of the elements. However, it is expected that in some instances the criteria will reflect more than one element of sustainability. For example, the criterion "reduced aircraft taxi time" could reflect a financial element (i.e., reduced fuel cost) as well as an environmental element of sustainability (i.e., reduced energy, pollution, and greenhouse gas emissions).

Appendix A
Background Information Related to National and Local Sustainability Goals

Table A-1
U.S. Federal Government Sustainability Goals
Seattle-Tacoma International Airport

Focus Areas	Goals
Climate Change	• More than double Federal government consumption of electricity from renewable sources to 20 percent by 2020 and improve energy efficiency at Federal facilities as part of the wider strategy to reduce the Federal Government's direct greenhouse gas emissions by 28 per cent and indirect greenhouse gas emissions by 13 per cent by 2020 (2008 baseline).
Community and Regional Development	• Foster quality of life in communities by integrating transportation policies, plans, and investments with coordinated housing and economic development policies to increase transportation choices and access to transportation services for all. • Increase the energy efficiency and health of the nation's housing stock. • Build strong, resilient, and inclusive communities. • Use Housing as a Platform to Improve Quality of Life. • Clean up communities, advance sustainable development, and protect disproportionately impacted low-income and minority communities. Prevent releases of harmful substances and clean up and restore contaminated areas. • Align community-based activities to provide seamless assistance to communities, both urban and rural, while maximizing efficiency and results. • Expand support of community efforts to build healthy, sustainable, green neighborhoods and reduce and prevent harmful exposures and health risks to children and underserved, overburdened communities.
Economy	• Improve federal investment tools and resources, while also increasing interagency coordination, to encourage foreign direct investment, spurring job growth. • Increase the economic impact of Federally-funded research and development by accelerating and improving the transfer of new technologies from the laboratory to the commercial marketplace. • Prepare workers for better jobs.
Energy	• Advance foundational science, innovate energy technologies, and inform data driven policies that enhance U.S. economic growth and job creation, energy security, and environmental quality, with emphasis on implementation of the President's Climate Action Plan to mitigate the risks of and enhance resilience against climate change. • Promote responsible development of renewable energy and ensure safe and environmentally responsible access to natural resources.
Environment	• Protect and restore waters to ensure that drinking water is safe and sustainably managed, and that aquatic ecosystems sustain fish, plants, wildlife, and other biota, as well as economic, recreational, and subsistence activities. • Reduce the risk and increase the safety of chemicals and prevent pollution at the source. Advance sustainable environmental outcomes and optimize economic and social outcomes through Agency decisions and actions, which include expanding the conversation on environmentalism and engaging a broad range of stakeholders. • Provide science to understand, model, and predict ecosystem, climate, and land use changes.

Table A-2
Airports Council International – North America Environmental Goals
Seattle-Tacoma International Airport

Focus Areas	Goals
Climate Change and Air Quality	• ACI-NA member airports will strive to convert airport-owned and operated ground vehicles and GSE to low emission vehicles with an industry-wide average goal of 50 percent of vehicle conversion by 2019. • By 2010, every ACI-NA member airport will strive to implement an incentive program to encourage taxi, shuttle, limo, and rental car companies to use low emission vehicles. • Half of ACI-NA member airports will strive to provide low emission vehicle support infrastructure by 2019. • Half of ACI-NA member airports will strive to provide incentives and/or reduced fee parking for low emission passenger vehicles by 2011. • Every ACI-NA member airport will strive to have at least 25 percent of its loading bridges equipped with pre-conditioned air and 400 Hz electrification by 2019. • Half of ACI-NA member airports will strive to conduct greenhouse gas emissions inventories by 2015.
Energy	• By 2014, every ACI-NA member airport will strive to implement an energy conservation program that includes adoption of an airport-specific goal to reduce non-renewable energy consumption.
Environment	• Environmental Policies: Every ACI-NA member airport will strive to have an environmental policy statement by 2010. • Environmental Management Systems: Every ACI-NA member airport will strive to have an Environmental Management System in place by: o 2014 at large airports o 2016 at medium airports o 2019 at small airports.
Noise	• Every ACI-NA member airport will strive to develop a noise and land use compatibility policy by 2019.
Waste Management	• Every ACI-NA member airports will strive to have a basic recycling program in place by 2011. Half of airports will have more extensive recycling programs by 2014.
Water Quality	• By 2014, every ACI-NA member airport will strive to implement a water conservation program that includes adoption of an airport-specific goal to reduce water consumption. • ACI-NA member airports will facilitate awareness and training with a goal of reducing spills by 25 percent from 2005 levels by 2015. ACI-NA airports will strive to have no releases of petroleum-based spills.

Table A-3
Sustainability Goals of Four Regional Governmental and Non-Governmental Organizations
Seattle-Tacoma International Airport

Focus Areas	City of Seattle [1]	King County [2]	Puget Sound Regional Council [3]	Washington State [4]
Building and Energy	• Energy conservation in residential, commercial, and city buildings. • Increase number and level of certified sustainable buildings. • Acquire 15 percent of electricity from new renewable sources by 2020. • Increase solar energy production in the community.	• Help reduce energy use by its residents, business and other partners and will support development of increasing amounts of local renewable energy. • King County will reduce energy used in government operations.	• The region will care for the natural environment by protecting and restoring natural systems, conserving habitat, improving water quality, reducing greenhouse gas emissions and air pollutants, and addressing potential climate change impacts. The region acknowledges that the health of all residents is connected to the health of the environment. Planning at all levels should consider the impacts of land use, development patterns, and transportation on the ecosystem.	• Requires that all new buildings and renovation projects that receive state funding be built to one of three green building standards. • Enhance economic competitiveness through an affordable and reliable energy supply. • Ensure the state's energy system meets the needs of its citizens. • Expand and integrate additional carbon-free and carbon-neutral generation. • Improving the energy transmission capacity serving the state. • Maintain and enhance our existing energy infrastructure. • Make state government a model for energy efficiency. • Meet statutory greenhouse gas limits and environmental requirements. • Pursue all cost-effective energy efficiency. • Reduce dependence on fossil fuel energy sources. • Support (1) access to clean energy markets (2) clean energy business and workforce development, (3) clean energy technology innovation, (4) development of cleaner energy sources, (5) clean, renewable energy and greenhouse gas-neutral operations.

[1] http://www.seattle.gov/environment/about-ose
[2] http://your.kingcounty.gov/dnrp/climate/documents/2013-King-County-Sustainability-Report.pdf
[3] http://www.psrc.org/assets/366/7293-V2040.pdf
[4] http://www.ecy.wa.gov/sustainability/exeorders.html

Table A-3 *(continued)*
Sustainability Goals of Four Regional Governmental and Non-Governmental Organizations
Seattle-Tacoma International Airport

Focus Areas	City of Seattle	King County	Puget Sound Regional Council	Washington State
Climate Change	Carbon neutral by 2050.	• Partner with its residents, businesses, local governments and other partners to reduce countywide greenhouse gas emissions by at least 80 percent below 2007 levels by 2050. • Reduce total greenhouse gas emissions from government operations, compared to a 2007 baseline, by at least 15 percent by 2015, 25 percent by 2020, and 50 percent by 2030. • Work with local cities and other partners to prepare for the effects of climate change on the environment, human health and the economy. • Plan and prepare for the likely impacts of climate change on County-owned facilities, infrastructure and natural resources.		• Return to 1990 greenhouse gas levels by 2020. • By 2035, reduce emissions to 25 percent below 1990 levels. • By 2050, reduce emissions to 50 percent below 1990 levels. • Programs to achieve goals: o Mandatory Emissions Inventory and Reporting o Creating Green Economy Jobs o Reducing Emissions from Transportation o Reducing Emissions from Electricity and Buildings o Helping Communities Save Energy and Reduce Emissions o State Agencies Reducing Emissions from their Operations o Preparing for and Adapting to Climate Change o Funding and Tax Incentives

Table A-3 *(continued)*
Sustainability Goals of Four Regional Governmental and Non-Governmental Organizations
Seattle-Tacoma International Airport

Focus Areas	City of Seattle	King County	Puget Sound Regional Council	Washington State
Development	Trees and Green Space • 1 acre of open space per 100 residents. • All residents live within 1/4 mile of a park. • 100 percent level of service for care of Seattle's green spaces. • 30 percent tree canopy cover by 2037. • 2,500 acres of forested parkland restored by 2025. • Increase volunteers caring for natural areas and trees. • Plant 1,800 trees in neighborhoods annually through community partnerships.	Forests and Agriculture • Support healthy, productive farms and privately owned forests that maximize biological carbon storage, promote public health, and are resilient to changing climate conditions. • Acquire, manage and restore its parks and other natural lands in ways that maximize biological carbon storage and are resilient to changing climate conditions.	The region will focus growth within already urbanized areas to create walkable, compact, and transit-oriented communities that maintain unique local character. Centers will continue to be a focus of development. Rural and natural resource lands will continue to be permanent and vital parts of the region.	
Economy			The region will have a prospering and sustainable regional economy by supporting businesses and job creation, investing in all people, sustaining environmental quality, and creating great central places, diverse communities, and high quality of life.	• Mobilize and enhance local assets that strengthen community ability to meet the economic and social needs of Washington's families, workers and employers. • Improve economic performance of rural areas. • Increase Washington's share of high growth, high employment, trade sectors. • Make Washington the best state in the country to start and grow a small business.
Food	• Increase healthy food access. • Increase urban food production. • Increase local food consumption.			

Table A-3 *(continued)*
Sustainability Goals of Four Regional Governmental and Non-Governmental Organizations
Seattle-Tacoma International Airport

Focus Areas	City of Seattle	King County	Puget Sound Regional Council	Washington State
Housing			The region will preserve, improve, and expand its housing stock to provide a range of affordable, healthy, and safe housing choices to every resident. The region will continue to promote fair and equal access to housing for all people.	
Public Service			The region will support development with adequate public facilities and services in a coordinated, efficient, and cost-effective manner that supports local and regional growth planning objectives.	
Transportation and Land Use	• Promote electric vehicles. • Triple the amount of bicycling in Seattle between 2007 and 2017. • Reduce the rate of bicycle collisions between 2007 and 2017. • Make Seattle the most walkable city in the United States.	• Reduce the need for driving and provide and encourage the use of sustainable transportation choices such as public transit, alternative technology vehicles, ridesharing, walking and bicycling. • Increase the efficiency of its vehicle fleets and minimize their greenhouse gas emissions.	The region will have a safe, cleaner, integrated, sustainable, and highly efficient multimodal transportation system that supports the regional growth strategy, promotes economic and environmental vitality, and contributes to better public health.	• Support reductions in vehicle miles traveled (VMT) and greenhouse gas (GHG) emissions. • Encourage more cost-effective and sustainable practices for construction and operations. • Facilitate efficient and sustainable transportation for users. • Research and promote the use of new technologies. • Promote alternative fuels and electric vehicle (EV) infrastructure. • Prepare our communities and the transportation system to adapt to climate change.

Table A-3 *(concluded)*
Sustainability Goals of Four Regional Governmental and Non-Governmental Organizations
Seattle-Tacoma International Airport

Focus Areas	City of Seattle	King County	Puget Sound Regional Council	Washington State
Waste Management	• Divert 70 percent of its waste to recycling and composting by 2020. • Increase the number of products where waste is managed by manufacturers. • Ban or discourage problem materials.	• Consumption and Materials Management • Encourage and support behaviors, purchasing, and waste management strategies that account for and minimize the life-cycle impacts of consumption and materials. • King County will minimize operational resource use, maximize reuse and recycling, and choose products and services that have low environmental impacts.		Green Purchasing • Increase purchases of environmentally preferable products. • Reduce the use of equipment, supplies, and other products that contain persistent, bio-accumulative toxic chemicals.
Water	• Use less than 105 million gallons of water per day. • Decommission 236 miles of logging roads in Cedar River watershed by 2020. • Manage 700 million gallons of runoff by 2025 with green infrastructure. • Increase pollutant removal from roadways. • Reduce sewer backups to less than 4 per 100 miles by 2025. • Reduce sewer overflows to one outflow per year by 2025.			

Table A-4
State of Washington Sustainability Executive Orders
Seattle-Tacoma International Airport

Executive Order 02-03, 2002: Sustainable Practices by State Agencies

Executive Order 04-01, 2004: Persistent Toxic Chemicals

Executive Order 05-01, 2005: Establishing Sustainability Efficiency Goals for State Operations

Executive Order 06-01, 2006: Reaffirming The Interagency Committee of State Employed Women

Executive Order 07-02, 2007: Washington Climate Change Challenge

Executive Order 08-01, 2008: Washington's New Americans Policy Council

Executive Order 08-02, 2008: Extending the State Biodiversity Council

Executive Order 09-05, 2009: Washington Leadership on Climate Change

Table A-5
Port Commission Century Agenda
Seattle-Tacoma International Airport

Regional Initiatives

- Strengthen access to global markets and supply chains for Northwest businesses.
- Make Washington a preferred destination for international travelers from countries with which we have direct flights.
- Establish an educational consortium to serve the needs of the maritime industry for workforce development, applied research, and business growth.
- Foster a coordinated effort among Puget Sound ports in support of Washington state's pursuit of a healthier Puget Sound.

Mission, Vision, and Commitment

- Our Mission: The Port of Seattle is a public agency that creates jobs by advancing trade and commerce, promoting industrial growth, and stimulating economic development.
- Our Vision: Over the next 25 years, we will add 100,000 jobs through economic growth led by the Port of Seattle, for a total of 300,000 Port-related jobs in the region, while reducing our environmental footprint.
- Our Commitment: The Port of Seattle creates economic opportunity for all, stewards our environment responsibly, partners with surrounding communities, promotes social responsibility, conducts ourselves transparently, and holds ourselves accountable. We will leave succeeding generations a stronger Port.

Strategic Goal 1

- Position the Puget Sound region as a premier international logistics hub.
- Objectives for Strategic Goal 1:
  - Grow seaport annual container volume to more than 3.5 million TEUs.
  - Structure our relationship with Washington ports to optimize infrastructure investments and financial returns.
  - Triple air cargo volume to 750,000 metric tons.
  - Triple the value of our outbound cargo to over $50 billion.
  - Double the economic value of the fishing and maritime cluster.

Table A-5 *(continued)*
Port Commission Century Agenda
Seattle-Tacoma International Airport

Strategic Goal 2

- Advance this region as a leading tourism destination and business gateway.
- Objectives for Strategic Goal 2:
  - Make Seattle-Tacoma International Airport the West Coast "Gateway of Choice" for international travel.
  - Double the number of international flights and destinations.
  - Meet the region's air transportation needs at Seattle-Tacoma International Airport for the next 25 years and encourage the cost-effective expansion of domestic and international passenger and cargo service.
  - Double the economic value of cruise traffic to Washington state.

Strategic Goal 3

- Use our influence as an institution to promote small business growth and workforce development.
- Objectives for Strategic Goal 3:
  - Increase the proportion of funds spent by the Port with qualified small business firms on construction, goods and services to 40 percent of the eligible dollars spent.
  - Increase workforce training, job and business opportunities for local communities in maritime, trade, travel and logistics.

Strategic Goal 4

- Be the greenest and most energy efficient port in North America.
- Objectives for Strategic Goal 4:
  - Meet all increased energy needs through conservation and renewable sources.
  - Meet or exceed agency requirements for storm water leaving Port-owned or operated facilities.
  - Reduce air pollutants and carbon emissions. Specifically: Reduce air pollutant emissions by 50 percent from 2005 levels. Reduce carbon emissions from all Port operations by 50 percent from 2005 levels and reduce aircraft-related carbon emissions at the Airport by 25 percent.

- Anchor the Puget Sound urban industrial land use to prevent sprawl in less developed areas.
- Restore, create, and enhance 40 additional acres of habitat in the Green/Duwamish watershed and Elliott Bay.

Table A-6
Seattle-Tacoma International Airport Purpose and Strategic Goals
Seattle-Tacoma International Airport

Purpose: Sea-Tac International Airport promotes regional economic vitality by:

- Operating a world-class international airport.
- Providing an extraordinary customer service.
- Being a model of environmental innovation for our region and our industry.

Strategic Goals:

- Operate a world-class international airport by:
  - Ensuring safe and secure operations.
  - Anticipating and meeting the needs of our tenants, passengers, and the region's economy.
  - Managing our assets to minimize the long-term total cost of ownership.
- Become one of the top ten customer service airports in the world by 2015.
- Lead the US airport industry in environmental innovation, and minimize the airport's environmental impact.
- Reduce airline costs (CPE) as much as possible without compromising operational and capital needs.
- Maximize non-aeronautical net operating income (NOI) consistent with current contracts, appropriate use of airport properties and market demand.
- Continually invest in a culture of employee development, organizational improvement, and business agility.
- Develop valued community partnerships based on mutual understanding and socially responsible practice.

Table A-7
Environmental Strategy Plan (ESP) Focus Areas and Focus Area Goals
Seattle-Tacoma International Airport

A. Air Quality and Climate Change
   a. Reduce air pollution that results from combustion and other activities.
   b. Reduce greenhouse gases (GHGs) that result from combustion and contribute to climate change.
   c. Prepare for climate change impacts.
   d. Improve the efficiency at which the community accesses the Airport.

B. Buildings and Infrastructure
   a. Increase adoption of LEED or other sustainable building performance frameworks.
   b. Improve asset management practices to minimize total cost of ownership and maximizes environmentally-sustainable development.

C. Energy Use and Conservation
   a. Reduce electricity and natural gas consumption.
   b. Increase adoption of technologies that reduce energy demand and increase efficiency.

D. Materials Use and Recycling
   a. Increase solid waste recycling rate.
   b. Reduce construction and hazardous waste.
   c. Reduce use of hazardous materials and opting for environmentally preferred products instead.

E. Noise
   a. Limit the noise impacts of its operations on the surrounding community.

F. Water Resource and Wildlife
   a. Reduce potable water consumption.
   b. Manage water treatment and flow control.
   c. Improve wildlife habitat and protections for native species not in conflict with aviation safety.
   d. Develop biologically sound approaches for managing hazardous wildlife

Table A-8
Airport Business Plan Goals and Associated Goal in Century Agenda or Port Strategic Goal
Seattle-Tacoma International Airport

Aviation Business Plan Goal	Century Agenda or Port Strategic Goal
Complete the Sustainable Airport Master Plan (SAMP) to meet the needs of our tenants, passengers and regional economy for the next 20 years.	"Leading tourism destination and business gateway"
Commence operations from new International Arrivals Facility (IAF) by December 31, 2018.	"Leading tourism destination and business gateway"
Facilitate/accommodate growth in international operations until new IAF is completed.	"Leading tourism destination and business gateway"
Complete all NorthSTAR program improvements by Q2 2000.	"Leading tourism destination and business gateway"
Increase productivity of existing terminal facilities.	"Leading tourism destination and business gateway"
Add four new international airline routes by 2019.	"Leading tourism destination and business gateway"
Renew aging landside infrastructure.	"Leading tourism destination and business gateway"
Provide an efficient and updated baggage system that incorporates new technology and efficient conveyor systems necessary to improve system performance and allow for future growth.	"Leading tourism destination and business gateway"
Identify and plan for all necessary refurbishments in the South Satellite.	"Leading tourism destination and business gateway"
Prepare a benefit/cost analysis for improvements to Minimum Connect Time (MCT).	"Leading tourism destination and business gateway"
Create a new Airport Master Record As-built Drawing System.	"Leading tourism destination and business gateway"
Complete initial comprehensive inventory of all physical assets across the Airport, continue periodic inspections to assess age and condition, and develop a system to facilitate forecasting of capital renewal projects and improve ongoing maintenance.	"Leading tourism destination and business gateway"
Achieve Top 5 ranking among 25 selected North American peers in 2018 ACI Airport Service Quality (ASQ) survey	"Leading tourism destination and business gateway"
Grow Continuous Process Improvement (CPI/Lean) across the Port.	"Leading tourism destination and business gateway"
Complete a work continuity and succession planning departmental pilot program.	"Leading tourism destination and business gateway"
Grow a mature Business Intelligence (BI) and performance management capability.	"Leading tourism destination and business gateway"
Implement noise mitigation programs consistent with updated Part 150 and Commission direction.	"Maintain community partnerships"

Table A-8 *(continued)*
Airport Business Plan Goals and Associated Goal in Century Agenda or Port Strategic Goal
Seattle-Tacoma International Airport

Aviation Business Plan Goal	Century Agenda or Port Strategic Goal
Collect accurate data to monitor compliance with noise abatement procedures and investigate stakeholder inquiries about Airport noise.	"Maintain community partnerships"
Maintain productive relationships with surrounding jurisdictions in order to facilitate support for redevelopment of Port-owned land in Airport communities. Airport community awareness of Port priorities and Commission goals 2015 – 2019. Airport jurisdictions approve Port projects 2015 - 2019.	"Maintain community partnerships"
Renegotiate the Port of Seattle/City of SeaTac Interlocal Agreement (ILA).	"Maintain community partnerships"
Implement new aviation division programs that support Port-wide workforce development strategies and Commission Quality Jobs policies.	"Maintain community partnerships"
Foster new aviation division opportunities for local businesses.	"Maintain community partnerships"
Prepare for the growing capital program to ensure program success.	"Manage our finances responsibly"
Maintain passenger airline cost per enplaned passenger (CPE) and forecasted CPE within the middle third of peer airports (list of 22 airports focusing on large hubs and Western U.S. airports) through 2019.	"Manage our finances responsibly"
Maintain Airport baseline O&M costs.	"Manage our finances responsibly"
Implement conservation practices that will enable Airport to meet all future electricity load growth (2010 baseline) through conservation and renewable energy.	"Manage our finances responsibly"
Manage financial activity to achieve targeted metrics.	"Manage our finances responsibly"
Grow Airport Dining and Retail sales per enplanement (SPE).	"Manage our finances responsibly"
Grow parking revenues.	"Manage our finances responsibly"
Grow annual revenues from leasing Airport property.	"Manage our finances responsibly"
Grow revenues from ground transportation service providers.	"Manage our finances responsibly"
Increase the revenues generated from the Airport's common-use lounge business.	"Manage our finances responsibly"
Make economical Airport cruise ship facility improvements where possible to support Seaport Division cruise business.	"Meeting needs of tenants, passengers, and the region's economy"

Table A-8 *(continued)*
Airport Business Plan Goals and Associated Goal in Century Agenda or Port Strategic Goal
Seattle-Tacoma International Airport

Aviation Business Plan Goal	Century Agenda or Port Strategic Goal
Provide adequate Airport-wide Wi-Fi infrastructure capacity.	"Meeting needs of tenants, passengers, and the region's economy"
Optimize use of Passenger Facility Charges (PFCs) to minimize CPE and to ensure that specific rates. Do not become a disincentive for airlines to operate at Sea-Tac Airport.	"Meeting needs of tenants, passengers, and the region's economy"
Increase Air Cargo tonnage by 20 percent to a total of 364,000 metric tons in 2019, in line with the Century Agenda.	"Premier international logistics hub"
Increase number and/or value of small business contracts.	"Promote small business growth and workforce development"
Improve overall safety of aircraft and vehicular movement measured by an increase in a composite annual score of 100 possible points, ranking runway incursions, wildlife strikes, taxilane and apron area surface incidents and Part 139 discrepancies.	"Safe and secure operations"
Reconstruct Runway 16C/34C by Q4 2015.	"Safe and secure operations"
Increase overall runway availability during snow events.	"Safe and secure operations"
Increase airline departure rate during snow events through centralized de-icing facilities.	"Safe and secure operations"
Ensure uninterrupted supply of jet fuel to Sea-Tac fuel farm from existing Olympic Pipeline Renton terminal through creation of redundant feed source.	"Safe and secure operations"
Mitigate risk of security breaches and associated downtime.	"Safe and secure operations"
Constantly improve overall readiness of the Port to respond to and recover from an emergency, disaster, and any event that would substantially disrupt business/operational continuity at the Airport.	"Safe and secure operations"
Provide emergency-back-up electrical power.	"Safe and secure operations"
Complete the next Sustainable Sea-Tac Strategy (S3) Plan by Q3 2015.	Be the greenest, and most energy efficient port in North America
Air Quality and Climate Change: Sea-Tac Airport will (1) reduce airport-owned and controlled greenhouse gas emissions by 15 percent below 2005 levels by 2020, and (2) implement programs with business partners to reduce emissions as much as possible.	Be the greenest, and most energy efficient port in North America
Materials Use & Recycling: Increase solid waste recycling rate to 50 percent by 2014. Develop goal for airfield recycling program.	Be the greenest, and most energy efficient port in North America
Water Conservation: Reduce operational (non-construction) potable water consumption rate 5 percent below 2008 levels.	Be the greenest, and most energy efficient port in North America

Table A-8 *(concluded)*
Airport Business Plan Goals and Associated Goal In Century Agenda or Port Strategic Goal
Seattle-Tacoma International Airport

Aviation Business Plan Goal	Century Agenda or Port Strategic Goal
Water Resources and Wildlife: Achieve and maintain Best Management Practices for water quality treatment and flow control over 100 percent of Airport industrial areas.	Be the greenest, and most energy efficient port in North America
Education & Integration: Institute an environmental education campaign to promote environmental stewardship and raise awareness of Airport environmental and sustainability initiatives. Integrate environmental and sustainability considerations into core business operations.	Be the greenest, and most energy efficient port in North America
New Airport buildings achieve high levels of environmental performance in energy, building materials, water conservation and indoor environmental quality.	Be the greenest, and most energy efficient port in North America
Complete a Post-Graduate Fellowship Pilot Program and produce recommendations for a follow-on program.	Promote small business growth and workforce development

Appendix B
Potential Applicability of SAMP Goals and Objectives to Port Plans, Functions, and Actions

Table B-1
Potential Applicability of SAMP Goals and Objectives to Port Plans, Functions, and Actions
Seattle-Tacoma International Airport

SAMP Goals / Objectives	Potential Metrics	Potential Applicability of SAMP Goals / Objectives										
		Plans		Function					Action			
		SAMP	SMP	Airfield	Terminal	Landside	Cargo	Support	What we build	Where we build	How we build	How we operate
O1: Enable the Port to achieve its financial goals in the business plan relative to Cost per Enplaned Passenger (CPE) and debt per enplaned passenger (DPE). The following are important to achieving this primary objective: • Enable phased, incremental development. • Maximize use of technology to minimize the amount of new development. • Provide revenue generating space in the terminal facilities in accordance with Port guidelines. • Ensure that that the cost of meeting facility needs does not exceed the Port's debt goals (i.e., overall affordability, but with total cost of ownership in mind).	• Professional Judgment (cost, spatial allocation) • CPE • DPE • Total project capital costs • Estimated 20-year O & M costs • Total cost of ownership	X		X	X	X	X	X	X	X	X	
O2: Minimize the effect of SAMP recommendations on cost center imbalances. This goal was identified as important, given the Airport lease agreement structure that is based on cost centers. It would affect the ability to afford future development.	• Percentage of project cost allocated to airline cost center (for top 4 or 5 projects only)	X							X			
O3: Reduce dwell time on the curb front and increase throughput to efficiently accommodate demand: • Ensure capacity of public parking is adequate to enable the Port to increase revenue; and • Provide cruise ship bus interfaces in a way that enhances customer service.	• LOS on curb front • Parking spaces • Average walk distance for cruise ship passengers—enplaning and deplaning • Average level changes for cruise ship passengers—enplaning and deplaning	X				X						X
O4: Minimize aircraft taxi time and reduce airfield congestion associated with ground vehicles: • Reduce runway crossings and reduce runway occupancy times. • Provide for efficient aircraft de-icing. • Develop a Surface Area Management System. • Develop aircraft departure sequencing process vs. FAA First-Come, First-Serve model. • With RON demand increasing, develop more versatile parking.	• Professional judgment (trade-offs among gate, RON, cargo, and deicing position productivity) • Professional judgment related to the availability of appropriately located runway exits, by airplane design group • Runway crossings • Runway occupancy times • Average aircraft taxi time • Average gate occupancy time during deice conditions	X		X					X	X		X
O5: Satisfy the demand for air cargo in a manner that consolidates cargo areas while minimizing congestion associated with the landside interfaces.	• Utilization ratio (metric tons per square foot of warehouse)	X					X		X	X		X

Table B-1 *(continued)*
Potential Applicability of SAMP Goals and Objectives to Port Plans, Functions, and Actions
Seattle-Tacoma International Airport

SAMP Goals / Objectives	Potential Metrics	Potential Applicability of SAMP Goals / Objectives										
		Plans		Function					Action			
		SAMP	SMP	Airfield	Terminal	Landside	Cargo	Support	What we build	Where we build	How we build	How we operate
O6. Maximize efficient passenger and baggage movement throughout the passenger's trip through Sea-Tac Airport (garage/terminal-to-aircraft, and for connections from aircraft to aircraft): • Maximize passenger throughput and level-of-service (LOS) in the terminal, including security checkpoints. • Maximize the passenger's ease of connection, and minimize wait time at security and check-in. • Maximize customer service: Minimize walking distances. • Minimize development through maximize common use facilities.	• LOS (queuing, curbsides) • Minimum connect time • Average walking distance • Average SSCP wait time • Peak period SSCP wait time • Average distance—curb to bag drop; centroid of garage to bag drop • Last bag cutoff time	X			X				X	X		X
O7: Air Quality: Reduce air pollutant emissions by 50 percent from 2005 levels by 2034.	• Dwell time • Taxi time • Vehicle miles traveled • Emissions inventory (tons/year)	X	X	X		X	X	X	X			X
O8: Buildings and Infrastructure: Seek LEED Silver for new construction, additions, and major renovations and minor renovations that modify mechanical, electrical, and plumbing systems, and encourage LEED certification for tenant improvements.	• Square feet of buildings with LEED silver or higher certification.		X		X		X	X			X	
O9: Climate Adaptation: Complete a risk analysis of potential climate change impacts and implications for the Airport, and develop a strategic plan for avoiding/mitigating risks.	• Complete risk analysis • Prepare strategic plan	X	X		X		X	X	X	X		
O10: Climate Protection: Reduce Airport-owned and controlled greenhouse gas emissions by 15 percent below 2005 levels by 2020, and 50 percent by 2034.	• Energy consumption • Scope 1 & 2 Emissions inventory	X	X	X	X	X	X	X	X		X	X
O11: Climate Protection: Reduce aircraft-related greenhouse gas emissions by 25 percent below 2005 levels by 2034.	• Energy consumption • Scope 1 & 2 Emissions inventory	X	X	X					X	X		X
O12: Waste - Construction: Divert 85 percent of construction waste by 2020, 90 percent by 2025, and reach zero waste by 2034.	• Percent of waste diverted.		X								X	
O13: Waste - Terminal and Airfield: Divert 50 percent of terminal solid waste and 15 percent of airfield solid waste by 2020.	• Tons of Landfilled Waste • Tons of Recycled Waste	X	X	X	X				X	X		X
O14: Waste - Hazardous: Reduce the volume of hazardous waste generated from Port maintenance and operations to meet requirements for Small Quantity Generator Status by 2020.	• Kilograms of hazardous waste generated, rolling 180 days.		X					X	X			X

Table B-1 *(concluded)*
Potential Applicability of SAMP Goals and Objectives to Port Plans, Functions, and Actions
Seattle-Tacoma International Airport

SAMP Goals / Objectives	Potential Metrics	Potential Applicability of SAMP Goals / Objectives										
		Plans		Function					Action			
		SAMP	SMP	Airfield	Terminal	Landside	Cargo	Support	What we build	Where we build	How we build	How we operate
O15: Energy: Meet all future growth in energy demand through the most practical and cost-effective conservation measures and renewable energy.	• Electricity (kWh) consumption per year • Percentage of electricity consumed that comes from renewable sources (kWhs from renewable/total kWhs). • Natural gas (therms) consumption per year • Percentage of natural gas consumed that comes from renewable sources (therms from renewable/total therms)	X	X	X	X	X	X	X	X			X
O16: Fish and Wildlife: Protect, enhance, and steward fish and wildlife habitat while maintaining air transportation safety.	• Acres of open space displaced • Acres of protected habitat displaced	X	X	X			X	X	X	X		X
O17: Noise: Increase the number of noise-compatible units within the noise remedy boundary to 95 percent through the year 2030.	• Percentage of noise compatible units within the noise remedy boundary		X									X
O18: Transportation: Increase the percentage of passengers accessing the Airport via environmentally-preferred modes of transportation from 60 percent in 2014 to 70 percent in 2020.	• Percentage of passengers accessing the Airport under the various environmentally preferred modes (percentage of passengers using environmentally preferred modes relative to total O&D passengers) • Environmentally preferred modes: Daily parking, taxi, door-to-door van, hotel/motel courtesy vehicle, air porters, public transit, and charter/other bus.	X	X			X						X
O19: Water Conservation: Reduce projected future consumption by 4 percent in 2020 and 12 percent in 2030.	• Portable water consumption in gallons per year • Non-potable water reuse	X	X		X			X	X			X
O20: Water Quality: Contribute to the restoration of Puget Sound and local receiving waters by providing water quality treatment, flow control, and using green storm water infrastructure (where feasible) for Airport industrial storm water.	• Gallons of water treated by infiltration per year • Gallons of rainwater captured and reused per year	X	X						X	X		X
O21: Maximize the compatibility of new development with nearby lands.	• Consistency of propose project with existing zoning • Proximity to noise and light sensitive land uses	X	X	X			X	X	X	X		X
O22: Identify benefits of proposed development to the local community.	• Socioeconomic impact (jobs/payroll/regional economic input) • Roadway LOS/Congestion • Changes in environmental effects (O7 thru O20)	X	X	X	X	X	X	X	X	X		
O23: Enhance employee welfare, and facilitate diversity.	• OSR office to determine – will not differentiate among MP alts		X	X	X	X	X	X			X	X
O24: Reduce off-Airport environmental impacts to nearby communities.	• Changes in environmental effects (O7 thru O20)	X	X	X			X	X	X	X	X	X
O25: Be transparent in public communications and increase outreach to the local community.	• Number of interactions with the public (i.e., workshops) • Number of comments received	X	X	X	X	X	X	X				X

Exhibit 6

From: Kranz, Erika (ENRD) <Erika.Kranz@usdoj.gov>
Sent: Thursday, April 12, 2018 11:42 AM
To: Adams, Matthew
Subject: Burien - CATEX
Attachments: 250 Westerly turn for SB turboprops in NF Categorical Exclusion.pdf; Appendix A - Initial Environmental Review.pdf; Appendix B - Zoning for Burien_Seattle_Normandy Park.pdf; Appendix C - Correspondence with WA State Historic Preservation Officer.pdf; Appendix E - Endangered Species Act Listed Species.pdf

Matt—
Attached are the CATEX body and attachments A, B, C, and E for the automated westerly turn for departing southbound turboprops when SEA is in north flow. I will send Appendix D separately, as it is a large file. Please do not make these documents public. They will be posted to FAA's website on Monday. Please let me know if you have any questions.

Erika Kranz
U.S. Department of Justice
Environment & Natural Resources Division, Appellate Section
202-307-6105 | Erika.Kranz@usdoj.gov

Exhibit 7

From: Kranz, Erika (ENRD) <Erika.Kranz@usdoj.gov>
Sent: Wednesday, May 09, 2018 1:16 PM
To: Adams, Matthew
Subject: RE: Automatic turn suspension question

Matt, I have learned that our standard practice would be to oppose an effort to amend a petition, although it seems we have not encountered this frequently. The only recent case I'm aware of where a petition was amended came in the context of an amended—not new—agency decision. Where there is an entirely new agency decision, and the existing petition is moot, a new petition is appropriate.

Erika

From: Adams, Matthew <matthew.adams@dentons.com>
Sent: Tuesday, May 8, 2018 4:20 PM
To: Kranz, Erika (ENRD) <EKranz@ENRD.USDOJ.GOV>
Subject: RE: Automatic turn suspension question

Erika-
Do you have any position on amendment of the petition (vs. filing of a new one)?
Happy to discuss later this week.
Many thanks,
Matt

DENTONS
Matthew Adams
Partner

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matthew.adams@dentons.com
Bio | Website

Dentons US LLP

Maclay Murray & Spens > Gallo Barrios Pickmann > Muñoz > Cardenas & Cardenas > Lopez Velarde > Rodyk > Boekel > OPF Partners > 大成 > McKenna Long

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From: Kranz, Erika (ENRD) [mailto:Erika.Kranz@usdoj.gov]
Sent: Tuesday, May 08, 2018 11:35 AM
To: Adams, Matthew
Subject: Automatic turn suspension question

Matt—In response to your question about what is meant by "when operationally feasible" in the CATEX statement, "This automatic westerly turn would be suspended between the hours of 10 pm and 6 am, when operationally feasible," I am told the following:

There may be times when national airspace system impacts throughout the day compound arrival and departure delays resulting a higher departure demand in the 10 o'clock hour than normally scheduled. The most common example is bad weather. The implementation of "sleepytime operations" and/or the termination of the automatic turns may be adjusted to allow the delayed airplanes to depart as efficiently as possible and for safety of the operation. Any decision to delay the implementation of noise sensitive procedures will be evaluated for each situation.

I hope this helps. I'll send along any more information that I receive.

Erika Kranz
U.S. Department of Justice
Environment & Natural Resources Division, Appellate Section
202-307-6105 | Erika.Kranz@usdoj.gov

CERTIFICATE OF SERVICE - CM/ECF

I certify that on November 30, 2018, I electronically filed the **PETITIONER'S CORRECTED MOTION TO CORRECT THE RECORD, OR IN THE ALTERNATIVE, FOR CONSIDERATION OF EXTRA-RECORD EVIDENCE** with the Clerk of the Court for the United States Court of Appeals for the Ninth Circuit by using the appellate CM/ECF system. Counsel for all parties are registered to use that system and, to my knowledge, will receive copies of this document upon its filing.

/s/Matthew G. Adams
Matthew G. Adams

CERTIFICATE OF SERVICE - CM/ECF

I certify that on November 30, 2018, I electronically filed the ***CORRECTED*** **PETITIONER'S MOTION TO CORRECT THE RECORD, OR IN THE ALTERNATIVE, FOR CONSIDERATION OF EXTRA-RECORD EVIDENCE** with the Clerk of the Court for the United States Court of Appeals for the Ninth Circuit by using the appellate CM/ECF system. Counsel for all parties are registered to use that system and, to my knowledge, will receive copies of this document upon its filing.

/s/Matthew G. Adams
Matthew G. Adams

Case No. 18-71705

IN THE UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

CITY OF BURIEN, WASHINGTON

Petitioner,

v.

FEDERAL AVIATION ADMINISTRATION and
MICHAEL HUERTA,

Respondents.

PETITIONER'S MOTION TO FILE *CORRECTED* PETITIONER'S OPENING BRIEF

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(206) 248-5535

Attorneys for Petitioner CITY OF BURIEN

Petitioner City of Burien, Washington, by and through its undersigned counsel, respectfully moves pursuant to Fed. R. App. P. 27 and Ninth Circuit Rule 27-1 for leave to file a corrected Opening Brief. Respondent Federal Aviation Administration (FAA), through counsel, does not oppose this motion. There is good cause to allow Petitioner to file the corrected Opening Brief. The grounds for this motion are as follows:

1. On November 29, 2018, Petitioner timely filed its Opening Brief in the above-captioned matter. (Dkt. 17.)
2. Petitioner's Opening Brief cited to certain exhibits Petitioner are requesting to be included in a Supplemental Administrative Record ("SAR"). (*See* Dkt. 23.)
3. For clarification and ease of reference, Petitioner revised the SAR exhibits to include page numbers starting in "SAR." (*See* Dkt. 23.)
4. Petitioner has now prepared a *Corrected* Opening Brief which replaces the previous citations with citations to the revised, numbered exhibits. (Dkt. 21).
5. Respondent will suffer no prejudice as a result of this motion. Respondent has been served with copies of the Opening Brief and *Corrected* Opening Brief via ECF (*see* Dkts. 17, 21), and the proposed revisions to the *Corrected* Opening Brief are not substantive.

6. For the foregoing reasons, Petitioner respectfully requests leave to file a *Corrected* Petitioner's Opening Brief.

Dated: December 3, 2018

Respectfully submitted,

DENTONS US LLP

By */s/ Matthew G. Adams*
Matthew G. Adams
Jessica L. Duggan
Attorneys for Petitioner

CERTIFICATE OF SERVICE - CM/ECF

I certify that on December 3, 2018, I electronically filed **PETITIONER'S MOTION TO FILE *CORRECTED* PETITIONER'S OPENING BRIEF** with the Clerk of the Court for the United States Court of Appeals for the Ninth Circuit by using the appellate CM/ECF system. Counsel for all parties are registered to use that system and, to my knowledge, will receive copies of this document upon its filing.

/s/Matthew G. Adams
Matthew G. Adams

UNITED STATES COURT OF APPEALS

FOR THE NINTH CIRCUIT

FILED

DEC 7 2018

MOLLY C. DWYER, CLERK
U.S. COURT OF APPEALS

CITY OF BURIEN, Petitioner, v. DANIEL K. ELWELL, Acting Administrator and FEDERAL AVIATION ADMINISTRATION, Respondents.	No. 18-71705 Federal Aviation Admin ORDER

Petitioner's motion (Docket Entry No. 23) to supplement the record, the attached proposed supplemental exhibits, and any related responses are referred for resolution to the panel assigned to consider the merits of this case.

Any discussion of the proposed supplemental exhibits in the parties' briefs may be stricken or disregarded if the merits panel denies petitioner's motion to supplement the record.

Petitioner's unopposed motion (Docket Entry No. 24) to file a corrected opening brief is granted.

The Clerk will strike the opening brief submitted at Docket Entry No. 17. The Clerk will file the excerpts of record and opening brief submitted at Docket Entry Nos. 18 and 20.

The answering brief is due 30 days after the date of this order. The optional

reply brief is due within 21 days after service of the answering brief.

Petitioner's motion (Docket Entry No. 19) is denied as moot.

FOR THE COURT:

MOLLY C. DWYER
CLERK OF COURT

By: Samantha Miller
Deputy Clerk
Ninth Circuit Rule 27-7

UNITED STATES COURT OF APPEALS

FOR THE NINTH CIRCUIT

FILED

DEC 07 2018

MOLLY C. DWYER, CLERK
U.S. COURT OF APPEALS

CITY OF BURIEN,

Petitioner,

v.

DANIEL K. ELWELL, Acting Administrator and FEDERAL AVIATION ADMINISTRATION,

Respondents.

No. 18-71705

FAA No.
Federal Aviation Administration

ORDER

The opening brief submitted on November 30, 2018 is filed. The standing declaration attached to the brief is lodged for such consideration as the merits panel deems appropriate.

Within 7 days of this order, petitioner is ordered to file 7 copies of the brief in paper format with blue covers, accompanied by certification (attached to the end of each copy of the brief) that the brief is identical to the version submitted electronically. The Form 18 certificate is available on the Court's website at http://www.ca9.uscourts.gov/forms/.

The Court has reviewed the excerpts of record submitted on November 30, 2018. Within 7 days of this order, petitioner is ordered to file 4 copies of the excerpts in paper format securely bound on the left side, with white covers.

The paper copies shall be submitted to the principal office of the Clerk. The address for regular U.S. mail is P.O. Box 193939, San Francisco, CA 94119-3939. The address for overnight mail is 95 Seventh Street, San Francisco, CA 94103-1526.

FOR THE COURT:

MOLLY C. DWYER
CLERK OF COURT

By: Liora Anis
Deputy Clerk
Ninth Circuit Rule 27-7

No. 18-71705

IN THE UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

CITY OF BURIEN, WASHINGTON,
Petitioner

v.

FEDERAL AVIATION ADMINISTRATION; MICHAEL P. HUERTA, in his official capacity as Administrator, Federal Aviation Administration,
Respondents.

ON PETITION FOR REVIEW FROM
THE FEDERAL AVIATION ADMINISTRATION

FEDERAL RESPONDENTS' RESPONSE TO PETITIONER'S MOTION TO CORRECT THE RECORD, OR IN THE ALTERNATIVE, FOR CONSIDERATION OF EXTRA-RECORD EVIDENCE

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INTRODUCTION

The Federal Aviation Administration ("FAA") conducted an environmental review regarding the proposed streamlining of heading issuance to certain southbound turboprop aircraft departing the Seattle-Tacoma International Airport while the airport is operating in north flow. FAA signed a Categorical Exclusion ("CATEX") on April 11, 2018, after determining that no further environmental review of this proposal was required. FAA published that decision on its website on April 16, 2018. The City of Burien ("Petitioner) filed a petition for review in this Court on June 11, 2018.

On November 29, 2018, Petitioner filed its opening brief. Petitioner moved on the same date to for this Court to "supplement FAA's Administrative Record" with seven attached documents "or, in the alternative, consider those seven documents as extra-record evidence." Pet. Mot. at 2–3. FAA hereby responds to that motion.

Only one of the seven documents attached to Petitioner's motion (Exhibit 1) is properly part of the administrative record. Another document (Exhibit 5) may be subject to limited extra-record consideration. The remaining five exhibits (Exhibits 2, 3, 4, 6, 7) are not properly before this

Court, and references to those exhibits in Petitioner's opening brief should be stricken.[1]

ARGUMENT

This Court's task is to determine whether the FAA decision that is the subject of the petition for review (i.e. FAA's CATEX) was arbitrary and capricious or contrary to governing law. *See Lands Council v. Powell*, 395 F.3d 1019, 1026 (9th Cir. 2005). Ordinarily, "review is to be based on the full administrative record that was before the [Administrator] at the time he made his decision." *Citizens to Preserve Overton Park, Inc. v. Volpe*, 401 U.S. 402, 420 (1971); *see also Fla. Power & Light Co. v. Lorion*, 470 U.S. 729, 743–44 (1985).

The Federal Rule of Appellate Procedure 16(a) supplies the contours of what constitutes the administrative record for purposes of a petition for review:

> Composition of the Record. The record on review or enforcement of an agency order consists of:
> **(1)** the order involved;
> **(2)** any findings or report on which it is based; and
> **(3)** the pleadings, evidence, and other parts of the proceedings before the agency.

Fed. R. App. P. 16(a); *see also* 28 U.S.C. § 2112(b).

Exceptions to this rule are "limited" and are "narrowly construed and applied." *Lands Council v. Powell*, 395 F.3d 1019, 1030 (9th Cir. 2005). Courts

[1] In fact, there are no references in the opening brief to Exhibits 1, 4, or 7.

may consider extra-record materials only when: (1) it is necessary to determine whether the agency has considered all relevant factors and explained its decision, (2) the agency has relied on documents not in the record, (3) supplementing the record is necessary to explain technical terms or complex subject matter, or (4) plaintiffs make a showing of bad faith. *City of Las Vegas, Nevada v. FAA*, 570 F.3d 1109, 1116 (9th Cir. 2009); *Sw. Ctr. for Biological Diversity v. U.S. Forest Serv.,* 100 F.3d 1443, 1450 (9th Cir.1996).

Except for two documents (Exhibit 1 and Exhibit 5), Petitioner does not identify which of these grounds apply to the documents they seek to have included in the administrative record or otherwise considered. For this reason alone, their motion may be denied as to all but the single document that FAA agrees is part of the administrative record (Exhibit 1), and a second document that may be subject to extra-record consideration (Exhibit 5). Indeed, the majority of these documents are not properly subject to review in this case.

I. Exhibit 1 is part of the record before the agency at the time of its decision.

Petitioner correctly notes that FAA's CATEX states that the agency relied upon Exhibit 1 to Petitioner's motion: "As part of FAA's noise evaluation, FAA also compared [study results] to the Part 150 Noise Compatibility Update for SEA, dated October 2013." AR37 at 39. This document is part of the administrative record before the agency at the time of

its decision, and was a basis of the decision, *see* Federal Rule of Appellate Procedure 16(a), but it was inadvertently omitted from the record provided to Petitioner. Although Petitioner's opening brief does not reference Exhibit 1 or raise concerns related to this document, FAA will amend its certified administrative record to include it.

II. Exhibits 2, 3, 4, 6, and 7 are not part of the administrative record for the decision challenged by Petitioner.

Petitioner challenges FAA's approval of the streamlining of heading assignment to departing turboprops, arguing that the agency has not complied with the National Environmental Policy Act. *See* Petition for Review (June 11, 2018); Corrected Opening Brief of Petitioner (Nov. 30, 2018).

In their present motion, Petitioner identifies five documents that they apparently believe are properly part of the record on review.[2] Most of these documents are correspondence between FAA or FAA's Department of Justice ("DOJ") counsel and the City of Burien regarding the status of FAA's environmental review (Exhibits 2, 3, 4, and 6), and one is a communication between the DOJ counsel and Petitioner's counsel regarding whether Petitioner could bootstrap its arguments regarding the FAA's new decision

[2] Petitioner does not actually state whether it believes these documents are part of the administrative record or whether it believes they are subject to extra-record review, and, if the latter, which exception to the record rule applies.

into a previously-filed petition about a now-rescinded decision (Exhibit 7). None of these documents falls within the categories of documents that constitute the record on review of an agency order, set forth in Federal Rule of Appellate Procedure 16(a).

Petitioner offers no argument as to why these documents either constitute part of the record or are subject to extra-record review (and Petitioner may not provide that argument in reply to this response, *see United States v. Anderso*n, 472 F.3d 662, 668 (9th Cir. 2006)). Instead, regarding Exhibits 2, 3, and 4, Petitioner simply states "This document is an official communication of the FAA [or Petitioner] . . . but it does not appear in the agency's administrative record." *See* Motion at 3–4. Regarding Exhibit 6, Petitioner states additionally that the document is necessary for effective judicial review because it "confirms the date of the FAA's final order." Mot. 5. And regarding Exhibit 7, Petitioner merely states that the document "confirms the positions of the Parties with regard to the filing of the Petition for Review." Mot. 5.

A document is not part of an administrative record simply because it is an "official communication" from an agency. None of these documents are (nor does Petitioner even argue that they are) (1) the order being challenged (i.e. the CATEX), (2) any findings or report on which the order is based, or (3)

evidence or pleadings that were before the agency at the time of its decision. Fed. R. App. P. 16(a). Nor do any of these documents more generally serve to elucidate the question before this court: whether FAA's decisionmaking process was arbitrary and capricious. *See City of Las Vegas, Nevada*, 570 F.3d at 1116 (declining to consider extra-record materials that did not go to the issue before the court). None constitute comments by Petitioner on the merits of the agency's analysis—those communications are already included in the certified administrative record provided to Petitioner. And Petitioner has made no argument that any of the exceptions allowing consideration of extra-record materials applies here.

Moreover, the April 12, 2018, email between DOJ counsel and Petitioner's counsel (Exhibit 6) was not before the agency at the time of its decision and is not evidence underlying the agency's decision, so it is not part of the administrative record. *See* Fed. R. App. P. 16(a). To the extent Petitioner desires to establish that its petition was timely, *see* Mot. 6, FAA stipulates that the CATEX challenged by Petitioner was provided to Petitioner's counsel on April 12, 2018, that the CATEX was published on FAA's website on April 16, 2018, and that the June 11, 2018, Petition challenging this decision was timely.

The May 8 and 9, 2018, correspondence between DOJ counsel and Petitioner's counsel regarding the requirement that the City of Burien file a

new petition for review to challenge a new agency decision (Exhibit 7) also has no bearing on the decision that is challenged in this Petition. This document is post-decisional (and was thus clearly not before the agency at the time it made the decision under review here), and does not serve any purpose that would permit its inclusion in the administrative record here. *See* Fed. R. App. P. 16(a). Further, Petitioner voluntarily dismissed its previous petition challenging a previous FAA decision (9th Cir. No. 17-70458, dismissed June 28, 2018), so there is no live dispute whether Petitioner was in fact required to file a new petition (nor does Petitioner make any such argument either in its motion or its opening brief).

None of these documents—Exhibits 2, 3, 4, 6, and 7—are part of the administrative record in this case. This Court should deny Petitioner's motion to "correct" the administrative record by including these documents (or to consider them as extra-record materials), and references to those exhibits should be stricken from Petitioner's opening brief.

III. This Court may take judicial notice of Exhibit 5.

Exhibit 5 is comprised of two technical memoranda prepared for the Seattle-Tacoma International Airport as a part of the planning process for the Sustainable Airport Master Plan. *See* Port of Seattle: Sustainable Airport Master Plan, https://www.portseattle.org/plans/sustainable-airport-master-

plan-samp (last visited December 5, 2018). Petitioner asks the Court to review these documents, invoking the exception that allows review of extra-record materials where "necessary to determine whether the agency has considered all relevant factors and explained its decision." *City of Las Vegas, Nevada*, 570 F.3d at 1116. These documents are not part of the administrative record before the agency, but this Court may consider them for the limited purpose of determining whether FAA conducted an appropriate cumulative impacts analysis. *See* Corrected Opening Brief of Petitioner at 27–28 (citing SAR 152–242).

The relevance of these documents to this case is highly disputed. For one thing, these technical memoranda were completed in May 2018, after the decision challenged by Petitioner here. The memoranda also are part of a planning document that recommends near- and long-term projects that have yet to undergo environmental review and that are not certain to be implemented. The speculative nature of projects included in this plan makes them inappropriate for inclusion in a cumulative impacts analysis.

However, while the relevance of these documents is disputed, their authenticity is not, and Petitioner may draw this Court's attention to the fact of their existence. The technical memoranda are publically available at https://www.portseattle.org/sites/default/files/2018-05/TM-No-07-

Facilities-Implementation-and-Financial-Feasibility.pdf and https://www.portseattle.org/sites/default/files/2018-05/TM-No-01-Background-Process-Goals-Objectives.pdf, respectively, or may be accessed through the Sustainable Airport Master Plan link above. A court may take judicial notice of a fact "not subject to reasonable dispute in that it is either (1) generally known within the territorial jurisdiction of the trial court or (2) capable of accurate and ready determination by resort to sources whose accuracy cannot reasonably be questioned." Fed. R. Evid. 201(b). This Court may therefore take judicial notice of "matters of public record." *Lee v. City of Los Angeles*, 250 F.3d 668, 689 (9th Cir. 2001).

Judicial notice of Exhibits 5 does not, however, mean that FAA accepts as correct the legal arguments and factual representations contained in those documents, *see City of Los Angeles*, 250 F.3d at 689–90 (reversing a district court decision to take "judicial notice of disputed facts stated in public records"), nor does FAA accept Petitioner's argument in its opening brief that FAA failed to appropriately consider cumulative effects of the decision challenged here.

Accordingly, while the documents in Exhibit 5 are not part of the administrative record, the Court may take judicial notice of them and consider them for the limited purposes argued in Petitioner's opening brief.

CONCLUSION

For the foregoing reasons, FAA respectfully requests that Petitioner's Motion to Supplement the Administrative Record be treated in the following fashion:

- FAA will supplement the record with Exhibit 1.
- This Court may take judicial notice of and consider Exhibit 5 as "extra-record evidence" for the limited purpose of assessing whether the agency has considered all relevant factors and explained its decision.
- All references in the opening brief to Exhibits 2, 3, 4, 6, and 7 should be stricken from the opening brief (and Petitioner should make no reference to these Exhibits in its reply brief).

Respectfully submitted,

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UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

Form 15. Certificate of Service for Electronic Filing

9th Cir. Case Number(s) 18-71705

I hereby certify that I electronically filed the foregoing/attached document(s) on this date with the Clerk of the Court for the United States Court of Appeals for the Ninth Circuit using the Appellate Electronic Filing system.

Service on Case Participants Who Are Registered for Electronic Filing:
[X] I certify that I served the foregoing/attached document(s) via email to all registered case participants on this date because it is a sealed filing or is submitted as an original petition or other original proceeding and therefore cannot be served via the Appellate Electronic Filing system.

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[ ] I certify that I served the foregoing/attached document(s) on this date by hand delivery, mail, third party commercial carrier for delivery within 3 calendar days, or, having obtained prior consent, by email to the following unregistered case participants *(list each name and mailing/email address)*:

Description of Document(s) *(required for all documents)***:**

Federal Respondents' Response to Petitioner's Motion to Correct the Record, or in the Alternative, for Consideration of Extra-Record Evidence

Signature s/Erika B. Kranz **Date** 12/10/18

CERTIFICATE OF COMPLIANCE

I hereby certify that the preceding response to a motion complies with the formatting and type-volume restrictions of the Fed. R. App. P. 27(d). The response to a motion was prepared in 14-point, double-spaced, Calisto MT font, using Microsoft Word 2013. This response to a motion contains **2074 words**, and therefore complies with Fed. R. App. P. 27(d)(2)(A).

s/Erika B. Kranz
Attorney, Appellate Section
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Environment & Natural Resources Div.
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IN THE UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

CITY OF BURIEN, *Petitioner*, v. FEDERAL AVIATION ADMINISTRATION, et al., *Respondents.*	**No. 18-71705**

NOTICE OF FILING OF THE SECOND AMENDED CERTIFIED INDEX TO THE ADMINISTRATIVE RECORD

As indicated in its December 10, 2018, Response to Petitioner's Motion to Correct the Record, the Federal Aviation Administration ("FAA") has amended its administrative record in this matter to include the Final Seattle-Tacoma International Airport Part 150 Noise Compatibility Study Update (Document 46 on the attached index). Attached to this filing are the following documents:

1. A certification that the FAA has designated the second amended administrative record for the Letter of Agreement (LOA) Update to Automate a 250 Westerly Turn for Southbound Turboprops when

Seattle – Tacoma International Airport is Operating in North-Flow Between the Hours of 6 am and 10 pm; and

2. The second amended certified index to that record.

The FAA is making the documents in the amended administrative record available to Petitioner City of Burien by sending the documents on the attached index to:

Matthew G. Adams
Dentons US LLP
One Market Plaza
Spear Tower, 24th Floor
San Francisco, CA 94105

Respectfully Submitted,

s/ *Erika B. Kranz*
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UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

Form 15. Certificate of Service for Electronic Filing

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9th Cir. Case Number(s) 18-71705

I hereby certify that I electronically filed the foregoing/attached document(s) on this date with the Clerk of the Court for the United States Court of Appeals for the Ninth Circuit using the Appellate Electronic Filing system.

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☒ I certify that I served the foregoing/attached document(s) via email to all registered case participants on this date because it is a sealed filing or is submitted as an original petition or other original proceeding and therefore cannot be served via the Appellate Electronic Filing system.

Service on Case Participants Who Are NOT Registered for Electronic Filing:

☐ I certify that I served the foregoing/attached document(s) on this date by hand delivery, mail, third party commercial carrier for delivery within 3 calendar days, or, having obtained prior consent, by email to the following unregistered case participants *(list each name and mailing/email address)*:

Description of Document(s) *(required for all documents)*:

Notice of Second Amended Administrative Record

Signature s/Erika B. Kranz **Date** Dec 12, 2018

(use "s/[typed name]" to sign electronically-filed documents)

Feedback or questions about this form? Email us at forms@ca9.uscourts.gov

IN THE UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

No. 18-71705

CITY OF BURIEN,

Petitioner,

V.
FEDERAL AVIATION ADMINISTRATION, et al.;

Respondents.

ON PETITION FOR REVIEW OF AGENCY ORDER

CERTIFIED SECOND AMENDED INDEX of RECORD

I, Elizabeth Healy, FAA Environmental Project Manager, hereby certify that the attached is the index of the second amended administrative record in support of the FAA Order dated April 11, 2018, directing implementation of the Letter of Agreement (LOA) Update to Automate a 250 Westerly Turn for Southbound Turboprops when Seattle – Tacoma International Airport is Operating in North-Flow Between the Hours of 6 am and 10 pm. The complete administrative record is available for review. In addition to the documents listed in the attached amended index, the record also includes technical data used to conduct FAA's noise screening analysis. The results of this analysis are included in the record. However, reviewing this raw technical data in a comprehensible form requires a specialized software form called Terminal Area Route Generation, Evaluation and Traffic Simulation (TARGETS). If either Petitioners or the Court wish to review this data from February 15, 2017 and/or March 14, 2018, the FAA can provide the data and a temporary TARGETS license to Petitioners and/or the Court.

December 12, 2018
Date

Elizabeth Healy
Environmental Specialist,
Federal Aviation Administration,
Western Service Center
Operations Support Group

Certified Second Amended Index of Record						December 2018
Burien LOA for 250 Westerly Turn Automation CATEX						
Document Number	Document Date	Title	Document Type	Author(s)	Recipient(s)	Comments
		General Guidance / Documents				
1	1/7/1970	40 Code of Federal Regulations (CFR) Parts 1500-1508, Council on Environmental Quality (CEQ) regulations	Code of Federal Regulations	CEQ		
2	12/1/2012	Guidance for Noise Screening of Air Traffic Actions Revision 1.1	Guidance	Mitre		The first page of this document includes the FAA January 4, 2013 Memo authorizing the use of the December 2012 guidance.
3	7/16/2015	FAA Order 1050.1 F - Environmental Impacts: Policies and Procedures	Order	FAA		
4	10/27/2015	FAA JO 7110.65 - Air Traffic Control	Order	FAA		
5	4/6/2016	Order S46 7110.65M Facility Standard Operation Procedures	Order	FAA		
6	July 2016	FAA Office of Environment and Energy 1050.1 F Desk Reference	Guidance	FAA		
7	January 2017	TARGETS 5.2 User Manual January 2017	Guidance	FAA		
8	10/12/2017	Order JO 7210.3AA, Facility Operation and Administration	Order	FAA		This is FAA's Order governing LOAs.
9	10/12/2017	FAA JO 7400.2L Change 1 - Procedures for Handling Airspace Matters	Order	FAA		
		Project Documentation				
10	July 2016	Briefing Guide SEA	Document	FAA	FAA	This document has been superceded by Document Number 42.
11	7/26/2016	LOA with automated turn paragraph	Document	FAA		
12	9/26/2016	RE: Request for Meeting with FAA to Discuss Flight Patterns over Burien	Email	Burien	FAA	The City of Burien asked FAA to participate in a meeting to discuss Flight Patterns over Burien, along with the Port of Seattle+G47. The email summarized the citizen comments received by the City during the September 19, 2016 City Council meeting.
13	11/4/2016	Quiet Skies Coalition Flight Path Changes, Meeting Between the FAA, Port of Seattle and Quiet Skies Coalition	PowerPoint	QSC	FAA, Burien	QSC's PowerPoint presentation used for 11/4/2016 meeting with Burien and FAA.
14	12/28/2016	FAA Responded to Quiet Skies Coalition Request for Information	PowerPoint	FAA	Burien, QSC	FAA PowerPoint presentation to QSC and Burien where FAA responded to the QSC questions from the November 4, 2016
15	3/24/2017	Notice removing automatic northflow 250 heading turn	Document	FAA		
16	5/22/2017	Congresswoman Jayapal letter (questions)	Letter	Congresswoman Jayapal	FAA	

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Document Number	Document Date	Title	Document Type	Author(s)	Recipient(s)	Comments
17	6/8/2017	Preliminary Environmental Analysis	Document	FAA		The document date used was the date it was posted to FAA's website since the document isn't dated.
18	6/21/2017	Congresswoman Jayapal letter (comment period extension request)	Letter	Congresswoman Jayapal	FAA	
19	6/22/2017	Comment Period Extension press release	Email	FAA	media (Q13, King 5, CMG-Seattle, KOMO-TV 4) and alaskaair	
20	6/22/2017	Comment Period Extension	Email	FAA	Burien (Tony Piasceki)	
21	6/23/2017	Email confirming the mislabeled figures in the PEA were corrected, and the comment period was extended.	Email chain	NETDES (Nancy Pierce)	FAA	The email shows the notice that website has been updated with Preliminary Environmental Analysis Revision to Figure on page 8 (labels updated for Figures 5 and 6) and comment period extension. FAA's website no longer shows this notice.
22	7/25/2017	RE: Pre-Meeting for 7/25 City of Burien Meeting	Email chain	FAA	FAA	Discussion of developing an Agenda for July 25, 2017 meeting with City of Burien
23	8/1/2017	FW: incorporating yesterday's discussion into the environmental review	Email chain	FAA	FAA	Email chain includes information discussing missed approach aircraft on headings including 250, 270 and 290.
24	8/17/2017	City of Burien Letter	Letter	Burien	FAA	
25	8/29/2017	Response to Jayapal's 5/22/17 letter	Letter	FAA	Congresswoman Jayapal	
26	8/30/2017	Re: July 25th 2017 City of Burien-FAA Meeting	Email	FAA	City of Burien	FAA acknowledgement of July 25 City of Burien letter. Full response is in Appendix D of the CATEX.
27	8/30/2017	Fwd: Burien Citizen Concerns - Mrs. Howel	Email chain with two attachments	Burien	FAA	Emails between Burien and FAA, and internal FAA emails. Burien forwarded a citizen's complaint which included two attached documents. The email chain and the attachments were combined into one file.
28	9/1/2017	SEA Missed Approach (Go-Around) data	Excel file(s)	FAA	FAA	Seventeen monthly Excel files with dates ranging from March 2016 through August 2017 were combined into one Adobe pdf file. This is raw data from SEA tower for missed approaches (go-arounds) in the date range for all aircraft types.
29	9/19/2017	RE: Updated Burien documents and draft response to the 270 heading - 12:25 pm	Email chain	FAA	FAA	
30	9/19/2017	RE: Updated Burien documents and draft response to the 270 heading - 1:01 pm	Email chain	FAA	FAA	

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Document Number	Document Date	Title	Document Type	Author(s)	Recipient(s)	Comments
31	9/19/2017	RE: Updated Burien documents and draft response to the 270 heading - 2:27 pm	Email chain	FAA	FAA	
32	9/25/2017	RE: Input for responding to City of Burien and clarifying Alternatives in the CATEX documentation for the 250 heading.	Email chain	FAA	FAA	
33	9/27/2017	September 14th Meeting with City of Burien	Email	FAA	FAA	FAA's summary of the September 14, 2017 meeting with the City of Burien.
34	9/29/2017	RE: Would greatly appreciate your review of the airspace boundaries discussion in the CATEX - 8:25 am	Email chain	FAA	FAA	
35	9/29/2017	RE: Would greatly appreciate your review of the airspace boundaries discussion in the CATEX - 7:25 am	Email chain	FAA	FAA	
36	10/11/2017	FAA letter to Mrs. Howell	Letter	FAA	Ms. Howell	
37	4/11/2018	Burien LOA CATEX	Document	FAA		
38	4/16/2018	FAA Statement on Decision of Burien Overflights	Email	FAA	media (Q13, King 5, CMG-Seattle, KOMO-TV 4, Seattletimes, Seattlepi) and alaskaair	
39	5/18/2018	Appendix D: Public Comments, Errata	Document	FAA		This document is posted on FAA's website https://www.faa.gov/nextgen/nextgen_near_you/community_involvement/sea/.
40	6/6/2018	LOA with automated turn paragraph	Document	FAA		The attached LOA's first page says it's effective October 3, 2017. Page 7 of the agreement is amended by revision 3 dated June 6 2018. Order JO 7210.3AA (Document 8 in the AR Index), Paragraph 4-3-6.b allows for revisions to be made without changing the cover page.
41	7/3/2018	Summary of GoAround Percentage - Re-created July 2018	Document	FAA		Raw data on go-arounds (also known as missed approaches) was originally analyzed as part of the development of FAA's CATEX. The original file that analyzed the raw data was lost when a computer crashed, so this Excel spreadsheet was re-created.

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Document Number	Document Date	Title	Document Type	Author(s)	Recipient(s)	Comments
42	June-2016	Briefing Guide SEA2	Document	FAA	FAA	This document supercedes Document Number 10. It is a more complete version.
43	11/10/2016	Runway Use CWG Lessons Learned	Document	FAA	FAA	This document provides background information about the workgroup referenced in the CATEX.
44	11/10/2016	Runway Use CWG 90 Day Evaluation	Document	FAA	FAA	This document discusses removing the Y gate departures from the automatic turn. Page 12, Figure 10 in the CATEX shows the destination tracks of the gates.
45	5/9/2018	Burien - Summary of call with EPA	Email	FAA	FAA	
46	October-2013	Final Seattle-Tacoma International Airport Part 150 Noise Compatibility Study Update	Document	Port of Seattle	FAA	The Part 150 Study is in two volumes. FAA reviewed the noise contour maps (Figures 3-14 and 3-15) from this document and compared them to the noise screening results prepared for the Burien LOA CATEX.

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Case No. 18-71705

IN THE UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

CITY OF BURIEN, WASHINGTON

Petitioner,

v.

FEDERAL AVIATION ADMINISTRATION and
MICHAEL HUERTA,

Respondents.

PETITIONER'S REPLY IN SUPPORT OF MOTION TO CORRECT THE RECORD, OR IN THE ALTERNATIVE, FOR CONSIDERATION OF EXTRA-RECORD EVIDENCE

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I. INTRODUCTION

This Petition for Review challenges the adoption of a new flight path at Seattle-Tacoma International Airport ("Sea-Tac"). Petitioner the City of Burien, Washington ("Petitioner" or "the City") requests that this Court issue an order directing that seven items be added to the administrative record, or, in the alternative, that such documents be considered as extra-record evidence. Each of the seven items, on its face, was prepared by, received by, or funded by Respondent the Federal Aviation Administration ("FAA") in connection with operations at Sea-Tac. All seven should therefore be added to the FAA's administrative record because they were part of the agency's decision-making process. Or, if the FAA ignored the seven items, they should be considered as extra-record evidence because they are necessary for effective judicial review and to determine whether the agency considered all relevant factors. *See Southwest Center for Biological Diversity v. U.S. Forest Serv.*, 100 F. 3d 1443, 1450 (9th Cir. 1996); *see also Midwater Trawlers Coop. v. Dep't of Commerce*, 393 F.3d 994, 1007 (9th Cir. 2004); *Lands Council v. Powell*, 395 F.3d 1019, 1030 (9th Cir. 2005).

The FAA has already conceded that it erred by excluding one of the seven items from the administrative record, and the agency has now filed a third[1] Certified Index adding that document—identified as Exhibit 1 in Petitioner's Motion To Correct The Record, Or In The Alternative For Consideration Of Extra-Record Evidence—to the administrative record. (*See* Doc. 11118511.) We address the remaining six items in parts II.A through II.E, below.

II. ARGUMENT

In APA cases the administrative record "consists of all documents and materials directly or indirectly considered by agency decision-makers and includes evidence contrary to the agency's position." *Thompson v. U.S. Dep't of Labor*, 885

[1] The FAA originally filed the Certified Index To The Administrative Record on August 20, 2018. (Doc. 10981933.) The original Certified Index contained a statement by an FAA official certifying that the Index identified the complete and entire set of documents considered by the agency as part of the decision-making process at issue in this case. On October 4, 2018, in response to a Freedom of Information Act request filed by the City, the FAA revealed several additional documents which were clearly part of the agency decision-making process here at issue but had not been included in the August 20, 2018, Certified Index. (*See* Doc. 11057128 at 1 [explaining history of Freedom of Information Act request].) On November 1, 2018, the FAA filed a second Certified Index to the Administrative Record, which again purported to certify the completeness of the agency's Administrative Record. (Doc. 11068801.) In response to Petitioner's Motion To Correct The Record, Or In The Alternative For Consideration Of Extra-Record Evidence, the FAA filed a third Certified Index, yet again certifying that it had provided the complete administrative record of proceedings. (Doc. 11118501.) This third version of the Certified Index contains Exhibit 1, but does not contain any of the other documents addressed in Petitioner's Motion.

F.2d 551, 555 (9th Cir. 1989). Thus, the administrative record is not limited to material explicitly cited or described by the lead agency; the record also includes any other material reviewed by the agency as part of its decision-making process. *See, e.g.*, *Coalition v. Whitman*, 227 F. Supp. 2d 134, 139 (D.D.C. 2002) (agency may not exclude information from the record evidence that the administrative agency reviewed that information).

As a general matter, FAA suggests that the six documents still at issue were neither considered nor reviewed by the agency at the time of its decision. (Resp. at 6.) But the documents themselves demonstrate otherwise. Each one is directly relevant to the core issues in this case and was prepared, received, or funded by the FAA during the relevant time period. In other words, the FAA *should* have reviewed and considered them as part of its decision-making. If the agency failed to do so (as it now claims), the documents are therefore subject to consideration by this Court as "extra-record" evidence needed to determine "whether the agency has considered all relevant factors and has explained its decision." *Southwest Ctr.*, 100 F.3d at 1450; *see also Midwater Trawlers*, 393 F.3d at 1007 (supplementation of

administrative record proper "if the record is inadequate, incomplete or insufficient to explain the agency's decision.")[2]

A. Exhibit 2: April 10, 2017 letter from KC Yanamura to Mayor Lucy Krakowiak regarding "North Flow Departures from Sea-Tac Airport over the City of Burien"

Exhibit 2 is a letter from the Regional Administrator of the FAA's Northwest Mountain Region (the highest-ranking FAA official in the geographic region with responsibility over Sea-Tac) (1) announcing the commencement of the decision-making process at issue in this case; (2) stating the agency's conclusion that the new route (*i.e.*, the route challenged here by the City) is necessary to serve additional growth, including new air carriers, at Sea-Tac. (SAR 145-146.) It is simply inconceivable that this document was not "directly or indirectly considered by agency decision-makers." *Thompson*, 885 F.2d at 555.

In the alternative, if it were true that the FAA somehow failed to consider its own letter, that failure would qualify the letter for consideration as extra-record evidence by establishing that the agency failed to account for the fact that the new route was designed to serve additional growth, including new air carriers, at Sea-Tac. *See* Petitioner's Corrected Opening Brief (Dkt. 20) at 24-28.

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[2] The FAA's argument that the City failed to state the basis for inclusion of Exhibits 2-4 ignores the fact that, for each exhibit, the City listed fact that the document was before key agency decision-makers during the decision-making time period, and explained the relevance of each to key issues in this Petition for Review.

B. Exhibit 3: November 5, 2017 Letter from City of Burien to FAA Regional Administrator David Suomi

Exhibit 3 is a letter from the City to the Regional Administrator of the FAA's Northwest Mountain Region. The letter memorializes the City's concerns about the new flight route at issue and advises the FAA that the route would impose substantial noise impacts to City parks, schools, residential neighborhoods and other noise sensitive areas. (SAR 147-48.) The letter also discusses the FAA's ongoing National Environmental Policy Act ("NEPA") environmental review process, and certain meetings between the City and the FAA which took place as part of that process. (*Id.*) Among other things, the letter presented evidence that the new route would not qualify for a Categorical Exclusion from NEPA review and that the new route was "highly controversial" within the meaning of NEPA.

The FAA's decision document specifically references these meetings. (*See* ER47-48.) The agency added Exhibit 1 to the administrative record because Exhibit 1 was likewise referenced in the decision document. Consistent application of that same logic demands that Exhibit 3 be added to the administrative record as well. Indeed, the FAA has not identified any reason why Exhibit 3 should be excluded.

In the alternative, if it were true that the FAA failed to consider the City's letter, that failure would qualify the letter for consideration as extra-record evidence by establishing that the agency failed to account for evidence submitted

by affected stakeholders, including evidence that the new route did not fall within a Categorical Exclusion from NEPA review. *See* Petitioner's Corrected Opening Brief (Dkt. 20) at 22-23, 28-31.

C. Exhibit 4: Exchange of Emails from City of Burien to FAA Regional Administrator David Suomi

Exhibit 4 is an email chain of exchanges between City Attorney Lisa Marshall and the Regional Administrator of the FAA's Northwest Mountain Region. (SAR 149-151.) In those emails, the FAA updated the City on the ongoing NEPA environmental review process and the City requested additional meetings regarding that process. (*Id.*) As was the case for Exhibit 3, these meetings between the City and the FAA are cited as one of the factors the agency took into consideration in coming to its final decision in the CatEx. (ER 47-48), and thus, should be included in the administrative record. In the alternative, if it were true that the FAA failed to consider the emails, that failure would qualify the emails for consideration as extra-record evidence by establishing that the agency failed to account for the facts underlying one of its bases for decision and did not properly explain that decision.

D. Exhibit 5: Technical Memoranda Dated 2015 and 2018

Exhibit 5 includes two technical memoranda prepared for the Port of Seattle (Sea-Tac's proprietor) as a part of its Sustainable Airport Master Plan (SAR 152-

242), a planning and development process funded by the FAA (SAR 195.) Technical Memorandum 1 is dated July 2015 (SAR 188) and Technical Memorandum 7 is dated May 2018. (SAR 152.)

The FAA agrees that Exhibit 5 is relevant and may be considered as "extra-record evidence" by this Court (Resp. at 10) for the "purpose of determining whether FAA conducted an appropriate cumulative impacts analysis" (Resp. at 8.) However, based on the incorrect assertion that both of the documents "were completed in May 2018, after the decision challenged…here," the FAA argues the documents can only be considered for "limited purposes" and only via judicial notice. (Resp. at 7-9.) On its face, it is clear that Technical Memorandum 1 was completed well before the April 16, 2018 decision here. (SAR 188.) And while Technical Memorandum 7 bears a final report date of May 2018 (SAR 152)—two weeks after the decision at issue in this case—all of the analyses presented in that Memorandum are dated "2017," squarely within the decision-making process challenged here. (SAR 160-65; 168-70; 172-174; 176-77; 179.) Thus, Exhibit 5 should be part of the "whole record." In the alternative, if the FAA did, in fact, fail to review and consider Technical Memoranda 1 and 7, the two memoranda should be considered as "extra-record" evidence "necessary to determine whether the agency has considered all relevant factors and explained its decision" (*Southwest Ctr.*, 100 F.3d at 1450), including, in particular, whether the FAA properly

considered all past, present, and reasonably foreseeable future projects within its cumulative impacts analysis. *See* 40 C.F.R. §1508.7; Petitioner's Corrected Opening Brief (Dkt. 20) at 27-28.

The FAA also argues that Exhibit 5 is not relevant because "the speculative nature of projects included in this plan makes them inappropriate for inclusion in a cumulative impact analysis." (Resp. at 8.) Not so. Future actions need not be *certain* in order to be relevant to the adequacy of a cumulative impacts analysis; after all, cumulative impacts include all "reasonably foreseeable" future actions (40 C.F.R. §1508.7), and the actions identified in the Memoranda easily clear that bar. Petitioner's Corrected Opening Brief (Dkt. 20) at 27-28.

E. Exhibit 6 and 7: April 12, 2018 email and May 8-9, 2018 emails between counsel for DOJ and counsel for the City

Exhibits 6 and 7 are e-mails from FAA's counsel to counsel for the City.

Exhibit 6 is dated April 12, 2018, 4 days prior to the FAA's final order challenged in this case. Exhibit 7 is dated May 8-9, 2018, approximately three weeks after the FAA's final order, but reflects the agency's (presumably pre-existing) position on whether the final order is an "amendment" or a "new" decision. Both should be part of the record of FAA decision-making.

In the alternative, Exhibits 6 and 7 should both be considered as "extra-record" evidence. Exhibit 6 is the document which establishes the timeliness of the City's Petition for Review. And Exhibit 7 is a document stating the FAA's

position on whether the decision at issue is "new" or an "amendment," a central issue in this case. Petitioner's Corrected Opening Brief (Dkt. 20) at 22-23. Both are therefore necessary for effective judicial review. *See, e.g., Midwater Trawlers,* 393 F.3d at 1007 (allowing post-decisions documents by agency to explain agency decision).[3]

III. CONCLUSION

For the foregoing reasons, Petitioner respectfully requests that this Court order that the administrative record be corrected to include Exhibits 2 through 7, or, in the alternative, that the documents contained in those exhibits be considered as extra-record evidence.

Dated: December 17, 2018

Respectfully submitted,

DENTONS US LLP

By */s/ Matthew G. Adams*
Matthew G. Adams
Jessica L. Duggan
Attorneys for Petitioner

[3] The FAA's "counter-offer" of Judicial Notice (Resp. at 9) does not substitute for full consideration of the contents of these documents.

CERTIFICATE OF SERVICE - CM/ECF

I certify that on December 17, 2018, I electronically filed **PETITIONER'S REPLY IN SUPPORT OF MOTION TO CORRECT THE RECORD, OR IN THE ALTERNATIVE, FOR CONSIDERATION OF EXTRA-RECORD EVIDENCE** with the Clerk of the Court for the United States Court of Appeals for the Ninth Circuit by using the appellate CM/ECF system. Counsel for all parties are registered to use that system and, to my knowledge, will receive copies of this document upon its filing.

/s/Matthew G. Adams
Matthew G. Adams

No. 18-71705

IN THE UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

CITY OF BURIEN, WASHINGTON,
Petitioner

v.

FEDERAL AVIATION ADMINISTRATION; MICHAEL P. HUERTA, in his official capacity as Administrator, Federal Aviation Administration,
Respondents.

ON PETITION FOR REVIEW FROM
THE FEDERAL AVIATION ADMINISTRATION

UNOPPOSED MOTION FOR A STAY OF BRIEFING IN LIGHT OF LAPSE OF APPROPRIATIONS

The United States of America hereby moves for a stay of briefing in the above-captioned case.

1. At the end of the day on December 21, 2018, the appropriations act that had been funding the Department of Justice expired and appropriations to the Department lapsed. The same is true for several other Executive agencies, including the Federal Aviation Administration. The Department does not know when funding will be restored by Congress.

2. Absent an appropriation, Department of Justice attorneys and employees of the federal defendant agency are prohibited from working, even on a voluntary basis, except in very limited circumstances, including "emergencies involving the safety of human life or the protection of property." 31 U.S.C. § 1342.

3. Undersigned counsel for the Department of Justice therefore requests a stay of briefing until Congress has restored appropriations to the Department.

4. If this motion for a stay is granted, undersigned counsel will notify the Court as soon as Congress has appropriated funds for the Department. The Government requests that, at that point, all current deadlines for the parties (the Federal Aviation Administration's answering brief is currently due February 5, 2019) be extended commensurate with the duration of the lapse in appropriations.

5. Opposing counsel has authorized the undersigned government counsel to state that the Petitioner has no objection to this motion.

Therefore, although we greatly regret any disruption caused to the Court and the other litigants, the Government hereby moves for a stay of briefing in this case until Department of Justice attorneys are permitted to resume their usual civil litigation functions.

Respectfully submitted,

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UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

Form 15. Certificate of Service for Electronic Filing

9th Cir. Case Number(s) 18-71705

I hereby certify that I electronically filed the foregoing/attached document(s) on this date with the Clerk of the Court for the United States Court of Appeals for the Ninth Circuit using the Appellate Electronic Filing system.

Description of Document(s) *(required for all documents)***:**

Motion for a Stay of Briefing

Signature s/Erika B. Kranz **Date** January 17, 2019

CERTIFICATE OF COMPLIANCE

I hereby certify that the preceding motion complies with the formatting and type-volume restrictions of the Fed. R. App. P. 27(d). The motion was prepared in 14-point, double-spaced, Calisto MT font, using Microsoft Word 2013. This response to a motion contains **260 words**, and therefore complies with Fed. R. App. P. 27(d)(2)(A).

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No. 18-71705

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CITY OF BURIEN, WASHINGTON,
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Respondents.

ON PETITION FOR REVIEW FROM
THE FEDERAL AVIATION ADMINISTRATION

NOTICE REGARDING UNOPPOSED MOTION FOR A STAY OF BRIEFING IN LIGHT OF LAPSE OF APPROPRIATIONS

On January 17, 2019, the federal respondents moved for a stay of briefing in the above-captioned case. The Court has not yet acted on that motion.

In accordance with that motion, undersigned counsel hereby provides notice that Congress has now appropriated funds for the Department of Justice. As indicated in the federal respondents' unopposed pending motion, the federal parties request that all current deadlines be extended commensurate with the duration with the lapse in appropriations, 35 days. The new deadline

for the federal respondents' answering brief (currently February 5, 2019), would be March 12, 2019.

Respectfully submitted,

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UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

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I hereby certify that I electronically filed the foregoing/attached document(s) on this date with the Clerk of the Court for the United States Court of Appeals for the Ninth Circuit using the Appellate Electronic Filing system.

Description of Document(s) *(required for all documents)***:**

Notice Regarding Motion for a Stay of Briefing

Signature s/Erika B. Kranz **Date** January 28, 2019

FILED

JAN 31 2019

MOLLY C. DWYER, CLERK
U.S. COURT OF APPEALS

UNITED STATES COURT OF APPEALS

FOR THE NINTH CIRCUIT

CITY OF BURIEN, Petitioner, v. DANIEL K. ELWELL, Acting Administrator and FEDERAL AVIATION ADMINISTRATION, Respondents.	No. 18-71705 Federal Aviation Admin ORDER

Respondent's request (Docket Entry No. 35) to reset the briefing schedule is granted. The answering brief is now due March 12, 2019. The optional reply brief is due within 21 days after service of the answering brief.

Respondent's unopposed motion (Docket Entry No. 34) to stay appellate proceedings is denied as moot.

FOR THE COURT:

MOLLY C. DWYER
CLERK OF COURT

By: Samantha Miller
Deputy Clerk
Ninth Circuit Rule 27-7

SM/Pro Mo/1/28/2019

No. 18-71705

IN THE UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

CITY OF BURIEN, WASHINGTON,

Petitioner,

v.

FEDERAL AVIATION ADMINISTRATION, et al.,

Respondents.

On Petition for Review from the Federal Aviation Administration

ANSWERING BRIEF FOR THE FEDERAL RESPONDENTS

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INTRODUCTION

This petition for review challenges the proposal of the Federal Aviation Administration ("FAA") to modify the way departure headings are assigned to certain turboprop aircraft departing the Seattle-Tacoma International Airport ("Sea-Tac"). Traditionally, air-traffic controllers at the Sea-Tac Air Traffic Control Tower (the "Tower") communicated with controllers at an off-airport air-traffic control facility, the Seattle Terminal Radar Control (also known as the "TRACON"), before assigning these departing turboprops a westerly heading. The FAA's proposal will allow Tower controllers to assign a westerly heading as a matter of course without such communication between the Tower and the TRACON. This automatic heading will increase safety at Sea-Tac and, by allowing turboprops to turn sooner, will also improve efficiency in the airspace and reduce ground delays. This automatic heading will be used about 30% of the year (in "north flow" when winds out of the north dictate that aircraft take off in a northerly direction), and it will apply to just 2% of all Sea-Tac departures.

The FAA studied the expected environmental effects of its proposal, including the effects of aircraft noise in the areas where turboprops were now expected to fly more frequently. While that study revealed that certain areas may experience some increased noise, any impacts would be below the FAA's

well-established regulatory significance thresholds. The FAA also found no other significant environmental effects. Neither the National Environmental Policy Act ("NEPA") nor the FAA's own regulations required the agency to circulate its preliminary environmental study for public comment or to respond to comment. Nevertheless, the FAA did circulate the study and respond to comments, ultimately refining its proposal by suspending the automatic turn during nighttime hours at the request of petitioner City of Burien ("Burien").

Burien's petition for review mischaracterizes both the purpose and the well-studied effects of the FAA's proposal, and it otherwise fails to establish that the FAA acted arbitrarily or capriciously in conducting its NEPA review. To the contrary: the agency's NEPA process fostered its awareness of the environmental consequences of its action, and Burien has not shown that additional process is required or would further inform the agency's decision.

STATEMENT OF JURISDICTION

This Court has original jurisdiction over Burien's petition for review pursuant to 49 U.S.C. § 46110(a). The FAA published its final NEPA decision document approving the decision challenged here on April 16, 2018. *See* ER001. Burien filed its petition on June 11, 2018, or 57 days later. The petition is timely under § 46110(a), which requires that the petition be filed "not later than 60 days after the order is issued."

STATEMENT OF THE ISSUES

1. Did the FAA reasonably conclude that its proposal to automate the assignment of a westerly heading for certain departing turboprops fell within one of its established categories suitable for a categorical exclusion under NEPA?

2. Did the FAA satisfy NEPA's requirements when it conducted a detailed evaluation of the proposal's environmental effects, evaluated public comments, and concluded that the preferred alternative implicated no extraordinary circumstances?

3. Did the FAA consider a reasonable range of alternatives to its proposed action?

PERTINENT STATUTES AND REGULATIONS

All pertinent statutes and regulations that were not contained in the addendum to Burien's opening brief are set forth in the addendum following this brief.

STATEMENT OF THE CASE

A. Legal Background

1. The FAA's Authority over the National Airspace

The Federal Aviation Act of 1958, 49 U.S.C. §§ 40101 et seq., delegated to the FAA control over use of the nation's navigable airspace and regulation

of domestic civil and military aircraft operations in the interest of maintaining safety and efficiency. *See, e.g.*, *id.* § 40101(d)(4). Congress authorized the FAA to prescribe air traffic rules and regulations governing the flight and navigation of aircraft, and to ensure the efficient utilization of navigable airspace. *Id.* § 40103(b)(2). The FAA's mandate includes prescribing rules for safe altitudes of flight and for the prevention of collisions between aircraft. *Id.*

Under this authority, the FAA establishes air traffic "procedures" for use by commercial passenger aircraft operating at airports in the United States. The procedures provide a series of steps for pilots to follow, including where to turn, what direction to fly, when and where to ascend or descend, and at what speeds. This case involves the FAA's environmental review of a modified departure procedure for turboprop aircraft turning west from Sea-Tac during so-called "north-flow," i.e, when winds out of the north dictate that aircraft take off in a northerly direction.

2. NEPA and FAA Order 1050.1F

NEPA, 42 U.S.C. §§ 4321 et seq., is a procedural statute designed to foster better and more informed decision-making by federal agencies. *See Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989); *Ground Zero Center for Non-Violent Action v. U.S. Department of Navy*, 860 F.3d 1244, 1252 (9th Cir. 2017). NEPA requires detailed consideration in an

environmental impact statement ("EIS") of all "major Federal actions significantly affecting the quality of the human environment." 42 U.S.C. § 4332(2)(c). To determine if a particular action requires an EIS, an agency may prepare an environmental assessment ("EA"), which is a "concise public document" that "[b]riefly provide[s] sufficient evidence and analysis for determining whether to prepare an [EIS] or a finding of no significant impact." 40 C.F.R. § 1508.9; *see also id.* § 1501.3; 42 U.S.C. § 4332(2)(c).

The Council on Environmental Quality has promulgated regulations, which apply to all federal agencies, providing that agencies may identify certain categories of agency actions that do not "individually or cumulatively have a significant effect on the human environment." 40 C.F.R. § 1508.4. These actions are called "categorical exclusions," or "CATEXs," as they may be categorically excluded from further NEPA review. Federal agencies must adopt their own process for identifying and applying CATEXs. *Id.*

The FAA has done so by promulgating a series of CATEXs described in FAA Order 1050.1F, which governs the agency's compliance with NEPA and associated environmental statutes. *See generally* ER215–49 & SER001–12 (reproducing excerpts of Order); ER225–27 (describing the three levels of NEPA review); ER233 (explaining categorical exclusions); ER236–49 (listing categorically excluded actions). In particular, the FAA has determined that

actions "involving establishment, modification, or application of airspace and air traffic procedures" "normally do not individually or cumulatively have a significant effect on the human environment." ER236; *see also* ER246. This category specifically includes "modifications to currently-approved procedures conducted below 3,000 feet AGL that do not significantly increase noise over noise sensitive areas." ER247 (FAA Order 1050.1F 5-6.5(i)). The FAA's order provides that application of a CATEX to actions in these categories is appropriate unless an action *both* (1) involves extraordinary circumstances (listed at FAA Order 1050.1F 5-2(b)) *and* (2) may have a significant environmental impact. ER233. The order lists 12 specific circumstances that may require an EA or EIS if the proposed action also may have a significant impact. ER233–35.

Importantly, the level of required documentation differs among the three levels of NEPA review—an EIS, an EA, and a CATEX. An EIS must be a "detailed statement" that describes (among other things) the proposed action, its environmental impact, and alternatives to the proposed action, 42 U.S.C. § 4332(2)(c); *see also* 40 C.F.R. § 1508.11, whereas an EA is a "concise" document that "briefly" sets out the agency's analysis of a similar scope, 40 C.F.R. § 1508.9. As to the documentation needed when using a CATEX, the FAA should simply describe how the proposed action fits into one of its

CATEX categories and "explain that there are no extraordinary circumstances that would preclude the proposed action from being categorically excluded." ER235. Yet not even this "concise" level of documentation is strictly required, as a "determination that a proposed action qualifies for a CATEX is not considered deficient due to lack of documentation provided that extraordinary circumstances have been considered." *Id.* The FAA may choose to provide additional documentation where warranted, including where "litigation is anticipated." *Id.*

Public participation requirements also depend upon the specific NEPA procedure that applies. Whereas an agency must make a draft EIS available for public comment before preparing its final EIS, 40 C.F.R. § 1503.1, there is generally no public comment period requirement for an EA, *id.* § 1501.4(e)(2). Instead, public involvement is facilitated "to the extent practicable" on a level "determined on a case-by-case basis." SER003. There is "no requirement to notify the public when a CATEX is used." ER236; *see also* 40 C.F.R. § 1508.4. FAA Order 1050.1F includes flow charts depicting these three NEPA processes, serving to highlight the difference between the straightforward CATEX process on one hand and the more complex EIS and EA processes on the other. SER010–12.

B. Factual Background

1. The FAA's Role in Managing the Safety and Efficiency of Air Traffic Arriving and Departing Sea-Tac

The FAA does not dictate the number of operations (flights) at Sea-Tac. Rather, the airport is owned by the Port of Seattle, which is responsible for maintaining and improving the airport property, and airlines operating out of Sea-Tac schedule flights to meet the travel demands of the public. ER008. In this way, the *airport* and *commercial airlines* determine the number of flights that are economically and operationally feasible. *Id.* The FAA, by contrast, is tasked with ensuring safe and efficient use of the National Airspace System. *Id.* Efficiency has a special meaning to the FAA: it refers to how quickly aircraft can be safely moved out of a section of airspace. *Id.*

Arriving and departing aircraft around Sea-Tac are managed by different sets of air-traffic controllers. Controllers in the Tower manage aircraft at and immediately around the airport. Once an aircraft leaves that environment, control is handed off to the off-airport TRACON.[1] Individual controllers at these facilities are typically responsible for three-dimensional sectors of airspace and for ensuring that aircraft moving through that airspace are safely

[1] In the CATEX document, the "Tower" is referred to as "SEA ATCT," and the "TRACON" is referred to as "S46." *See* ER006.

separated from one another in longitudinal, lateral, and vertical axes. ER009–10.

Predictability, establishment of patterns, and efficiency are important factors that increase safety in air traffic management. For example, the more predictable an aircraft's flight path, the less possibility there is for a separation issue with another aircraft. ER008. Further, when an air-traffic controller assigned to a specific sector of airspace is able to get into a routine of managing aircraft in a particular phase of flight, this predictability also enhances safety. ER010. Efficiency improvements—moving aircraft through a section of airspace more quickly—can reduce the number of aircraft in that section, reducing the workload of the air-traffic controller responsible for that sector and thus the risk of errors. ER016.

2. Growth at Sea-Tac and the Need to Address Safety and Efficiency in North Flow

Sea-Tac is the ninth busiest airport in the United States, and it saw approximately 33% growth in the number of operations from 2010 to 2016. ER007. The vast majority of flights out of Sea-Tac are jet aircraft, but a small portion is made up of turboprop aircraft like the Bombardier Q400. ER007–08. The number of these turboprop flights has increased as well, although less quickly. ER008. The overall increase in the number of operations at Sea-Tac has also made ground delays and taxiway congestion more common. *Id.* The

number of missed approaches has increased as well, as these events have remained at an approximate constant percentage of total Sea-Tac arrivals. ER007.[2]

As the number of operations has grown, the FAA has continuously looked for ways to increase efficiency at Sea-Tac. ER016. In particular, the FAA sought to accommodate the increased operations at Sea-Tac during north flow while maintaining or enhancing safety in the airspace. ER017. One source of congestion during the approximately 30% of the year that the airport operates in north flow was departing turboprop aircraft. ER017; ER057; ER091. Because turboprops cannot climb as fast as jet aircraft, air-traffic controllers usually separate turboprops from jets by assigning different headings at takeoff. ER013; ER017. During south flow, Sea-Tac's air-traffic controllers already had a process in place for automatically assigning specific headings to departing turboprops. ER017. But Sea-Tac's air-traffic controllers did not have a similar standard heading assignment for turboprops departing during north flow, so north flow operations were less efficient. ER017. Further complicating air traffic operations during north flow is the proximity of King

[2] A missed approach is a maneuver conducted by a pilot when unable to make a landing as intended. ER007. An aircraft conducting a missed approach may need to make an emergency landing, divert to another airport, enter a holding pattern, or simply be re-sequenced to land at Sea-Tac. ER015.

County Boeing Field airport ("BFI"), just a few miles to the north of Sea-Tac. ER10–14; ER017.

Although there was previously no automatic heading for turboprops in place during north flow, air-traffic controllers managed departing traffic from Sea-Tac by routinely assigning most southbound turboprops departing during north flow a 250° heading for many years. ER017.[3] Using this "manual" heading assignment sometimes resulted in turboprops turning later than anticipated and therefore too close to Boeing Field airport, increasing the workload of air-traffic controllers charged with maintaining safe separation of aircraft. *Id.* Other times, turboprops would make their turn almost immediately after takeoff. *Id.*

The FAA identified establishing an "automatic" heading assignment for these departing turboprops as a way to increase predictability, ensure proper

[3] Sea-Tac's runways are oriented in a north-south configuration. A due-north heading would seemingly have a 360° heading, but planes taking off to the north from Sea-Tac actually have a heading of 340° in part because of the current magnetic declination at the airport (i.e., the difference between magnetic north, which FAA uses, and "true" or "geographic" north that you observe on a map), which is approximately 15° (and rounded to 20°). Consequently, a 250° heading at departure is a 90° westerly turn for an aircraft departing from Sea-Tac during north flow.

Controllers sometimes assigned westerly-turned turboprops a different westerly heading, but they most frequently assigned a 250° heading. Aircraft make this westerly turn before turning to the south toward their ultimate destination. *See* ER018.

separation, and thereby increase safety and efficiency at Sea-Tac during north flow. *Id.* This modification would allow the air-traffic controller to assign a heading that was already used routinely, but more quickly and with fewer steps that could lead to an error, increasing the predictability of these turboprops' flight paths.

3. 2016 Letter of Agreement and Brief Implementation of the Automatic Heading Assignment

In 2016, the Sea-Tac Tower and the Seattle TRACON entered a new Letter of Agreement establishing coordination and control procedures for these two FAA facilities. ER181–202. The letter sets out the ways in which controllers in the two facilities will communicate with each other, sets default runways, describes hand-off procedures, and sets out a large number of arrival and departure procedures that will be used unless conditions require deviation. These include, for example, procedures to be used in the case of a missed approach, radar failure, the amount of separation to be required between aircraft, and altitudes and headings to be assigned to various types of aircraft.

The Letter of Agreement directed the Tower to assign an "automatic turn" to certain turboprop aircraft departing the airport during north flow. ER186. Provision 5.d.(9)(b) of the Letter of Agreement describes which headings should be assigned to turboprops. The headings assigned depend on the "gate" aircraft will use to departing the airport environment. These gates

are akin to highway off-ramps and are generally in the direction that an aircraft will ultimately travel. *See* ER012. Turboprops that would depart via gates E, F, Q, Y, I, U, Z and L (generally traveling to destinations to the south and southwest, *see* ER012) would be given a 250° heading (essentially a 90° left turn) that the aircraft is to establish within one nautical mile of the end of the departure runway. ER186. Assignment of this heading would allow "slower moving turboprop aircraft to quickly and safely move out of the way of the faster moving jet aircraft." ER162. Because it would only be used for certain southbound turboprops during north-flow, this modification would only impact approximately 2% of all Sea-Tac annual departures. ER015.

This Letter of Agreement was subject to the FAA's review and approval, and the agency found it to be in compliance with FAA guidelines. ER179. The Letter was implemented in summer 2016. ER015.

The City of Burien, which lies immediately west and north of Sea-Tac, filed a petition for review of the automatic turn of southbound turboprops in north flow in February 2017, alleging that the FAA violated NEPA in approving this provision of the Letter of Agreement. 9th Cir. No. 17-70438. The FAA voluntarily deleted this single provision from the Letter of Agreement in March 2017 so the agency could conduct additional analysis, as Burien's petition requested. *See* ER174; ER016.

4. The FAA's 2017–2018 Further Environmental Analysis and Public Engagement

The FAA then embarked on further study of the proposed automatic assignment of a 250° heading within one nautical mile of the end of the departure runway to certain southbound turboprops when Sea-Tac is operating in north flow. *See* ER162. Although this process would not cause turboprops to fly in entirely new areas, *see* ER015, the FAA recognized that the proposed action had some potential to increase noise in particular areas, as it would likely narrow the spread of westerly-turned turboprop flightpaths. It would also cause turboprops to, on average, initiate their turn farther south, as they would now be instructed to make the westerly turn within one nautical mile from the end of the runway.

The FAA studied the action's expected noise effects, particularly over the City of Burien, using standard models that it applies regularly in its environmental analysis. The FAA has established a noise measurement methodology and significance thresholds for assessing noise effects of proposed actions. *See* SER006–08. In essence, the FAA predicts the noise before and after a proposed action at various locations, *see, e.g.*, ER036; ER038 (figures depicting grid points for this noise analysis), calculating a weighted average of the 24-hour noise experienced at those locations to determine the Yearly Day-Night Average Sound Level, or "DNL," *see* ER034.

The FAA's noise screening here revealed minor expected increases in aircraft noise in certain areas, but well below the FAA's established thresholds for impacts that would require any further review (let alone be "significant") under NEPA. ER164. Even so, and although no public comment is required for a CATEX (or even for an EA), in June 2017 the agency made its noise screening results and its analysis of several other categories of potential environmental impacts available for public comment; it also provided "an opportunity for alternative proposals to be suggested" that would similarly achieve the goal of separating turboprops from the flow of jet traffic. ER162. The FAA extended that public comment period to a total of four weeks. ER048.

The FAA also met several times with Burien, which had expressed concerns about the potential of the automatic turboprop heading assignment to cause additional noise over the City's downtown. ER049. Burien expressed concern about (1) the format of the preliminary environmental document released for public comment; (2) the agency's analysis of the proposed action's environmental effects; (3) possible alternatives, including whether departing turboprops could be assigned a different heading and whether the automatic heading assignment could be suspended at certain times of day; and

(4) concern that jet aircraft would be assigned a 250° heading as well. *See* ER109–14 (June 21, 2017 comment letter); ER127–129 (Aug. 17, 2017 letter).

The FAA released its final CATEX documentation to the public on April 16, 2018. The document includes a robust environmental analysis—more akin to an EA than to a typical CATEX document—and responds to comments by Burien and others. The document

- explains the purpose and need for the proposed action (to enhance safety and efficiency during north-flow operations and to accommodate increasing operations at Sea-Tac), ER016–17;
- contains an evaluation of a wide range of alternatives, ER017–25, including a range of alternative turboprop headings that were rejected due to incompatibility with the need to maintain a range of headings for aircraft on a missed approach,[4] and also including a modification to the proposed action that the agency adopted at Burien's request (the "preferred alternative"—a suspension of the automatic heading assignment during nighttime hours), ER018;

[4] During north flow, missed approaches (i.e. planes that would otherwise be landing from the south) are given a heading between 290° and 310°, depending when the missed approach is initiated. ER015.

- describes the environmental impacts of the action, ER026–47, including cumulative effects, and concludes that none are significant under the FAA's standard thresholds, ER044–47;
- describes the FAA's outreach efforts, ER047–49;
- identifies the CATEX applicable to the action, ER002; and
- explains that no extraordinary circumstances apply that preclude application of the CATEX, ER002.

Appendix D to the CATEX document contains the agency's responses to comments on its preliminary analysis. *See* ER081–129 (excerpt).

The preferred alternative analyzed in that document further refined the original proposed action at Burien's request. The FAA not only used its standard noise models, but actual data from the period during 2016 when 250° headings were automatically assigned to southbound turboprops. The FAA was able to compare that data to tracks from times when the 250° heading was manually assigned to southbound turboprops in order to gain a clear understanding of the likely effect of turboprops making an (on average) earlier westerly turn. *See, e.g.*, ER016. The comparison of observed data revealed that although the automatic heading assignment resulted in turboprops turning, on average, closer to the end of the runway than under the previous manual assignment process, the change in noise—the main potential impact on the

human environment—did not rise to significant or even "reportable" noise increases in the areas over which the turboprops flew. ER034–39.[5]

After the FAA completed its environmental review, it adopted the preferred alternative that it developed in coordination with Burien, and the automatic heading assignment (as modified) was added to the Letter of Agreement between the Tower and the TRACON in June 2018. ER136. This provision of the Letter of Agreement eliminated the manual coordination between the Tower and the TRACON by adding an automatic turn on a 250° heading for departing turboprops in north flow, effectively modifying the procedure where turboprops were individually turned to the west. As a result, just as they were previously able to do during south flow operations, Sea-Tac air-traffic controllers are now more able to predict during north flow operations where departing turboprops will fly and to ensure appropriate separation between turboprops and following jet aircraft.

[5] As the CATEX document explains, the proposed action (i.e. the automatic heading assignment without the nighttime suspension that became the preferred alternative) was used for noise modelling. ER034. The FAA concluded that because "the Proposed Action was more likely to result in a noise impact" than the preferred alternative, "and the noise analysis results" for the proposed action "determined there was no impact, it is reasonable to conclude that the Preferred Action does not have a noise impact." ER039. Burien does not dispute this decision.

C. Procedural Background

After the FAA published its CATEX documentation in April 2018, Burien dismissed its 2017 petition and filed the present petition for review in this Court. Burien's current petition challenges only the 2018 decision to include the turboprop heading assignment in the Letter of Agreement, and not the similar 2016 decision. Burien filed a motion to supplement the administrative record on November 30, 2018, concurrent with its opening brief. The FAA opposed that motion in part, but in response to the motion the FAA on December 12 supplemented its administrative record with a document inadvertently omitted from the certified record.

SUMMARY OF ARGUMENT

The FAA complied with NEPA's procedural mandates when the agency added an automatic westerly turn for certain turboprops to the Letter of Agreement between the Sea-Tac Tower and the Seattle TRACON. This provision increases efficiency and safety during north flow operations at Sea-Tac, an airport that has experienced increased air traffic in recent years.

1. The FAA reasonably determined that its proposed action falls within one of the agency's established categories of actions that will not have a significant environmental impact and is thus categorically excluded from further NEPA review. The proposal modifies the former manual westerly-turn

assignment process, creating an automatic 250° heading assignment for certain departing aircraft, and is thus fairly understood to be a "modification" to a "currently-approved procedure."

2. Burien fails to establish that there are extraordinary circumstances or significant environmental effects that would prevent the FAA's use of this CATEX for its proposal. The FAA analyzed all reasonably anticipated effects of the proposed action, including the cumulative effects of this action with other actions. And the FAA went well beyond NEPA's requirements when it provided its preliminary environmental analysis to the public and sought comment and suggestions for improving its proposal. The resulting comments helped the FAA refine its alternative, but did not indicate the presence of an objective dispute as to the proposal's environmental impacts.

3. Finally, the range of alternatives to the proposed action that the FAA considered was reasonable, and its evaluation of those alternatives was thorough. Burien now posits that perhaps other alternatives might be viable or that the agency excluded alternatives on infirm grounds, but those allegations do not withstand scrutiny.

The FAA's process and analysis exceeded NEPA's requirements. No further process is required, and no further analysis would aid the FAA's informed decisionmaking here. Burien's petition should be denied.

STANDARD OF REVIEW

The FAA's compliance with NEPA is reviewed under the Administrative Procedure Act ("APA"). Under the APA, courts uphold an agency's action unless it is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 5 U.S.C. § 706(2)(A). The APA's standard of review is "highly deferential, presuming the agency action to be valid." *California Wilderness Coalition v. U.S. Department of Energy*, 631 F.3d 1072, 1084 (9th Cir. 2011) (quoting *Northwest Ecosystem Alliance v. Fish & Wildlife Service*, 475 F.3d 1136, 1140 (9th Cir. 2007)); *see also Morongo Band of Mission Indians v. Federal Aviation Administration*, 161 F.3d 569, 573 (9th Cir. 1998).

In undertaking APA review, a court may not substitute its judgment for that of the agency, *Citizens to Preserve Overton Park, Inc. v. Volpe*, 401 U.S. 402, 415 (1971); *Ocean Advocates v. U.S. Army Corps of Engineers*, 402 F.3d 846, 858 (9th Cir. 2005), and review is most deferential to an agency's scientific judgments within its expertise. *Lands Council v. McNair,* 629 F.3d 1070, 1074 (9th Cir. 2010). This is a highly deferential standard of review in general, but the standard is even higher with respect to agency factfinding here: "Findings of fact by the [FAA], if supported by substantial evidence, are conclusive." 49 U.S.C. § 46110(c).

ARGUMENT

I. The FAA reasonably determined that the automatic heading assignment fell within an established CATEX.

Burien argues that the FAA acted arbitrarily and capriciously when it determined that the automatic assignment of headings to certain departing turboprops was subject to one of the agency's established CATEXs. Br. 22–23. In doing so, Burien mischaracterizes the preferred alternative, which falls within a fair reading of the exclusion category, and fails to recognize that an agency's interpretation of its own CATEXs is entitled to deference. *See Alaska Center for Environment v. Forest Service*, 189 F.3d 851, 857 (9th Cir. 1999).

When an action qualifies for a categorical exclusion, that action has already been determined by an agency to "not individually or cumulatively have a significant effect on the human environment." 40 C.F.R. § 1508.4. The FAA has made that determination for certain actions "involving establishment, modification, or application of airspace and air traffic procedures" ER246. One such sub-category is "modifications to currently-approved procedures conducted below 3,000 feet [above ground level] that do not significantly increase noise over noise sensitive areas." ER247.

Under the plain language of FAA's order, an air traffic action falls within this category if it (1) is a modification to a currently approved procedure; (2) is conducted below 3,000 feet above ground level; and (3) does

not significantly increase noise over noise-sensitive areas. *Id.* The automatic assignment of headings to turboprop aircraft departing Sea-Tac during north-flow meets each of these elements. *See* ER002; ER093. Taking the last two requirements first, the preferred alternative applies to departing turboprops that are below 3,000 feet above ground level (which Burien does not dispute), and the FAA's noise screen confirms that the action would not cause significant noise increases under the FAA's regulations, *see infra* Section II.C.3.

The preferred alternative meets the remaining criterion as well, as it is a modification to a currently approved procedure. Although FAA Order 1050.1F does not define the term "modification," it clearly distinguishes between "new" and "modified" procedures. *See* ER226 (referencing new and modified procedures as distinct actions in paragraph (12)). And this action is plainly a "modification," as it is a "limited change" to the manner that certain turboprops are turned west before turning toward to their southerly destination. *See* https://www.merriam-webster.com/dictionary/modification. Indeed, before the automatic heading assignment provision was added to the Letter of Agreement, air-traffic controllers already assigned a westerly heading (routinely, but not exclusively, 250°) to this same set of departing turboprops before they merged onto existing south- and southwest-bound air traffic

procedures. The FAA reasonably determined that the term "modification" in FAA Order 1050.1F encompasses such a change.

Burien insists that the automatic heading assignment is actually the establishment of a "New Route." *See* Br. 22. That premise is factually incorrect. As the FAA's environmental document explains, air-traffic controllers have been routinely issuing a 250° heading for many years to the very same class of turboprops that will now be automatically issued that heading. *See* ER017; ER018 (describing the no action alternative). When the heading was assigned after individualized communication between the Tower and the TRACON, the precise timing of the heading's assignment varied more than it does with automatic assignment; indeed, reducing this variation is one of the means by which the preferred alternative will improve safety, predictability, and efficiency. But even when turboprop turns were manually assigned, many turboprops inevitably flew the same track that turboprops fly now with the modification. *See* ER015 (explaining that the automatic heading assignment will not change where aircraft historically fly).

Moreover, the FAA does not consider the assignment of a vector (i.e., a directional heading) at departure to be synonymous with establishing a "new" route. A vector is directional guidance that can be added to existing air traffic procedures. *See* SER014–15 (explaining that a vector is made to or off an

assigned procedure). In contrast, a "new" route is established when the FAA sets points (called waypoints or fixes) between which planes must fly, or when the FAA establishes a standard instrument departure, which is analogous to a highway map that a pilot must use to depart from an airport (and which this is not).[6]

The challenged action thus falls within the plain text of a category of actions that the FAA—as directed by Congress and the Council on Environmental Quality—has determined to be appropriate for simplified NEPA review: the CATEX for "modifications to currently-approved procedures conducted below 3,000 feet [above ground level] that do not significantly increase noise over noise sensitive areas." ER247. The FAA has not established a new route. The action creates no new 'highway map' for pilots, and there is no establishment of points between which aircraft must fly. The FAA has simply added a particular heading assignment to the pre-existing air traffic procedures being followed by some turboprops departing in north flow from Sea-Tac. Now, air-traffic controllers from the Tower issue the heading automatically to each departing turboprop where appropriate. Just as before, the pilot is responsible for executing that heading within the general

[6] The Pilot/Controller Glossary in FAA's Air Traffic Control Order JO 7110.65W defines "standard instrument departure." SER016–17.

parameters directed prior to or shortly after takeoff. *See* ER090. The air traffic procedures being followed by those aircraft are otherwise unchanged, except for the modification made by the assignment of this heading.

Burien is similarly incorrect that FAA has improperly attempted to modify the 2016 automatic heading provision for southbound turboprops that the agency removed from the Letter of Agreement in 2017. Br. 23. FAA has not modified the withdrawn Letter of Agreement provision. Instead it has, as described above, added a heading to *pre-existing* (i.e., well before the 2016 Letter of Agreement) air traffic procedures.

Further, even if the Court concludes that this category is ambiguous, FAA's interpretation of its scope is afforded deference. *Alaska Center for Environment,* 189 F.3d at 857 (deferring to the Forest Service's interpretation of the scope of one of its CATEXs and the meaning of its terms); *see also Citizens' Committee to Save our Canyons v. U.S. Forest Service*, 297 F.3d 1012, 1023 (10th Cir. 2002). Here, the FAA's interpretation of its action as falling within the exclusion for "modifications to currently-approved procedures" is due the same deference. The type of action the FAA has approved here will have only a relatively small effect on the expected flight path of aircraft and only de minimis effects on the ground. Burien fails to establish that this action in fact created a "new" route that precludes application of a CATEX for

"modifications." FAA's conclusion that this action falls within its established CATEX represents the agency's fair and considered judgment, and this Court may not overturn FAA's decision simply "because it disagrees with the decision." *River Runners for Wilderness v. Martin*, 593 F.3d 1064, 1070 (9th Cir. 2010).

II. The FAA correctly determined that no extraordinary circumstances precluded use of the established CATEX for this type of action.

Burien next argues that even if the preferred alternative is a "modification" covered by a CATEX, there are extraordinary circumstances preventing application of the CATEX. But the FAA's analysis demonstrates that the preferred alternative will not have a significant impact, and the FAA reasonably determined that this action did not otherwise implicate any extraordinary circumstances. Burien therefore cannot rebut the FAA's determination that that use of a CATEX is appropriate.

A. Use of a CATEX was appropriate because the FAA's study of direct and indirect effects revealed that the preferred alternative will not have any significant environmental impacts.

Burien's argument suggests that if a proposed action involves any of the circumstances enumerated in FAA Order 1050.1F 5-2(b), then the agency may not apply its CATEX and must instead prepare an EA or an EIS. *See* Br. 23. This is incorrect. Under FAA Order 1050.1F 5-2, the FAA complies with NEPA by using a CATEX unless an action *both* (1) involves one of the

circumstances in FAA Order 1050.1F 5-2(b), *and* (2) may have a significant impact, such that "extraordinary circumstances exist." ER233; *see also id.* ("An extraordinary circumstances if a proposed action involves any of the following circumstances *and has the potential for a significant impact.*" (emphasis added)). After extensive analysis, the FAA here reasonably determined that the preferred alternative will not have a significant impact on the human environment. Thus, regardless of whether the propose action implicates one of the circumstances listed in FAA Order 1050.1F 5-2(b) (which it does not), application of the FAA's CATEX was appropriate here.

Although not presented as such in its brief, Burien appears to dispute the propriety of the agency's determination that the preferred alternative will have no significant impact, arguing that the action will indirectly lead to increased jet traffic that the agency did not study. *See* Br. 23.[7] Burien insists that the FAA's analysis was flawed because it was "premised on an assumption that there will be no increase in number of flights" due to the automatic heading assignment for departing turboprops. Br. 24. Burien implies that a purpose of the proposed action was to increase the number of operations at Sea-Tac,

[7] Burien's section titled, "Potential for Additional Airport Operations," Br. 24, identifies no particular circumstances that Burien believes are implicated by its argument. Accordingly, the FAA interprets Burien's argument to instead pertain to the "may have a significant impact" part of the inquiry under FAA Order 1050.1F 5-2(a).

insists that this action will in fact increase the number of operations at Sea-Tac, and argues that the FAA erred by not analyzing environmental effects of potential future operations at Sea-Tac.

Once again, the premises underlying Burien's argument are incorrect. First, the purpose of the proposed action (and the adopted preferred alternative) was not to increase capacity for new departures at Sea-Tac. As the CATEX documentation makes clear, the "purpose of the proposal is to enhance [National Airspace System] safety and efficiency at [Sea-Tac] during north-flow operations," which in turn can "lead to a smaller number of aircraft in the same portion of the [airspace] at the same time," reducing controller workload, and also "reduc[ing] ground delays." ER016. The document explains that enhancing safety and efficiency is necessary "to accommodate the increasing operations at Sea-Tac while maintaining/enhancing safety in the [airspace]." ER017. The document acknowledges an increase in operations at Sea-Tac and the need to improve efficiency, which should also reduce ground delays and relieve taxiway congestion. ER017; ER008. It then explains how an automatic heading assignment can reduce workloads for air-traffic controllers, increasing predictability and maintaining safe separation between aircraft. ER017.

The document also notes that increasing efficiency can allow more aircraft to depart Sea-Tac within a given window of time, ER017, but this is not the same as increasing the number of departures. Indeed, as the FAA explained in response to comments, increasing efficiency is a way to reduce *delays*, not to increase capacity. ER088. Nowhere does the FAA state that the purpose of (or need for) this proposal is to create capacity for additional departures at Sea-Tac. ER017.

Burien supports its interpretation of the action's purpose by claiming that the FAA eliminated certain alternatives to the proposed action because those alternatives would not have created capacity for additional operations at Sea-Tac. Br. 24–25. This, too, is incorrect. As the CATEX document explains, certain alternatives were eliminated because (among other things) they would not achieve the "efficiency gains" that are required to meet the defined purpose and need of the proposed action, particularly during the busiest part of the day for air-traffic controllers. ER023; *see also* ER024–25. No alternative was eliminated because it would not provide capacity for the scheduling of additional flights out of Sea-Tac.

Nor will increasing safety and efficiency by separating departing turboprops from jets in this way necessarily result in additional flights being scheduled at Sea-Tac. The FAA considered and squarely rejected this

implication: "There is no clear reverse correlation that implementation of this tool would increase operation demand at Sea-Tac." ER088. Burien provides no citation for its bald statement that an automatic heading assignment for turboprops will "lead to an increase in jet departures over northeast Burien," Br. 19, and presents no serious argument that the expert agency's conclusion to the contrary was anything but reasonable. *See Marsh v. Oregon National Resources Council*, 490 U.S. 360, 378 (1989) ("an agency must have discretion to rely on the reasonable opinions of its own qualified experts even if, as an original matter, a court might find contrary views more persuasive"); *Baltimore Gas & Electric Co. v. Natural Resources Defense Council, Inc.*, 462 U.S. 87, 103 (1983) ("When examining this kind of scientific determination . . . a reviewing court must generally be at its most deferential.").

Burien also fails to acknowledge that this Court previously considered and rejected a similar argument in *Seattle Community Council Federation v. FAA*, 961 F.2d 829 (9th Cir. 1992). There, a community group argued that the FAA was required to prepare an EIS rather than an EA for a change to turboprop flight patterns, and in particular that the agency failed to consider cumulative and indirect effects of the action. This Court noted that the purpose of the proposed action was to "ensure that safety and efficiency will be maintained" in the face of increased air traffic and that the action was "not intended to

increase the volume of air traffic at Sea-Tac directly." *Id.* at 835. The Court observed that efficiency gains "will necessarily allow the volume to increase," *id.*, but credited the FAA's explanation that the proposed action was meant to allow controllers "to handle the *existing* traffic with greater efficiency," *id.* at 836 (emphasis in original). Accordingly, this Court held that because the action's "implementation is not designed to induce growth but rather to enhance the safety and efficiency of that traffic . . . it is not necessary to remand the matter to the FAA for further study of the effects of increased number of flights." *Id.* at 836

Here, too, because creating capacity for additional flights was not the purpose of the proposed action, was not a criteria for selecting the FAA's preferred alternative, and was not an expected result of the FAA's action, the FAA did not err in declining to perform an analysis of additional jet operations that could potentially occur in the future. Besides the fact that additional flights are not a reasonably foreseeable direct or indirect result of the FAA's preferred alternative here, the FAA does not know how many flights the airlines will elect to add. Nor could the FAA know the timing of those flights, the types of aircraft, or any other variable that would be important for such an analysis. Under these circumstances, the scope of the FAA's analysis of direct and indirect environmental effects was entirely reasonable, as it focused on action

before the FAA and the reasonably foreseeable effects thereof. *See, e.g.*, ER026–47.

Burien makes no other argument that the FAA's improperly determined that the preferred alternative will have no significant impact. Indeed, the FAA's analysis of environmental effects contains a detailed explanation—more akin to an EA than typical CATEX documentation—of the agency's determination that no significant effects are expected. First, the FAA explains that certain environmental impact categories are not implicated by the preferred alternative—namely, coastal resources; farmlands; hazardous materials, solid waste, and pollution prevention; natural resources and energy supply; and water resources. ER026. Next, the FAA's analysis walks through the resource categories that have the most potential to be affected by the preferred alternative, in each case explaining why the action's effects are insignificant: air quality; biological resources; climate; Department of Transportation Act Section 4(f) resources; historical, architectural, archeological, and cultural resources; land use; noise; socioeconomics, environmental justice, and children's environmental health and safety risks; visual effects; and these effects in combination with other past, present, and foreseeable actions. ER027–47. The FAA's analysis is thorough and

reasonable, and Burien identifies no deficiency in the substance of the FAA's analysis of these effects.

The FAA correctly concluded (as discussed in the following Sections II.B and II.C) that none of the circumstances listed in FAA Order 1050.1F 5-2(b) is implicated here. But this Court need not address those issues, as the FAA properly applied a categorical exclusion once it thoroughly investigated the potential impacts of its actions and found they would not be significant.

B. The FAA's analysis of the action's environmental effects included all reasonably anticipated cumulative effects.

Burien next argues that the FAA failed to evaluate the cumulative impacts of this action along with other developments. Br. 25–28.

The standard for evaluating cumulative impacts when an agency is applying a CATEX is different from the standard when an agency is preparing either an EA or an EIS. Indeed, this Court has held that the cumulative impacts analysis requirements in 40 C.F.R. § 1508.25 do not apply to categorically excluded actions. *Center for Biological Diversity v. Salazar*, 706 F.3d 1085, 1097 (9th Cir. 2013). In so holding, the Court declined to follow cases

involving EAs like *Kern v. U.S. BLM*, 284 F.3d 1062 (9th Cir. 2005), upon which Burien relies, Br. 26.[8]

Nevertheless, FAA Order 1050.1F requires the agency to consider whether its preferred alternative has a "[l]ikelihood to . . . cumulatively create a significant impact on the human environment." ER234. Accordingly, the FAA looked to local and statewide planned projects and identified past, current, and reasonably foreseeable future actions within the general study area that (when combined with the FAA's preferred alternative) could have a cumulative significant impact. ER044–47; *see also* ER026–27 (defining general study area); ER078. The FAA's analysis walks through potential impacts of these projects, identifies the projects most likely to have a cumulative impact on resources also implicated by its preferred alternative, and then explains why the agency does not expect a cumulative significant impact in any category. ER046–47. In so doing, the FAA went well beyond the requirements for such an analysis in the context of a CATEX, particularly because the "depth of a cumulative impacts analysis" need only be "commensurate with the potential for significant effects," ER289, which the FAA appropriately determined to be unlikely here.

[8] The other case upon which Burien relies, *Great Basin Resource Watch v. BLM,* 844 F.3d 1095 (9th Cir. 2016), involved preparation of an EIS—the highest level of environmental review—rather than an analysis under a CATEX.

Burien argues that the FAA's cumulative impacts analysis was required to consider growth in the number of operations that has already occurred at Sea-Tac as well as expected growth. As a preliminary matter, the FAA did account for the growth in operations prior to modification of the turboprop heading, despite Burien's implication to the contrary. *See* Br. 27. The FAA used flight track data from 2014 through 2017. *See* ER016. Particularly important, the FAA conducted a noise analysis in 2017 using actual data from the period in 2016 when Sea-Tac controllers used the automatic heading assignment. *See, e.g.*, ER016. In this way, the FAA's analysis captured the operation level at the airport at the time of the analysis, under conditions similar to those expected when the action is implemented. This analysis accounted for the past growth that Burien suggests was not considered.

As for expected growth in the number of future operations at Sea-Tac, the FAA does not control the number or scheduling of flights. *See* ER089; *supra* p. 8. Further, as discussed in Section II.A above, Burien's premise that the automatic assignment of headings to turboprops will "create[] additional capacity for jet departures over northeast Burien," Br. 27, is incorrect.

There are also several problems with Burien's argument that the FAA was required to consider the development of any projects arising from the Sea-Tac Sustainable Airport Master Plan ("Plan") in assessing the cumulative

impacts of this action. First, decisions regarding the development of any part of the Plan are—and very much was at the time of the FAA's analysis—still under consideration. At the time the agency conducted its review of the proposed modification and made the decision to automate the heading assignment for turboprops, the Port of Seattle had not even issued scoping documents that would initiate the environmental review process for near term projects proposed as part of the Plan. *See* Scoping documents dated July 2018, available at https://sampntpenvironmentalreview.org/more-information/#scoping-packet (last accessed Feb. 25, 2019). The technical memorandum that discusses possible short-term projects, Br. 27 (Citing SAR152–86[9]), was published *after* the analysis here, which concluded in April 2018.

Finally, with that environmental review still underway, the extent to which the near-term projects and long-term vision outlined in the Plan will ever occur remains uncertain, as does the timeline for any such actions. The FAA need not consider actions that are "remote or speculative." ER290. Further, "future actions may be considered improbable or remote even though they have been mentioned in planning documents (e.g., general statements

[9] "SAR" documents are attached to Burien's Corrected Motion to Correct the Record, or, in the Alternative, for Consideration of Extra-Record Evidence, filed November 30, 2018.

about future growth opportunities and unrefined lists of potential projects)." ER290. The FAA's decision not to include the aspirational and not-yet-analyzed projects in the Plan in its cumulative effects analysis was reasonable.

C. The presence of opposition does not make the environmental effects of the action "highly controversial."

Burien next argues that extraordinary circumstances exist, precluding application of a CATEX, because Burien views the FAA's action as "highly controversial." Br. 28–31. Burien identifies no environmental impact that it believes is subject to a high level of public controversy about the severity of its impact, nor does it identify controversy about the FAA's data and analytical methods. Burien instead focuses simply on the number of comments that the FAA received during its voluntary comment period. That is not enough to constitute an extraordinary circumstance under NEPA.

FAA Order 1050.1F 5-2(b)(10) provides that an action may not be appropriate for applications of a CATEX if it has impacts on the quality of the human environment that are likely to be highly controversial on environmental grounds. ER234. This 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."

Id. FAA's definition, which controls the resolution of this issue, is fully consistent with this Court's understanding of "highly controversial" effects in the context of the requirement that an agency prepare an EIS. *See, e.g.*, *Humane Society v. Locke*, 626 F.3d 1040, 1057 (9th Cir. 2010) ("controversial refers to cases where a substantial dispute exists as to the size, nature, or effect of the major federal action" (internal marks and citation omitted)). An action is not "highly controversial on environmental grounds" simply because there is "opposition." *Id.*; *see also Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1212 (9th Cir. 1998) (interpreting the meaning of "highly controversial" in the context of the requirement to prepare an EIS). Instead, a highly controversial action might be one where project opposition is of an "extraordinary nature." *Town of Orangetown v. Gorsuch,* 718 F.2d 29, 39 (2d Cir. 1983), *cert. denied,* 465 U.S. 1099 (1984); *Fund for Animals v. Frizzell*, 530 F.2d 982, 988 n.15 (D.C. Cir. 1975) ("certainly something more is required besides the fact that some people may be highly agitated and be willing to go to court over the matter"). And a "substantial dispute" exists not just when commenters raise questions or present conflicting views, it "exists when evidence . . . casts *serious doubt* upon the reasonableness of an agency's conclusions." *National Parks & Conservation Association v. Babbitt,* 241 F.3d 722, 736 (9th Cir. 2001) (emphasis added).

1. The FAA went beyond NEPA's requirements when seeking and responding to public comments.

Burien relies exclusively on the source and number of comments that the FAA received during its public comment period. As a preliminary matter, however, no public comment period was required here at all. ER236. Indeed, even when the FAA prepares an EA, the level of public involvement is determined "on a case-by-case basis." SER003; *see also Theodore Roosevelt Conservation Partnership v. Salazar*, 616 F.3d 497, 519–20 (D.C. Cir. 2010) (affirming agency's compliance with NEPA when it published a final decision and EA without first releasing NEPA documents for public notice and comment). For situations in which the agency will use a CATEX, the FAA has full discretion over when and how to involve the public. *See* ER236; *compare* SER010 (outlining process where agency applies a CATEX, including no public involvement) *with* SER011 (outlining process where agency prepares EA, including a determination whether to circulate a draft for public review).

Even so, recognizing that Burien and members of the public might have useful comments for the agency—particularly suggestions regarding other alternatives the FAA should consider—the FAA released a preliminary environmental document on June 8, 2017 and took public comments for 28 days. *See* ER162; ER048; ER157; ER159. The FAA received 716 comments, approximately 500 of which were germane to the FAA's proposed action, and

many of which constituted multiple comments from the same individuals. ER048–49; ER096–105. The FAA responded to each comment in an appendix to the final CATEX document. *See* ER048; ER081–172 (excerpt). And the FAA responded with action as well: as a result of the public process, the FAA improved upon its analysis, considered additional alternatives, and revised its proposed action (by suspending the automatic turn during nighttime hours) at Burien's request. ER049.

Burien now accuses the FAA of a "failure to disclose its NEPA analysis to the public," Br. 30, but the FAA's engagement with the public in this matter far exceeded the requirements under its established CATEX procedure, and the preliminary document was more than sufficient to inform the public of the issues before the agency and to solicit comments. Moreover, Burien's own comments during the formal comment period and its multiple meetings with the FAA outside that period indicate that it was well aware of the issues raised by the proposed action and that it was given full opportunity to participate in the FAA's consideration of alternatives and environmental review. *See* ER049.

2. EPA's comments assisted with the FAA's analysis but did not display opposition or controversy.

Burien highlights the fact that the U.S. Environmental Protection Agency ("EPA") submitted comments regarding the FAA's preliminary environmental analysis. Br. 29 (citing ER106–08). Burien characterizes EPA's

comments as having "disputed key assumptions." Br. 29. In fact, EPA asked questions and made recommendations for the FAA's final analysis. The FAA addressed those comments by answering EPA's questions and either completing the additional analysis or explaining why it was unnecessary. For instance, EPA raised a question about FAA's noise screening tool, including assumptions inherent in that tool. ER107 (paragraph 6). The FAA answered that question, referring to its generalized response regarding its noise screening, *see* ER82–84, as well as to updated analysis in its final CATEX document, *see* ER034–39. The same is true for all of EPA's comments: in each case, the FAA resolved EPA's questions, clarified areas of confusion, and acted on EPA's recommendations. *See, e.g.* SER022 (describing FAA's resolution of several of EPA's comments). There was never a "dispute" (as Burien characterizes it, Br. 29) between EPA and the FAA, and there is certainly no lingering "dispute" between the agencies.

3. There is no objective controversy about the environmental effects of the FAA's action.

As for whether comments from Burien and other commenters present 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," ER234, the FAA's sound environmental analysis reveals the answer is *no*.

This Court has explained that "more important" than the volume of public agitation is evidence that reveals flaws in the methods or data relied upon by the agency in reaching its conclusions. *National Parks & Conservation Association*, 241 F.3d at 736 (discussing controversy in the context of the requirement to prepare an EIS). Burien's brief identifies no particular environmental effect about which it believes there is significant controversy, and it does not point to any comments that "cast[] serious doubt upon the reasonableness of an agency's conclusions," such as its methodology and data. *Id*. For this reason alone, the Court may reject Burien's argument that the FAA's action was "highly controversial."

Even if adverse public comments could demonstrate controversy about the environmental effects of an action, the FAA adequately considered those effects here. Many commenters—including Burien, ER109–14—expressed concerns about the proposed action's potential to increase noise in the areas where turboprops on the automated westerly turn would fly. Naturally, the FAA's analysis focused on analyzing whether the action would have noise effects.

The FAA has established by regulation what levels of increase in noise are "significant" for purposes of triggering NEPA's requirement to prepare an EIS and what levels are "reportable," which may cause a proposed action to be

highly controversial on environmental grounds. *See* SER006–08. In order to depict and evaluate changes in noise, the FAA overlays grid points on a map and then models the projected noise between each point. *See, e.g.*, ER036; ER038 (figures depicting grid points for this noise analysis). The FAA has long used Yearly Day-Night Average Sound Level, or DNL, as a means of expressing noise impacts, and research has "confirmed that a community's aggregate response is generally predicable and relates reasonably well to measures of cumulative noise exposure such as DNL." ER034.[10]

Whether an increase in noise impacts resulting from an FAA action is "significant" for NEPA purposes is expressed in terms of decibel increases within a particular DNL contour. SER006–08. Specifically, a "significant" noise impact would occur where an action will cause a noise-sensitive area to experience an increase in noise of at least DNL 1.5 dB and that area experiences above DNL 65 dB total noise exposure. SER006; ER035. The FAA has also established a lower trigger for where a noise increase may be "reportable," meaning the noise impacts "are not significant" but "they may

[10] A particular DNL, which is stated in decibels, represents the average sound exposure at a particular location over a 24-hour time period and then annualized. ER034. This average is weighted, assigning a 10-decibel increase to any noise events occurring between 10:00 p.m. and 7:00 a.m. "to account for the fact that there is 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." ER034.

cause a proposed action to be highly controversial on environmental grounds" SER020. These "reportable" impacts include triggers for quieter areas. *See Id.*; ER083. This Court has specifically accepted both the FAA's use of DNL and its significance thresholds. *Seattle Community Council Federation*, 961 F.3d at 933; *see also Town of Cave Creek, Arizona v. FAA*, 325 F.3d 320, 326 (D.C. Cir. 2003) ("Courts have long accepted the . . . standard as the appropriate methodology for assessing the impact of aircraft noise.").

Here, the FAA conducted two different noise analyses: one that considered only noise generated by turboprops—an analysis that "exaggerates potential changes in noise exposure from the concentration of turboprop flight tracks"—and one that considers noise generated by all aircraft arriving and departing the aircraft. ER035; ER083. The results of the noise analysis demonstrated that not only will the proposed action (and preferred alternative) not cause a "significant" noise impact as compared to the no-action alternative, the increase would not even be reportable. The action therefore does not meet the FAA's established threshold to be considered "highly controversial on environmental grounds." SER020; ER035–39; ER084.

Burien brushes off these well-established, objective criteria that the FAA applies in all cases as mere "wordplay," Br. 30, but Burien does not actually challenge the agency's methodology or data. It cannot transform (unidentified)

public comments into serious doubts about the validity of the agency's scientific analysis. Indeed, the record contains minimal comments regarding the application of the FAA's previously-approved objective measures, no serious dispute as to the agency's assumptions or methods in measuring noise or into the adequacy of the full noise evaluation presented in the final report. Critically, unlike in *National Parks & Conservation Association*, the FAA's analysis *did* "establish the intensity of" the expected impacts of the preferred alternative, through "reasoned extrapolation from the data," as described above. 241 F.3d at 737. In other words, to the extent comments did create controversy, the FAA's analysis has resolved it. *See id.*

* * *

For Burien to succeed on its argument that the FAA was not permitted to use its CATEX here, it would have to show that the agency *both* arbitrarily and capriciously determined that the preferred alternative would have no significant environmental effects *and* arbitrarily and capriciously determined that no extraordinary circumstances apply. Burien fails to meet this burden. The FAA's decision to comply with NEPA through use of an established CATEX was reasonable and well-supported, the record supports that the essential characteristic of a CATEX—no significant environmental impact—is present in this particular case, and FAA's EA-like study of the project's

environmental effects fulfilled NEPA's goal of fostering informed decisionmaking.

III. The FAA conducted a detailed study of alternatives, well beyond the requirements applicable to a CATEX, and explained why it chose the preferred alternative.

Burien's final argument is that the FAA's consideration of alternatives to the proposed action was arbitrary and capricious.

In its final NEPA document, the FAA sets forth a total of 16 alternatives. These include:

- the proposed action (assignment of a 250° heading, to be entered within one nautical mile of the end of the runway), ER017;
- the preferred alternative that was ultimately adopted (the same as the proposed action, except that automatic turns would be suspended during nighttime hours), ER018;
- the no-action alternative, ER018;
- seven alternative headings that could be assigned to turboprops, ER018–23;
- requiring turboprops to climb to a certain altitude before turning, ER023;
- delaying initiation of the westerly turn up to two nautical miles from the runway's end, ER23;

- requiring turboprops to climb more steeply, ER24;
- alternating between multiple headings assigned to southbound turboprops, ER24;
- turning turboprops to the east, ER24;
- and suspending the automatic heading assignment during longer nighttime hours, ER025.

All but the first three of these alternatives were eliminated as possibilities after review to determine whether they would satisfy the purpose of and need for action, i.e., enhancing national airspace system safety and efficiency during north flow operations and accommodating the increasing air traffic at Sea-Tac while maintaining or enhancing safety. ER16–17. For example, many of the alternative westerly headings were eliminated because they would not provide enough separation from a special window of airspace that is reserved for aircraft on a missed approach. *See* ER018–23. Other alternatives were eliminated because allowing turboprops to turn later could cause conflicts with operations at nearby Boeing Field. *See* ER023. Yet other alternatives were eliminated because they did not achieve the goal of increasing safety and efficiency, such as through establishing consistency and predictability during busy operational times. *See* ER024–25.

Burien argues that the FAA's analysis was deficient in two respects. First, Burien argues that the FAA's analysis of alternatives that the agency found to be in conflict with the protected missed approach window was improper because FAA Order 7110.65W Section 5-8-5 requires only 30° separation from this window "until separation is applied." Br. 32. Burien speculates that the FAA ignored the "until separation is applied" part of this rule, and perhaps eliminated alternatives might in fact be feasible.

As the CATEX document explains, the FAA's decision regarding how to handle departing turboprops during north flow is complicated by its need to preserve a safe window for aircraft that are forced to initiate a missed approach. During north flow, aircraft on a missed approach are given a heading that depends on when the missed approach is initiated: if the aircraft is still south of the airport, it is assigned a 310° heading; if closer to the airport, it is assigned a 290° heading. ER014. Assignment of these headings allow these aircraft to exit the airport vicinity through a special area, the Three Tree Breakout Area, that is reserved for aircraft executing this unusual (and sometimes emergency) procedure. ER014–15.

As part of its analysis of alternatives, the FAA investigated whether it could assign a different range of headings to missed approach aircraft and to the westerly-turned southbound turboprops. ER018–23. The FAA explained

that because "the turboprop departure heading and missed approach procedure each have design criteria that requirement minimum separation distances and they are in close proximity, they need to be evaluated together." ER019. In considering these various alternatives, the FAA was limited by a required minimum of 30° separation between a departure and a missed approach heading. *See* ER019. For example, a 250° heading for turboprops and a 290–310° heading range for missed approaches satisfies this requirement because there is a greater than 30° difference between 250° and 290°.

Burien suggests that the FAA was too stringent in applying this 30° separation rule, and that the rule is more lax, requiring 30° divergence only "until separation is applied." *See* ER211. But as a practical matter, aircraft on missed approach and departing turboprops would only be able to achieve satisfactory separation (and then potentially be eligible for a heading with a different level of divergence) after passing over the City of Burien. For example, as Figure 15 in the CATEX document demonstrates, there would be minimal practical difference to people on the ground between assigning a 260° heading for turboprops instead of a 250° heading, because the two heading tracks are virtually identical until aircraft are over Puget Sound. ER020. Similarly, a modified heading after "separation is applied" between turboprops and the reserved missed approach headings would likely occur too late to have

a practical effect on the ground. There would be no reason to reduce the divergence between turboprops and missed approach aircraft when it would have no environmental (or safety and efficiency) benefit.

Further, as the FAA explained in its evaluation of a 260° heading for turboprops (as opposed to the proposed action's 250° heading), air-traffic controllers "cannot predict when a missed approach is going to occur" and "additional angle of separation" beyond 30° "is strongly desirable to protect" the missed-approach heading range because turboprops do not all make their westerly turn at the same point in their flight. ER018. Greater divergence of headings (i.e., more than 30° separation) is preferable to meeting the minimum separation, since closer headings "correlates to an increased risk." ER019. Indeed, a "greater degree separation may be necessary depending on the situation." ER019. The FAA therefore reasonably rejected alternatives that it thought could increase risk in missed-approach scenarios. Burien's suggestion that the FAA should have taken a more lax approach to this safety issue does not pass muster for the same reason that the FAA selected the 250° heading (providing 40° divergence) over the 260° headings (providing 30° divergence).

Second, Burien argues that the FAA eliminated alternatives because of "their perceived inability to accommodate increased departures." Br. 32. Again, Burien is incorrect. As discussed above in Section II.A above,

accommodating additional departures was not part of the purpose of this action, and no alternatives were eliminated on this basis. Indeed, Burien identifies no part of the alternatives analysis in its list of citations allegedly demonstrating the agency's improper exclusion of alternatives on this ground. Br. 32. Instead, its citations (to ER026, ER027, ER030, ER044, and ER114) all appear to be to instances where the FAA makes clear its conclusion that the preferred alternative is not expected to increase the amount of operations at Sea-Tac. *See also* ER088. The FAA's analysis is both internally consistent and reasonable, given its defined purpose and need and its reasoned conclusion regarding the preferred alternative's effects.

CONCLUSION

For all of the foregoing reasons, the petition should be denied.

Respectfully submitted,

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March 12, 2019
90-13-1-15458

STATEMENT OF RELATED CASES

Pursuant to Ninth Circuit Rule 28-2.6, there are no related cases pending in this Court.

STATUTORY AND REGULATORY ADDENDUM

49 U.S.C. § 40101(d) i
49 U.S.C. § 40103(b) ii
49 U.S.C. § 46110(a) iii
49 U.S.C. § 46110(c) iii
40 C.F.R. § 1501.3 iv
40 C.F.R. § 1501.4 v
40 C.F.R. § 1503.1 vi
40 C.F.R. § 1508.4 vii
40 C.F.R. § 1508.9 vii
40 C.F.R. § 1508.11 vii
40 C.F.R. § 1508.25 viii

49 U.S.C. § 40101

***

(d) Safety Considerations in Public Interest.—In carrying out subpart III of this part and those provisions of subpart IV applicable in carrying out subpart III, the Administrator shall consider the following matters, among others, as being in the public interest:

(1) assigning, maintaining, and enhancing safety and security as the highest priorities in air commerce.

(2) regulating air commerce in a way that best promotes safety and fulfills national defense requirements.

(3) encouraging and developing civil aeronautics, including new aviation technology.

(4) controlling the use of the navigable airspace and regulating civil and military operations in that airspace in the interest of the safety and efficiency of both of those operations.

(5) consolidating research and development for air navigation facilities and the installation and operation of those facilities.

(6) developing and operating a common system of air traffic control and navigation for military and civil aircraft.

(7) providing assistance to law enforcement agencies in the enforcement of laws related to regulation of controlled substances, to the extent consistent with aviation safety.

***

49 U.S.C. § 40103

***

(b) Use of Airspace.—

(1) The Administrator of the Federal Aviation Administration shall develop plans and policy for the use of the navigable airspace and assign by regulation or order the use of the airspace necessary to ensure the safety of aircraft and the efficient use of airspace. The Administrator may modify or revoke an assignment when required in the public interest.

(2) The Administrator shall prescribe air traffic regulations on the flight of aircraft (including regulations on safe altitudes) for—

(A) navigating, protecting, and identifying aircraft;

(B) protecting individuals and property on the ground;

(C) using the navigable airspace efficiently; and

(D) preventing collision between aircraft, between aircraft and land or water vehicles, and between aircraft and airborne objects.

(3) To establish security provisions that will encourage and allow maximum use of the navigable airspace by civil aircraft consistent with national security, the Administrator, in consultation with the Secretary of Defense, shall—

(A) establish areas in the airspace the Administrator decides are necessary in the interest of national defense; and

(B) by regulation or order, restrict or prohibit flight of civil aircraft that the Administrator cannot identify, locate, and control with available facilities in those areas.

(4) Notwithstanding the military exception in section 553(a)(1) of title 5, subchapter II of chapter 5 of title 5 applies to a regulation prescribed under this subsection.

***

49 U.S.C. § 46110

(a) Filing and Venue.—Except for an order related to a foreign air carrier subject to disapproval by the President under section 41307 or 41509(f) of this title, a person disclosing a substantial interest in an order issued by the Secretary of Transportation (or the Administrator of the Transportation Security Administration with respect to security duties and powers designated to be carried out by the Administrator of the Transportation Security Administration or the Administrator of the Federal Aviation Administration with respect to aviation duties and powers designated to be carried out by the Administrator of the Federal Aviation Administration) in whole or in part under this part, part B, or subsection (l) or (s) [1] of section 114 may apply for review of the order by filing a petition for review in the United States Court of Appeals for the District of Columbia Circuit or in the court of appeals of the United States for the circuit in which the person resides or has its principal place of business. The petition must be filed not later than 60 days after the order is issued. The court may allow the petition to be filed after the 60th day only if there are reasonable grounds for not filing by the 60th day.

***

(c) Authority of Court.—When the petition is sent to the Secretary, Administrator of the Transportation Security Administration, or Administrator of the Federal Aviation Administration, the court has exclusive jurisdiction to affirm, amend, modify, or set aside any part of the order and may order the Secretary, Administrator of the Transportation Security Administration, or Administrator of the Federal Aviation Administration to conduct further proceedings. After reasonable notice to the Secretary, Administrator of the Transportation Security Administration, or Administrator of the Federal Aviation Administration, the court may grant interim relief by staying the order or taking other appropriate action when good cause for its action exists. Findings of fact by the Secretary, Administrator of the Transportation Security Administration, or Administrator of the Federal Aviation Administration, if supported by substantial evidence, are conclusive.

***

40 C.F.R. § 1501.3

When to prepare an environmental assessment.

(a) Agencies shall prepare an environmental assessment (§ 1508.9) when necessary under the procedures adopted by individual agencies to supplement these regulations as described in § 1507.3. An assessment is not necessary if the agency has decided to prepare an environmental impact statement.

(b) Agencies may prepare an environmental assessment on any action at any time in order to assist agency planning and decisionmaking.

40 C.F.R. § 1501.4

Whether to prepare an environmental impact statement.

In determining whether to prepare an environmental impact statement the Federal agency shall:

(a) Determine under its procedures supplementing these regulations (described in § 1507.3) whether the proposal is one which:

(1) Normally requires an environmental impact statement, or

(2) Normally does not require either an environmental impact statement or an environmental assessment (categorical exclusion).

(b) If the proposed action is not covered by paragraph (a) of this section, prepare an environmental assessment (§ 1508.9). The agency shall involve environmental agencies, applicants, and the public, to the extent practicable, in preparing assessments required by § 1508.9(a)(1).

(c) Based on the environmental assessment make its determination whether to prepare an environmental impact statement.

(d) Commence the scoping process (§ 1501.7), if the agency will prepare an environmental impact statement.

(e) Prepare a finding of no significant impact (§ 1508.13), if the agency determines on the basis of the environmental assessment not to prepare a statement.

(1) The agency shall make the finding of no significant impact available to the affected public as specified in § 1506.6.

(2) In certain limited circumstances, which the agency may cover in its procedures under § 1507.3, the agency shall make the finding of no significant impact available for public review (including State and areawide clearinghouses) for 30 days before the agency makes its final determination whether to prepare an environmental impact statement and before the action may begin. The circumstances are:

(i) The proposed action is, or is closely similar to, one which normally requires the preparation of an environmental impact statement under the procedures adopted by the agency pursuant to § 1507.3, or

(ii) The nature of the proposed action is one without precedent.

40 C.F.R. § 1503.1

Inviting comments.

(a) After preparing a draft environmental impact statement and before preparing a final environmental impact statement the agency shall:

> **(1)** Obtain the comments of any Federal agency which has jurisdiction by law or special expertise with respect to any environmental impact involved or which is authorized to develop and enforce environmental standards.
>
> **(2)** Request the comments of:
>
> > **(i)** Appropriate State and local agencies which are authorized to develop and enforce environmental standards;
> >
> > **(ii)** Indian tribes, when the effects may be on a reservation; and
> >
> > **(iii)** Any agency which has requested that it receive statements on actions of the kind proposed.
> >
> > Office of Management and Budget Circular A-95 (Revised), through its system of clearinghouses, provides a means of securing the views of State and local environmental agencies. The clearinghouses may be used, by mutual agreement of the lead agency and the clearinghouse, for securing State and local reviews of the draft environmental impact statements.
>
> **(3)** Request comments from the applicant, if any.
>
> **(4)** Request comments from the public, affirmatively soliciting comments from those persons or organizations who may be interested or affected.

(b) An agency may request comments on a final environmental impact statement before the decision is finally made. In any case other agencies or persons may make comments before the final decision unless a different time is provided under § 1506.10.

40 C.F.R. § 1508.4

Categorical exclusion.

Categorical exclusion means a category of actions which do not individually or cumulatively have a significant effect on the human environment and which have been found to have no such effect in procedures adopted by a Federal agency in implementation of these regulations (§ 1507.3) and for which, therefore, neither an environmental assessment nor an environmental impact statement is required. An agency may decide in its procedures or otherwise, to prepare environmental assessments for the reasons stated in § 1508.9 even though it is not required to do so. Any procedures under this section shall provide for extraordinary circumstances in which a normally excluded action may have a significant environmental effect.

40 C.F.R. § 1508.9

Environmental assessment.

Environmental assessment:

(a) Means a concise public document for which a Federal agency is responsible that serves to:

> **(1)** Briefly provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact.
>
> **(2)** Aid an agency's compliance with the Act when no environmental impact statement is necessary.
>
> **(3)** Facilitate preparation of a statement when one is necessary.

(b) Shall include brief discussions of the need for the proposal, of alternatives as required by section 102(2)(E), of the environmental impacts of the proposed action and alternatives, and a listing of agencies and persons consulted.

40 C.F.R. § 1508.11

Environmental impact statement.

Environmental impact statement means a detailed written statement as required by section 102(2)(C) of the Act.

40 C.F.R. § 1508.25

Scope.

Scope consists of the range of actions, alternatives, and impacts to be considered in an environmental impact statement. The scope of an individual statement may depend on its relationships to other statements (§§ 1502.20 and 1508.28). To determine the scope of environmental impact statements, agencies shall consider 3 types of actions, 3 types of alternatives, and 3 types of impacts. They include:

(a) Actions (other than unconnected single actions) which may be:

(1) Connected actions, which means that they are closely related and therefore should be discussed in the same impact statement. Actions are connected if they:

(i) Automatically trigger other actions which may require environmental impact statements.

(ii) Cannot or will not proceed unless other actions are taken previously or simultaneously.

(iii) Are interdependent parts of a larger action and depend on the larger action for their justification.

(2) Cumulative actions, which when viewed with other proposed actions have cumulatively significant impacts and should therefore be discussed in the same impact statement.

(3) Similar actions, which when viewed with other reasonably foreseeable or proposed agency actions, have similarities that provide a basis for evaluating their environmental consequences together, such as common timing or geography. An agency may wish to analyze these actions in the same impact statement. It should do so when the best way to assess adequately the combined impacts of similar actions or reasonable alternatives to such actions is to treat them in a single impact statement.

(b) Alternatives, which include:

(1) No action alternative.

(2) Other reasonable courses of actions.

(3) Mitigation measures (not in the proposed action).

(c) Impacts, which may be: (1) Direct; (2) indirect; (3) cumulative.

Form 8. Certificate of Compliance for Briefs

9th Cir. Case Number(s) 18-71705

I am the attorney or self-represented party.

This brief contains 11,216 words, excluding the items exempted by Fed. R. App. P. 32(f). The brief's type size and typeface comply with Fed. R. App. P. 32(a)(5) and (6).

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[X] complies with the word limit of Cir. R. 32-1.

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- [ ] a party or parties are filing a single brief in response to a longer joint brief.

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Signature s/Erika Kranz

Date March 12, 2019

No. 18-71705

IN THE UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

CITY OF BURIEN, WASHINGTON,

Petitioner,

v.

FEDERAL AVIATION ADMINISTRATION, et al.,

Respondents.

On Petition for Review from the Federal Aviation Administration

SUPPLEMENTAL EXCERPTS OF RECORD FOR THE FEDERAL RESPONDENTS

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AR 003

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

ORDER 1050.1F

Effective Date:
7/16/15

SUBJ: Environmental Impacts: Policies and Procedures

This Order serves as the Federal Aviation Administration's (FAA) policy and procedures for compliance with the National Environmental Policy Act (NEPA) and implementing regulations issued by the Council on Environmental Quality (CEQ). The provisions of this Order and the CEQ Regulations apply to actions directly undertaken by the FAA and to actions undertaken by a non-Federal entity where the FAA has authority to condition a permit, license, or other approval. The requirements in this Order apply to, but are not limited to, the following actions: grants, loans, contracts, leases, construction and installation actions, procedural actions, research activities, rulemaking and regulatory actions, certifications, licensing, permits, plans submitted to the FAA by state and local agencies for approval, and legislation proposed by the FAA. The Order was last revised in 2006.

This Order updates FAA Order 1050.1E to: 1) provide a clear, concise, and up-to-date discussion of the FAA's requirements for implementing NEPA; and 2) clarify requirements in order to facilitate timely, effective, and efficient environmental reviews of FAA actions, including NextGen improvements.

Rich Swayze
Assistant Administrator
Policy, International Affairs & Environment

Distribution: Electronically

Initiated By: AEE-400

whether to prepare an EIS or a FONSI (see 40 CFR § 1508.9(a)(1), CEQ Regulations). This section must include analysis necessary to address the significance factors in Paragraph 4-3 and 40 CFR § 1508.27, CEQ Regulations. The focus of this analysis is on resources that would be directly, indirectly, and cumulatively affected. The analysis should include consideration of possible conflicts with the objectives of Federal, regional, state, tribal, and local land use plans, policies, and controls for the area concerned, as well as any other unresolved conflicts concerning alternative uses of available resources. To avoid excessive length, the environmental consequences section may incorporate by reference background data to support its effects analysis (for more guidance on incorporation by reference, see Paragraph 7-1.c).

The EA should include the information required to demonstrate compliance with other applicable requirements and should identify any permits, licenses, other approvals, or reviews that apply. To reduce paperwork and delay, and to ensure that the necessary approvals and permits will be issued with or immediately following issuance of the EA and FONSI, the responsible FAA official should: (1) coordinate timeframes for review with the oversight agency; (2) identify with the oversight agency the information needed for its review; and (3) integrate these into the EA process. For more information on environmental consequences, see Paragraph 7-1.1.g.

g. List of Preparers. The EA must include a list of the names and qualifications of personnel who prepared the EA. Contractors will be identified as having assisted in, or having prepared, the EA.

h. List of Agencies and Persons Consulted. The EA must include a list of agencies and persons consulted.

i. Appendices (if any). The EA may include the following appendices, if applicable:

(1) Any documentation that supports statements and conclusions in the body of the EA, including methodologies and references used. Proper citations to reference materials should be provided;

(2) Evidence of coordination or required consultation with affected Federal, state, tribal, and local officials and copies or a summary of their comments or recommendations and the responses to such comments and recommendations; and

(3) A summary of public involvement, including evidence of the opportunity for a public hearing, if required under applicable Federal laws (e.g., the Airport and Airway Improvement Act of 1982, 49 U.S.C. § 47106(c)), regulations, and orders, and a summary of issues raised at any public hearing or public meeting as well as responses to substantive comments.

6-2.2. Environmental Assessment Process. The following Environmental Assessment process is described in flowchart form in Exhibit D-2 of Appendix D.

a. Initial Steps. The FAA or applicant (if the FAA has requested that the applicant prepare the EA) formulates the proposed action and reasonable alternatives to achieve the project's purpose and need. The FAA or applicant then gathers data and begins the analysis. If the FAA determines that the proposed action would significantly affect the human environment as the analysis proceeds, the FAA can make a decision to prepare an EIS without first completing the EA.

b. Public Involvement. The FAA or applicant must involve the public, to the extent practicable, in preparing EAs (see 40 CFR § 1501.4(b) and 1506.6, CEQ Regulations). The appropriate level of public involvement for an EA is determined on a case-by-case basis and will vary based on the proposed action and the potential impacts. Beyond the required notice of availability (see Paragraph 6-3.d and 40 CFR § 1506.6(b), CEQ Regulations), examples of some optional public involvement methods for EAs that should be considered in appropriate circumstances include: (1) scoping (see Paragraph 6-2.2.c); (2) circulation of a draft EA for public comment (see Paragraph 6-2.2g); and (3) public meetings, workshops, and hearings (see Paragraph 2-5.3).

c. Scoping. Scoping, as described in 40 CFR § 1501.7, CEQ Regulations, is optional for EAs. Scoping can be particularly useful when an EA deals with uncertainty or controversy regarding potential conflicts over the use of resources or the environmental impacts of the proposed actions. The scoping process can provide a transparent way to identify environmental issues, focusing the analysis on the most pertinent issues and impacts.

d. Consultation and Coordination. The FAA or applicant determines issues and alternatives to be addressed and coordinates or consults with other agencies. Consultation includes contacting appropriate Federal, state, tribal, and local officials to obtain information concerning potential environmental impacts and maintaining contact with these parties for the remainder of the NEPA process. Formal consultation with tribes may be required for specific projects (see Paragraph 2-4.4 for further information on government-to-government consultation).

e. Impact Analysis. The FAA or applicant analyzes potential impacts and prepares the EA. The EA must present a detailed analysis, to the satisfaction of the responsible FAA official, commensurate with the level of impact of the proposed action and alternatives, to determine whether any impacts will be significant. If the FAA has experience that includes monitoring of the implementation of actions similar to the proposed action and alternatives, the monitoring information may be useful for an assessment of the potential environmental impacts. EMS data collection, tracking, and analysis may also be useful in the preparation of EAs, including providing input on the affected environment, assessment of potential impacts, and consideration of appropriate mitigation measures. The EA must also include a discussion of any connected or similar actions (see 40 CFR §§ 1508. 25(a)(1), 1508.25 (3), and 1508.27(b)(7), CEQ Regulations). If the proposed action and alternatives would not cause significant impacts within specific categories of environmental impacts, a brief description of the factual basis for this conclusion with respect to each applicable impact category is sufficient.

f. Internal Review. Internal review of the EA is conducted by potentially affected LOB/SOs having an interest in the proposed action or reasonable alternatives identified in the EA to ensure that all FAA concerns have been addressed (see Paragraph 10-2 for more information on Review and Approval of EAs and FONSIs and FONSI/RODs).

g. Public Comments on a Draft EA. Circulation of a draft EA for public comment should be considered but is optional at the discretion of the responsible FAA official. In determining whether to circulate a draft EA, the responsible FAA official should consider the type of proposed action, potential for impacts, and community controversy.

Appendix B. Federal Aviation Administration Requirements for Assessing Impacts Related to Noise and Noise-Compatible Land Use and Section 4(f) of the Department of Transportation Act (49 U.S.C. § 303)

This appendix contains the Federal Aviation Administration (FAA) requirements for Noise and Noise-Compatible Land Use as well as compliance with Section 4(f), and describes related requirements to provide appropriate context. These requirements are also included in the 1050.1F Desk Reference[15], which provides comprehensive guidance regarding the analysis of impacts in specific environmental impact categories. Practitioners should use the 1050.1F Desk Reference in analyzing these impacts.

B-1. Noise and Noise-Compatible Land Use

For aviation noise analyses, the FAA has determined that the cumulative noise energy exposure of individuals to noise resulting from aviation activities must be established in terms of Yearly Day Night Average Sound Level (DNL), the FAA's primary noise metric. The Community Noise Equivalent Level (CNEL) may be used in lieu of DNL for FAA actions in California. The compatibility of existing and planned land uses with proposed aviation actions is usually determined in relation to the level of aircraft noise. Federal compatible land use guidelines for a variety of land uses are provided in Table 1 in Appendix A of 14 Code of Federal Regulations (CFR) part 150, *Land Use Compatibility with Yearly Day-Night Average Sound*. These guidelines are included in the Noise and Noise-Compatible Land Use Chapter of the 1050.1F Desk Reference.

No noise analysis is needed for projects involving Design Group I and II airplanes (wingspan less than 79 feet) in Approach Categories A through D (landing speed less than 166 knots) operating at airports whose forecast operations in the period covered by the NEPA document do not exceed 90,000 annual propeller operations (247 average daily operations) or 700 annual jet operations (2 average daily operations). Also, no noise analysis is needed for projects involving existing heliports or airports whose forecast helicopter operations in the period covered by the NEPA document do not exceed 10 annual daily average operations with hover times not exceeding 2 minutes.

B-1.1. Aircraft Noise Screening.

Aircraft noise screening may rule out the need for more detailed noise analysis and provide documented support for a Categorical Exclusion (CATEX) if screening shows no potential for significant noise impacts. The FAA has multiple noise screening tools (NSTs) and methodologies. A list of available FAA screening tools is provided in the 1050.1F Desk Reference. To use screening tools or equivalent screening methodologies that are not listed in the 1050.1F Desk Reference, prior written approval from the Office of Environment and Energy (AEE) is required.

[15] The Desk Reference is available on the FAA website at http://www.faa.gov/about/office_org/headquarters_offices/apl/environ_policy_guidance/policy/

B-1.2. Federal Aviation Administration Approved Models for Detailed Noise Analysis.

AEE has approved models for use for detailed noise analysis. Prior written approval from AEE is required to use another equivalent methodology or computer model. When requesting the use of an alternative model, justification of appropriateness of the use of that model over the use of the models listed in the 1050.1F Desk Reference is required. Unless it can be justified, all noise analyses must be performed using the standard and default data. Modification to standard or default data in FAA-approved models requires prior written approval from AEE. Guidance for submitting changes to the standard or default data is included in the 1050.1F Desk Reference.

Input documentation for the noise analysis with one copy of the input data files and corresponding output files used in the noise analysis should be provided to the responsible FAA official on electronic media specified by that official. If other equivalent methodologies or the use of non-standard or non-default data are approved, a description of the methodology or additional, non-standard or non-default data must be submitted along with a copy of AEE's approval to the responsible FAA official.

Noise monitoring data is not required for FAA noise analyses, but may optionally be included in a National Environmental Policy Act (NEPA) document. Noise monitoring data should not be used to calibrate the noise model.

B-1.3. Affected Environment.

The study area for noise is the three dimensional geographic area with the potential to be impacted by noise from the proposed project. The study area can vary in size from an airport's environs to a larger scale airspace redesign that includes multiple airports. An airport environs study area must be large enough to include the area within the DNL 65 decibels (dB) contour, and may be larger. The study area for the noise analysis of a proposed change in air traffic procedures or airspace redesign may extend vertically from the ground to 10,000 feet above ground level (AGL), or up to 18,000 feet AGL if the proposed action or alternative(s) are over a national park or wildlife refuge where other noise is very low and a quiet setting is a generally recognized purpose and attribute.

Noise compatibility or non-compatibility of land use is determined by comparing the aircraft DNL values at a site to the values in the land use compatibility guidelines in 14 CFR part 150, Appendix A, Table 1. Special consideration needs to be given to noise sensitive areas within Section 4(f) properties (including, but not limited to, noise sensitive areas within national parks; national wildlife and waterfowl refuges; and historic sites, including traditional cultural properties) where the land use compatibility guidelines in 14 CFR part 150 are not relevant to the value, significance, and enjoyment of the area in question. For example, the land use categories in the guidelines are not sufficient to determine the noise compatibility of areas within a national park or national wildlife refuge where other noise is very low and a quiet setting is a generally recognized purpose and attribute.

Local land use jurisdictions may have noise and land use compatibility standards that differ from the FAA's land use compatibility guidelines with respect to DNL 65 dB in 14 CFR part 150, Appendix A, Table 1. Such local standards must be disclosed to the extent required under 40 CFR 1502.16(c) and 1506.2(d), the CEQ Regulations. However, the FAA does not use local land use compatibility standards to determine the significance of noise impacts. Pertinent land use plans and a general overview of existing and planned uses of the land should be described.

The description of current noise conditions includes:

- DNL contours or noise grid points showing existing aircraft noise levels. Noise exposure contours must include DNL 65, 70, and 75 dB levels (additional contours may be provided on a case-by-case basis). Noise grids are sized to cover the study area for noise analysis. Multiple grids may be created, but at least one grid consists of population centroids from the U.S. Census blocks. The differences in noise analysis for proposed airport development and other actions in the immediate vicinity of an airport and for air traffic airspace and procedure actions in a larger study area are described more fully in the 1050.1F Desk Reference under the Environmental Consequences paragraph (section 11.3);
- The number of residences or people residing within each noise contour where aircraft noise exposure is at or above DNL 65 dB; or for a larger scale air traffic airspace and procedure action, the population within areas exposed at or above DNL 65 dB, at or above DNL 60 but less than DNL 65 dB, and at or above DNL 45 dB but less than DNL 60 dB;
- The location and number of noise sensitive uses in addition to residences (e.g., schools, hospitals, parks, recreation areas) that could be significantly impacted by noise; and
- Maps and other means to depict land uses within the noise study area. The addition of flight tracks may be helpful. Illustrations should be sufficiently large and clear to be readily understood.

The description of current noise conditions is usually confined to aircraft noise. However, the inclusion of other noise data, such as background or ambient noise or notable levels of noise in the study area from other sources (e.g., highways, industrial uses) is appropriate where such noise data is pertinent to understanding the affected environment and to considering the environmental impacts of the proposed action and alternative(s).

B-1.4. Environmental Consequences.

The environmental consequences section of the NEPA document will include the analysis of the potential noise impacts of the proposed action and alternative(s) for each timeframe evaluated. The noise analysis will include DNL contours, grid point, and/or change-of-exposure analysis for the proposed action and each alternative compared to the no action alternative for the same future timeframe.

For proposed airport development and other actions in the immediate vicinity of an airport, the AEDT is used to provide noise exposure contours at the DNL 65, 70, and 75 dB levels (additional contours may be provided on a case-by-case basis). For all comparisons analyzed, the analysis will identify noise increases of DNL 1.5 dB or more over noise sensitive areas that are exposed to noise at or above the DNL 65 dB noise exposure level, or that would be exposed at or above the DNL 65 dB level due to a 1.5 dB or greater increase, when compared to the no action alternative for the same timeframe.

For actions in the immediate vicinity of an airport, the following information must be disclosed for each modeled scenario that is analyzed:

- The number of residences or people residing within each noise contour where aircraft noise exposure is at or above DNL 65 dB and the net increase or decrease in the number of people or residences exposed to that level of noise;
- The location and number of noise sensitive uses in addition to residences (e.g., schools, hospitals, parks, recreation areas) exposed to DNL 65 dB or greater;
- The identification of noise sensitive areas within the DNL 60 dB contour that are exposed to aircraft noise at or above DNL 60 dB but below DNL 65 dB and are projected to experience a noise increase of DNL 3 dB or more, only when DNL 1.5 dB increases are documented within the DNL 65 dB contour;
- Discussion of the noise impact on noise sensitive areas within the DNL 65 dB contour; and
- Maps and other means to depict land uses within the noise study area. The addition of flight tracks is helpful. Illustrations should be sufficiently large and clear to be readily understood.

For air traffic airspace and procedure actions where the study area is larger than the immediate vicinity of an airport, incorporates more than one airport, and/or includes actions above 3,000 feet AGL, an FAA-approved model must be used. The noise analysis will focus on a change-in-exposure analysis, which examines the change in noise levels as compared to population and demographic information at population points throughout the study area. This is normally a noise grid analysis. Multiple grids may be created, but at least one grid must consist of population centroids from the U.S. Census blocks. Discrete receptor points[16] can also represent select noise sensitive area(s) or comprise a general receptor grid over the study area, either densely or sparsely spaced. Noise contours may be created at the FAA's discretion; however, noise contours are not required and are not normally used for the analysis of larger scale air traffic airspace and procedure actions. If the study encompasses a large geographical area, it is not recommended that contours be created for the representation of results below DNL 55 dB due to fidelity of receptor sets needed to create an accurate representation of the contour.

For air traffic airspace and procedure actions evaluated as described above, change-of-exposure tables and maps at population centers are provided to identify where noise will change by the following specified amounts:

- For DNL 65 dB and higher: $\pm$1.5 dB
- For DNL 60 dB to <65 dB: $\pm$3 dB[17]
- For DNL 45 dB to <60 dB: $\pm$5 dB[18]

[16] Receptors are locations where noise is modeled. A collection of receptors are known as receptor sets. Grid points are an example of a receptor set.

[17, 19] The FAA refers to noise changes meeting these criteria as "reportable."

The location and number of noise sensitive uses (e.g., schools, churches, hospitals, parks, recreation areas, etc.) exposed to DNL 65dB or greater must be disclosed for each modeling scenario that is analyzed.

The noise compatibility of land use is determined by comparing the aircraft DNL values at a site to the values in the land use compatibility guidelines in 14 CFR part 150, Appendix A, Table 1. EAs and EISs must disclose newly non-compatible land use regardless of whether there is a significant noise impact (see Paragraph B-1.5). Special consideration needs to be given to noise sensitive areas within Section 4(f) properties (including, but not limited to, noise sensitive areas within national parks; national wildlife and waterfowl refuges; and historic sites, including traditional cultural properties) where the land use compatibility guidelines in 14 CFR part 150 are not relevant to the value, significance, and enjoyment of the area in question. For example, the land use categories in the guidelines are not sufficient to determine the noise compatibility of areas within a national park or national wildlife refuge where other noise is very low and a quiet setting is a generally recognized purpose and attribute.

B-1.5. Significance Determination.

Exhibit 4-1 of FAA Order 1050.1F provides the FAA's significance threshold for noise: *The action would increase noise by DNL 1.5 dB or more for a noise sensitive area that is exposed to noise at or above the DNL 65 dB noise exposure level, or that will be exposed at or above the DNL 65 dB level due to a 1.5 dB or greater increase, when compared to the no action alternative for the same timeframe.* For example, an increase from DNL 65.5 dB to 67 dB is considered a significant impact, as is an increase from DNL 63.5 dB to 65 dB. The determination of significance must be obtained through the use of noise contours and/or grid point analysis along with local land use information and general guidance contained in Appendix A of 14 CFR part 150.

Special consideration needs to be given to the evaluation of the significance of noise impacts on noise sensitive areas within Section 4(f) properties (including, but not limited to, noise sensitive areas within national parks; national wildlife and waterfowl refuges; and historic sites, including traditional cultural properties) where the land use compatibility guidelines in 14 CFR part 150 are not relevant to the value, significance, and enjoyment of the area in question. For example, the DNL 65 dB threshold does not adequately address the impacts of noise on visitors to areas within a national park or national wildlife and waterfowl refuge where other noise is very low and a quiet setting is a generally recognized purpose and attribute.

When the proposed action or alternative(s) would result in a significant noise increase and the proposed action or alternative is highly controversial on this basis, the EIS should include, as appropriate in light of the specific proposal under analysis, information on the human response to noise. Inclusion of data on background or ambient noise, as well as other noise in the area, may be helpful.

Compatible or non-compatible land use is determined by comparing the aircraft DNL values at a site to the values in the part 150 land use compatibility guidelines (see Appendix A of 14 CFR part 150). The part 150 guidelines include uses that may be protected under Section 4(f). The part 150 guidelines may be used to determine the significance of noise impacts on properties protected under Section 4(f) to the extent that the land uses specified in the guidelines bear relevance to the value, significance, and enjoyment of the lands in question. Special consideration needs to be given to noise sensitive areas within Section 4(f) properties (including,

but not limited to, noise sensitive areas within national parks; national wildlife and waterfowl refuges; and historic sites, including traditional cultural properties) where the land use compatibility guidelines in 14 CFR part 150 are not relevant to the value, significance, and enjoyment of the area in question. For example, the part 150 land use categories are not sufficient to determine the noise compatibility of areas within a national park or national wildlife refuge where other noise is very low and a quiet setting is a generally recognized purpose and attribute, or to address noise impacts on wildlife. When instances arise in which aircraft noise is a concern with respect to wildlife impacts, established scientific practices, including review of available studies dealing with specific species of concern, should be used in the analysis. With respect to historic sites, the FAA may rely upon the part 150 guidelines to determine noise impacts on historic properties that are in use as residences. However, the part 150 guidelines may not be sufficient to determine the impact of noise on historic properties where a quiet setting is a generally recognized purpose and attribute, such as a historic village preserved specifically to convey the atmosphere of rural life in an earlier era or a traditional cultural property.

If the noise and noise-compatible land use analysis concludes that there is no significant impact, usually a similar conclusion may be drawn with respect to land use in general. However, if the proposal would result in other impacts that have land use ramifications, for example, disruption of communities, relocation, or induced socioeconomic impacts, the impacts on land use should be analyzed in this context and described accordingly under the appropriate impact category.

B-1.6. Supplemental Noise Analysis.

DNL analysis may optionally be supplemented on a case-by-case basis to characterize specific noise impacts. There is no single supplemental methodology that is preferable in all situations and these metrics often do not reflect the magnitude, duration, or frequency of the noise events under study.

In addition, the FAA will consider the use of appropriate supplemental noise analysis when it identifies, within the study area of a proposed action or alternative(s), one or more Section 4(f) properties (including, but not limited to, noise sensitive areas within national parks; national wildlife and waterfowl refuges; and historic sites including traditional cultural properties) where a quiet setting is a generally recognized purpose and attribute. In considering the use of supplemental noise analysis for such properties, the FAA will consult with the officials having jurisdiction over the properties. Such supplemental noise analysis is not, by itself, a measure of adverse aircraft noise or significant aircraft noise impact. The Line(s) of Business/Staff Office(s) (LOB/SOs) within the FAA must consult with and receive approval from AEE in determining the appropriate supplemental noise analysis for use in such cases.

Potential metrics for supplemental noise analyses are listed in the 1050.1F Desk Reference.

B-1.7. Noise from Sources Other than Aircraft Departures and Arrivals.

For some noise analyses, it may be necessary to include noise sources other than aircraft departures and arrivals in the noise analysis. Some examples are engine run-ups, aircraft taxiing, construction noise, and noise from related roadway work and roadway noise. The inclusion of these sources should be considered on a case-by-case basis, as appropriate.

If engine run-ups or aircraft taxiing noise are analyzed as part of the study, an FAA-approved model must be used. If an alternative model or methodology is desired, prior AEE approval is needed. If appropriate, an analysis of surface transportation impacts, including construction

Appendix D. National Environmental Policy Act Process Flowcharts

Exhibit D-1. Typical Categorical Exclusion Process

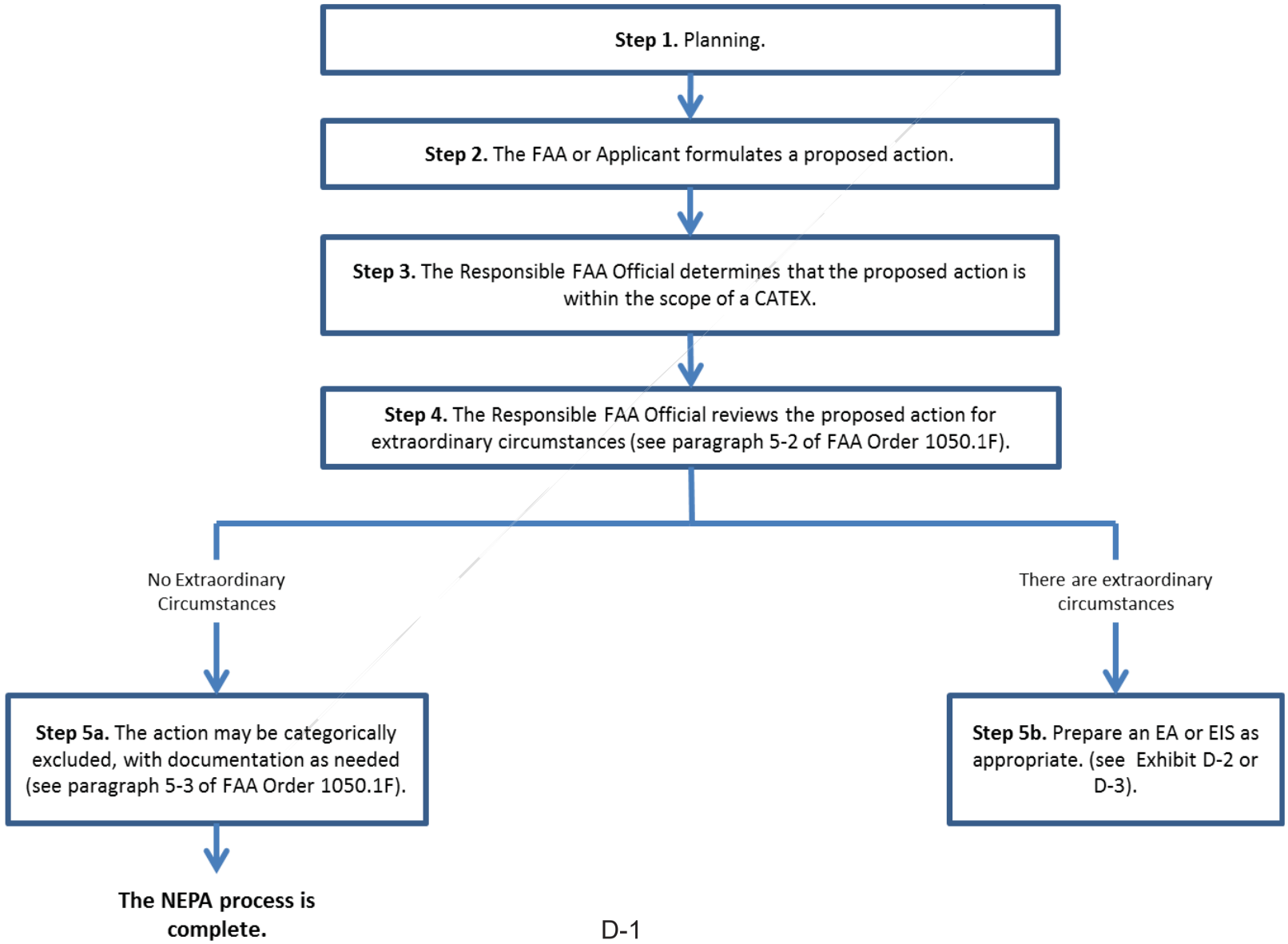

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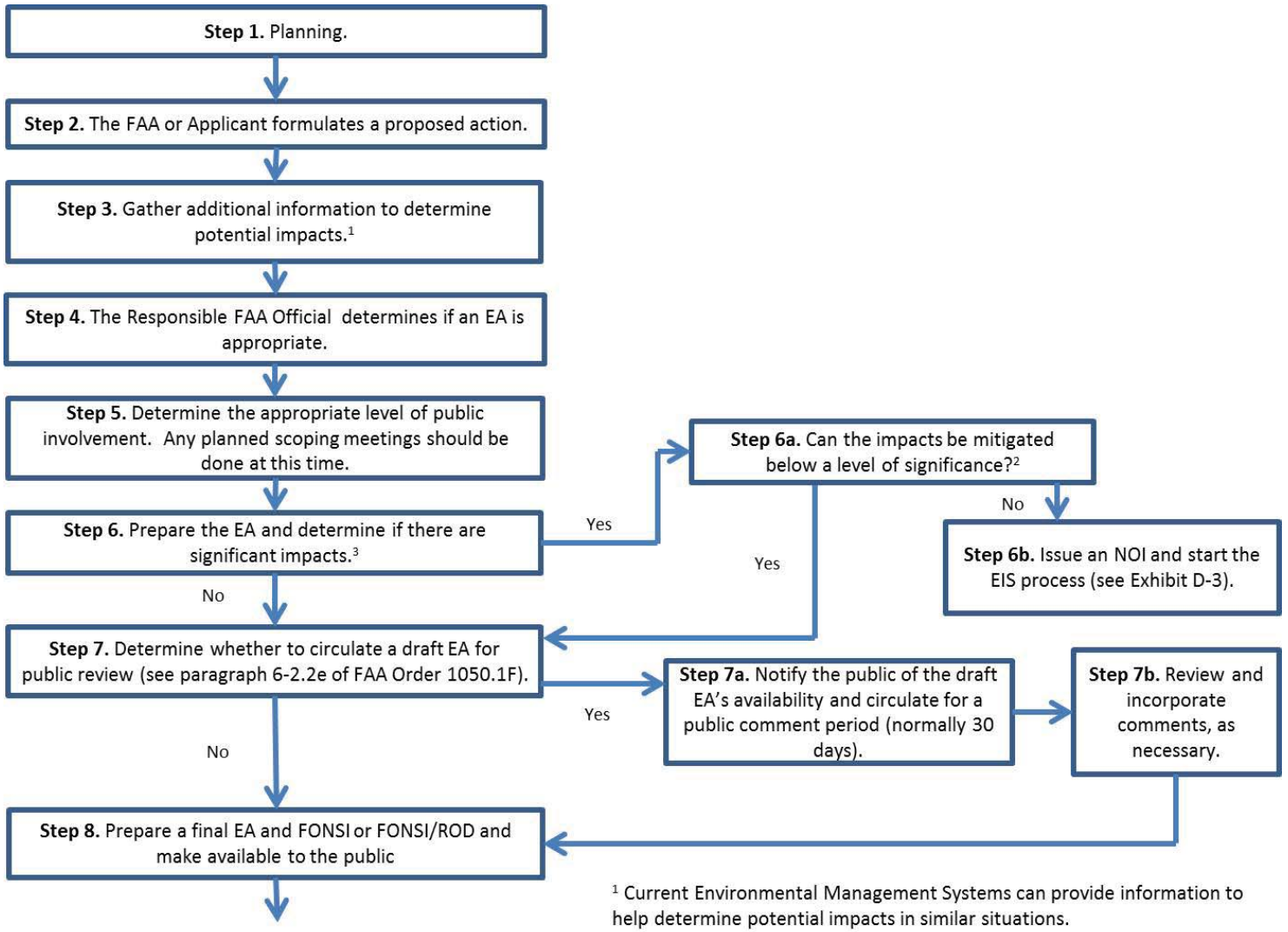
Exhibit D-2. Typical Environmental Assessment Process



[1] Current Environmental Management Systems can provide information to help determine potential impacts in similar situations.
[2] Environmental Management Systems can be used to monitor mitigation.
[3] This determination may be revisited after any public/agency review.

SER011

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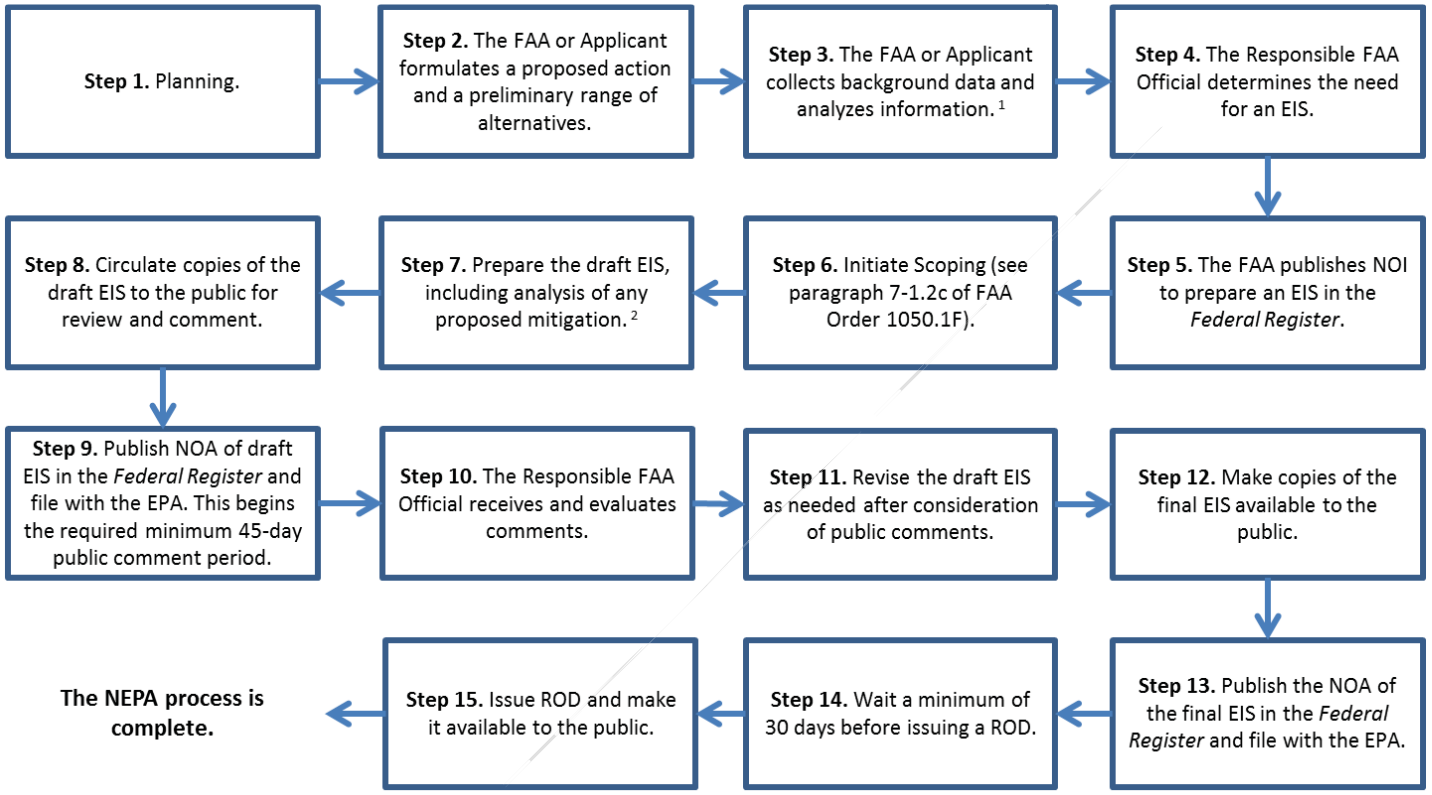
Exhibit D-3. Typical Environmental Impact Statement Process[22]



[1] Current Environmental Management Systems can provide information to help determine potential impacts in similar situations.
[2] Environmental Management Systems can be used to monitor mitigation.

[22] In November 2014, DOT released guidance on implementing Section 1319 of the Moving Ahead for Progress in the 21st Century Act (MAP-21), 42 U.S.C. § 4332a, which alters the EIS process for DOT actions. Section 1319(a) relates to errata sheets and reflects the CEQ regulations (see 40 CFR § 1503.4(c) and Paragraph 7-1.2(f) of this Order). Section 1319(b) requires DOT, to the maximum extent practicable, to expeditiously develop a single document that consists of a final EIS and a ROD, unless certain conditions exist. The DOT guidance is available at http://www.dot.gov/sites/dot.gov/files/docs/MAP-21_1319_Final_Guidance.pdf. AEE is preparing additional, FAA-specific guidance on implementing-Section 1319 of MAP-21. LOBs/SOs are encouraged to work with AGC-600 and AEE-400 to ensure compliance with Section 1319(b).

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AR 004

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
Air Traffic Organization Policy

ORDER JO 7110.65W

Effective Date:
December 10, 2015

SUBJ: Air Traffic Control

This order prescribes air traffic control procedures and phraseology for use by personnel providing air traffic control services. Controllers are required to be familiar with the provisions of this order that pertain to their operational responsibilities and to exercise their best judgment if they encounter situations not covered by it.

Elizabeth L. Ray

Digitally signed by Elizabeth L. Ray
DN: cn= Elizabeth L. Ray, o= Mission Support Services, AJV 0, ou= Air Traffic Organization, email=valentina.smith@faa.gov, c=US
Date: 2015.10.28 09:44:49 -04'00'

Vice President, Mission Support Services
Air Traffic Organization

Date: OCT 27 2015

Distribution: ZAT-710, ZAT-464

Initiated By: AJV-0
Vice President, System Operations Services

Section 6. Vectoring

5–6–1. APPLICATION

Vector aircraft:

a. In controlled airspace for separation, safety, noise abatement, operational advantage, confidence maneuver, or when a pilot requests.

b. In Class G airspace only upon pilot request and as an additional service.

c. At or above the MVA or the minimum IFR altitude except as authorized for radar approaches, special VFR, VFR operations, or by Para 5–6–3, Vectors Below Minimum Altitude.

NOTE–
VFR aircraft not at an altitude assigned by ATC may be vectored at any altitude. It is the responsibility of the pilot to comply with the applicable parts of CFR Title 14.

REFERENCE–
FAAO JO 7110.65, Para 4–5–6, Minimum En Route Altitudes.
FAAO JO 7110.65, Para 7–5–2, Priority.
FAAO JO 7110.65, Para 7–5–4, Altitude Assignment.
FAAO JO 7110.65, Para 7–7–5, Altitude Assignments.
14 CFR Section 91.119, Minimum Safe Altitudes: General.

d. In airspace for which you have control jurisdiction, unless otherwise coordinated.

e. So as to permit it to resume its own navigation within radar coverage.

f. Operating special VFR only within Class B, Class C, Class D, or Class E surface areas.

g. Operating VFR at those locations where a special program is established, or when a pilot requests, or you suggest and the pilot concurs.

REFERENCE–
FAAO JO 7110.65, Para 4–4–1, Route Use.
FAAO JO 7110.65, Para 7–2–1, Visual Separation.
FAAO JO 7110.65, Para 7–5–3, Separation.
FAAO JO 7110.65, Para 7–6–1, Application.
FAAO JO 7110.65, Para 9–4–4, Separation Minima.
FAAO JO 7210.3, Chapter 11, Section 1, Terminal VFR Radar Services.

5–6–2. METHODS

a. Vector aircraft by specifying:

1. Direction of turn, if appropriate, and magnetic heading to be flown, or

PHRASEOLOGY–
TURN LEFT/RIGHT HEADING (degrees).

FLY HEADING (degrees).

FLY PRESENT HEADING.

DEPART (fix) HEADING (degrees).

2. The number of degrees, in group form, to turn and the direction of turn, or

PHRASEOLOGY–
TURN (number of degrees) DEGREES LEFT/RIGHT.

3. For NO-GYRO procedures, the type of vector, direction of turn, and when to stop turn.

PHRASEOLOGY–
THIS WILL BE A NO-GYRO VECTOR,

TURN LEFT/RIGHT.

STOP TURN.

b. When initiating a vector, advise the pilot of the purpose, and if appropriate, what to expect when radar navigational guidance is terminated.

PHRASEOLOGY–
VECTOR TO (fix or airway).

VECTOR TO INTERCEPT (name of NAVAID) (specified) RADIAL.

VECTOR FOR SPACING.

(if appropriate) EXPECT DIRECT (NAVAID, waypoint, fix)

VECTOR TO FINAL APPROACH COURSE,

or if the pilot does not have knowledge of the type of approach,

VECTOR TO (approach name) FINAL APPROACH COURSE.

NOTE–
Determine optimum routing based on factors such as wind, weather, traffic, pilot requests, noise abatement, adjacent sector requirement, and letters of agreement.

c. When vectoring or approving course deviations, assign an altitude to maintain when:

1. The vector or approved deviation is off an assigned procedure which contains altitude instructions, i.e., instrument approach, etc.

SER014

2. The previously issued clearance included crossing restrictions.

REFERENCE–
FAAO JO 7110.65, Para 4–2–5, Route or Altitude Amendments.

3. The vector or approved deviation is off an assigned procedure that contains published altitude restrictions, i.e., SID, STAR, and a clearance to Climb Via/Descend Via has been issued.

d. When vectoring or approving an aircraft to deviate off of a procedure that includes published altitude restrictions, advise the pilot if you intend on clearing the aircraft to resume the procedure.

PHRASEOLOGY–
FLY HEADING (degrees), MAINTAIN (altitude), EXPECT TO RESUME (SID, STAR, etc.).

DEVIATION (restrictions if necessary) APPROVED, MAINTAIN (altitude) EXPECT TO RESUME (SID, STAR, etc.) AT (NAVAID, fix, waypoint)

NOTE–
After a Climb Via or Descend Via clearance has been issued, a vector/deviation off of a SID/STAR cancels the altitude restrictions on the procedure. The aircraft's Flight Management System (FMS) may be unable to process crossing altitude restrictions once the aircraft leaves the SID/STAR lateral path. Without an assigned altitude, the aircraft's FMS may revert to leveling off at the altitude set by the pilot, which may be the SID/STAR's published top or bottom altitude.

e. Provide radar navigational guidance until the aircraft is:

1. Established within the airspace to be protected for the nonradar route to be flown, or

2. On a heading that will, within a reasonable distance, intercept the nonradar route to be flown, and

3. Informed of its position unless the aircraft is RNAV, FMS, or DME equipped and being vectored toward a VORTAC/TACAN or waypoint and within the service volume of the NAVAID.

PHRASEOLOGY–
(Position with respect to course/fix along route), RESUME OWN NAVIGATION, FLY HEADING (degrees). WHEN ABLE, PROCEED DIRECT (name of fix), RESUME (SID/STAR/transition/procedure).

REFERENCE–
FAAO JO 7110.65, Chapter 4, Section 1, NAVAID Use Limitations.
FAAO JO 7110.65,Paragraph 4-5-7, Altitude Information

f. Aircraft instructed to resume a procedure which contains published crossing restrictions (SID/STAR) must be issued/reissued all applicable restrictions or be instructed to Climb Via/Descend Via.

PHRASEOLOGY–
PROCEED DIRECT (NAVAID, fix, waypoint) CROSS (NAVAID, fix, waypoint) AT/AT OR ABOVE/AT OR BELOW (altitude), then CLIMB VIA/DESCEND VIA (SID/STAR)

EXAMPLE–
"Cleared direct Luxor, then descend via the Ksino One arrival."
"Cleared direct HITME, cross HITME at or above one one thousand, then climb via the Boach Five departure."

g. Aircraft may not be vectored off an Obstacle Departure Procedure (ODP), or issued an altitude lower than published altitude on an ODP, until at or above the MVA/MIA, at which time the ODP is cancelled.

NOTE–
Once an aircraft has been vectored off an Obstacle Departure Procedure, the procedure is cancelled and ATC cannot clear the aircraft to resume the ODP.

REFERENCE–
P/CG– Obstacle Departure Procedure

h. Aircraft vectored off an RNAV route must be recleared to the next waypoint or as requested by the pilot.

i. When flight data processing is available, update the route of flight in the computer unless an operational advantage is gained and coordination is accomplished.

j. Inform the pilot when a vector will take the aircraft across a previously assigned nonradar route.

PHRASEOLOGY–
EXPECT VECTOR ACROSS (NAVAID radial) (airway/route/course) FOR (purpose).

REFERENCE–
FAAO JO 7110.65, Para 7–6–1, Application.

5–6–3. VECTORS BELOW MINIMUM ALTITUDE

a. Except in en route automated environments in areas where more than 3 miles separation minima is required, you may vector a departing IFR aircraft, or one executing a missed approach, within 40 miles of the radar antenna and before it reaches the minimum altitude for IFR operations if separation from prominent obstacles shown on the radar scope is applied in accordance with the following:

1. If the flight path is 3 miles or more from the obstacle and the aircraft is climbing to an altitude at

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an aircraft without the permission of the using agency.

(Refer to AIM.)

(Refer to En Route Charts.)

e. Restricted Area– Airspace designated under 14 CFR Part 73, within which the flight of aircraft, while not wholly prohibited, is subject to restriction. Most restricted areas are designated joint use and IFR/VFR operations in the area may be authorized by the controlling ATC facility when it is not being utilized by the using agency. Restricted areas are depicted on en route charts. Where joint use is authorized, the name of the ATC controlling facility is also shown.

(Refer to 14 CFR Part 73.)

(Refer to AIM.)

f. Warning Area– A warning area is airspace of defined dimensions extending from 3 nautical miles outward from the coast of the United States, that contains activity that may be hazardous to nonparticipating aircraft. The purpose of such warning area is to warn nonparticipating pilots of the potential danger. A warning area may be located over domestic or international waters or both.

SPECIAL VFR CONDITIONS– Meteorological conditions that are less than those required for basic VFR flight in Class B, C, D, or E surface areas and in which some aircraft are permitted flight under visual flight rules.

(See SPECIAL VFR OPERATIONS.)

(Refer to 14 CFR Part 91.)

SPECIAL VFR FLIGHT [ICAO]– A VFR flight cleared by air traffic control to operate within Class B, C, D, and E surface areas in metrological conditions below VMC.

SPECIAL VFR OPERATIONS– Aircraft operating in accordance with clearances within Class B, C, D, and E surface areas in weather conditions less than the basic VFR weather minima. Such operations must be requested by the pilot and approved by ATC.

(See SPECIAL VFR CONDITIONS.)

(See ICAO term SPECIAL VFR FLIGHT.)

SPEED–

(See AIRSPEED.)

(See GROUND SPEED.)

SPEED ADJUSTMENT– An ATC procedure used to request pilots to adjust aircraft speed to a specific value for the purpose of providing desired spacing. Pilots are expected to maintain a speed of plus or minus 10 knots or 0.02 Mach number of the specified speed. Examples of speed adjustments are:

a. "Increase/reduce speed to Mach point (number.)"

b. "Increase/reduce speed to (speed in knots)" or "Increase/reduce speed (number of knots) knots."

SPEED BRAKES– Moveable aerodynamic devices on aircraft that reduce airspeed during descent and landing.

SPEED SEGMENTS– Portions of the arrival route between the transition point and the vertex along the optimum flight path for which speeds and altitudes are specified. There is one set of arrival speed segments adapted from each transition point to each vertex. Each set may contain up to six segments.

SQUAWK (Mode, Code, Function)– Activate specific modes/codes/functions on the aircraft transponder; e.g., "Squawk three/alpha, two one zero five, low."

(See TRANSPONDER.)

STA–

(See SCHEDULED TIME OF ARRIVAL.)

STAGING/QUEUING– The placement, integration, and segregation of departure aircraft in designated movement areas of an airport by departure fix, EDCT, and/or restriction.

STAND BY– Means the controller or pilot must pause for a few seconds, usually to attend to other duties of a higher priority. Also means to wait as in "stand by for clearance." The caller should reestablish contact if a delay is lengthy. "Stand by" is not an approval or denial.

STANDARD INSTRUMENT APPROACH PROCEDURE (SIAP)–

(See INSTRUMENT APPROACH PROCEDURE.)

STANDARD INSTRUMENT DEPARTURE (SID)– A preplanned instrument flight rule (IFR) air traffic control (ATC) departure procedure printed for pilot/controller use in graphic form to provide obstacle clearance and a transition from the terminal area to the appropriate en route structure. SIDs are primarily designed for system enhancement to expedite traffic flow and to reduce pilot/controller

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workload. ATC clearance must always be received prior to flying a SID.

(See IFR TAKEOFF MINIMUMS AND DEPARTURE PROCEDURES.)

(See OBSTACLE DEPARTURE PROCEDURE.)

(Refer to AIM.)

STANDARD RATE TURN– A turn of three degrees per second.

STANDARD TERMINAL ARRIVAL– A preplanned instrument flight rule (IFR) air traffic control arrival procedure published for pilot use in graphic and/or textual form. STARs provide transition from the en route structure to an outer fix or an instrument approach fix/arrival waypoint in the terminal area.

STANDARD TERMINAL ARRIVAL CHARTS–

(See AERONAUTICAL CHART.)

STANDARD TERMINAL AUTOMATION REPLACEMENT SYSTEM (STARS)–

(See DTAS.)

STAR–

(See STANDARD TERMINAL ARRIVAL.)

STATE AIRCRAFT– Aircraft used in military, customs and police service, in the exclusive service of any government, or of any political subdivision, thereof including the government of any state, territory, or possession of the United States or the District of Columbia, but not including any government-owned aircraft engaged in carrying persons or property for commercial purposes.

STATIC RESTRICTIONS– Those restrictions that are usually not subject to change, fixed, in place, and/or published.

STATIONARY RESERVATIONS– Altitude reservations which encompass activities in a fixed area. Stationary reservations may include activities, such as special tests of weapons systems or equipment, certain U.S. Navy carrier, fleet, and anti-submarine operations, rocket, missile and drone operations, and certain aerial refueling or similar operations.

STEP TAXI– To taxi a float plane at full power or high RPM.

STEP TURN– A maneuver used to put a float plane in a planing configuration prior to entering an active sea lane for takeoff. The STEP TURN maneuver should only be used upon pilot request.

STEPDOWN FIX– A fix permitting additional descent within a segment of an instrument approach procedure by identifying a point at which a controlling obstacle has been safely overflown.

STEREO ROUTE– A routinely used route of flight established by users and ARTCCs identified by a coded name; e.g., ALPHA 2. These routes minimize flight plan handling and communications.

STOL AIRCRAFT–

(See SHORT TAKEOFF AND LANDING AIRCRAFT.)

STOP ALTITUDE SQUAWK– Used by ATC to inform an aircraft to turn-off the automatic altitude reporting feature of its transponder. It is issued when the verbally reported altitude varies 300 feet or more from the automatic altitude report.

(See ALTITUDE READOUT.)

(See TRANSPONDER.)

STOP AND GO– A procedure wherein an aircraft will land, make a complete stop on the runway, and then commence a takeoff from that point.

(See LOW APPROACH.)

(See OPTION APPROACH.)

STOP BURST–

(See STOP STREAM.)

STOP BUZZER–

(See STOP STREAM.)

STOP SQUAWK (Mode or Code)– Used by ATC to tell the pilot to turn specified functions of the aircraft transponder off.

(See STOP ALTITUDE SQUAWK.)

(See TRANSPONDER.)

STOP STREAM– Used by ATC to request a pilot to suspend electronic attack activity.

(See JAMMING.)

STOPOVER FLIGHT PLAN– A flight plan format which permits in a single submission the filing of a sequence of flight plans through interim full-stop destinations to a final destination.

STOPWAY– An area beyond the takeoff runway no less wide than the runway and centered upon the extended centerline of the runway, able to support the airplane during an aborted takeoff, without causing structural damage to the airplane, and designated by

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1050.1F Desk Reference

Federal Aviation Administration
Office of Environment and Energy

July 2015

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U.S. Census blocks. The differences in noise analysis for proposed airport development and other actions in the immediate vicinity of an airport and for air traffic airspace and procedure actions in a larger study area are described more fully in this guidance under the environmental consequences section. U.S. Census data may be supplemented by higher resolution data at the local municipality level, when available. Parcel level data may be available from the local property appraiser's office and is often updated at least once a year. Population and household information can be estimated at the parcel level provided that the local municipalities maintain current estimates of people per household and a housing unit count for multi-family parcels.

- The number of residences or people residing within each noise contour where aircraft noise exposure is at or above DNL 65 dB; or for a larger scale air traffic airspace and procedure action, the population within areas exposed at or above DNL 65 dB, at or above DNL 60 but less than DNL 65 dB, and at or above DNL 45 dB but less than DNL 60 dB.
- The location and number of noise sensitive uses in addition to residences (e.g., schools, hospitals, parks, recreation areas) that could be significantly impacted by noise; and
- Maps and other means to depict land uses within the noise study area. The addition of flight tracks may be helpful. Illustrations should be sufficiently large and clear to be readily understood.

The description of current noise conditions is usually confined to aircraft noise. However, the inclusion of other noise data, such as background or ambient noise or notable levels of noise in the study area from other sources (e.g., highways, industrial uses) is appropriate where such noise data is pertinent to understanding the affected environment and to considering the environmental impacts of the proposed action and alternative(s).

11.3. Environmental Consequences

The environmental consequences section of the NEPA document will include the analysis of the potential noise impacts of the proposed action and alternative(s) for each timeframe evaluated.

> ***Noise Contour*** – Lines on a map that represent equal levels (usually expressed in units of DNL/dB) of noise exposure.

The noise analysis will include DNL contours (see text box), grid point, and/or change-of-exposure analysis for the proposed action and each alternative compared to the no action alternative for the same future timeframe. Comparisons should be done for appropriate timeframes. Timeframes usually selected are the year of anticipated project implementation and 5 to 10 years after implementation. Additional timeframes may be desirable for particular projects.

For proposed airport development and other actions in the immediate vicinity of an airport, AEDT is used to provide noise exposure contours at the DNL 65, 70, and 75 dB levels (additional contours may be provided on a case-by-case basis). For all comparisons analyzed, the analysis will identify noise increases of DNL 1.5 dB or more over noise sensitive areas that are exposed to noise at or above the DNL 65 dB noise exposure level, or that would be exposed at or above the DNL 65 dB level due to a 1.5 dB or greater increase, when compared to the no action alternative for the same timeframe.

For actions in the immediate vicinity of an airport, the following information must be disclosed for each modeled scenario that is analyzed:

- The number of residences or people residing within each noise contour where aircraft noise exposure is at or above DNL 65 dB and the net increase or decrease in the number of people or residences exposed to that level of noise;
- The location and number of noise sensitive uses in addition to residences (e.g., schools, hospitals, parks, recreation areas) exposed to DNL 65 dB or greater;
- The identification of noise sensitive areas within the DNL 60 dB contour that are exposed to aircraft noise at or above DNL 60 dB but below DNL 65 dB and are projected to experience a noise increase of DNL 3 dB or more, only when DNL 1.5 dB increases are documented within the DNL 65 dB contour;
- Discussion of the noise impact on noise sensitive areas within the DNL 65 dB contour; and
- Maps and other means to depict land uses within the noise study area. The addition of flight tracks is helpful. Illustrations should be sufficiently large and clear to be readily understood.

For air traffic airspace and procedure actions where the study area is larger than the immediate vicinity of an airport, incorporates more than one airport, and/or includes actions above 3,000 feet AGL, AEDT is used. The noise analysis will focus on a change-in-exposure analysis, which examines the change in noise levels as compared to population and demographic information at population points throughout the study area. This is normally a noise grid analysis. Multiple grids may be created, but at least one grid must consist of population centroids from the U.S. Census blocks. Discrete receptor points[3] can also represent select noise sensitive area(s) or comprise a general receptor grid over the study area, either densely or sparsely spaced. Noise contours may be created at the FAA's discretion; however, noise contours are not required and are not normally used for the analysis of larger scale air traffic airspace and procedure actions. If the study encompasses a large geographical area, it is not recommended that contours be created for the representation of results below DNL 55 dB due to fidelity of receptor sets needed to create an accurate representation of the contour.

For air traffic airspace and procedure actions evaluated as described above, change-of-exposure tables and maps at population centers are provided to identify where noise will change by the following specified amounts:

- For DNL 65 dB and higher: $\pm$1.5 dB
- For DNL 60 dB to <65 dB: $\pm$3 dB[4]
- For DNL 45 dB to <60 dB: $\pm$5 dB[5]

[3] Receptors are locations where noise is modeled. A collection of receptors are known as receptor sets. Grid points are an example of a receptor set.

[4,5] The FAA refers to noise changes meeting these criteria as "reportable." Although they are not significant (see Exhibit 4-1 of Order 1050.1F), they may cause a proposed action to be highly controversial on environmental grounds (see paragraph 5-2.b.10 of Order 1050.1F). This is determined by the Air Traffic Organization on a case-by-case basis.

The location and number of noise sensitive uses (e.g., schools, churches, hospitals, parks, recreation areas, etc.) exposed to DNL 65 dB or greater must be disclosed for each modeling scenario that is analyzed.

The noise compatibility of land use is determined by comparing the aircraft DNL values at a site to the values in the land use compatibility guidelines in 14 CFR part 150, Appendix A, Table 1. Environment Assessments (EAs) and Environmental Impact Statements (EISs) must disclose newly non-compatible land use regardless of whether there is a significant noise impact (see FAA Order 10.50.1 F, Paragraph B-1.5). Special consideration needs to be given to noise sensitive areas within Section 4(f) properties (including, but not limited to, noise sensitive areas within national parks; national wildlife and waterfowl refuges; and historic sites, including traditional cultural properties) where the land use compatibility guidelines in 14 CFR part 150 are not relevant to the value, significance, and enjoyment of the area in question. For example, the land use categories in the guidelines are not sufficient to determine the noise compatibility of areas within a national park or national wildlife refuge where other noise is very low and a quiet setting is a generally recognized purpose and attribute.

11.3.1. Significance Determination

Exhibit 4-1 of FAA Order 1050.1F provides the FAA's significance threshold for noise: *The action would increase noise by DNL[6] 1.5 dB or more for a noise sensitive area that is exposed to noise at or above the DNL 65 dB noise exposure level, or that will be exposed at or above the DNL 65dB level due to a DNL 1.5dB or greater increase, when compared to the no action alternative for the same timeframe.* For example, an increase from DNL 65.5 dB to 67 dB is considered a significant impact, as is an increase from DNL 63.5 dB to 65 dB. The determination of significance must be obtained through the use of noise contours and/or grid point analysis along with local land use information and general guidance contained in Appendix A of 14 CFR part 150.

Special consideration needs to be given to the evaluation of the significance of noise impacts on noise sensitive areas within Section 4(f) properties (including, but not limited to, noise sensitive areas within national parks; national wildlife and waterfowl refuges; and historic sites, including traditional cultural properties) where the land use compatibiliy guidelines in 14 CFR part 150 are not relevant to the value, significance, and enjoyment of the area in question. For example, the DNL 65 dB threshold does not adequately address the impacts of noise on visitors to areas within a national park or national wildlife and waterfowl refuge where other noise is very low and a quiet setting is a generally recognized purpose and attribute.

When the proposed action or alternative(s) would result in a significant noise increase and the proposed action or any alternative is highly controversial on this basis, the EIS should include, as appropriate in light of the specific proposal under analysis, information on the human response to noise. Inclusion of data on background or ambient noise, as well as other noise in the area, may be helpful.

---

[6] Day-Night Average Sound Level (DNL). The 24-hour average sound level, in decibels, for the period from midnight to midnight, obtained after the addition of ten decibels to sound levels for the periods between midnight and 7 a.m., and between 10 p.m., and midnight, local time. The symbol for DNL is L_{dn} (See 14 CFR § 150.7).

From: Healy, Elizabeth (FAA)
To: Weller, Ryan (FAA); Deem, Patricia (FAA)
Subject: Burien - summary of call with EPA
Date: Wednesday, May 09, 2018 10:16:00 AM

Hi Ryan and Patricia,

I called the EPA representative in response to his voicemail, and I couldn't make out his name. We talked about a variety of topics:

- He was contacted by a frequent commenter (female) about Appendix D General Response 2. He asked why we referenced section 306 of the Clean Air Act. He said he thinks FAA made a typo because 306 is specific to contracting. Maybe we meant section 309?

- He said the commenter mentioned/complained about noise, so we talked about FAA's noise metric and how it is a 24 hour average. He also asked why we chose 10 pm to 6 am to suspend the automated turn. I said we decided to use the same hours of Sleepytime since it would mean ATC would only need to change procedures once at night.

- He asked about whether FAA had decided to prepare an EA, based on the language used by his colleague's comments (see Appendix D page D-456) on the Preliminary Environmental Analysis (PEA). I didn't have that part of Appendix D available to review during our call, so I said I would look at it when I'm back in the office. I told him I was unaware of any earlier conversation about the thoughts of preparing an EA since I wasn't the lead on the project when the PEA was released.

- We also discussed FAA's check for extraordinary circumstances. Per FAA's 1050.1F order on public controversy as a trigger of extraordinary circumstances, I told him that FAA's guidance says that it has to based on environmental grounds, and that we did not find any environmental grounds that warranted the preparation of an EA.

- He asked about how FAA has been impacted by PHX and DC legal challenges. I told him HQ is in charge of determining whether the FAA noise metric needs to be changed, and that I hope to hear more about this at the AEE Forum.

- He also said that as long as FAA followed our NEPA guidance on the appropriate NEPA level, they have no issues on CATEX vs EA.

Elizabeth Healy, P.E.

Environmental Protection Specialist

Operations Support Group

Western Service Area

2200 S 216th St.

Des Moines, WA 98198-6547

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UNITED STATES COURT OF APPEALS

FOR THE NINTH CIRCUIT

FILED

MAR 13 2019

MOLLY C. DWYER, CLERK
U.S. COURT OF APPEALS

CITY OF BURIEN,

Petitioner,

v.

DANIEL K. ELWELL, Acting Administrator and FEDERAL AVIATION ADMINISTRATION,

Respondents.

No. 18-71705

FAA No.
Federal Aviation Administration

ORDER

The answering brief submitted on March 12, 2019 is filed.

Within 7 days of this order, respondents are ordered to file 7 copies of the brief in paper format with red covers, accompanied by certification (attached to the end of each copy of the brief) that the brief is identical to the version submitted electronically. The Form 18 certificate is available on the Court's website at http://www.ca9.uscourts.gov/forms/.

The Court has reviewed the supplemental excerpts of record submitted on March 12, 2019. Within 7 days of this order, respondents are ordered to file 4 copies of the excerpts in paper format securely bound on the left side, with white covers.

The paper copies shall be submitted to the principal office of the Clerk. The address for regular U.S. mail is P.O. Box 193939, San Francisco, CA 94119-3939. The address for overnight mail is 95 Seventh Street, San Francisco, CA 94103-1526.

FOR THE COURT:

MOLLY C. DWYER
CLERK OF COURT

By: Liora Anis
Deputy Clerk
Ninth Circuit Rule 27-7

Case No. 18-71705

IN THE UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

CITY OF BURIEN, WASHINGTON

Petitioner,

v.

FEDERAL AVIATION ADMINISTRATION and
MICHAEL HUERTA,

Respondents.

UNOPPOSED MOTION FOR A 21-DAY EXTENSION TO FILE PETITIONER'S REPLY BRIEF

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Attorneys for Petitioner CITY OF BURIEN

Pursuant to Ninth Circuit Rule 31-2, Petitioner the City of Burien, Washington, ("City" or "Burien") hereby moves for a 21-day extension to file its Reply Brief, from April 2, 2019 to April 23, 2019, based on counsel for the City's unavailability and concurrent briefing in separate matters. The relevant factual background is as follows:

1. The City filed its Opening Brief on November 30, 2018. (Dkt. 20.)

2. On December 21, 2018, Respondents filed a streamlined request for an extension of time to file their Answering Brief. (Dkt. 32.) That request was approved, making the Answering Brief due on February 6, 2019. (Dkt. 33.)

3. On January 17, 2019, Respondents moved to stay the briefing in this action in response to a lapse in appropriations. (Dkt. 34). After the lapse in appropriations ended, Respondents sought a 35-day extension of time to file their Answering Brief. (Dkt. 34-35.) The City agreed to Respondents' requests for both the stay and the extension. But the City also advised counsel for Respondents that (a) the City's counsel had conflicting deadlines during the late-March and early-April time period, and therefore (b) if the deadlines for the Answering Brief were extended, an extension of the Reply deadline would likely be required. *See* Ex. A (true and correct copy of email chain between counsel re: Burien extension).

4. The Court granted the Respondents' stay and extension requests, the result of which was to make Respondents' Answering Brief due on March 12, 2019. (Dkt. 36.)

5. Respondents filed their Answering Brief on March 12, 2019. (Dkt. 37.) Respondents' Answering Brief is 52 pages long and contains detailed factual and technical information. Respondents also filed supplemental excerpts of record on that same day. (Dkt. 38.)

6. The City's Reply Brief is currently due on April 2, 2019. As anticipated (*see* ¶ 3, above), the City now requests a modest 21-day extension of that deadline. The extension is necessary due to counsel for the City's responsibilities in the following matters: (a) demurrer and proposed intervention briefing in *Raptors are the Solution vs. California Department of Pesticide Regulation* (Alameda County Superior Court Case No. RG1890865); (b) contested remedy proceedings in *National Parks Conservation Ass'n, et. al. v. Semonite* (D.C. Cir. Case No. 18-5186); and (c) travel and agency proceedings on remand from *Redding Indian Rancheria v. Jewell* (Ninth Cir. Case No. 12-15817).

7. Petitioner has exercised due diligence in seeking this extension and represents that the Reply Brief will be filed within the time requested in this Motion.

8. Counsel for the Respondents has informed the undersigned that she does not oppose the relief sought in this motion.

Dated: March 26, 2019

Respectfully submitted,

DENTONS US LLP

By */s/ Matthew G. Adams*
Matthew G. Adams
Jessica L. Duggan
Attorneys for Petitioner

EXHIBIT A

Duggan, Jessica L

From: Kranz, Erika (ENRD) <Erika.Kranz@usdoj.gov>
Sent: Monday, March 25, 2019 6:36 AM
To: Adams, Matthew
Cc: Duggan, Jessica L
Subject: RE: Burien extension

No objection.

Erika

From: Adams, Matthew <matthew.adams@dentons.com>
Sent: Monday, March 25, 2019 8:56 AM
To: Kranz, Erika (ENRD) <EKranz@ENRD.USDOJ.GOV>
Cc: Duggan, Jessica L <jessica.duggan@dentons.com>
Subject: RE: Burien extension

Good morning, Erika. It looks like we will, in fact, need an extension of our reply deadline (see below). Specifically, we plan to move to extend the due date to April 23. Currently planning to file our motion tomorrow (Tues) afternoon. May I represent that you do not object?
Many thanks,
Matt

DENTONS
Matthew Adams
Partner

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matthew.adams@dentons.com
Bio | Website

Dentons US LLP

Hamilton Harrison & Mathews > Mardemootoo Balgobin > HPRP > Zain & Co. > Delany Law > Dinner Martin > Maclay Murray & Spens > Gallo Barrios Pickmann > Muñoz > Cardenas & Cardenas > Lopez Velarde > Rodyk > Boekel > OPF Partners > 大成

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From: Kranz, Erika (ENRD) <Erika.Kranz@usdoj.gov>
Sent: Wednesday, January 16, 2019 5:10 PM
To: Adams, Matthew <matthew.adams@dentons.com>
Cc: Duggan, Jessica L <jessica.duggan@dentons.com>
Subject: Re: Burien extension

Thanks, Matt. That is indeed the idea. And I don't have any issue with a reasonable extension for the reply if you need it.

Erika Kranz
U.S. Department of Justice
Environment & Natural Resources Division, Appellate Section
P: 202-307-6105
F: 202-353-1873
Erika.Kranz@usdoj.gov

On Jan 16, 2019, at 6:32 PM, Adams, Matthew <matthew.adams@dentons.com> wrote:

> Erika-
> Just to clarify: It looks like the idea is to extend the February 5 deadline by the same number of days as the length of the shutdown (as measured from December 21). If I've got that right, we do not object. We do, however, have a couple of obligations in March/April, so there's a chance we would need an extension of the reply deadline if your brief gets pushed into that timeframe. We can cross that bridge if/when we come to it.
> Best,
> Matt
>
> <image001.png>
>
> Matthew Adams
> Partner
>
> D +1 415 882 0351 | US Internal 40351
> matthew.adams@dentons.com
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>
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From: Kranz, Erika (ENRD) <Erika.Kranz@usdoj.gov>
Sent: Wednesday, January 16, 2019 10:46 AM
To: Adams, Matthew <matthew.adams@dentons.com>
Cc: Duggan, Jessica L <jessica.duggan@dentons.com>
Subject: Re: Burien extension

Thanks. I'd like to file no later than Friday.

Erika Kranz
U.S. Department of Justice
Environment & Natural Resources Division, Appellate Section
P: 202-307-6105
F: 202-353-1873
Erika.Kranz@usdoj.gov

On Jan 16, 2019, at 1:30 PM, Adams, Matthew <matthew.adams@dentons.com> wrote:

Hi Erika-
Thank you for your note. I will confer with the City Attorney and get back to you asap.
May I ask when you are planning to get this on file?
Many thanks,
Matt

<image001.png>

Matthew Adams
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From: Kranz, Erika (ENRD) <Erika.Kranz@usdoj.gov>
Sent: Wednesday, January 16, 2019 9:14 AM
To: Adams, Matthew <matthew.adams@dentons.com>
Subject: RE: Burien extension

Matt—
I've been directed to request a stay of briefing in the Burien matter. We have not been able to make any progress on the brief as I and critical folks from FAA are furloughed. The attached motion asks for an extension equal to the length of the shutdown once the government reopens. I think this is the best way to handle the extension given the approaching deadline and the uncertainty about timing of reopening. Please let me know if I may represent that you do not oppose.
Thanks,
Erika

From: Adams, Matthew <matthew.adams@dentons.com>
Sent: Wednesday, January 9, 2019 1:07 PM
To: Kranz, Erika (ENRD) <EKranz@ENRD.USDOJ.GOV>
Subject: RE: Burien extension

Thanks for the heads-up, Erika. I understand where you're coming from, and would be happy to figure out an extension once the shutdown is resolved and your schedule comes into focus.
Best,
Matt

Matthew Adams
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From: Kranz, Erika (ENRD) <Erika.Kranz@usdoj.gov>
Sent: Wednesday, January 09, 2019 8:22 AM
To: Adams, Matthew <matthew.adams@dentons.com>
Subject: Burien extension

Matt—
I have not been granted exemption from my furlough to work on the Burien matter. Given that the government's answering brief is due February 6 (and I have an argument on February 8), I do anticipate that I will require an extension, even if the government reopens shortly. When we get a little closer I will be back in touch about the length of extension that I plan to request. Just wanted to give you a heads up.

Erika Kranz
U.S. Department of Justice
Environment & Natural Resources Division, Appellate Section
202-307-6105 | Erika.Kranz@usdoj.gov

CERTIFICATE OF SERVICE - CM/ECF

I certify that on March 26, 2019, I electronically filed **UNOPPOSED MOTION FOR A 21-DAY EXTENSION TO FILE PETITIONER'S REPLY BRIEF** with the Clerk of the Court for the United States Court of Appeals for the Ninth Circuit by using the appellate CM/ECF system. Counsel for all parties are registered to use that system and, to my knowledge, will receive copies of this document upon its filing.

/s/Matthew G. Adams
Matthew G. Adams

UNITED STATES COURT OF APPEALS

FOR THE NINTH CIRCUIT

FILED

MAR 26 2019

MOLLY C. DWYER, CLERK
U.S. COURT OF APPEALS

CITY OF BURIEN,

Petitioner,

v.

DANIEL K. ELWELL, Acting Administrator and FEDERAL AVIATION ADMINISTRATION,

Respondents.

No. 18-71705

FAA No.
Federal Aviation Administration

ORDER

Petitioner's unopposed motion (Docket Entry No. 42) for an extension of time to file the reply brief is granted. The reply brief is now due on or before April 23, 2019.

FOR THE COURT:

MOLLY C. DWYER
CLERK OF COURT

By: Samantha Allison Miller
Deputy Clerk
Ninth Circuit Rule 27-7

Case No. 18-71705

IN THE UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

CITY OF BURIEN, WASHINGTON

Petitioner,

v.

FEDERAL AVIATION ADMINISTRATION and
MICHAEL HUERTA,

Respondents.

PETITIONER'S REPLY BRIEF

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CORPORATE DISCLOSURE STATEMENT

Petitioner the City of Burien, Washington, is a municipal government. It is not a "nongovernmental corporate party" within the meaning of Federal Rule of Civil Procedure 26.1.

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SUMMARY OF ARGUMENT

From beginning to end, Federal Aviation Administration ("FAA") review and approval of a new mandatory flight track for southbound turboprop aircraft departing Seattle-Tacoma International Airport ("Sea-Tac") in north flow conditions (the "New Route") bore no resemblance to the reasoned agency decision-making required by the National Environmental Policy Act ("NEPA").

The agency implemented the New Route without NEPA compliance in 2016; withdrew the New Route in 2017 to moot a NEPA challenge; and then claimed the New Route was categorically excluded from further NEPA review as a "modification to currently-approved procedures."

The limited environmental analysis conducted in connection with the categorical exclusion reveals similar analytical errors. The FAA justified the need for the New Route on the basis of increasing growth at Sea-Tac, but its environmental analysis fails to account for future airport operations. The agency compounded the error by eliminating promising alternatives from consideration based on its perceived failure to accommodate future growth. Meanwhile, it refused to address the cumulative impact of the New Route together with growth-enhancement projects planned for Sea-Tac.

The result of this arbitrary and capricious decision-making has been to concentrate a stream of low-flying aircraft directly over downtown Burien,

Washington, without meaningful consideration of environmental consequences or alternatives. For the reasons set forth herein, the City respectfully requests that this Court grant the Petition for Review, invalidate the New Route, and remand the matter to the FAA for full (and long-overdue) compliance with NEPA.

ARGUMENT

A. The FAA's Reliance On A Categorical Exclusion Was Arbitrary and Capricious

NEPA requires federal agencies to identify, evaluate, and accurately disclose the environmental consequences of their proposed actions and alternatives thereto. 42 U.S.C. §4332(2)(C), (E); 40 C.F.R. parts 1500-1508. Proposed actions that may have significant environmental effects must be evaluated in a comprehensive Environmental Impact Statement ("EIS"). 42 U.S.C. §4332(2)(C). Actions with environmental impacts that are less than significant or not fully known must normally be evaluated in a more concise Environmental Assessment ("EA"). 42 U.S.C. §4332(2)(E). 40 C.F.R. § 1508.9. Here, the FAA prepared neither and EIS nor an EA, concluding instead that the New Route qualifies for a categorical exclusion from environmental review. That conclusion was arbitrary and capricious for two reasons: (i) the New Route does not, in fact, qualify for the categorical exclusion (Part A.1); and (ii) the FAA incorrectly concluded that no extraordinary circumstances exist (Part A.2).

1. The FAA Arbitrarily And Capriciously Concluded the New Route Falls Within A Categorical Exclusion

The FAA based its decision not to prepare an EA or EIS on FAA Order 1050.1F, ¶5-6.5i, which establishes a categorical exclusion for four categories of air traffic control procedures. *See* Excerpts of Record ("ER") 2. The agency concluded the New Route qualifies for the third category—namely, "modifications to currently approved procedures conducted below 3,000 feet A[bove] G[round] [L]evel that do not significantly increase noise over noise sensitive areas." ER 93.

The City's Opening Brief explained that this conclusion was erroneous because the New Route was not, in fact, a "modification" to any "currently approved" procedure. Petitioner's Opening Brief ("City Brf.") at 22-23. In 2016, Sea-Tac Airport Traffic Control Tower[1] and Seattle Terminal Radar Approach Control[2] entered a Letter of Agreement ("LOA") specifying procedures to be used for Sea-Tac departures. *See* ER 179-202. As originally approved, the 2016 LOA specified an air traffic control procedure governing departures for southbound turboprops in north flow conditions. ER 186. Because that approval occurred without NEPA compliance or notice to the community, the City filed a petition for

[1] Sea-Tac Airport Traffic Control Tower is frequently referred to in the administrative record as "ATCT" or "ATC."

[2] Seattle Terminal Radar Approach Control is frequently referred to in the administrative record as "S46" or "TRACON."

review in this Court. *City of Burien v. Fed. Aviation Admin*. (Ninth Cir. Case No. 17-70438); *see also* ER 15-16. Rather than defend its actions, the FAA withdrew the 2016 procedure for southbound turboprops. *Id*.; ER 174. The procedure was formally removed from the LOA in March, 2017. *Id*. Thus, when the FAA approved the New Route in April, 2018, there was no "currently approved" southbound turboprop procedure for the agency to "modify."

In response, the FAA focuses on whether the New Route should be considered a "new" procedure or a "modification," insisting that the latter term is more appropriate. *See* Federal Respondents' Answering Brief ("FAA Brf.") at 23-26. In the agency's view, the New Route is merely a "limited change" (*id*. at 23) because some turboprops have been assigned a 250-degree heading in the past (*id*. at 24) and "[t]he action creates no new 'highway map' for pilots" (*id*. at 25). The record demonstrates otherwise. While some southbound turboprops were previously assigned to the 250-degree heading on a case-by-case basis, the New Route now requires that heading for all such aircraft. *Compare* ER 53 ("turboprops were being turned on a variety of headings") *with* ER 17 ("turboprops must make the turn to the 250 heading"). And while turboprops were previously turned onto their assigned headings (250 degrees or otherwise) at various points along their departure paths, the New Route now requires the 250-degree turn within a specific one-mile zone. *Compare* ER 53 (turns made "at different points

in time after their departures") *with* ER 17 (turns required "within one [mile] of the runway end"). By requiring a specific turn in a specific place, the New Route has concentrated southbound turboprops into a narrow band passing over downtown Burien at low altitude—precisely the sort of "highway in the sky" which the FAA erroneously disclaims. *Compare* ER 55 (FAA map showing diffuse turboprop flight tracks prior to mandatory 250-degree turn procedure) *with* ER 66 (FAA map showing concentrated turboprop "highway" resulting from mandatory 250-degree turn procedure).

It is also worth noting that the record contains no evidence of any prior NEPA review of a southbound turboprop procedure. This fact, too, rebuts the FAA's characterization of the New Route as a "modification." The existence of a prior NEPA process addressing southbound turboprops might make it more reasonable to categorically exclude the New Route from further environmental analysis. Absent such prior review, however, the FAA's attempt to characterize the New Route as a "modification" for NEPA purposes makes little sense. In this respect, the present case is similar to *Montana Wilderness Ass'n v. Connell*, 725 F.3d 988 (9th Cir. 2013), where this Court rejected an agency's effort to characterize certain transportation improvements as "existing" rather than "new" so as to qualify them for streamlined National Historic Preservation Act evaluation. *Connell*, 725 F.3d at 1008-09. Central to the decision was the fact that

the transportation improvements had never been subject to any previous Preservation Act review. *Id*. Applying the same logic here confirms the New Route does not qualify as a "modification" for purposes of streamlined NEPA review.

More fundamentally, in focusing its argument on distinguishing between "modified" and "new," the FAA fails to meaningfully address other plain-language requirements of the categorical exclusion. By its terms, the scope of the exclusion does not extend to all "modifications." ER 93. Rather, it is limited to "modifications *to currently approved procedures*." *Id*. (emphasis added). As explained above, the LOA contained no "currently-approved procedure" for southbound turboprops at the time of the New Route's approval. ER 174; Supplemental Administrative Record ("SAR") 145-46. Therefore, even if the New Route could reasonably be characterized as a "modification" rather than a "new" procedure, the FAA's decision-making would be arbitrary and capricious.

The FAA tries to avoid the issue by suggesting the New Route does not modify the LOA, but is instead an "update" to unspecified "pre-existing (*i.e.,* well before the 2016 Letter of Agreement) air traffic procedures." FAA Brf. at 26. This "pre-existing procedures" argument must be rejected for each of two independent reasons. First, the 2016 LOA explicitly canceled pre-existing

procedures for Sea-Tac departures. ER 181. Such procedures could not have been "currently approved" in 2018, when the New Route was approved. *Id*.

Second, the "pre-existing procedures" argument is an impermissible *post hoc* rationalization. An agency decision may only be affirmed, if at all, on grounds articulated by the agency during the administrative proceedings. *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.,* 463 U.S. 29, 50 (1983). Throughout the administrative proceedings for the New Route, the FAA characterized its proposed action in terms of the procedures in the LOA. *See, e.g.,* ER 1 (FAA decision document titled "Letter of Agreement Update"), ER 2-51 (footer on each page of Categorical Exclusion marked "LOA Modification"), ER 17 (defining proposed action as a change to "the existing LOA"). Other, "pre-existing procedures" were neither specified nor evaluated. *Id*. Indeed, the record contains no evidence or findings supporting the FAA's "pre-existing procedures" litigation position—and, tellingly, the agency has cited none. *See* FAA Brf. at 26. For this reason, too, the "pre-existing procedures" argument must be rejected. *Motor Vehicle* 463 U.S. at 50; *see also California Wilderness Coal. v. Dep't of Energy*, 631 F.3d 1072, 1105 (9th Cir. 2011) (proper basis for categorical exclusion must be substantiated in the administrative record).

In a last-ditch effort to defend its failure to prepare an EIS or EA, the FAA pleads for deference to interpret the scope of the categorical exclusion. FAA Brf.

at 26. The City does not object to the general proposition that agencies are entitled to deference when interpreting ambiguous provisions of their own regulations. But this case presents no such ambiguity. The parties agree that the categorical exclusion at issue is limited to "modifications to currently approved procedures" and the meaning of "currently approved procedures" is not in dispute. Instead, the issue before the Court is the FAA's disregard of that plain-language limitation. Principles of judicial deference do not allow federal agencies to simply ignore the plain language of their NEPA procedures. *See, e.g.*, *High Sierra Hikers v. Blackwell*, 390 F.3d 630, 641 (9th Cir. 2004) (failure to comply with clear limitation on scope of categorical exclusion); *West v. Sec'y of the Dep't of Transp.*, 206 F.3d 920, 928-29 (9th Cir. 2000) (same); *see also United States v. Coal. for Buzzards Bay*, 644 F.3d 26, 33 (1st Cir. 2011) (no deference where agency's interpretation would "nullify plainly stated provisions of its own [ ] NEPA procedures"). Therefore, the FAA's reliance on the categorical exclusion must be invalidated as arbitrary and capricious.

2. The FAA Arbitrarily And Capriciously Relied On A Categorical Exclusion Despite The Existence Of Extraordinary Circumstances

Reliance on an otherwise-applicable categorical exclusion is improper where "extraordinary circumstances" indicate that the proposed federal action may have a significant environmental impact. 40 C.F.R. § 1508.4; ER 233, 246; *California v. Norton*, 311 F.3d 1162, 1168 (9th Cir. 2002). Here, the FAA's analysis of

"extraordinary circumstances" arbitrarily and capriciously failed to account for additional future airport operations (Part A.2.a); did not address reasonably foreseeable cumulative impacts (Part A.2.b); and erroneously concluded that the New Route is unlikely to be "controversial on environmental grounds" (Part A.2.c). Therefore, even if the New Route fit within the FAA's "modification to currently approved procedures" categorical exclusion—and, again, it did not—the agency's decision-making would be arbitrary and capricious.

a. Potential for Additional Airport Operations

The City's Opening Brief identified a fundamental inconsistency in the FAA's NEPA analysis: the agency's justification for the New Route is based on the need to accommodate continued growth at Sea-Tac, but its environmental analysis of the New Route assumes the number of flights (or "operations") at the airport will remain unchanged. City Brf. at 24-25.

The FAA tries to explain away the discrepancy by suggesting the New Route is designed to increase "safety and efficiency," not to address growth. FAA Brf. at 29-30. But the agency's own statement of purpose and need explicitly references "SEA's growth" in addition to the concepts of safety and efficiency. ER 16. Furthermore, a careful review of the record shows that the FAA's need to address safety and efficiency arises from future growth at Sea-Tac rather than present operational conditions. In fact, the agency has admitted that "safety is not

currently a problem at Sea-Tac." ER 110; *see also* ER 88, 106. The FAA explained the issue to the United States Environmental Protection Agency ("EPA") as follows:

> There is no safety hazard inherent in the current flight arrangement. The purpose and need is to provide [air traffic controllers] with additional tools which would enable them to manage *more aircraft in the airspace around SEA* safely.

ER 106 (emphasis added). The FAA's failure to address "more aircraft in the airspace around SEA" in its environmental analysis was therefore arbitrary and capricious. *Davis v. Coleman*, 521 F.2d 661, 677 (9th Cir. 1975) ("The argument that the principal object of a federal project does not result from federal action contains its own refutation.").

The FAA also argues that it could not have considered the potential for additional airport operations because it does not know precisely how many additional flights would occur, when they would be scheduled, or the types of aircraft involved. FAA Brf. at 32. The argument is not convincing. Presumably, the FAA had enough information about the number and timing of future operations to make decisions about the need for the New Route and the viability of various alternatives. *See, e.g.*, ER 6-8, 54 (discussing and citing data on operational growth at Sea-Tac); ER 25 (alternatives analysis discusses time-of-day trends regarding future operational growth); SAR146 (justifying need for New Route based on projections of further growth). The agency has not provided any reason

why that same information could not have been used for environmental impact assessment.

Moreover, there is no record evidence that the FAA ever tried to obtain the information it now claims to be missing. "While 'foreseeing the unforeseeable' is not required, an agency must use its best efforts to find out all that it reasonably can." *Davis*, 521 F.2d at 676. After all, reasonable forecasting is an inherent part of NEPA. *See, e.g., Northern Plains Res. Council v. Surface Transp. Bd.*, 668 F.3d 1067, 1079 (9th Cir. 2011) ("Because speculation is…implicit in NEPA, we must reject any attempt by agencies to shirk their responsibilities under NEPA by labeling any and all discussion of future environmental effects as crystal ball inquiry."). In other words, an agency "can certainly explain specific projections with a reference to uncertainty; however, it may not rely on a statement of uncertainty to avoid even attempting the requisite analysis." *Oregon Nat. Res. Council v. Brong*, 492 F.3d 1120, 1134 (9th Cir. 2007). The absence of any evidence that the FAA attempted to obtain the relevant data is fatal to the agency's position.

The FAA further contends that *Seattle Community Council Federation v. Federal Aviation Administration*, 961 F.2d 829 (9th Cir. 1992) excuses the agency's failure to consider future airport operations. FAA Brf. at 31-32. *Seattle Community Council* addressed a 1989 proposal to reconfigure flight paths at Sea-

Tac. *Id*. at 831. There, the FAA did not rely on a categorical exclusion, but instead prepared an EA. *Id.* The EA explicitly stated that the reconfigured flight paths would accommodate existing arrivals and departures, not future operations (*id*. at 835-36), and further explained that the proposed flight path reconfiguration was not needed to accommodate future operational growth because Sea-Tac had plenty of unused capacity (*id*. at 836). In reliance on those two facts, this Court declined to remand the matter for further study of future operations. *Id*.

Neither of the two determinative facts from *Seattle Community Council* is present here. In *Seattle Community Council*, the FAA's EA explicitly stated that its flight path reconfiguration was only designed to address existing operations; here, the record refers to the need to safely accommodate future operational growth. ER 88, 106. In *Seattle Community Council*, the FAA's EA found that Sea-Tac would have excess capacity regardless of any flight path changes; here, the record states that the New Route must be fully implemented (and that its hours of operation cannot be reduced) because "the airport is essentially at capacity during daytime hours" and implementation is needed "[t]o accommodate the anticipated additional growth." ER 25. On these facts, *Seattle Community Council* does not excuse the FAA from considering the potential for additional airport operations.

Perhaps recognizing that *Seattle Community Council* is distinguishable, the FAA again pleads for deference. FAA Brf. at 32-33. This time, the agency claims that its decision not to address additional airport operations should be upheld because agencies have discretion to rely on the opinions of their own qualified experts. FAA Brf. at 31 (citing *Marsh v. Ore. Nat. Res. Council*, 490 U.S. 360, 378 (1989)). Again, the City has no quarrel with the general principle. But the principle does not apply where, as here, the expert opinion is just a bare assertion, devoid of explanation or evidentiary support. *Great Basin Res. Watch v. Bureau of Land Mgmt*., 844 F.3d 1095, 1103 (9th Cir. 2016). The "opinion" on which the FAA relies is a single sentence stating, without citation or elaboration, "There is no clear reverse correlation that implementation of this tool would increase operation demand at Sea-Tac." ER 88. The record does not explain how or why the agency reached this counter-intuitive conclusion. *Id*. Nor does it provide any supporting studies or data. *Id*. Thus, there is no basis to defer. *Great Basin Res. Watch*, 844 F.3d at 1103; *see also Idaho Sporting Cong. v. Rittenhouse*, 305 F.3d 957, 973-74 (9th Cir. 2002) (no deference to unexplained agency conclusion); *City of Phoenix v. Huerta*, 869 F.3d 963, 974 (D.C. Cir. 2017) *amended on other grounds* 881 F.3d 932 (D.C. Cir. 2018) (no deference to FAA opinion absent supporting evidence).

In the end, the administrative record simply does not support the FAA's position. The New Route was developed by an FAA workgroup that "looked at

ways to increase the departure flow" and "maximize throughput." ER 203-204. The FAA justified its interest in pursuing the New Route by explaining that growth in Sea-Tac operations "is projected to continue, due to greater demand and additional air carriers entering the market." SAR 146; *see also* ER 107 (comment 4). In explaining the purpose and need for the New Route, the FAA's categorical exclusion analysis referred to safety and efficiency issues caused by future operational growth. ER 16-17, 88, 106, 110. And the agency ruled out alternatives that would have limited implementation of the New Route based on their perceived inability "[t]o accommodate the anticipated additional growth." ER 25. Thus, at each distinct stage of the administrative process there was clear evidence that the New Route would accommodate—indeed, was *intended* to accommodate—additional operations at Sea-Tac. The FAA's failure to consider those additional operations in its environmental analysis was arbitrary and capricious.

b. Cumulative Impacts

The FAA also erred by failing properly to evaluate cumulative impacts, defined by regulation as "the impact on the environment which results from the incremental impact of the [proposed] action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-

Federal) or person undertakes such other actions." 40 C.F.R. § 1508.7.[3] The FAA's cumulative impact analysis discussed roadway and land development projects scheduled to occur in the general vicinity of Sea-Tac but failed to evaluate reasonably foreseeable future actions at the airport itself, including (i) further increases in operations; and (ii) Sea-Tac's "Sustainable Airport Master Plan" (or "SAMP"). *See* City Brf. at 26-28.

The FAA's response begins by suggesting that Circuit precedent addressing cumulative impacts should be disregarded because "the cumulative impacts analysis requirements in 40 C.F.R. § 1508.25 do not apply to categorically excluded actions." FAA Brf. at 34. The suggestion appears to be based on a fundamental misunderstanding of the difference between "cumulative projects" and "cumulative impacts." Cumulative *projects*, addressed in 40 C.F.R. § 1508.25, are a criterion for determining whether separately proposed actions must be considered in a single EIS. By definition, they are relevant only in the EIS context. *Id*. Cumulative *impacts*, defined in 40 C.F.R. §1508.7, are one of the environmental effects that must be considered in any NEPA analysis. They are not

[3] The definition of cumulative impact is found in NEPA's implementing regulations, promulgated by the Council on Environmental Quality ("CEQ"). The CEQ regulations are mandatory and binding on all federal agencies, including the FAA. *The Steamboaters v. Fed. Energy Reg. Comm'n*, 759 F.2d 1382, 1393 n.4 (9th Cir. 1985) (citing *Andrus v. Sierra Club*, 442 U.S. 347, 357 (1979)).

limited to the EIS context. Thus, the two concepts are distinct. *See Grand Canyon Trust v. Fed. Aviation Admin.*, 290 F.3d 339, 342 (D.C. Cir. 2002). As this Court has put it:

> NEPA does not require that federal agencies always evaluate the feasibility of separate proposed projects in a single, comprehensive EIS. In contrast, NEPA always requires that an environmental analysis for a single project consider the cumulative impacts of that project together with past, present, and reasonably foreseeable future actions.

Native Ecosystems Council v. Dombeck, 304 F.3d 886, 895 (9th Cir. 2002); *see also Great Basin Mine Watch v. Hankins*, 456 F.3d 955, 973 (9th Cir. 2006) (treating "cumulative action" and "cumulative impact" claims separately).[4] Moreover, the FAA's own NEPA procedures specify that cumulative impacts must be considered in the context of categorical exclusions. ER 233-35. There is no basis to disregard this Court's well-established requirements for cumulative impact analysis.

Next, the FAA contends that it was not required to consider the cumulative impact of the New Route together with future operational growth because "the

[4] *Center for Biological Diversity v. Salazar*, 706 F.3d 1085 (9th Cir. 2013) does not stand for the proposition for which it is cited. It did not hold that cumulative *impacts* are irrelevant to categorical exclusions. Rather, it concluded that the regulatory definition of cumulative *projects* is limited to the EIS context. *Id.* at 1096-97.

FAA does not control the number or scheduling of flights." FAA Brf. at 36. The argument is without merit. By definition, cumulative impacts include all "past, present, and reasonably foreseeable future actions *regardless of what agency (Federal or non-Federal) or person undertakes such other actions*." 40 C.F.R. § 1508.7 (emphasis added). Applying that definition, this Court has repeatedly rejected the proposition that cumulative impact analysis need not address matters outside the lead agency's control. *See, e.g.*, *Center for Biological Diversity v. Nat'l Highway Traffic Safety Admin*., 538 F.3d 1172, 1217 (9th Cir. 2008); *Resources Ltd. v. Robertson*, 35 F.3d 1300, 1306 (9th Cir. 1993). Thus, the fact that the FAA does not directly control airline operations does not excuse the agency from considering the impact of those operations in its cumulative impacts analysis.

The FAA also claims the City has not met its burden to demonstrate a cumulative impact will, in fact, occur. FAA Brf. at 36. Again, the agency has invoked the wrong legal standard. A plaintiff need not prove the occurrence of a significant cumulative impact in order to demonstrate that agency decision-making was arbitrary and capricious. *Te-Moak Tribe of W. Shoshone v. United States Dep't of Interior*, 608 F.3d 592, 605 (9th Cir. 2010). It is sufficient to "show only the potential for cumulative impact." *Id*. The City's Opening Brief easily carried that burden by demonstrating that (i) the New Route concentrates low-flying

turboprops over central Burien; (ii) because the New Route separates slower-moving turboprops from faster-moving jets, functional departure throughput for jet takeoffs over northwest Burien will also increase; (iii) the SAMP will further add to Sea-Tac operations; and (iv) the FAA never addressed additional operations or the SAMP. City Brf. at 25-28. No additional showing of harm was required. *Te-Moak*, 608 F.3d at 605 (9th Cir. 2010); *see also City of Carmel-by-the-Sea v. U.S. Dep't of Transp.*, 123 F.3d 1142, 1161 (9th Cir. 1997) (agencies, not environmental plaintiffs, bear primary responsibility for compliance with cumulative impact requirements).

Finally, the FAA contends that its cumulative impacts analysis was not required to address the SAMP because the project is still under consideration, has not yet been subject to environmental review, and is therefore too preliminary to be evaluated. FAA Brf. at 36-38. This argument fails for each of four independent reasons.

First, "when an agency decides to proceed with an action in the absence of an EA or an EIS, the agency must adequately explain its decision." *California Wilderness Coal.*, 631 F.3d at 1097. To properly invoke a categorical exclusion, an agency must make "specific findings of fact and systematically apply its regulations for categorical exclusions to those facts." *Norton*, 311 F.3d at 1175–76. Here, the administrative record contains no such analyses or findings. In fact,

there is no record evidence that the agency ever took a "hard look"—or any look at all—at whether the SAMP should be included in the cumulative impacts analysis. *See, e.g.*, ER 44-47, 93 (no reference to SAMP or Port of Seattle in cumulative impacts analyses); ER 47-49 (no reference to Port of Seattle in "community outreach" discussion); FAA Brf. at 36-38 (FAA Answering Brief cites no evidence from the administrative proceedings).[5] This absence of record evidence is particularly problematic because the City brought the issue of future airport projects to the FAA's attention during the administrative proceedings. ER 113; *see also Norton*, 311 F.3d at 1176 ("concern for adequate justification of the categorical exclusion is heightened because there is substantial evidence in the record that exceptions to the categorical exclusion are applicable"). For these reasons alone, the FAA's failure to include the SAMP in its cumulative impacts analysis was arbitrary and capricious. *California Wilderness Coal.*, 631 F.3d at 1105; *Sierra Club v. Bosworth*, 510 F.3d 1016, 1027-30 (9th Cir. 2007); *see also Great Basin Mine Watch*, 456 F.3d at 973 (absence of record evidence justifying scope of cumulative impacts analysis rendered agency action arbitrary and capricious).

[5] In the relevant portion of its Answering Brief, the FAA's sole record citation is to ER 290, a single page from a general reference document that was not prepared as part of the administrative proceedings for the New Route. *See* FAA Brf. at 36-38.

Second, the FAA's litigation position fails to address the proper legal standard. The relevant inquiry is not (as the agency would have it) whether the SAMP remains subject to further review and evaluation. *See* FAA Brf. at 37-38. Rather, the appropriate test is whether the SAMP was "reasonably foreseeable" within the meaning of CEQ's NEPA regulations. *See* 40 C.F.R. §1508.7; *Northern Plains*, 668 F.3d at 1078-79.[6] In applying that test, this Court owes no deference to the FAA's regulatory interpretation; instead, it is CEQ's interpretation that is entitled to "substantial deference." *Grand Canyon Trust*, 290 F.3d at 342. And CEQ's interpretation of the "reasonable foreseeability" standard squarely rebuts the FAA's litigation position:

> Commonly, analysts only include those plans for actions which are funded or for which other NEPA analysis is being prepared. *This approach does not meet the letter or intent of CEQ's regulations*. It underestimates the number of future projects because many viable actions may be in the early planning stage.

CEQ, *Considering Cumulative Effects Under the National Environmental Policy Act* (1997) at 19 (emphasis added).[7]

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[6] Notably, neither 40 C.F.R. 1508.7 nor the term "reasonably foreseeable" appears anywhere in the FAA's Answering Brief.

[7] *Considering Cumulative Effects* is available at https://www.energy.gov/sites/prod/files/nepapub/nepa_documents/RedDont/G-CEQ-ConsidCumulEffects.pdf . Although not a regulation, it has been cited with approval by this Court on multiple occasions (*see, e.g.*, *Northern Plains*, 668 F.3d at 1078; *Kern v. U.S. Bureau of Land Mgmt.*, 284 F.3d 1062, 1076 (9th Cir. 2002)) and is

Third, the FAA's litigation position is contrary to Circuit precedent. The agency argues that the SAMP remained "under consideration" at the time of the New Route's approval. FAA Brf. at 37. However, this Court has held that "projects need not be finalized before they are reasonably foreseeable" for purposes of cumulative impacts analysis. *Northern Plains*, 668 F.3d at 1078-79. The FAA also points out that the SAMP's NEPA process was not formally announced until two months after approval of the New Route. Circuit law holds that this is not determinative either. For example, *Te-Moak Tribe of W. Shoshone v. United States Dep't of Interior* observed that a project's reasonable foreseeability in 2004 could be inferred from an environmental review initiated in 2005. *Te-Moak*, 608 F.3d at 602-03. Likewise, *Earth Island v. U.S. Forest Service*, invalidated a cumulative impacts analysis for failing to address a future action that was formally announced five months after approval of the proposed project. 351 F.3d 1291, 1307-08 (9th Cir. 2003). These cases demonstrate that the reasonable foreseeability of future actions depends on situation-specific evidence, not on a mechanistic review of formal announcement and publication dates. *Id.*; *Te-Moak*, 608 F.3d at 602-03; *see also Northern Plains*, 668 F.3d at 1078-79

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identified as authoritative guidance in the FAA's own NEPA policies and procedures. *See* ER 290.

("Each project is different and the agency is required to rationally explain its decision in the context of project-specific effects").

Fourth, the FAA fails to meaningfully address project-specific evidence demonstrating the SAMP was, in fact, reasonably foreseeable. As explained in City's Opening Brief, (i) the SAMP planning process is funded through an FAA grant; (ii) the stated objectives of the SAMP include doubling Sea-Tac's international flights, tripling its air cargo volume, and encouraging the airport's expansion; (iii) to further those objectives, the Port of Seattle has identified several near-term projects, including new gates, terminals, taxiways, and runway enhancements identified as "capacity improvements"; (iv) in timely comments on the New Route, the City requested that the FAA's cumulative impacts analysis address the cumulative impacts of the New Route and future capacity-enhancing projects. *See* City Brf. at 26-27. The FAA does not seriously dispute these facts. FAA Brf. at 36-38. The agency does note that a technical memorandum compiling the SAMP's near-term projects was not published until several weeks after approval of the New Route. *Id*. But the technical memorandum clearly shows the near-term projects were identified, planned, and evaluated one year earlier—precisely the time when the New Route was also under consideration. *See, e.g.*, SAR 160-63, 168-69, 177-79 (maps, analyses, and project schedule all dated 2017). Thus, the SAMP was reasonably foreseeable.

c. Public Controversy

The New Route also presents extraordinary circumstances because it is "likely to be highly controversial on environmental grounds." *See* ER 233-34. The FAA's NEPA procedures specify that an action is "highly controversial on environmental grounds" if there is "a substantial dispute involving reasonable disagreement over the degree, extent, or nature of a proposed actions environmental impacts." *Id*. The procedures further specify that the existence of such a "reasonable disagreement" depends on whether there is [o]pposition on environmental grounds by a Federal, state, or local government agency…or by a substantial number of the persons affected by the action." *Id*. Consistent with these criteria, the City's Opening Brief demonstrated that (i) federal and local agencies disputed assumptions presented in the FAA's "Preliminary Environmental Analysis" and requested additional review; and (ii) a substantial number of affected persons expressed environmental objections of their own. City Brf. at 28-31.

The FAA pretends that Burien "focuses simply on the number of comments that the FAA received," arguing that such evidence "is not sufficient for a proposed action or its impacts to be considered highly controversial." FAA Brf. at 38. The argument does not withstand scrutiny. The City's Opening Brief did not focus exclusively on "the number of comments" addressing the New Route; it also

explained the substance of those comments, as well as the concerns raised by local and federal agencies. City Brf. at 29-31. Moreover, the FAA's own NEPA procedures specifically provide that "opposition on environmental grounds by…a substantial number of the persons affected" is relevant evidence of controversy. ER 234.[8] The record reflects precisely that sort of evidence here. *See, e.g.*, ER 69 ("many of the members of the public who commented on the provisional environmental analysis did not agree with the determinations of the analysis"); ER 74 (admitting "high level of controversy"); ER 96-105 (list of commenters); ER 106-08 (EPA comments); ER 109-26 (City comments); Further Excerpts of Record ("FER") 3-63 (public comments)).

Next, the FAA asserts that it went above and beyond applicable notice and comment requirements. FAA Brf. at 41-41. The relevance of this assertion is obscure. The City's Opening Brief did not allege any violation of notice and comment requirements. City Brf. at 30. Rather, the City explained that the FAA's findings on environmental controversy are not supported by the comments the agency received. *Id*. In approving the New Route, the FAA admitted that its

[8] The environmental controversy cases cited by the FAA (FAA Brf. at 39) do not provide otherwise. None of the cited cases interprets or applies the relevant provision of the agency's NEPA procedures. Moreover, the most recent published opinion to address the FAA procedures *confirms* that public comments are relevant evidence of environmental controversy. *See City of Phoenix*, 869 F.3d at 972.

proposal had generated a "high level of controversy," but ultimately found the controversy was not environmental in character because "there are no reportable or significant noise impacts." ER 74. The City's Opening Brief demonstrated that this finding was arbitrary and capricious. City Brf. at 30-31. The fact that the FAA has concluded there will be no significant noise impact does not determine whether that conclusion is controversial on environmental grounds. *See City of Phoenix*, 869 F.3d at 971-72. Moreover, the record shows that comments from the City, the EPA, a Member of Congress, and the public all did, in fact, raise substantive environmental objections. *See* ER 69, 106-108, 109-126, 127-29; FER 3-63. The FAA's claim to have complied with applicable notice and comment requirements does not seriously address these issues.

Finally, FAA asserts that it resolved all controversy thought its responses to comments. FAA Brf. at 41-43. The assertion is contrary to the agency's own findings, which admit a "high level of controversy." ER 74. Furthermore, the relevant question "is not whether the [agency] attempted to resolve the controversy, but whether it succeeded." *Nat'l Parks Conservation Ass'n v. Semonite*, 916 F.3d 1075, 1085–86 (D.C. Cir. 2019). Here, the record demonstrates that the FAA's responses did not. For example, the City's comments on the New Route requested that the FAA's cumulative impacts analysis be expanded to address the future capacity improvements at Sea-Tac, including the

SAMP. ER 113. As explained in Part A.2.b, above, the FAA did not address—much less resolve—that issue. Similarly, comments from a public interest organization called Quiet Skies Coalition raised concerns about the agency's consideration of project alternatives in light of FAA Order 711.65W.[9] FER 35. The agency did not resolve that issue either. *See* Part B, below.

For each of these reasons, the FAA acted arbitrarily in concluding that the New Routes were unlikely to be highly controversial and could thus be categorically excluded from further environmental review.

B. The FAA's Consideration Of Alternatives Was Arbitrary And Capricious

The City's Opening Brief explained that the FAA's consideration of alternatives was arbitrary and capricious in two fundamental respects: (i) the FAA eliminated alternative turboprop headings from consideration based on an incomplete and inaccurate application of FAA Order 7110.54W; and (ii) the FAA eliminated several alternatives to the New Route from detailed consideration based, in whole or in substantial part, on their perceived inability to accommodate increasing departures *even though* the agency's environmental impact assessment

[9] The FAA claims to have resolved EPA's concerns in a May 9, 2018, email. The email post-dates approval of the New Route and therefore does not establish that all controversy was resolved prior to final agency action.

assumed there would be no change in the number of operations at Sea-Tac. City Brf. at 31-32.

The FAA does not seriously dispute that it mis-applied Order 7110.54W. FAA Brf. at 50-51. Instead, the agency suggests that proper application of the Order would make little difference. *Id*. This speculative *post hoc* rationalization must be rejected. *Motor Vehicle*, 463 U.S. at 50. "To take the required 'hard look' at a proposed project's effects, an agency may not rely on incorrect assumptions." *Native Ecosystems Council v. U.S. Forest Serv*., 418 F.3d 953, 964 (9th Cir. 2005). For that reason, the Courts "cannot uphold a decision based on a clear error in judgment." *Id*.

Finally, the FAA denies any inconsistency in its consideration of future operations at Sea-Tac, asserting that "no alternatives were eliminated on this basis." FAA Brf. at 52. The record demonstrates otherwise. During the administrative process, the City asked the FAA to review the possibility of restricting the New Route to operations between 7 a.m. and 9 p.m. ER 25. The agency eliminated this option from detailed consideration, explaining its reasoning as follows:

> Operational growth at [Sea-Tac] is moving to the hours such as 6 am to 7 am since the airport is essentially at capacity during daytime hours. To accommodate the anticipated additional growth, [air traffic control] needs tools such as the [New Route] since it is critical for managing demand.

ER 25. The notion that FAA's alternatives analysis had nothing to do with accommodating growth simply cannot be squared with this explanation. For that reason, too, the FAA's analysis was arbitrary and capricious.

CONCLUSION

For the reasons set forth above, the City respectfully requests that this Court grant the Petition for Review, invalidate the New Route, and remand the matter to the FAA.

Dated: April 23, 2019

Respectfully submitted,

DENTONS US LLP

By */s/ Matthew G. Adams*
Matthew G. Adams
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Attorneys for Petitioners

CERTIFICATE OF COMPLIANCE

The undersigned certifies that, according to the word count provided by Microsoft Word 2010, the body of the foregoing brief contains 6,218 words. The text of the brief is in 14-point Times New Roman, which is proportionately spaced.

/s/Matthew G. Adams
Matthew G. Adams

CERTIFICATE OF SERVICE - CM/ECF

I certify that on April 23, 2019, I electronically filed **PETITIONER'S REPLY BRIEF** with the Clerk of the Court for the United States Court of Appeals for the Ninth Circuit by using the appellate CM/ECF system. Counsel for all parties are registered to use that system and, to my knowledge, will receive copies of this document upon its filing.

/s/Matthew G. Adams
Matthew G. Adams

Case No. 18-71705

IN THE UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

CITY OF BURIEN, WASHINGTON

Petitioner,

v.

FEDERAL AVIATION ADMINISTRATION and
MICHAEL HUERTA,

Respondents.

PETITIONER'S FURTHER EXCERPTS OF RECORD

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37	Relevant excerpts from Categorical Exclusion for Burien LOA, Appendix D: Public Comments and Responses	04/11/2018	FER00003-63

Dated: April 23, 2019

Respectfully submitted,

DENTONS US LLP

By */s/ Matthew G. Adams*
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AR 036

U.S. Department
of Transportation
**Federal Aviation
Administration**

Northwest Mountain Region
Office of the Regional Administrator

1601 Lind Avenue S.W.
Renton, WA 98057-3356

OCT 11 2017

Ms. Robbie Howell
15240 20th Ave SW
Burien, WA 98166

Dear Ms. Howell:

Thank you for your letter dated July 29, 2017, in which you expressed your concerns about the constant noise and pollution caused by Turbo Prop airplanes flying over the Burien area.

The Federal Aviation Administration (FAA) has the statutory responsibility and primary mission to promote safe and efficient use of airspace. It is a continuing challenge for the FAA to provide the necessary support to the National Airspace System (NAS), as the ever-growing demand on the system increases. The FAA continues to work to ensure the safe and efficient use of the NAS, which may include proposing changes to flight paths as the needs of the NAS changes. The FAA does not schedule or increase the number of flights in and out of Seattle-Tacoma International Airport (SEA). Airline stakeholders are responsible, based on the demand of a local airport. The FAA role is to provide a safe, orderly, and expeditious flow of traffic within the National Airspace.

In order for Air Traffic Control (ATC) to keep up with the increased demand at SEA without increasing ground delays for the flying public, ATC uses a number of tools, including changing flight paths, to get aircraft into and out of SEA while still ensuring safety. Your letter references public concern over flight paths in your district in Burien, Washington. At issue are turboprop aircraft being turned west during north flow operations. The automatic west turn for turboprop aircraft during north flow operations is one of the tools ATC wishes to employ in order to safely manage the increased operations.

SEA has witnessed a nearly 10% increase in operations. This increase in operations is projected to continue due to greater demand and additional air carriers entering the market. In order to balance capacity and ensure safe operations, the FAA, in cooperation with the Port of Seattle and local community representatives, established the procedures to take advantage of existing geographical and compatible land use conditions wherever possible. Although the FAA has sole authority over aircraft in flight, the Port of Seattle is primarily responsible for monitoring and reporting air traffic activities in regard to noise abatement procedures. Additional information regarding noise abatement efforts may be found by

visiting the Port of Seattle's noise abatement page at: http://www.portseattle.org/Environmental/Noise/Noise-Abatement/Pages/Procedures.aspx.

The FAA recognizes the importance of developing and maintaining an effective strategy for community involvement. In February 2016, the FAA updated its Community Involvement Manual, which is a high-level policy document that outlines why community involvement is important; provides some best practices for the FAA in implementing new projects; and suggests how the FAA can get communities involved earlier in the development of a new project. In May 2016, the Air Traffic Organization updated its Community Involvement Plan to enhance its community involvement techniques and more proactively address community needs when implementing Performance Based Navigation projects. Both of these documents are housed on the Web site https://www.faa.gov/nextgen/communityengagement/. This Web site also provides extensive information on the FAA's community involvement activities. These updates reflect the FAA's commitment to inform and involve the public and to give meaningful consideration to community concerns and views as the FAA makes aviation decisions that affect the public. This website currently includes the preliminary environmental analysis conducted for the proposed automatic 250 (degree) heading for turboprops departing SEA in North Flow.

The National Environmental Policy Act (NEPA) of 1969 was enacted so that Federal Agencies can assess the environmental effects of major Federal Actions, prior to making changes. The NEPA provides a framework for evaluating the environmental impact of a proposed action, and dictates the appropriate level of public participation required for that action. The FAA's NEPA compliance policies and procedures are contained in FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (http://www.faa.gov/documentLibrary/media/Order/FAA_Order_1050_1F.pdf). FAA Order 1050.1F specifies 14 environmental impact categories that may be relevant to FAA actions. There is no specific requirement to prepare health impact assessments to comply with NEPA. However, there are multiple environmental impact categories that address health impacts that include: air quality, hazardous materials, solid waste, pollution prevention, noise and compatible land use, and water resources.

Thank you for this opportunity to review and respond to your concerns.

Sincerely,

David C. Suomi
Acting Regional Administrator
Northwest Mountain Region

Comment 37

Walter Bala

Page 1

Sent: Monday, June 12, 2017 6:03 AM
To: 9-ATO-WSA-Public-Comments (FAA)
Subject: Community Comments Form Submission - Design Outreach

Email: bixbee@mac.com
Name: Walter Bala
Mailing Address: 2525 SW 169th Pl
City: Burien
State: WA
Zip Code: 98166

Environmental concerns: On June 8th, 2017 the FAA posted a document entitled "Automation of a westerly heading for turboprops aircraft departing SEA in north flow Preliminary Environmental Analysis" on the internet site https://www.faa.gov/nextgen/communityengagement/SEA/community_comments/. The period open for public comment will close on June 21st 2017 11:59 PM. This "Analysis" does not satisfy the requirements of NEPA that need to be satisfied prior to implementing new procedures. The document is invalid in the NEPA context. First FAA Order 1050.1, the governing Order the FAA purports to have referenced, does not contain any reference to an "Environmental Analysis." There is the Categorical Exclusion (CATEX), an Environmental Assessment (EA), and an Environmental Impact Statement (EIS). In FAA ORDER 1050.1F, §3-1, the paragraph ""Three Levels of National Environmental Policy Act Review"" states: "Once the FAA determines that NEPA applies to a proposed action, it needs to decide on the appropriate level of review. The three levels of NEPA review are Categorical Exclusion (CATEX), Environmental Assessment (EA), and Environmental Impact Statement (EIS). Each of the three levels of review is briefly described in the following paragraphs." It appears in this circumstance, new departure procedures, requires an Environmental Assessment, an EA. I say this because there are subjects that "must" be included in document before it can qualify as an environmental assessment; see 1050.1F paragraph 6-2.1. Had the individual preparing this document been thinking "environmental assessment" they should have found the appropriate guidance. There is no guidance for an "Environmental Analysis" in FA Order 1050.1F. If an organization elects to dismiss existing guidance, its motives may be considered dishonest and suspect. According to Order 1050.1F, paragraph

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Response to Comment 37

1. The preliminary environmental analysis was not intended to be presented as a draft or final NEPA document, but rather as a preliminary summary of the environmental impact analysis undertaken, which may be incorporated into a NEPA document.

2. As Per FAA Order 1050.1F 3-1-1, a CATEX refers to a category of actions that do not individually or cumulatively have a significant effect on the human environment and for which there are no extraordinary circumstances.
In particular FAA Order 5-6-5 i states that, in absence of extraordinary circumstances, the following action fall under a CATEX:
"..modifications to currently approved procedures conducted below 3,000 feet AGL that do not significantly increase noise over noise sensitive areas;.."
The noise analysis indicates that the noise exposure, as measured in DNL, does not change with the implementation of the Proposed Action.

FAA order 1050.1F Section 5-2 details the Extraordinary Circumstances. These are factors or circumstances in which a normally categorically excluded action may have a significant environmental impact that then requires further analysis in an EA or an EIS. For FAA proposed actions, extraordinary circumstances exist when the proposed action meets both of the following criteria (see 40 CFR § 1508.4, CEQ Regulations):
(1) Involves any of the circumstances which are listed in Table 1 of the Preliminary Environmental Analysis; and
(2) May have a significant impact (see 40 CFR § 1508.4, CEQ Regulations).

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Comment 37

Walter Bala

Page 2

6-2.1, an Environmental Assessment "must" contain the following sections: (a) cover page; (b) proposed action; (c) purpose and need; (d) alternatives; (e) affected environment; (f) environmental consequences; (g) List of Preparers; (h) List of Agencies and Persons Consulted; and (i) Appendices (if any). The following statement was not included in the document. Order 1050.1F, Chapter 6, paragraph 6-2.2 Environmental Assessment Process states: "Finally, The FAA or applicant must publish a notice of the draft EA's availability in local newspapers, other media, and/or on the Internet. This notice must include the following statement: (Emphasis Added.) Before including your address, phone number, e-mail address, or other personal identifying information in your comment, be advised that your entire comment –including your personal identifying information –may be made publicly available at any time. While you can ask us in your comment to withhold from public review your personal identifying information, we cannot guarantee that we will be able to do so." These omissions tell the public whoever prepared this document never read the Order. Finally, section 6-2.2 states: "There is no set time limit on public comment periods for EAs; however, they are normally 30-45 days." Yes the timing is optional, but I would expect you would be able to explain why 14 days. Perhaps there is time to withdraw the document to at least add the notice regarding personal identification data.

Possible increase in aviation noise: The new departure procedures turns to 230° (south flow) and 250° (north flow) promulgated by Mr. Tracey Johnson, Manager, Operations Support Group, Western Service Center, AJV-W2, FAA in Letter of Agreement ("LOA") titled "Seattle Airport Traffic Control Tower and Seattle Terminal Radar Approach Control Tower Letter of Agreement; Subject: Approach Control Service and Coordination Procedures" dated July 26, 2016 will compromise and destroy the environment of the residents of Burien, Washington. 3

Form URL: https://www.faa.gov/nextgen/communityengagement/SEA/community_comments/

Response to Comment 37

3. The preliminary environmental analysis shows that since there is no significant impact in any of the environmental categories that no extraordinary circumstances exist. A CATEX has been determined to be the appropriate level of NEPA review for the Proposed Action.

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Comment 38

Walter Bala

Page 1

Sent: Tuesday, June 20, 2017 7:08 AM
To: 9-ATO-WSA-Public-Comments (FAA)
Subject: Community Comments Form Submission - Design Outreach

Email: bixbee@mac.com
Name: Walter Bala
Mailing Address: 2525 SW 169th Pl
City: Burien
State: WA
Zip Code: 98166

Environmental concerns: Without pulling out the citations from JO 7210.3z 4-1-6, Order 1050.1, and the 1050.1 Deck Reference, the LOA of 26 July 2016 lists four departure turns (KSEA), one being to turn to 250 degrees along with other turns to 040, 140, and 230 depending on the departure gates. If these turns begin below 3000 feet, have NEPA environmental reviews (CATEX, EA, EIS) been made for these three? 1

Form URL:
https://www.faa.gov/nextgen/communityengagement/SEA/community_comments/

Response to Comment 38

1. The other three turns referenced in the 26th July 2016 Letter of Agreement (LOA) were previously implemented in a prior LOA. Given that there was no federal decision to implement these turns in the 26th July 2016 LOA, there was no requirement to do a NEPA evaluation on them associated with the 26th July 2016 LOA.

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Comment 42

Erika Bandy

Page 1

From: Erika Bandy <bandyhome@yahoo.com>
Sent: Wednesday, June 21, 2017 9:15 AM
To: 9-ATO-WSA-Public-Comments (FAA)
Subject: Burien flight path

Dear FAA

Our family has lived in Northwest Burien for ten years and have enjoyed it's peaceful location until the summer of 2016 when airplanes from Seatac Intl. Airport began flying over our home. We are not wealthy with a view home on the Sound looking to regain an idealistic community. In fact we live on an Arterial in a Middle to Lower class area. We have been fine with loud cars going by at all hours and we were used to planes flying over in the afternoons for one week in August during Seafair while the Blue Angels were flying but the consistant flight path for taking off to the North has been untolerable. I am disabled with two small children so I need my sleep to be able to care for them. I have a very difficult time falling alseep with planes flying over our home. It has taken me hours at times and then I am woken up in the middle of the night and can not get back to sleep because of it. My quality of life is poorer than I have ever experienced. I thought there was a 3 hour period of no flight between 2am to 5am when I could at least sleep at that time but in the past few weeks I have been woken up between that time range as well. 1

If the FAA is not going to send planes straight out to the North until the planes turn West over the water at Downtown Seattle, like they have for over 50 years, then they should pay homeowners to properly insulate their homes so they can at least get a good nights rest. That, however, would not help to restore the peaceful outdoor environment when people want relax in their yard or have a conversation outside without being jarred by the airplane noise. I have also found it annoying trying to watch TV with windows open on a hot day because of the noise. 2 3

Please take your own legal prescribed steps before implimenting a new flight path. Above all please remember that a few minutes added to a flight is not going to hurt anyone and will make life better for some. 2

Erika Bandy

Response to Comment 42

1. Response 1

2. The purpose of the project is to automate the westerly turning of some south bound turboprops while SEA is in north flow. This westerly turning occurred before, but was manually coordinated. ATC from SEA ATCT needed to verbally communicate the turn with ATC from S46. Automating this communication 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 automation are needed to more efficiently manage the traffic. In particular, this automation ensures separation with BFI traffic, as well as allowing more aircraft to depart SEA within a given window of time.

3. Some Airports manage noise insulation programs, in association with their Part 150 noise programs. It is the Airport's responsibility to maintain this program.

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FER00006

Comment 45

Jeff Bean

Page 1

From: jeff@beyondthecourthouse.com on behalf of Jeff Bean <jeff@beanorama.com>
Sent: Saturday, June 17, 2017 6:58 PM
To: 9-ATO-WSA-Public-Comments (FAA)
Subject: Comments re FAA Flightpath Procedures for Port of Seattle

Dear Madam or Sir:

It is my understanding that this address is receiving public comment regarding the FFA's recent change in flightpath procedures for the Port of Seattle. If not, please forward it appropriately.

First, I am commenting and complaining about your public comment process itself. I can find little information about what the FFA has done, its procedures and comments regarding them. The only source of information I have are what I find in our local media and organizations of concerned citizens. I can't know exactly what I am commenting on - in this, I'm apparently not alone, as even the councilmembers of local municipalities have complained to you about the lack of information you have provided. I have heard that you are allowing a 15-day comment period that ends this week. That's ridiculous.

Before we bought our home, we had lived in other locations in south King County that were close to or nearly under flight paths. We knew we did not want to buy a home near them.

We moved to Normandy Park 20 years ago because, not only was it not under any flight paths, but it had the least airplane noise. People were often surprised how quiet it is here, since we are closer than many communities to the airport, but the port's own noise maps confirmed it. Our neighborhood was one of the quietest, not just in south King County, but was quieter than most of Seattle. For years my home and garden were quieter than even my sister's in Laurelhurst in Seattle. We moved here because it was quiet.

For nearly 20 years we never experienced jets flying directly overhead. We never had any jet noise that interrupted an outdoor conversation. Now both happen regularly.

1

Response to Comment 45

1. The Proposed Action is to add a paragraph in the SEA ATCT /S46 LOA which allows the automatic 250 westerly heading for some south bound turboprops departing SEA in north flow. The address provided in this comment is near to arrivals into SEA in north flow and jet departures from SEA in south flow, and is not affected by the westerly turning of south bound turboprops in north flow. Since analyzing the impacts of SEA north flow arrivals and south flow jet departures are outside of the scope of this document, we are unable to fully respond to your comment. Please submit your comments to the FAA's noise ombudsman (9-AWA-NoiseOmbudsman@faa.gov), so that your concern may properly be responded to.

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Comment 45

Jeff Bean

Page 2

I have seen jets - not just turboprops - flying barely hundreds of feet directly above us, directly above our small shopping district, directly above Mar Vista school, and directly above my home.

Things have changed. This is new. It is different. It is disruptive. It is unwelcome. The high-frequency whine of jet engines is ear-splitting. Their low-frequency rumbling shakes the walls and windows. I am concerned about the jet engine emissions coming down from directly overhead. All of it makes our home and garden less enjoyable, less livable, less healthy, less safe, dirtier, and when the word gets out how things have changed, less valuable.

I don't know what has changed. I can't get any good information about it. Certainly nothing from the FAA or Port of Seattle. The best information comes, again, from local media and organizations, and they themselves admit that what information they can get from the FAA is incomplete and makes little sense.

You must know what's going on, what you've done to make changes that make our communities louder, dirtier, less healthy and less safe. I resent not only what you've done, but your lack of forthright integrity in failing to inform the citizens in the surrounding communities what you've done.

It is my understanding the FAA made these procedural changes and have not complied with specific directions enacted by Congress. The FAA should follow the law and be held accountable.

Jeff Bean

234 SW 184th St
Normandy Park, WA 98166
206.794.5585

Response to Comment 45

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FER00008

Comment 95

Page 1

Sent: Tuesday, June 13, 2017 1:58 PM
To: 9-ATO-WSA-Public-Comments (FAA)
Subject: Community Comments Form Submission - Design Outreach

Email: canonicac@aol.com
Name: Charlene M Canonica
Mailing Address: 11806 marine view drive sw
City: Burien
State: Wa
Zip Code: 98146

Aviation noise: Your own maps show how the planes used to fly over a much wider area when turning to the left and out over the water and our complaint is with the grouping of the planes in a concentrated the noise is intolerable. The noise is effecting peoples mental and physical health. [1]

Aviation noise concentration: The orginal flight pattern the noise was tolerable, not enjoyed but was not physically shocking. Presently the orginal flight pattern is being used and is tolerable but a return to the concentrated pattern will cause physical problems with residents. [2]

Environmental concerns: The previous concentrated pattern also caused more pollution in that area over our residents in Burien. [3]

Other concerns: Our property values would decrease with the concentrated air flights over Burien. Moving would be a necessary result for myself and others if the concentrated flight pattern is put back. For health reasons I could not continue living in my house of 30 years. [4]

Possible increase in aviation noise: It is not ""Possible increase"" it is extreme increase as we had when the concentrated pattern was in effect. [2]

Aviation noise concentration: The great aviation noise concentration we experienced with the flight pattern is not sustainable for good health. [1]

Response to Comment 95

1. Response 10
2. Response 1
3. Response 2
4. Response 4

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FER00009

Comment 95

Charlene Canonica

Page 2

Air quality: Your own maps of the flights show the concentration of planes would affect the air quality. 3

Other concerns: House values will decrease which will be very detrimental to those of us who will be forced to sell. I also own an apartment in Burien where other tenants were complaining but as a renter it is easier to move. The concentrated flight pattern will cause Burien to be a less desirable place to live and effect the businesses and the city itself economically. The old and current flight patterns are the best for all involved as it is not concentrated. 4

Form URL:
https://www.faa.gov/nextgen/communityengagement/sea/community_comments/

Response to Comment 95

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Comment 135

Larry Cripe

Page 1

From: Larry <larrycripe@comcast.net>
Sent: Tuesday, June 20, 2017 11:23 AM
To: 9-ATO-WSA-Public-Comments (FAA)
Subject: Automation of westerly heading for turbojet aircrat departing SEA in north flow

TO: Federal Aviation Administration

FROM: Larry Cripe

14317 23rd Ave SW
Burien, WA 98166
206.243.2170

RE: Automation of a westerly heading for turboprop aircraft departing SEA in north flow

My name is Larry Cripe. I have resided in the single famly home I own located at 14317 23rd Ave SW, Burien, WA since purchasing it in August of 2002.

* •Beginning in late July 2016 or early August 2016, I noticed a new and disruptive flow of noisy, low elevation turbojet aircraft operated by Alaska/Horizon flying directly over my house. This has never happened before since I purchased the house in December 2012.
* •After investigating the issue with neighbors, we formed the Washington non-profit corporation known as Quiet Skies Coalition. I am Vice President of the QSC.
* •We then discovered that the FAA had, in secret and without any NEPA compliance, adopted a new procedure to direct all or substantially all of the turbojet north flow flights directly over central and northern Burien.
* •Working with the City of Burien, we sued the FAA in the 9th Circuit for NEPA violations.
* •The FAA was forced to abandon the new flight procedure by letter dated April 10, 2017.
* •On June 8, 2017, the FAA posted a document entitled “Automation of a westerly heading for turboprops aircraft departing SEA in north flow PreliminaryEnvironmental Analysis” (“Analysis”) to a NextGen website in which FAA

Response to Comment 135

Thank you for your comment.

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FER00011

Comment 135

Larry Cripe

Page 2

appears to intend to re-institute the same flight path it abandoned on April 10, 2017.

* •The new low elevation noisy flight path is extremely disruptive to my family's quality of life. We can't enjoy our yard outdoors when the flights pass over. Inside the house, the noise is very disruptive and produces anxiety and anger.

* •Together with the City of Burien, QSC prepared the attached detailed rebuttal to the FAA's "Preliminary Environmental Analysis." I fully join in this statement and adopt it as my own.

* •As demonstrated in the attached statement, the FAA's "Preliminary Environmental Analysis" is a sham. It does not comply with NEPA. It does not explore reasonable alternatives. It instead reeks of predetermination.
* •We the people of Burien and surrounding communities will not rest until this arbitrary and capricious action, so destructive of our way of life, is permanently rescinded.

Larry Cripe

Response to Comment 135

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Comment 158

Mike Dosert

Page 1

From: mikedostert@comcast.net
Sent: Wednesday, June 21, 2017 10:37 AM
To: 9-ATO-WSA-Public-Comments (FAA)
Cc: Larry Cripe
Subject: Public Comment on Revised Sea Tac Flight path over Burien
Attachments: COMMENTS TO FAA WEDNESDAY JUNE 21.docx

From :

Mike and Alison Dostert
13672 18th Ave SW.
Burien Wa, 98166

To: Ms. Deem, or appropriate FAA official.

BACKGROUND

I live at 13672 18th Ave SW, in the Hurstwood neighborhood of Burien and own a rental house at 14671 16th Ave SW, Burien WA. . I moved to this area from my childhood home on 172nd and 12th Avenue South, now under the 3rd runway. The reason I moved as far west from the airport as possible, away from the defined flight path for the airport, was to avoid airplane noise. The 3rd runway has dramatically increased sideline noise from the Jets during certain operations. Up until several years ago we never had airplanes fly over our community except during a few hours during SeaFair when air traffic was rerouted for the Blue Angels. This was a once a year occurrence and was only for a few hours during daylight hours.

Since 2014 we noticed a slow progression of increasing turboprop airplane traffic sporadically flying over our neighborhood. In the summer of 2016 there was a dramatic change in the frequency of overflights of our neighborhood. Flight after flight, passing directly over our home, throughout the day. In the evening and at night when we went to bed around 11 PM the flights would occur every 4 to 5 minutes. We could not sleep. I finally sent a letter to the Port of Seattle documenting my noise complaints and the impact on my family. I received the attachment 1 letter dated September 1, 2016, from the port documenting the fact the FAA changed the flight operations on July 28th 2016, for all propeller aircraft departing to the north.

IMPACT OF THE FLIGHT CHANGE

With North winds these turboprops fly directly over my home. Data showed over 200 flights per day when the new flight path was implemented and the flights pass over a small geographic area, concentrating the impact and making it unbearable to sleep. The airplanes are turning and climbing out at high engine power, are at low altitude and create a very loud noise that keeps us up at night (flights every 4 minutes around 11 PM). This change in flight path directly impacts my health and ability to sleep as well as impacting property values. (data shows a reduction in property values near airports of 28 percent) My wife cannot sleep due to the noise. Its absolutely terrible. Pollution is a known impact on the community and this is documented in the comments from the City of Burien regarding this NEPA.

FLAWED DETERMINATION OF NO IMPACT ON COMMUNITY

In reviewing the NEPA the FAA states there was a noise analysis done in accordance with methods accepted by FAA using computer modelling. However no details of the analysis were provided, including

1

2

Response to Comment 158

1. Response 10. Based upon 2016 flight track data for SEA – there were approximately 3500 south bound north flow turboprops. While this may mean that some days there are more flights than others, the DNL is based upon an average annual day operational picture.

2. Response 4

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Comment 158

Mike Dosert

Page 2

the assumptions used for the noise assessment, or any supporting noise measurements taken in our city documenting the actual noise created by the operation of the airplanes in the flight path they have implemented. The conclusion by the FAA was there was essentially no impact on Burien because the Q400 turboprops do not create significant noise. This is absolutely incorrect when the planes are at low altitude and high power as well as banking to turn. The NEPA analysis published for comment is obviously flawed when it concludes almost no impact on our city, neighborhoods and community. While no specific data is provided in the NEPA, one can only conclude the analysis method used by the FAA in the NEPA does not reflect the actual operation of the DH8 (Q400) airplanes that are passing over our city. 3

If the planes are so noisy, fly in a concentrated area and , the flights are so frequent, how can the analysis show there is no impact? The new flight path for the DH8 airplanes results in an almost immediate 90 degree left turn perpendicular to the runway (sometimes a sharper turn heading eventually due south) to the west/southwest. The airplanes are climbing out at full takeoff power and are banking/turning. Propeller airplanes make significantly more noise when they bank because the airflow into the propeller is not uniform and this creates a significant increase in noise that is not reflected in the certification noise data. In fact no noise certification data is measured during a banking or airplane turning maneuver. Not only does the certification data not reflect banking and turning of the airplane, the certification noise data is not based upon the engine power used in SeaTac operations. In fact if you look at the publically available data in the attachment 2 excerpt from Advisory Circular 36-3h, Appendix 2, Change 1, you see the DH-8 (Q400) Noise levels were based upon manufacturer data (see note 15), and the manufacturer used cutback engine power (see note 8). Cutback engine power in no way reflects the actual noise generated by these airplanes in our neighborhood. As shown by the graphic below the method for determining noise using cutbacks assumes the engine power is reduced from full takeoff power and spools down to a much lower, quieter power level, before the noise is measured. In effect this test shows the noise level that could be achieved if the airplane was operated using cutback power. **THIS IS NOT THE OPERATION OF THE AIRPLANES OVER OUR CITY AND NEIGHBORHOODS** and it is misleading and disingenuous for the FAA to publish a NEPA with false data being used to support a finding of no impact. Anyone who actually went out and listened to the airplanes flying over our City would easily come to the conclusion the NEPA is flawed. My understanding is noise engineers from the office of Environment and Energy in Washington DC, and the Aircraft Certification Service could be consulted to review the methods used within the NEPA for determining the impact of turbo propeller airplanes banking at low altitude, high engine power, with flights passing overhead every 4 to 6 minutes well into the night time hours. There is a major impact and a valid analysis supported by noise measurements would show the NEPA is flawed. 4

Response to Comment 158

3. We have included additional information into the CATEX regarding the noise analysis. The noise analysis was based upon the actual flight track data collected within the specified periods of time. This flight track data includes aircraft type, as well as specifiying altitudes, latitudes and longitudes along the flight track. Response 1

4. The intent of the FAA Advisory Circular 36-3H, "Estimated Airplane Noise Levels in A-Weighted Decibels", is to fulfill the noise level reporting requirement (14 CFR 36) of turbojet and large transport category aircraft in addition to providing a noise rating scale tool to airports and communities. AC 36-3H is not used as source data for calculating flight track noise within AEDT. Rather, AEDT utilizes a fleet database, containing acoustic data based upon power settings and distance (NPS data), augmented by a database of spectral characteristics as well as additional aircraft-specific data to support several noise adjustments. The NPD data present the aircraft source noise level for a given operational mode and power setting at a range of slant distances from the aircraft to account for acoustic propagation through a standard atmosphere. For fixed wing aircraft, each NPD is associated with an engine power setting. NPDs at different power settings represent the different types of noise generated by those power settings.

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Comment 158

Mike Dosert

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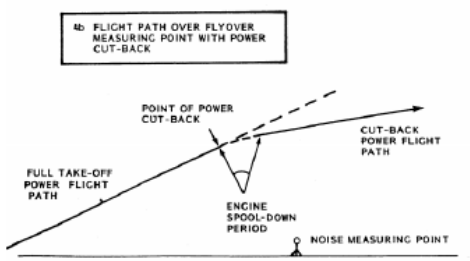

FIGURE 4

Computation of cutback-takeoff noise level from constant power tests

REDUCED SAFETY DUE TO CHANGED OPERATION - ENGINE OUT HAZARD

The NEPA includes an inferred safety benefit from the new flight routes. The change in flight path has nothing to do with improved safety and in fact puts these turbo prop airplanes at risk of an accident during takeoff and climb out. The immediate banking and turn following takeoff significantly increases the chances of an accident following an engine failure. While the airplane may be certified for engine out operation, industry data available to the FAA in "Engine plus Crew Error" reports clearly shows an increased risk of an accident by this type of operation due to the increased likelihood of a crew error causing loss of control. There are many accidents linked to crew error following an engine failure. The FAA should remove any statements inferring the new operations will enhance safety and in fact should state the proposed operation would have a negative impact on safety. The safety decrement should be taken into consideration in the NEPA analysis.

5

NEED FFOR PUBLIC PROCESS AND A VALID NEPA ANALYSIS

The purpose of the flight change is to increase airport operations and essentially opens up an entirely new flight path over Burien and my two homes located in Burien. This flight path was never envisioned in any information published by the Port of Seattle or proposed for public comment through either the Port of Seattle or the FAA. FAA managers made the determination there was no impact and a NEPA was not even required before implementing the new flight path in July 2016. The economic, health, and environmental impact of this change have not been evaluated in any rigorous manner by independent experts. No alternatives were discussed in the NEPA and the FAA appears to have quickly developed the NEPA to support a flawed decision to change the flight path without conducting a NEPA. It is no surprise the FAA initiated a NEPA after the lawsuit was filed hat does not reflect the actual airport operation they are initiating, did not hold any public meetings on this change, and only allowed the citizens of Burien 15 days to comment on the complex issues related to a substantive and thorough NEPA.

6

7

Response to Comment 158

5. Response 11

6. Response 7

7. The preliminary environmental analysis was not intended to be presented as a draft or final NEPA document, but rather as a summary of the environmental impact analysis undertaken. Alternatives suggested during the comment period are discussed and evaluated in Section 4, Alternatives.

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Comment 158

Mike Dosert

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REQUEST FOR COMMENT PERIOD EXTENSION OR WITHDRAWL OF THE NEPA

I would like to request the NEPA be withdrawn for comment and a proper NEPA prepared that conforms with FAA criteria as discussed in Comments to this NEPA in great detail by the City of Burien. If the NEPA is not withdrawn, I request the comment period for this NEPA be extended for 60 days. There is no reason for the FAA to provide a 15 day comment period for such a significant change to the city of Burien as well as the flying public. It is almost impossible for the residents of the area to learn of this NEPA and provide effective comments to the NEPA in a 15 day window during the summer months. Guidance in the FAA NEPA Order states the notice of a public meeting should be a minimum of 30 days and a quick search of the internet showed other NEPA published for comment by the FAA do not have this short of a comment period. Due to the lawsuit filed by the City of Burien, it would appear the FAA is attempting to quickly publish the NEPA and get limited comments so they can justify the previous, arbitrary and capricious, decision by the FAA that is based upon the assumption there is no impact on Burien. Again, I request a proper NEPA be prepared and published for comment, including public notice and public meetings with the impacted communities. If this is not done I request the comment period be extended for an additional 60 days. 8

Regards, Mike and Alison Dostert

Response to Comment 158

8. As Per FAA Order 1050.1F 3-1-1, a CATEX refers to a category of actions that do not individually or cumulatively have a significant effect on the human environment and for which there are no extraordinary circumstances.
In particular FAA Order 5-6-5 i states that, in absence of extraordinary circumstances, the following action fall under a CATEX:
"..modifications to currently approved procedures conducted below 3,000 feet AGL that do not significantly increase noise over noise sensitive areas;.."
The noise analysis indicates that the noise exposure, as measured in DNL, does not change with the implementation of the Proposed Action.

FAA Order 1050.1F Section 5-2 details the Extraordinary Circumstances. These are factors or circumstances in which a normally categorically excluded action may have a significant environmental impact that then requires further analysis in an EA or an EIS. For FAA proposed actions, extraordinary circumstances exist when the proposed action meets both of the following criteria (see 40 CFR § 1508.4, CEQ Regulations):
(1) Involves any of the circumstances which are listed in Table 1 of the Preliminary Environmental Analysis; and
(2) May have a significant impact (see 40 CFR § 1508.4, CEQ Regulations).

The preliminary environmental analysis shows that since there is no significant impact in any of the environmental categories that no extraordinary circumstances exist. The FAA has therefore determined that a CATEX is the appropriate level of NEPA review for the Proposed Action.

The FAA is committed to giving the public an opportunity to be informed, become involved, and have their concerns and views considered as the FAA makes aviation decisions that might affect them. On June 8th 2017, the FAA issued a press release stating the availability of a summary of the preliminary environmental analysis prepared for the NEPA Proposed Action [7]. From June 8th through July 5th, the FAA

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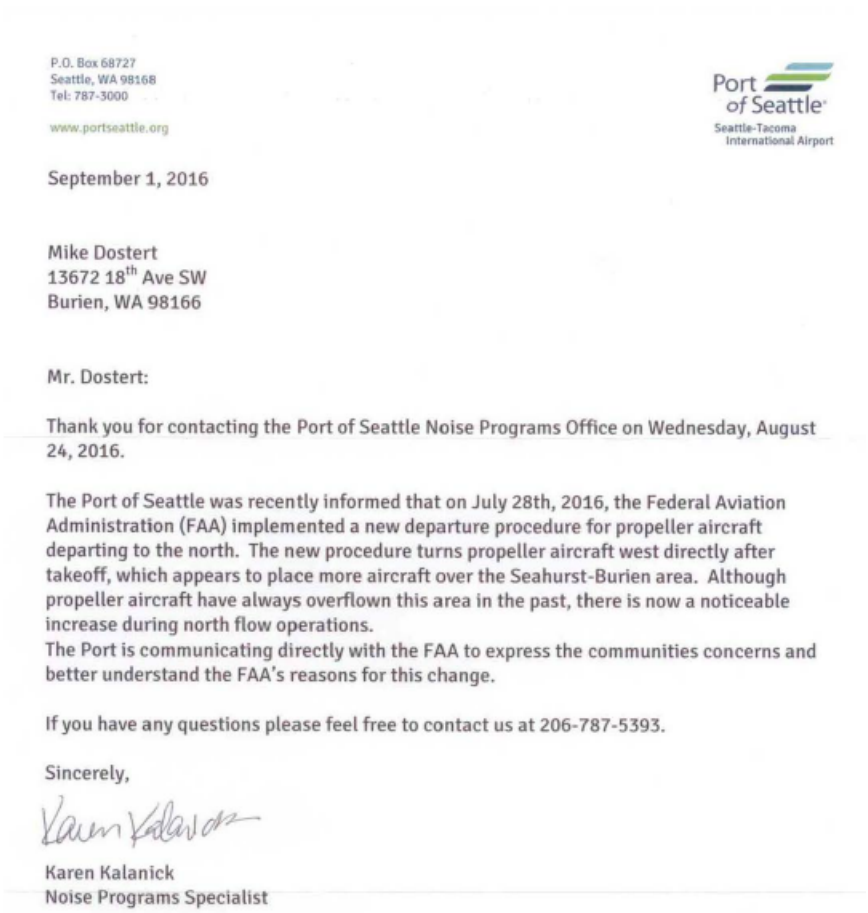
Comment 158

Mike Dosert

Page 5

Attachment 1: Letter dated September 1, 2016 from Port of Seattle to Mike Dostert Documenting fligh change and impact of noise



P.O. Box 68727
Seattle, WA 98168
Tel: 787-3000

www.portseattle.org

Port of Seattle
Seattle-Tacoma International Airport

September 1, 2016

Mike Dostert
13672 18th Ave SW
Burien, WA 98166

Mr. Dostert:

Thank you for contacting the Port of Seattle Noise Programs Office on Wednesday, August 24, 2016.

The Port of Seattle was recently informed that on July 28th, 2016, the Federal Aviation Administration (FAA) implemented a new departure procedure for propeller aircraft departing to the north. The new procedure turns propeller aircraft west directly after takeoff, which appears to place more aircraft over the Seahurst-Burien area. Although propeller aircraft have always overflown this area in the past, there is now a noticeable increase during north flow operations.
The Port is communicating directly with the FAA to express the communities concerns and better understand the FAA's reasons for this change.

If you have any questions please feel free to contact us at 206-787-5393.

Sincerely,

Karen Kalanick
Noise Programs Specialist

Response to Comment 158

the FAA solicited comments on this preliminary analysis, specifically requesting input on the best place to have aircraft fly from a community stand point. On July 25th, 2017 and then again on September 14th 2017, the FAA met with the City of Burien to discuss possible alternatives. All alternatives which were suggested during the public comment period as well as during that meeting with the City of Burien have been fully analyzed and incorporated into the Section 4, Alternatives.

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Comment 158

Mike Dosert

Page 6

Attachment 1: Letter dated September 1, 2016 from Port of Seattle to Mike Dostert Documenting fligh change and impact of noise

P.O. Box 68727
Seattle, WA 98168
Tel: 787-3000

www.portseattle.org

Port of Seattle
Seattle-Tacoma International Airport

September 1, 2016

Mike Dostert
13672 18th Ave SW
Burien, WA 98166

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The Port is communicating directly with the FAA to express the communities concerns and better understand the FAA's reasons for this change.

If you have any questions please feel free to contact us at 206-787-5393.

Sincerely,

Karen Kalanick
Noise Programs Specialist

Response to Comment 158

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FER00018

Comment 158

Mike Dosert

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Attachment 2: Excerpt from AC 36-3H, Bombardier DH8 (Q400) Noise data

AC36-3H
APPENDIX 2, CHANGE 1

4/5/2012

ESTIMATED MAXIMUM A-WEIGHTED SOUND LEVELS
MEASURED IN ACCORDANCE WITH PART 36 APPENDIX C PROCEDURES

MANUFACTURER	AIRPLANE	ENGINE	TOGW 1000 LBS	MLW 1000 LBS	TO dB(A)	APP dB(A)	APP FLAPS	NOTES
BOMBARDIER	BD-700-1A10 (Global Express)	BR706-710-A2-20	93.50	78.50	73.6	83.2	30	8,15
BOMBARDIER	BD-700-1A10 (Global Express)	BR706-710-A2-20	96.00	78.50	74.6	83.2	30	8,15
BOMBARDIER	CL-600-2C10 (CRJ700)	CF34-8C1	72.50	66.90	68.2	82.3	45	8,15
BOMBARDIER	CL-600-2C10 (CRJ700)	CF34-8C1	75.00	66.90	69.1	82.3	45	8,15
BOMBARDIER	DHC-6	PTA-27	12.50	12.50	67.0	78.0		4
BOMBARDIER	DHC-6	PTA-27	12.50	12.50	67.0	78.0	-	4
BOMBARDIER	DHC-7	PTA-50	45.80	42.00	69.6	84.6	25	15
BOMBARDIER	DHC-8 102	PW120	34.50	33.90	66.7	81.2	35	15
BOMBARDIER	DHC-8 103	PW121	34.50	33.90	65.7	81.2	35	15
BOMBARDIER	DHC-8 106	PW121	36.30	33.90	66.4	81.2	35	15
BOMBARDIER	DHC-8 201/202	PW123	36.30	33.90	66.4	81.2	35	15
BOMBARDIER	DHC-8 111	PW123	43.00	42.00	65.4	80.7	35	8,15
BOMBARDIER	DHC-8 314	PW123	43.00	42.00	67.1	80.6	35	8,15
BOMBARDIER	DHC-8-400 (Q400)	PWC 150A	61.70	60.50	61.0	81.6	35	8,15,42
BOMBARDIER	DHC-8-400 (Q400)	PWC 150A	61.70	60.50	61.0	83.4	15	8,15
BOMBARDIER	DHC-8-400 (Q400)	PWC 150A	65.20	62.00	62.3	81.7	35	8,15,42
BOMBARDIER	DHC-8-400 (Q400)	PWC 150A	65.20	62.00	62.3	83.3	15	8,15
BOMBARDIER	DHC-8-401 (Q400)	PWC 150A	61.70	60.50	61.0	81.6	35	8,15,42
BOMBARDIER	DHC-8-401 (Q400)	PWC 150A	61.70	60.50	61.0	83.4	15	8,15
BOMBARDIER	DHC-8-401 (Q400)	PWC 150A	65.20	62.00	62.3	81.7	35	8,15,42
BOMBARDIER	DHC-8-401 (Q400)	PWC 150A	65.20	62.00	62.3	83.3	15	8,15
BOMBARDIER	DHC-8-402 (Q400)	PWC 150A	61.70	60.50	61.0	81.6	35	8,15,42
BOMBARDIER	DHC-8-402 (Q400)	PWC 150A	61.70	60.50	61.0	83.4	15	8,15
BOMBARDIER	DHC-8-402 (Q400)	PWC 150A	65.20	62.00	62.3	81.7	35	8,15,42
BOMBARDIER	DHC-8-402 (Q400)	PWC 150A	65.20	62.00	62.3	83.3	15	8,15

Response to Comment 158

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(1154 of 1318)

Comment 158

Mike Dosert

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Reference Notes

* Less than maximum flap setting.
1. Engines equipped with P-36 acoustical treatment.
2. Quiet nacelles and double wall fan duct treatment.
3. Double wall fan duct treatment.
4. Retain from AC 36-3A.
5. Estimated using non-certification measurement data.
6. Nacelle with fixed lip inlet.
7. Increased takeoff thrust rating.
8. Thrust cutback used.
9. ICAO Annex 16 certification data source.
10. DOT/FAA noise measurements.
11. Propeller noise estimation model.
12. Certification spectra analyzed to obtain dBA.
13. Estimated using certification data from aircraft with similar engines.
14. Estimated using the Integrated Noise Model (INM).
15. Based on manufacturer's data.
16. Equipped with hushkit.
17. Equipped with Learavia engine suppressor nozzle and ECR 936.

Response to Comment 158

Case: 18-71705, 04/24/2019, ID: 11274627, DktEntry: 45, Page 22 of 66 (1155 of 1318)

Comment 460

John Parnass

Page 1

Sent: Tuesday, June 20, 2017 8:43 AM
To: 9-ATO-WSA-Public-Comments (FAA)
Subject: Community Comments Form Submission - Design Outreach

Email: johnparnass@gmail.com
Name: John Parnass
Mailing Address: 14518 25th Ave SW
City: Burien
State: WA
Zip Code: 98166

Aviation noise:
To: Federal Aviation Adminsitration ("FAA")
From: John Parnass 14518 25th Ave SW Burien, WA 98166 206.465.1886
Re: Automation of a westerly heading for turboprop aircraft departing SEA in north flow

My name is John Parnass. I have resided in the single family home I own located at 14518 25th Ave SW, Burien WA since purchasing it effective December 15, 2012.

• Beginning in late July 2016 or early August 2016, I noticed a new and disruptive flow of noisy, low elevation turbojet aircraft operated by Alaska/Horizon flying directly over my house. This has never happened before since I purchased the house in December 2012.

• After investigating the issue with neighbors, we formed the Washington non-profit corporation known as Quiet Skies Coalition. I am Vice President of the QSC.

• We then discovered that the FAA had, in secret and without any NEPA compliance, adopted a new procedure to direct all or substantially all of the turbojet north flow flights directly over central and northern Burien.

• Working with the City of Burien, we sued the FAA in the 9th Circuit for NEPA violations.

Response to Comment 460

Comment 460

John Parnass

Page 2

• The FAA was forced to abandon the new flight procedure by letter dated April 10, 2017.
• On June 8, 2017, the FAA posted a document entitled "Automation of a westerly heading for turboprops aircraft departing SEA in north flow Preliminary Environmental Analysis" ("Analysis") to a NextGen website in which FAA appears to intend to re-institute the same flight path it abandoned on April 10, 2017.

• The new low elevation noisy flight path is extremely disruptive to my family's quality of life. We can't enjoy our yard outdoors when the flights pass over. Inside the house, the noise is very disruptive and produces anxiety and anger. 1

• Here are two video clips illustrating the disruption caused by the FAA over my house: https://www.youtube.com/watch?v=gj2B0MyisFo
https://www.youtube.com/watch?v=w8-JZOQfaEQ

• Together with the City of Burien, QSC prepared a detailed rebuttal to the FAA's "Preliminary Environmental Analysis." I fully join in this statement and adopt it as my own.

• As demonstrated in the rebuttal, the FAA's "Preliminary Environmental Analysis" is a sham. It does not comply with NEPA. It does not explore reasonable alternatives. It instead reeks of predetermination. 2

• We the people of Burien and surrounding communities will not rest until this arbitrary and capricious action, so destructive of our way of life, is permanently rescinded. 3

/s John Parnass

Aviation noise concentration: See above

Environmental concerns: See above

Access to knowledge about aviation and or airport concerns: See above

Response to Comment 460

1. Response 1

2. Responses 8, 16, and 17

3. Response 7

Comment 484

Terrance Plumb

Page 1

Sent: Wednesday, June 21, 2017 9:36 AM
To: 9-ATO-WSA-Public-Comments (FAA)
Subject: Community Comments Form Submission - Design Outreach

Email: tmcp123@hotmail.com
Name: Terrance Plumb
Mailing Address: 14350 24th Ave SW
City: Burien
State: WA
Zip Code: 98166

Access to knowledge about aviation and or airport concerns: The FAA has provided little access to their plans, there have been no prior announcements of their plans, and have not fp performed the required environmental assessment. 1

Possible increase in aviation noise: This comment is specific to the overflights for the Burien area using the 250 degree heading. The data that the FAA is using is inaccurate and does not reflect the actual condition. 2

Aviation noise concentration: Burien overflight comment. The proposed heading concentrates the flights to a very specific area of Burien, which no dispersion.

Air quality: Due to the concentration of flights the air pollutants are concentrated within a very specific area. 3

Other concerns: The draft environment assessment was superficial at best using ""canned"" data. Areas that were not address include economic impacts to the community. The appreciable drop in land and home values with the increase in overflights. With the decrease in land values there is also the drop in land taxes that can be collected by local government. 4 5

Form URL:
https://www.faa.gov/nextgen/communityengagement/sea/community_comments/

Response to Comment 484

1. Response 23

2. Response 1

3. Response 2

4. Response 15

5. Response 4

Comment 496

Quiet Skies Coalition

Page 1

Response to Comment 496

REC'D - ANM-1

JUN 21 2017

June 20, 2017

Federal Aviation Administration

Northwest Mountain Region

1601 Lind Ave SW

Renton, WA 98057

Dear Mr. Suomi,

Enclosed you will find a hard copy of Quiet Skies Coalition's response to your preliminary environmental analysis. We have also electronically filed this document with Ms. Patricia Deem at FAA.gov.

Sincerely,

Larry D. Cripe, President

Quiet Skies Coalition

Comment 496

Quiet Skies Coalition

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AN ASSESSMENT OF:

Automation of a westerly heading for turboprops aircraft departing SEA in north flow
Preliminary Environmental Analysis
Federal Aviation Agency
Northwest Mountain Region

Reviewed By:

Quiet Skies Coalition

On June 8th, 2017 the FAA posted a document entitled "*Automation of a westerly heading for turboprops aircraft departing SEA in north flow Preliminary Environmental Analysis*" ("Analysis") on the FAA NexGen Internet site. The public comment period is scheduled to close on June 21st 2017 11:59 PM.

The Analysis purports to evaluate the environmental impact of a new departure procedure that directs relatively slow turboprop aircraft (Bombardier Q400s) to turn west over the City of Burien. That is to turn west to headings of 250° (north flow) in order to provide separation from departing faster turbojet aircraft. Without following the National Environmental Policy Act (NEPA) related guidance of FAA Order JO 7210.3, Chapter 4, Section 1, § 4-1-6 and FAA Order 1050.1F § 1-8, "Federal Aviation Administration Policy", this procedure was promulgated by Ms. Tracey Johnson, Manager, Operations Support Group, Western Service Center, AJV-W2, FAA in Letter of Agreement ("LOA") titled "*Seattle Airport Traffic Control Tower and Seattle Terminal Radar Approach Control Tower Letter of Agreement; Subject: Approach Control Service and Coordination Procedures*" dated July 26, 2016. The citizens and government of Burien maintain that this traffic concentration would destroy the Burien environment jeopardizing their quality of life and property values. Consequently the City of Burien filed a petition with the Ninth Circuit Court of Appeals, San Francisco on February 14, 2017 demanding NEPA compliance. During mediation, Department of Justice attorneys directed the FAA to delete the related paragraph 5, d, (9), (b), 3) from the LOA. The Analysis appears to be the Northwest Mountain Regional Headquarters' attempt to comply with NEPA.

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However, the content of the Analysis, in our opinion, fails to comply with NEPA, FAA Order 1050.1F, FAA Order JO 7210.3 and fails to justify these 90 ° turns over Burien. It fails to state the initial problem, fails to provide alternatives, fails to "restore and enhance environmental quality to the extent practicable," and, most importantly, fails to dispel the fact that these turns are anything but **arbitrary and capricious**. We believe the decision was made before the Analysis was written.

3

Response to Comment 496

1. Response 1

2. Response 4

3. Response 16

Comment 496

Quiet Skies Coalition

Page 3

The turn to heading 250° or any heading west of runway heading 340°, below 3000 feet, whether published in a LOA, verbally directed by a duty manager, mutually adopted by two independent controller as a technique used repeatedly, or directed by email, or memorandum constitutes a **procedure** that requires NEPA review.

PROCEDURE: (n) "1. A manner of proceeding; way of performing or effecting something. 2. An act composed of steps: course of action. 3. A set of established forms of methods for conducting the affairs of a business, ..." *The American Heritage Dictionary of the English Language, Houghton Mifflin Company, William Morris Editor, 1980.*

As we shall discuss, the FAA's Environmental Analysis discusses only one departure heading - 250°, it does not state the anticipated actual ground level noise footprint intensity thereby prohibiting any later comparisons between alternatives and actual analysis, it provides no reference to the underlying FAA Orders, Advisory Circulars, procedures, or policies that govern construction or permit evaluation of these particular procedures, and it provides no time to prepare a comprehensive rebuttal; 14 days as opposed to the guidance of 1050.1F § 6-2.2, "Environmental Assessment Process", subparagraph "g." which states: "There is no set time limit on public comment periods for EAs; however, they are normally 30-45 days." In fact omitting references compounds the reviewer's problems making it almost impossible to verify FAA statements and supporting policy. Expectations are that claims would be supported by footnotes or references, detailed sufficiently to include paragraph numbers at a minimum. Consequently this submission will concentrate on highlighting the Analysis' discrepancies and omissions and, given the restricting time limit, propose possible alternatives. 4

In general, the Environmental Analysis fails to conform to the intent of the provisions of the NEPA 40 CFR, Title 40, Part 1, Chapter 1, Subpart A—General Provisions for EPA Actions Subject to NEPA, § 6.100 "Policy and purpose" which states: 5

> "(a) The National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. 4321 *et seq.*, as implemented by the Council on Environmental Quality (CEQ) Regulations (40 CFR Parts 1500 through 1508), requires that Federal agencies include in their decision-making processes appropriate and careful consideration of all environmental effects of proposed actions, analyze potential environmental effects of proposed actions **and their alternatives** for public understanding and scrutiny, avoid or minimize adverse effects of proposed actions, and restore and enhance environmental quality to the extent practicable. The U.S. Environmental Protection Agency (EPA) shall integrate these NEPA requirements as early in the Agency planning processes as possible. The environmental review process shall be the focal point to ensure NEPA considerations are taken into account." (*Emphasis Added.*) 6

Response to Comment 496

4. Response 1

5. The comment period was extended to July 5th 2017 – resulting in a 4 week comment period.

6. Response 16. Response 8

Comment 496

Quiet Skies Coalition

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Order 1050.1, paragraph 1-8, Federal Aviation Administration Policy has not been complied with. It states:

> "The FAA's primary mission is to provide the safest, most efficient aerospace system in the world. NEPA compliance and other environmental responsibilities are integral components of that mission. The FAA is responsible for complying with the procedures and policies of NEPA and other environmental laws, regulations, and orders applicable to FAA actions. The FAA decision-making process must consider and disclose the potential impacts of a proposed action and its **alternatives** on the quality of the human environment." (*Emphasis Added.*)

This Analysis concludes the day-night average decibel average will not exceed acceptable limits. This analysis incorrectly concludes there are no potential environmental effects, proposes no alternatives, and therefore assumes no need to minimize obvious adverse effects or suggest ways to restore and enhance the environmental quality all conclusions contrary to the intent of NEPA. This analysis incorrectly concludes Environmental Justice notifications do not need to be made. It provides no estimate on the potential improvements to departure rate or of operational performance once the paragraph is restored.

Please refer to additional comments provided by Analytical Environmental Services annexed (Appendix) at the end of these general comments.

"ENVIRONMENTAL ANALYSIS" PROCESS AND OVERVIEW

The Environmental Analysis currently under review states that: "The FAA implements NEPA through its Order 1050.1F, "*Environmental Impacts: Policies and Procedures*"." Referring to that Order, Chapter 3, paragraph 3-1, *Three Levels of National Environmental Policy Act Review*, it states: "Once the FAA determines that NEPA applies to a proposed action, it needs to decide on the appropriate level of review. The three levels of NEPA review are Categorical Exclusion (CATEX), Environmental Assessment (EA), and Environmental Impact Statement (EIS)."

That is, there are only three levels of review: CATEX, EA, and EIS. An Environmental Analysis is not mentioned. However, in this case, an Environmental Assessment would be appropriate following an Environmental Review. That is not what was published for comment, instead a Preliminary Environmental Analysis was.

There are specific elements required to be addressed in an Environmental Review: project description, proposed need, description of the affected environment, community involvement, extraordinary circumstances, alternatives to the proposed

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Response to Comment 496

7. Response 12

8. Response 17

9. Thank you for your comment. These areas have been further clarified in the CATEX.

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Quiet Skies Coalition

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action, mitigation, cumulative impacts, reference/correspondence. These are found in SW7100.3, Appendix 6.

There are specific elements required of an EA. These are found in Chapter 6, paragraph 6-2.1. Order 1050.1F: an Environmental Assessment "must" contain the following sections: (a) cover page; (b) proposed action; (c) purpose and need; (d) alternatives; (e) affected environment; (f) environmental consequences; (g) List of Preparers; (h) List of Agencies and Persons Consulted; and (i) Appendices (if any). In addition, the FAA publishes an "Environmental Fact Sheet" available through the web address below. Based on the preliminary screening, the FAA then determines the appropriate level of NEPA review. The Fact Sheet presents the three levels of environmental review: CATEX, EA, or EIS.
https://www.faa.gov/nextgen/communityengagement/msp/media/Environmental_Fact_Sheet_MSP.pdf

What triggers the Air Traffic Organization's (FAA) requirement to conduct an Environmental Review? That requirement is contained in FAA Order JO 7210.3Z and is quoted in full below. The point is any procedure below 3000 feet above ground level requires "additional analysis," through the Environmental Review process.

> **"4-1-6. PRELIMINARY ENVIRONMENTAL REVIEW**
> In coordination with the Terminal Operations Area Operations Air Traffic Environmental Protection Specialist (EPS), facilities must conduct and document a preliminary environmental review of new or revised ATC procedures in accordance with FAAO 1050.1, Environmental Impacts: Policies and Procedures, concurrent with initial airspace planning. The facility's review requires the documentation necessary to determine foreseeable noise impacts and controversies.
> **a.** Particular attention must be made to determine whether procedures, either new or modified, will potentially impact noise sensitive areas as defined in FAAO 1050.1, Policies and Procedures for Considering Environmental Impacts.
> **b.** For air traffic modifications to procedures at or **above** 3,000 feet (above ground level), the Air Traffic Noise Screening Procedure (ATNS) should be applied.
> **c.** Modifications to procedures **below** 3,000 feet (above ground level) require additional analysis. Facilities must contact the EPS for further guidance.
> **d.** If the preliminary environmental review indicates that an Environmental Assessment or an Environmental Impact Statement is not required, the documentation must be retained in the facility with copies of all documentation forwarded to the EPS. The directive resulting from the air traffic procedure must contain a statement that a preliminary environmental review has been accomplished and that a Categorical Exclusion has been approved by the responsible official." *(Emphasis Added.)*

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D-660

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Quiet Skies Coalition

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CATEX:

A Categorical Exclusion (CATEX) would not be appropriate because the proposed routine turn to 250° degrees immediately exits the Part 150 65 dBA DNL noise contour and does cause traffic to be routinely routed over areas outside the Part 150 noise contours at altitudes well below 3000 feet.

> **"Order 1050.1F, §5-6.5. Categorical Exclusions for Procedural Actions.** This category includes the list of CATEXs for FAA actions involving establishment, modification, or application of airspace and air traffic procedures. *An action included within this list of categorically excluded actions is not automatically exempted from environmental review under NEPA."*

Section 5-6.5(i) states:

> "Establishment of new or revised air traffic control procedures conducted at 3,000 feet or more above ground level (AGL); procedures conducted below 3,000 feet AGL that do not cause traffic to be routinely routed over noise sensitive areas; ..."

BELOW 3000 FEET:

Section "c" of paragraph 4-1-6, JO 7210.3 requires that the FAA's Environmental Protection Specialist (EPS) analyze new or modified procedures. "Modifications to procedures **below** 3,000 feet (above ground level) require additional analysis. Facilities must contact the EPS for further guidance." The specific guidance is not discussed, however it would obviously be well know to the EPS. That guidance was not specifically referred to in this Analysis. However, we suspect it follow along these selected paragraphs below.

Section 3-1.2 of FAA Order 1050.1F *Environmental Impacts: Policies and Procedures* summarizes actions that typically require and Environmental Assessment. Section 3-1.2(b)(12) states:

> "(12) New air traffic control procedures (e.g., instrument approach procedures, departure procedures, en route procedures) and modifications to currently approved procedures that routinely route aircraft over noise sensitive areas at less than 3,000 feet above ground level (AGL) (unless otherwise categorically excluded under Paragraphs (procedures category) 5-6.5q and 5-6.5r)."

Noise sensitive areas are defined in Order 1050.1F, paragraph 11-5 (10) below. Noise sensitive areas are comprised of two types: those within the 65 dBA DNL and those recognized by a responsible FAA official. As the second underlined sentence below states: "The FAA recognizes that there are settings where the DNL 65 dB standard may not apply. In these areas, the responsible FAA official should determine the appropriate

Response to Comment 496

4

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Quiet Skies Coalition

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noise assessment criteria based on specific uses in that area…." As we shall demonstrate later, the District of Columbia Circuit Court's decision in the Helicopter Association International v. FAA case stated: "the FAA prescribed new air traffic regulations **173 *434 with the purpose of protecting these residents' use and enjoyment of their property. Noise, when it reaches certain levels, has long been considered an actionable nuisance because of its impediment to the use and enjoyment of property." In this case the noise level measured by Volpe was less than 45 dBA DNL yet the noise warranted flight path adjustments.

> "Order 1050.1F, paragraph 11-5 (10) Noise Sensitive Area. An area where noise interferes with normal activities associated with its use. Normally, noise sensitive areas include residential, educational, health, and religious structures and sites, and parks, recreational areas, areas with wilderness characteristics, wildlife and waterfowl refuges, and cultural and historical sites. For example, in the context of noise from airplanes and helicopters, noise sensitive areas **include** such areas within the DNL 65 dB noise contour. Individual, isolated, residential structures may be considered compatible within the DNL 65 dB noise contour where the primary use of land is agricultural and adequate noise attenuation is provided. Also, transient residential use such as motels should be considered compatible within the DNL 65 dB noise contour where adequate noise attenuation is provided. A site that is unacceptable for outside use may be compatible for use inside of a structure, provided adequate noise attenuation features are built into that structure (see table 1 in Appendix A of 14 CFR part 150, *Airport Noise Planning, Land Use Compatibility Guidelines*). The FAA recognizes that there are settings where the DNL 65 dB standard may not apply. In these areas, the responsible FAA official should determine the appropriate noise assessment criteria based on specific uses in that area (see also the 1050.1F Desk Reference for further guidance). In the context of facilities and equipment, such as emergency generators or explosives firing ranges, but not including aircraft, noise sensitive areas may include such sites in the immediate vicinity of operations, pursuant to the Noise Control Act of 1972, 42 U.S.C. §§ 4901–4918 (see state and local ordinances, which may be used as guidelines for evaluating noise impacts from operation of such facilities and equipment)."

DESK REFERENCE:

Referring to the 1050.1 Desk Reference, section 11.4. "*Supplemental Noise Analysis,*" (Indented below.) there appears to be additional methods to augment traditional noise analysis. Given that environmental impacts can be measured by other than the dBA DNL, given that the new flight procedures over Burien have disturbed sleep and quality of life, it would it ~~not~~ be appropriate and consistent within the context and intent of NEPA to employ supplemental techniques to analyze and mitigate the effects of departure turns below 3000 feet.

> "However, DNL analysis may optionally be supplemented on a case-by-case basis to characterize specific noise impacts."

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Response to Comment 496

10. FAA Order 1050.1F defines a noise sensitive area, (see FAA Order 1050.1F, Paragraph 11-5.b(8)) as: "[a]n area where noise interferes with normal activities associated with its use.. The FAA recognizes that there are settings where the DNL 65 dB standard may not apply. In these areas, the responsible FAA official will determine the appropriate noise assessment criteria based on specific uses in that area."

Noise compatibility or non-compatibility of land use is determined by comparing the aircraft DNL values at a site to the values in the land use compatibility guidelines (see the land use compatibility guidelines in 14 CFR part 150). Special consideration needs to be given to noise sensitive areas within Section 4(f) properties, such as noise sensitive areas within national parks, national wildlife and waterfowl refuges and historic sites, including traditional cultural properties. It may be that in these sites, the land use compatibility guidelines in 14 CFR part 150 are not relevant to the value, significance, and enjoyment of the area in question. For example, the land use categories in the guidelines are not sufficient to determine the noise compatibility of areas within a national park or national wildlife refuge where other noise is very low and a quiet setting is a generally recognized purpose and attribute.

Given the level of cumulative noise exposure under the No Action and Proposed Action alternatives along with the land use in the Study Area, the FAA detemined that the noise assessement criteria used in the CATEX was appropriate for the land use in the Study Area.

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Quiet Skies Coalition

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"Supplemental noise analyses are most often used to describe aircraft noise impacts for specific noise sensitive locations or situations and to assist in the public's understanding of the noise impact. The selection of supplemental analyses will depend upon the circumstances of each particular project. In some cases, public understanding may be improved with a more complete narrative description of the noise events contributing to the DNL contours with additional tables, charts, maps, or metrics. In other cases, supplemental analyses may include the use of metrics other than DNL. There is no single supplemental methodology that is preferable in all situations and these metrics often do not reflect the magnitude, duration, or frequency of the noise events under study.
Exhibit 11-2 below [not included] describes metrics that have been used in developing supplemental noise analyses for a variety of reasons such as sleep disturbance, speech interference, building sound insulation, and analysis for special areas such as national parks." *(Emphasis added.)*

FINANCIAL ANALYSIS
ALASKA AIR GROUP

To preclude justifying the 250° turn based on financial necessity, it may be useful to review the financial health of the of the Q400 operator, Alaska Air Group ("Alaska").

ALASKA AIR GROUP: Had Alaska experienced financial losses and a negative balance sheet and if analysis proved financially beneficial, departure turns after takeoff immediately to the west could have supported implementation. However, based on the Air Group's SEC Annual Reports, Form K-10, 2015 and 2016, they have reported an ever-increasing stock dividend. Also the Q400's yield is approximately twice that of the mainline aircraft. Such a well performing operation appears to be a likely candidate to absorb minor increases in flight time costs to preserve the environment of the citizens of Burien as well as to maintain the carrier's public image.

CONSOLIDATED STATEMENT OF OPERATIONS			
Cash Dividend Declared per Share; Year End 2015 & 2016 (SEC Form 10K)			
2016	2015	2014	2013
$1.10	$0.80	$0.50	$0.20

Consolidated Financial Position, Year End 2016 (SEC Form 10-K)					
Yield - passenger revenue per RPM; represents the average revenue for flying one passenger one mile.					
	2016	2015	2014	2013	2012
Mainline:	12.24¢	12.98¢	13.35¢	13.33¢	13.45¢
Q400	24.42¢	26.37¢	27.40¢	29.20¢	28.81¢

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Response to Comment 496

11. The Federal Interagency Committee on Noise (FICON) report, "Federal Agency Review of Selected Airport Noise Analysis Issue," dated August 1992, concluded that the DNL is the recommended metric and should continue to be used as the primary metric for aircraft noise exposure. Subsequent review has confirmed there are no new descriptors or metrics of sufficient scientific standing to substitute for the present DNL cumulative noise exposure metric. While sleep disturbance is sited as an example where supplemental noise metrics may be used , there has been considerable uncertainty regarding the relationship between the estimation of sleep awakenings and the impact of awakenings on sleep quality. Circular E-C184: Critical Issue in Aviation and the Environment 2014, published by the Transportation Research Board in April 2014, acknowledged that an area where additional research is needed is the relationship between aviation noise and sleep disturbance. The FAA is pursuing research in this area, but currently relies on the DNL or CNEL metric to make determinations on noise impact. Notably, the DNL and CNEL metrics include a 10-decibel penalty on aircraft noise events occurring during the 10:00 p.m. to 7:00 a.m. time period. The 10-decibel penalty is added to account for the added intrusiveness of sounds that occur during normal sleeping hours.

12. The FAA is not able to comment on Alaska Air Group's financial analysis.

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Quiet Skies Coalition

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Helicopter Association International

Helicopter Ass'n Intern. Inc. v. F.A.A., 722 F.3d 430 (2013); 406 U.S. App. D.C. 169.

722 F.3d 430; United States Court of Appeals, District of Columbia Circuit; HELICOPTER ASSOCIATION INTERNATIONAL, INC., Petitioner v. FEDERAL AVIATION ADMINISTRATION, Respondent; No. 12-1335; Argued May 10, 2013; Decided July 12, 2013.

The Helicopter Association International, Inc. ("HAI") filed a petition with the District of Columbia opposing the mandated flight route between the City of New York and east Long Island. The original route generally followed the north shore of Long Island. However, the noise created by helicopters annoyed the residents along the shore. Consequently the FAA imposed a new flight track approximately one mile north of the shoreline. Those extra distances cause a financial hardship to the helicopter operators. They sued the FAA. Significantly the ground level measured noise was less than DNL 45 dB.

The Point: the FAA and the United States Court of Appeals affirmed that:

> "Under the plain text of [49 CFR] § 40103, the FAA **has authority** to "prescribe air traffic regulations ... [to] protect[ ] individuals and property on the ground." 49 U.S.C. § 40103(b)(2). This is exactly what the FAA did here. Responding to the noise complaints of Long Island residents, the FAA prescribed new air traffic regulations **173 *434 **with the purpose of protecting these residents' use and enjoyment of their property. Noise, when it reaches certain levels, has long been considered an actionable nuisance because of its impediment to the use and enjoyment of property."** *(Emphasis Added.)*
>
> **Additional Selected Paragraphs:**
>
> **"The FAA found that the sound levels, which were below DNL 45 dB, were "below levels at which homes are significantly impacted."** Final Rule, 77 Fed.Reg. at 39,916." *(Emphasis Added.)*
>
> "Here, based on its evaluation of the complaints and the results of the Volpe study, the **FAA concluded that noise levels below DNL 45 dB were adversely impacting the north shore's residential population to a degree that further control was warranted,** at least on a provisional basis." *(Emphasis Added.)*
>
> "The FAA found that the **cost increase per flight was minimal and concluded it was likely to be passed on to customers.** See Final Rule, 77

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Response to Comment 496

13. Within the U.S Court of Appeals decision, it is stated that: 49 U.S Code "§ 40103 when read as a whole nor the plain text of § 40103(b)(2) requires that air safety be the primary goal of all FAA regulations."

The decision goes on to state that the "Federal Aviation Act requires a delicate balance between safety and efficiency and the protection of persons on the ground. …. So long as the FAA balances safety concerns appropriately, its rulemaking decisions will not conflict with other statutory safety requirements."

The purpose of the North Shore Route was stated as "to protect and enhance public welfare by maximizing utilization of the existing route flown by helicopter traffic one mile off the north shore of Long Island and thereby reducing helicopter overflights and attendant noise disturbance over nearby communities." While the court decided in the case of the North Shore Helicopter Route, that the FAA was balancing safety and efficiency by extending noise relief past the levels of significance, this balance is not present in the Proposed Action. The purpose and need of the Proposed Action is to provide improvements in both safety and efficiency of the NAS. There is no balance in this case for the FAA to additionally provide controls to reduce noise below level of significance which may decrease the safety and efficiency of the NAS.

[2]722 f.3d 430; United State Court of Appeals, District of Columbia Circuit; HELICOPTER ASSOCIATION INTERNATIONAL., INC, Petrioner v. FEDERAL AVIATION ADMINISTRATION Respondent; No. 12-1335; Argued May 102013; Decided July 12 2013.

[3]77 Federal Register 39911, The New York North Shore Helicopter Route, A Rule by the Federal Aviation Administration on 07/06/2012,

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Fed.Reg. at 39,919. Given that the high cost of helicopter flights to eastern Long Island suggests paying customers place a significant premium on their time, the FAA reasoned that paying customers would not choose far slower modes of transportation because of relatively small price increases." (*Emphasis Added.*)

SAFETY

The Analysis states: "This allowed these slower moving turboprop aircraft to quickly and **safely** move out of the way of the faster moving jet aircraft when SEA is in North Flow." (Analysis, paragraph one)

If you admit safety is composed of risk and mitigation, then the following corollaries appear logical. Flying means taking risks. Safety means mitigation. An engine failure in visual conditions has less risk than in the weather. An engine failure during departure has greater risk than during cruise. An engine failure close to the ground has greater risk than at altitude. An engine failure in a 30° climbing banked turn has greater risk than with wing level climb. And training minimizes risk.

Unless provided with ~~proprietary~~ information from the Airline, we must assume that the turn to 250° can begin as low as 400 feet above the runway. Depending on the rate of turn, the aircraft can be in a 30° bank below 500 feet and experience a failure of the left inboard engine Unless proven to the contrary, Horizon Airlines' simulator flight training conducts engine failures wings level. If so, we may conclude that we are asking the flight crews to react to conditions they have not been trained for. This may be considered increased risk. We would expect that before accepting additional risk, check airman qualified in the Q400 would be consulted and flight crew performance would be evaluated in the simulator. For additional discussions and FAA opinions see Hotline Report S20161223005.

Given the limited time to comment, it was impossible to obtain expert testimony. However there are several retired Boeing aeronautical engineers who would be willing to explain the aerodynamic involved and proffer their assessment of the risks involved. We would also have appreciated the time to consult with Bombardier flight control engineers.

Engine failure aside, turning to heading 250° while departing the center runway (34C) may create a conflict with missed approach or breakout traffic from landing runway, 34L or 34R.
Letter of Agreement, July 26, 2016 states:

"Section 5, c "Arrivals" (5)(e); North flow aircraft must be assigned a heading of 340° or vectored to remain in the tower's 3,000' airspace, then positioned to exit the Three Tree Breakout Area, and assigned a heading of 290° through 310°. Aircraft at or north of the Runway 34R threshold must be assigned

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heading 340° or turned to exit the Three Tree Breakout Area, and assigned a heading of 290°."

This means the center runway departing Q400 aircraft will be in a left climbing turn to heading 250° crossing the left runway 34L while an aircraft executing a missed approach from runway 34L will be climbing to heading 290° to 310° toward the Three Tree Breakout Area at 3000 feet. This is approximately the same altitude and the same location as the Q400. That is the new procedure has a created a situation whereby a collision is possible. This may appear to be statically remote. However, a member of the Quiet Skies Coalition, a former airline captain, witnessed a Q400 departure to heading 250° followed by a turbojet executing a missed approach, essentially crossing paths transiting the same area within 30 seconds of each other.

Had the Q400 initially climbed on a heading of 320° and the missed approach aircraft been assigned a heading of 290° the conflict would have been avoided.

ATC cannot restrict the flight crew's decision, at any time, to execute a missed approach or go around. Any number of factors can initiate a go around, in particular an un-stabilized approach, mechanical malfunction (creates a major flight crew distraction) or a traffic conflict with an aircraft on the runway. Advisory Circular (AC) 91-79A discusses the "Stabilized on Profile" concept (paragraph 3b.) and states:

> **"NOTE: An approach that requires abnormal bracketing does not meet the stabilized approach concept, and a go-around should be initiated."**

The probability of an un-stabilized approach occurring increases with adverse weather conditions such as instrument meteorological conditions, wind shear and delayed speed reduction approaching the runway. Please reference illustration on page 12.

REASONABLE ALTERNATIVES

The National Environmental Protection Act states:

> **"Sec. 102 [42 USC § 4332].** The Congress authorizes and directs that, to the fullest extent possible: (1) the policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policies set forth in this Act, and (2) all agencies of the Federal Government shall –
>
> (E) study, develop, and **describe appropriate alternatives** to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources;" (*Emphasis Added.*)

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This is the "linchpin" of the Environmental Review. A review of alternative need not consider every possibility. The no action provides the baseline and the alternatives are compared to that standard. Presumably there would be criteria (environmental, economic, operational) established from which to judge the alternatives.

In violation of its legal duties, the FAA Analysis does not "describe appropriate alternatives." It also does not describe which Orders govern departure procedures. It further does not state whether departure would occur on any particular runway. And it does not indicate if they would be considered Radar Departures.

Based on the guidance provided in FAA Order JO 7110.65 Section 8, "Radar Departures" and this author's experience, the departures are normally planned for the middle runway 34C, the center runway. They would be radar departures.

> **"5-8-3. SUCCESSIVE OR SIMULTANEOUS DEPARTURES**
> Separate aircraft departing from the same airport/ heliport or adjacent airports/heliports in accordance with the following minima provided radar identification with the aircraft will be established within 1 mile of the takeoff runway end/helipad and courses will diverge by 15 degrees or more.
> **a. Between aircraft departing the same runway/** helipad or parallel runways/helicopter takeoff courses separated by less than 2,500 feet– *1 mile* if courses **diverge by 15 degrees or more immediately after departure** or 10 degrees or more when both aircraft are departing the same runway and both are flying an RNAV SID. (See FIG 5-8-1, FIG 5-8-2, and FIG 5-8-3.)" *(Emphasis Added.)*

Unless we miss read the above guidance, an immediate turn after takeoff 20° to the left (heading 320°) would provide adequate lateral separation. This would immediately place the Q400 out of the departure path of the following turbojet departures (B737, A320, etc.) A similar procedure is used currently at SEATAC IAP departing to "P gates" to the east. In that case the turn is to heading 020°: "Assign the following automatic turns to departing IFR Groups B, C, and D aircraft:
(b) North Flow: 1) **P Gate filed 8,000 feet and below, a heading of 020°." (***LOA, July 26, 2016, §5,d, (9), (b), 1).)* **What works to the east surly can work to the west.** Note: various other minor heading changes greater than 20° could also work. *(Emphasis added.)*

Note in the example flight plan graphics contained in the Analysis (Figures 1 & 2) the only two departure paths depict flight departing on runway heading (Figure 1) until one or three miles north of the field or those turning to heading 250° immediately after takeoff (Figure 2).

A shallow immediate turn to 320° would create less of a risk avoiding a possible traffic conflict, contain the noise footprint to within the existing DNL 65 dB corridor, and permit operations in the historical areas accustomed to Q400 departures. The

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15. Based on all south bound turborpops departing SEA in north flow throughout 2016, 80% depart 34R, and 20% depart 34C.

16. Southbound turboprops in north-flow need to be placed on a heading with at least a 30° separation from the missed approach corridor (currently 290°-310°) to comply with FAA Order 7110.65W Section 5-8-5. This would place them at least at a heading of 340°. Given the proximity to the jet departures from SEA, this combination of headings would negate the efficiency gains intended to be captured by turning the southbound turboprops out of the way of the jet departures. For this reason, the FAA has determined this combination of headings does not meet the Purpose and Need to enhance NAS safety and efficiency at SEA during north-flow operations.

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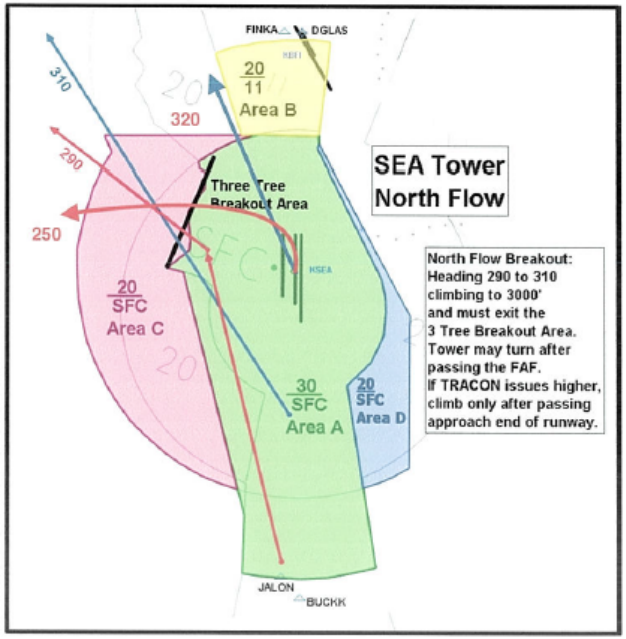
aircraft would gain altitude initially within the noise corridor (Part 150 noise abatement area) thus minimizing environmental impact to residents. The departure rate would not be hindered and the cost to an exceedingly profitable Air Group would be insignificant.

Most importantly, any possible traffic conflict would be designed out of the procedure. There would be no departure delays, no traffic conflict, and minimum environmental impact. The failure to evaluate these alternatives exposes the FAA's Analysis to be an arbitrary attempt to revive the 250 heading without following NEPA's edicts.

SOURCE: LOA, 26 July 2016
Seattle Airport Traffic Control Tower and Seattle Terminal Radar Approach Control
ATTACHMENT 5 (b) – BREAKOUT AREAS
Modified to show 250° & 320° Departure Tracks



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ENVIORNMENTAL IMPACT

Assuming alternative flight paths were considered, the public, given the short comment period, and relative lack of resources cannot hope to technically measure the noise levels on the ground to determine which flight path among the many possible alternatives would produce the minimum dB level. This information would be valuable. If a turn of 20° would clear the turbojet departure paths, the cost being insignificant to the Q400 operator, all paths would be below the minimum DNL dB rating, then the only factor left to consider would be the impact on the residents on the ground. Obviously the flight path with the least impact should be selected. This analysis would conform to the intent of NEPA that mandates Federal agencies "avoid or minimize adverse effects of proposed actions, and restore and enhance environmental quality to the extent practicable."

NOISE:

Currently the effects of noise have begun to receive analysis by various agencies. The short time permitted to respond prevented a detailed collection of pertinent documents and references, data the FAA should have addressed but omitted. However the following study (selected paragraphs added below) examines the effect of noise on people living near airports. The study documents increased hypertension, a cause of strokes and heart attacks. The point is that maintaining existing flight paths have allowed residents to select locations that minimize the effects of noise to their person. By arbitrarily changing flight paths, enormous damage may be caused.

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2265027/

Hypertension and Exposure to Noise Near Airports: the HYENA Study
2008 Mar; 116(3): 329–333.

"**Background**
An increasing number of people are exposed to aircraft and road traffic noise. Hypertension is an important risk factor for cardiovascular disease, and even a small contribution in risk from environmental factors may have a major impact on public health.
Objectives
The HYENA (Hypertension and Exposure to Noise near Airports) study aimed to assess the relations between noise from aircraft or road traffic near airports and the risk of hypertension.
METHODS
We measured blood pressure and collected data on health, socioeconomic, and lifestyle factors, including diet and physical activity, via questionnaire at home visits for 4,861 persons 45–70 years of age, who had lived at least 5 years near any of six major European airports. We assessed noise exposure using detailed models with a resolution of 1 dB (5 dB for United Kingdom

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road traffic noise), and a spatial resolution of 250 × 250 m for aircraft and 10 × 10 m for road traffic noise.

Results

We found significant exposure–response relationships between night-time aircraft as well as average daily road traffic noise exposure and risk of hypertension after adjustment for major confounders. For night-time aircraft noise, a 10-dB increase in exposure was associated with an odds ratio (OR) of 1.14 [95% confidence interval (CI), 1.01–1.29]. The exposure–response relationships were similar for road traffic noise and stronger for men with an OR of 1.54 (95% CI, 0.99–2.40) in the highest exposure category (> 65 dB; $p_{trend} = 0.008$).

Conclusions

Our results indicate excess risks of hypertension related to long-term noise exposure, primarily for night-time aircraft noise and daily average road traffic noise."

AIR QUALITY/CLIMATE:

The procedure, should it be implemented, will add throughput capacity at Sea-Tac Airport. The intensity of use of the turn may vary over time increasing the emissions of toxics, criteria pollutants, particulate and other air pollution including climate change emissions in the airshed. This is primarily due to moving the slower aircraft from the flight path more quickly, allowing more large jet operations to take off and land.

The City of Burien is a very densely populated, heavily polluted area as evidenced by past studies (ESL 1973, Radian EPA Air Toxics 1986, DOE 1991, MFG 1993, FSEIS, SEIS 3rd Runway 1996, EPA NAMS/TAMS 2001 Air toxics Grant, 1998-2001 SDPH Zip Code Survey, 2001 SBOH Environmental Justice report, 2007 DOE State Greenhouse Gas Emission Inventory, 2015 Dr. Larson ultrafine particulate and health asthma screening. Other supplemental reports from other parts of the country confirm that airports are a significant contributor to air quality degradation, risk and health impacts primarily affecting those who live and work in the area. (See recent NJIT Air Toxics report included in my original comments).

Risks to health impacts and the environment will continue to grow as the airport increases operations. More polluters equal more pollution. The risks to the local community have already been acknowledged in the FAA EJ analysis

The City of Burien and its residents live, work and recreate next to the single largest facility producer of greenhouse gas emissions in the county. This turn will allow for an increase in emissions over time. The airport is presently growing by 10% per year, having increased their greenhouse gas emission inventory dramatically over the past several years where 30% overall growth has pushed the inventory from 4.2 million metric tons per year of CO2 in 2007 to 5.4 million metric tons in 2015 or equal to 22% of the county total to 25% of the county total respectively. This does

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19. Response 2. It is of note that the Environmental Protection Agency (EPA) (see Comment 333) did not disclose any inadequacies with the FAA's air quality analysis as part of its review under Section 306 of the Clean Air Act.

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not include the 1.5 to 2 thousand annual tons per year of NOx, methane and black carbon, all contributors to climate impacts. By 2034, planned growth could easily push this inventory to 50% of the county total and near 10 million metric tons per year if the trend continues. Even though all emissions are not produced within the airshed, there are no current methods for the total impact of the entire flight to be captured and CO2 is a global issue, not just a local concern.

FAA has failed to discuss the potential of the turn to increase overall operations/capacity/throughput, thereby increasing emissions in the airshed.

The airshed will be further damaged and residents' health will suffer. Overall air quality is already bad. Overall emissions are already too high. Climate emissions have crossed the limit of tolerance and will continue to grow rapidly.

FAA has an obligation under the CAA to assure their programs and projects will not worsen overall air quality. This program will worsen air quality. Even if it could be proven the Q400 does not have a large air quality impact, which we don't know because there are no current AQ analysis for the airport that includes this aircraft, accommodating more throughput at the airport within blocks of Burien residential homes will.

Since no current scientific, modeling or monitoring data has been provided to justify the assertions that there will be no pending danger from potential AQ violations, exceedances. It is therefore impossible for FAA to claim no impacts.

FAA has failed to disclose they have little or no information to assert no further AQ impacts or that the airshed is in compliance with the NAAQS, CAA, Conformity and poses no risk.

Pending studies on ultrafine particulate and cumulative noise and emissions studies are some of the newest discoveries to date. A recent study found that cumulative noise (roadway) and emissions from the surface transportation sources when combined posed a greater health risk. http://www.ctvnews.ca/health/noise-pollution-and-air-pollution-both-have-negative-effects-on-heart-health-study-1.3442567#

FAA failed to disclose the lack of information in making an informed decision.

We believe this project violates the intent of the law, jeopardizes the health and welfare of citizens, and threatens to undo all climate goals for the county.

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

The Analysis states the following:

> "Figures 5 and 6 shows the areas in which Environmental Justice (EJ) may be a concern within the Study Area. This data was pulled using the U.S Consensus (census) 2015 data, through the Environmental Justice tool in AEDT. 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 Alternatives are less than 45 dBA DNL. Furthermore, there is no change to air quality**. Therefore, the FAA has preliminarily determined that there are no high and disproportionate impacts to environmental justice communities." (*Emphasis Added.*)

The FAA is aware of the EJ community. We believe there is nothing more arbitrary and capricious than ordering all the damage and disruption than to route low level departures over people the FAA already knows are living in extreme poverty. EO 12898 was written for this very purpose, to keep powerful agencies from abusing the disproportionately disadvantaged.

Introducing this new procedure requires additional explanation from the FAA. For example, what is the connection between noise levels less than 45bBA DNL and air quality as the Analysis asserts? How can one say "there is no change to air quality" without scientific measurements?

The following is quoted from the FAA's 1050.1 Desk Reference:

> **"1.3. Environmental Consequences**
> The FAA has a responsibility under NEPA to include in its Environmental Assessment's (EA's), Environmental Impact Statements (EIS's), and, when appropriate, Categorical Exclusion's (CATEXs), sufficient analysis to disclose the extent of a project's impact on the attainment and maintenance of the NAAQS and any applicable state air quality standards. Thus, a project's impact on air quality is assessed by evaluating whether it would cause a new violation of a NAAQS or contribute to a new violation in a manner that would increase the frequency or severity of the new violation."

To state unequivocally that noise levels less than 45bBA DNL won't produce a "significant noise impacts and won't produce a "change to air quality," is superficial and devoid of analytic support. It is the peak noise level and emitted pollutants that ruin the environment. The Analysis rests on a superficial, conclusory statement that defies practical experience and common sense.

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REFERENCE DOCUMENTS

No reference documents were provided. Although not required, an annex would provide the references that could permit the public to construct the alternative flight paths that the FAA chose not to produce. One would conclude obfuscation was the goal; and it succeeded.

PUBLIC NOTIFICATION

The Analysis was not posted in Federal Register, the EPA Seattle office was unaware of posting. Residents living in Environmental Justice areas were not informed.

AVIGATION

The FAA does not have avigation rights to increase flights over Burien. Residents of Burien have begun filing No Avigation Easement letters with the Port of Seattle and the FAA, Northwest Mountain Regional Headquarters.

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CAPRICIOUS & ARBITRARY

Within this Analysis, the FAA has demonstrated their fundamental misunderstanding of the NEPA processes, their failure to comply with published guidance, their fixation with the Part 150 noise contours, and their ability to dismiss adverse effects on Burien which easily could have been ameliorated. To a former Part 121 airline captain, their fundamental disregard for safety and proclivity to expose passengers and crews to increased risk by implementing a 90 degree turn immediately after takeoff. Neither the Environmental Review nor the Environmental Assessment process was accomplished. With so much omitted, with so much not considered, with so much not addressed, there is no apparent purpose to the Analysis other than to serve as a way to ratify the predetermined decision (enacted July 26, 2016) to institute a new procedure over Burien.

If one was to accept the FAA's noise measurement criteria, and for the record we do not, both the Environmental Review and the Environmental Assessment processes require proposing and evaluating alternative departure procedures. There has been no effort to consider alternative flight paths in this Analysis; none were included. Most importantly, potential traffic conflicts were not addressed.

Nor was the turn to 250° justified. First, the turn has not been justified operationally. There is no mention of why that specific heading was selected. For the FAA, it appears that any extreme turn could have sufficed. For southbound flights, why not continue the turn to 140 degrees or something else? Our proposed turn to 320° would minimize risk, track close to Part 150 contours, and would minimize the

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21. Avigation Easements are handled by the local Airport

22. Public Notification – need to respond to accuastion about Federal Register. Not required..

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creation of new environmental impacts. Second, the turn to 250° has not been justified economically. We could not find any discussion of improvements secured with the immediate turn to 250°. There is an unsubstantiated assertion that increasing traffic requires this turn. In fact the turn has not been justified in terms of departure rates with a turn to 250° (new procedure), with no turn maintaining runway heading (no action), or with a turn to 320° (realistic alternative).

With regard to the noise analysis, the Analysis' impact of noise was computer generated. There are no references to the baseline source of data used in the computer model. If that source was AC 36-6H, then the data is incorrect since the Alaska Air Group operates the aircraft differently. The reviewer cannot assume the data is accurate. There has been neither discussion of nor attempt to "avoid or minimize adverse effects of proposed actions, and restore and enhance environmental quality to the extent practicable." 22

Finally we would like to recall the fact that of the same runway complex, 34L/C/R, when aircraft depart to routes to the east, the aircraft have only to turn 40° degrees to the right, not 90°. This is immediate proof that demonstrates a turn after takeoff can be much less than 90°. Therefore without justification, the new procedure must be **arbitrary and capricious**.

In short it appears the decision came first and the analysis second. We request the proposed new procedures, whether published in a LOA or removed from the LOA, whether verbally directed by a duty manager or mutually adopted by two independent controller as a technique used repeatedly, or whether directed by email or memorandum, be redesigned with accommodations for safety, for the environment, and for NEPA compliance that includes supporting comprehensive justification.

Walter Bala edited this assessment in collaboration with and support of members of the Quiet Skies Coalition, the City of Burien and Analytical Environmental Services, Sacramento, CA.
Email: info@quietskiescoalition.net

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22. We have included additional information into the Catex regarding the noise analysis. The noise analysis was based upon the actual flight track data collected within the specified periods of time. This flight track data includes aircraft type, as well as specifiying altitudes, latitudes and longitudes along the flight track. See the Response to Comment 501, part 1 for more details on the noise analysi.s

AC 36-3H is not used as source data for calculating flight track noise within AEDT. Rather, AEDT utilizes a fleet database, containing acoustic data based upon power settings and distance (NPS data), augmented by a database of spectral characteristics as well as additional aircraft-specific data to support several noise adjustments. The NPD data present the aircraft source noise level for a given operational mode and power setting at a range of slant distances from the aircraft to account for acoustic propagation through a standard atmosphere. For fixed wing aircraft, each NPD is associated with an engine power setting. NPDs at different power settings represent the different types of noise generated by those power settings.

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Debi Wagner

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June 13, 2017

THE DOCUMENT

Federal Aviation Administration "FAA" has issued a "preliminary assessment"' "summary document" "document" for the action and no action alternatives for a west turn "turn" of turboprop aircraft from Sea-Tac Airport over the city of Burien, WA.

I am not aware FAA has provided any statement regarding full version documents therefore I reserve the right to comment on other documents besides the summary document should they be made public at a later time.

It is unclear to me what this document represents. I do not see anything in EPA's discussions of NEPA compliance on an "environmental analysis" only Environmental Assessment or Environmental Impact Statement.

Mr. David Soumi, FAA's current regional administrator recently told the Burien Interim City Manager that this document may or may not represent the complete analysis, may or may not be the final document, depending on comments. It is the duty of the agency to disclose the impacts, thoroughly evaluate those impacts and provide mitigation plans if necessary and provide reasonable alternatives to the proposed action. It is also the duty of the FAA to provide reasonable comment periods, proper notification and help the community understand the action, its effects and consequences.

Instead we have a misnamed, preliminary summary without proper notice and unusually short comment period of 15 days without knowing if this is the real document, complete or only document.

Besides implementing the new procedure without properly following their own guidance, FAA now publishes a strange document without following any rules of doing so. It appears to me to be another abuse of public trust and any confidence we might have in the agency's ability to deal clearly and fairly with the public is greatly diminished.

COOPERATING AGENCY

The Port of Seattle is clearly involved in the decision making because the two agencies are involved in the same operation of the same transportation system. Even though the roles are slightly different, what the Port does or draws for carriers has an effect on how FAA manages those carriers in the airspace and how FAA is managing or needing to change the management of those carriers has a direct effect on the Port's plans and activities.

40 CFR Part §1501.6 (1) Request the participation of each cooperating agency in the NEPA process at the earliest possible time.

The Port is undertaking a Sustainable Airport Master Planning process "SAMP" and in the process of preparing an environmental impact statement. The FAA is obligated to use the information within that environmental analyses to help inform their decision making process and refer the public to those documents in accordance with § 1501.7.

NEPA also requires that actions which are closely enough related to other actions be analyzed together in the same document. That should include impacts of past, present and reasonably foreseeable future actions. It is apparent that past actions may be resulting in environmental health impacts.

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2. Response 8

3. Response 21

4. There are no significant or reportable noise increases (in dBA DNL) as a result of the implementation of the Proposed Action. Furthermore, the noise analysis indicates that outside of the immediate vicinity of the SEA, there would be no changes in noise exposure (measured in dBA DNL) as a result of the implementation of the Proposed Action.

The Proposed Action is intended to provide an additional tool by which ATC may safely accommodate more aircraft in the NAS – which minimizes ground delays, as is the FAA's congressional directive to best serve the flying public. This proposal is in response to an increase in operations at SEA and is not expected to increase operations at SEA. Therefore there would be no significant environmental impacts under NEPA, nor significant cumulative impact or indirect impacts or any other associated specials act, including the Clean Air Act.

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The EJ community areas identified in the document have 90 to 100 percentile risk, exposure and negative health outcomes for respiratory illnesses and include high percentile poverty and minority groups. There are no readily identifiable sources of this widespread community impact area. It appears it is more typical of local impacts rather than others like workplace impacts since they are concentrated together in residential use areas. Past actions of the agencies, both FAA and Port may have been a direct contributor to these outcomes. There is no way to know without a thorough EJ analysis, epidemiology, air quality measurements, noise monitoring, biological assessment, hospital admission records, etc. This has not been done for this community in the past and is not currently planned for the future. Baseline analyses relied on for this document are severely lacking in information, science, testing, evaluation and historical documentation. SAMP may or may not include this information but it would be helpful in evaluating past, present and reasonably foreseeable future actions and mitigation. 5

In my opinion, the basis for the need for an EIS have been made. The turn will have adverse environmental impacts that require evaluation together with the SAMP. Today's sporadic use may turn into a need for greater use in the future especially considering the current growth rates, presently 10% per year. 6

It is not only the responsibility of the agency to provide an analyses of the environmental impacts but to also evaluate where improvement, restoration and enhancement to the environment can be achieved. There is a need to identify the source of impact affecting the EJ community to aid decision making on what those improvements might be, especially in light of irreversible future consequences.

Because the reasonably foreseeable consequences of the turn along with the SAMP may have serious environmental and human health consequences, the FAA has a responsibility to list the amount of information that is available to make a determination on the source, rate, and outcome of impacts and what scientific methods might be needed to make a more thorough evaluation. A requirement to determine whether the consequences are unknown, known, foreseeable and can be mitigated are contained in 40 CFR § 1502.22. 4

There are several projects going on simultaneously at the airport which may have a direct effect on this project, future impacts, past actions and cumulative effects that should be analyzed together. For example, current gate construction by Delta will allow more large body aircraft to arrive and be managed on the airfield. This may have an effect on the types and frequency of arrivals and departure capabilities. The FAA and Port are co-lead cooperating agencies on the SAMP. Acknowledging these two agencies are frequently cooperating agencies is critical to a robust and transparent planning and building project analyses. This project should be included and analyzed together in the SAMP, current gate expansion project, etc.

The 509 extension will have impacts on noise and air emissions that are contained in the same airshed as the turn and SAMP. The 509 project is in the same geographical area and NEPA requires the agencies coordinate plans, projects, mitigation etc.

When the FAA initiated this new procedure, the Port claimed they were not notified and had no idea FAA had implemented the turn. The necessity for the turn however, was a direct result of the increased use of the airfield by carriers that had recently been invited by the Port to HUB at Sea-Tac and create new international destinations. Clearly, there is a lack of communication between these two agencies that are causing critical operational difficulties that precipitate closed door meetings at FAA scrambling 7

Response to Comment 671

5. Response 12

6. Response 17

7. The FAA is primarily tasked with the safe and efficiency management of the National Airspace. To that end, SEA ATCT and S46 started the conversation about how to better manage these south bound turboprops in north flow years ago through a FAA workgroup years prior to the July 26th 2016 LOA. Any many years, that workgroup finally came up with the 250 heading as the best heading to automatically place these north flow sound bound turboprops, which was then implemented in July 26th 2016 LOA. To state that the implementation of 250 heading was a scrambled quick fix is incorrect.

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to come up with new ways to accommodate these additional movements. Close cooperation and collaboration is necessary for each to understand operational limits and set guidelines that control growth that cannot be safely managed.

It makes no sense they would be closely collaborating on planning future SAMP gate construction to accommodate increased operations but not current operational capacity constraints. All of these are closely enough related to be considered together. The two agencies actions are closely enough related to be analyzing projects in the same document. Again, a clear indication that FAA is making arbitrary and capricious decisions without proper involvement and notification. The public may wonder at the safety issues that may be involved with this disconnected process more than the alleged safety need for the turn.

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PURPOSE AND NEED

FAA has not provided justification for the purpose and need for the turn besides safety. The safety requirements have not been explained. Airspace safety is very important to everyone and FAA is using the word safety to justify the need for this west turn but they have not provided any reasoning whatsoever for this assertion. And in fact, I assert this turn is less safe for many reasons and was not originally instituted with safety as the primary concern.

Efficiency was the primary need when KC Yanamura, Northwest Mountain Region FAA Administrator ordered the automatic turn over Burien in a meeting on July 26, 2016. Safety may have been discussed, but so far, the Quiet Skies Coalition "QSC" public information requests for documentation from the meeting discussion, or alternatives proposals provided at the meeting have not been fulfilled. Paramount in the discussion were two things:

1) The compressed corridor and how to provide relief which is an ***efficiency*** issue not a safety issue and the real problem may be trying to force too many arrivals into peak hour which is a ***demand*** issue, and
2) Finding the path of least resistance using Burien since it is less likely this EJ community can resist (KC Yanamura was reported saying to turn all the aircraft over Burien because they don't have the money or stamina to fight us).

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If Safety is the primary concern, they would not be using a much lower west turn maneuver over Burien than what is being used for an historical east turn over the city of SeaTac. One or the other must be more safe or less safe than the other. It is irrational to say that the west turn is for safety if east turns at 40 degrees and west turns at 90 degrees. West used to turn out in a scattered fanned pattern. Was this less safe? It is similar to the east turns at 40 degrees. Is 40 degrees less safe than 90? The argument doesn't have reasonable justification. Turns at low altitude are less safe for engine and plane, with much less room for correction since the ground is so close. It is common knowledge with the members of QSC who have decades of experience in aviation as Air Force and commercial pilots, that turns at 500 feet are less safe than turns at 3,000 feet which has been and is the standard operating procedure. Special training is required to prepare for emergencies for planes turning at 500 feet which has not been offered to Sea-Tac Q400 pilots. This need is not applicable to the east turns over SeaTac city since they are initiated at a higher altitude without the sharp bank.

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8. Response 11.

9. Response 7. The FAA views "efficiency" as how quickly aircraft can be moved out of a section of airspace. Due to the increase in operational demand at SEA, having greater efficiency, reduces the need for ground delays, which in turn means that there is less taxi way congestion. Furthermore the more predictable an aircraft routing, the less possibility of a separation issue with another aircraft. In this way, safety and efficiency are closely related.

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Another argument for safety could be that this is the exact relief needed to keep planes separated. Separation distances are governed by FAA Advisory Circular. I must assume this is the safety issue they are talking about because the turn at 90 degrees itself is not more safe. But if this is the true concern, management of numbers of planes arriving and departing must be a reasonable alternative. If there are too many planes compressing the corridor, less planes may be the best alternative. And it may not be an overall operational condition, it may only affect **peak hour demand**. Then it may be a demand management issue where peak demand management is another reasonable alternative. In a recent meeting with the Port Noise Management, a representative said that if planes cannot land and receive a gate in a reasonable amount of time, they may decide to alter **airline scheduling**. Apparently it is possible to alter scheduling so it should be considered as another reasonable alternative.

REASONABLE ALTERNATIVES TO THE PROPOSED ACTION

Since 1989 the Puget Sound Region has acknowledged the need for greater aviation capacity. To this end Puget Sound Air Transportation Commission with appointees by the State of Washington was formed and provided a report that included a draft and final EIS in 1991. The recommendation to meet the today and future regional air transportation needs were threefold:

1) Add a third dependent runway at Sea-Tac
2) Open Paine Field for commercial service
3) Build an airport to the south in Pierce or Thurston counties.

Twenty five years later, this still looks like an ideal plan and Paine is now being pursued. Despite these recommendations however, the only option that went forward was the most expensive short-term shoehorned 3.3 billion dollar single dependent runway at Sea-Tac. Nearly one billion of the cost was devoted to dirt, the hill, embankment and pavement. This single runway was the most expensive in US history. This major investment expected to serve the regional needs through 2030 or longer bought only 9 years of additional capacity. The problem with further expansion is that it provides ever less in years of life and even more in cost. Ten billion for the current SAMP plan could build a new airport. We are at the same crossroads we have been at three times, once in 1970 with the second runway, again in 2008 with the third and again in 2016 with the SAMP. Maybe we've learned to not keep investing in a plan that provides such little return.

At the same time the third runway was being built over the course of 11 years on a mere 2500 acres, Denver International was built in half the time for 4.8 billion with 6 runways, room for 12 on 33,000 acres that included an adequate buffer and room to grow. Today DIA handles 525,000 operations, provides 64 million in economic benefit and thoroughly dispels the myth that a new airport built away from the dense population center will be unable to attract carriers, business or be successful. The Port continues to remind people of the tremendous economic benefit it brings to the region including prosperity, jobs, tourism, goods and services worth billions.

In 2005 the Legislature passed Long-term Air Transportation System Study, "LATS" and formed a working group, sought input and by 2009 issued their final report. The interesting findings of the group were that there are dozens of airports throughout the region and over 100 statewide that could be expanded. Cost of expansion at the time was estimated between 80 and 160 million each. The region might pursue a **hub and spoke system** with a new airport similar to DIA built away from population and use commuter planes for a more destination orientation at many of the state's expanded regional

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airports for a much lower cost than expanding Sea-Tac especially in light of the small return in meeting future demand the SAMP provides. Although completing NextGen may lend more hourly operations and save some money in fuel, the cost to the communities health, welfare, quality of life and risk of property value and use losses across the country is enormous. Externalizing these costs provides for a false sense of cost benefit.

Another solution could be to move JBLM to Moses Lake and open up the airport to commercial service. There are also joint use agreements for movement of cargo and/or passenger traffic through military airports in other places in the country so it is possible. **Shared use of JBLM** might fulfill the need to provide service to Pierce and Kitsap counties utilizing Paine, Sea-Tac and Boeing field for a combination of passenger/cargo operations as a **multi-airport system**.

Utilizing the existing regional and statewide assets for the increased growth in operations is a more reasonable solution than concentrating all flights into constrained Sea-Tac which will demand new and increased use of flight patterns. These alternative solution possibilities have been recently submitted during the current State of Washington Aviation System Plan "WASP" public comment process.

Reasonable alternatives that should be considered § 1050 1E 6a

1) The 5 to seven other proposals considered by FAA In July 2016 that have not been disclosed
2) Historical scatter pattern
3) Turn proposals similar to what is used for "east" turn (40 degrees)
4) Turn proposals that may be used that include 20, 30, 40 degree turns alternately
5) Demand management
6) Airline scheduling
7) Hub and spoke system to handle statewide demand
8) Multi-airport system to handle regional demand
9) JBLM joint uses
10) JBLM relocation
11) New airport in Pierce or Kitsap counties
12) Continued use of Paine Field to handle regional demand

There are potentially sixteen to eighteen other potential reasonable alternatives listed above besides "no action" that have been used elsewhere, considered, researched, carried EIS to a final, but not mentioned in the current document.

Putting away the justification, purpose and need for safety which has not been clarified, explained, documented or proven, documented with reasonable guidance, FAA AC's, history or any facts whatsoever, we can move on to alternatives. I need to know what alternatives to the proposed action were available. The FAA has only offered a "with-project" and "do-nothing" alternative for analysis. The historical scatter pattern should be a consideration because that provided safe and efficient operation at Sea-Tac for decades.

My understanding of the meeting where KC Yanamura said to turn planes west over Burien is that there were five to seven other proposals being considered. Why has the QSC coalition information request on these proposals been delayed? We are aware they exist so what is the FAA trying to hide? These are relevant to the current assessment and **NEPA requires consideration of reasonable alternatives**.

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11. Thank you for your suggested alternatives.

- The airspace north and west of SEA is restricted due to separation requirements with the missed approach airspace at the 290º heading and BFI to the north, from which aircraft must maintain a 3 Nautical Mile (NM) separation. The only other possible heading which may work with these restrictions is the 270º heading. In accordance with FAA Order 7110.65W Section 5-8-5, a minimum of 30° separation is required between a departure and a missed approach heading. Having a departure heading of 270º combined with the current missed approach corridor does not provide the minimum 30° divergence.
- The historical pattern is considered in Section 4 as the "No Action Alternative"
- It is assumed that "turn proposal similar to what is used or "east" turn (40 degrees)" refers to a 320º heading for these south bound turboprops in North Flow. Southbound turboprops in north-flow need to be placed on a heading with at least a 30° separation from the missed approach corridor to comply with FAA Order 7110.65W Section 5-8-5. This would place them at least at a heading of 340° . Given the proximity to the jet departures from SEA, this combination of headings would negate the efficiency gains intended to be captured by turning the southbound turboprops out of the way of the jet departures. For this reason, the FAA has determined this combination of southbound turboprop departure heading and missed approach corridor did not meet the Purpose and Need to enhance NAS safety and efficiency at SEA during north-flow operations.
- 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 these southbound turboprops in north-flow creates an unnecessary complexity which makes the job of ATC harder and creates risks. Given the elimination of other headings described in Section 4, there aren't many options to use for alternating headings. The only available headings left are 250° and 260°. It's not safe for ATC to not know what heading an aircraft will depart on. South-flow headings do not alternate; easterly headings do not alternate. Alternating headings is inconsistent, and not a procedure that is commonplace in ATC.

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Quiet Skies Coalition members have requested those working documents from the FAA since last October 2016 and have not received them. Either they were destroyed which cannot be justified since they are government documents that carry prohibition on destruction or FAA is in violation of the open public records act with unnecessary delay in releasing them. FAA have failed to provide any reasonable explanation as to why these documents have yet to be disclosed.

NO ACTION AND WITH PROJECT ALTERNATIVES

Long term community members living to the west of the turn are making the claim this procedure is new and not historical as the FAA claims. I have lived here for 20 years, moved here purposely to be protected from being overflown and moved away from Airport impacts twice in my life. I know what it is like to live in a flightpath as I first moved away from the flightpath in Des Moines in 1995 having lived there for 15 years. I moved due entirely to the unmitigated damaging environmental and human health effects of living in a flight-path.

I am keenly aware of the noise, vibration, soot, odors, respiratory illnesses, cancer, sleep disturbance, anxiety, depression, outdoor plant effects, fallout of waste, unburned fuel leaking from engines and fuel dumping from tanks, loss of salability/value of my home to name just a few. For the FAA to claim there is no impact and that this turn is historical is completely false and insulting to our intelligence. A resident living near me has been in this community under the path of the new west turns for 80 years. Her residency predates the construction of Sea-Tac Airport. She is directly affected by the new west turn and has no memory whatsoever of this procedure predating July 2016.

The FAA wants there to be no difference between the no-action and with-project alternatives because admitting a "new" impact requires an analysis between a no impact and a new impact and is harder to analyze and stay within NEPA, EJ, CAA rules. It is easier to avoid an analysis if there are no additional impacts. This is the reason for asserting the turn has always happened even though this is not the case. 12

This was the same problem with the third runway proposal. Somehow the same number of planes would come with an additional runway whether they built it or not. Never mind that runways are usually built like freeway lanes, to accommodate more cars. Apparently planes would be stuck in holding patterns or on the tarmac wandering aimlessly in circles looking for a runway or a gate so the new runway would allow more efficient operation of the same number of operations thereby reducing overall emissions. I didn't fall for this false narrative then and I'm not falling for it now. New flight paths have significant impacts that are difficult to justify within the purpose and need which are often only ultimately benefiting airline profits. 13

After FAA initiated the turn, north flow operations persisted during cold winter northerly winds for a period of three weeks. I experienced a debilitating sleep interruption, became sluggish, tired feeling, my work product suffered, and my neighbors also experienced similar deleterious effects. This is the first experience I have had of this in the 15 years living at this location.

The FAA and Port are cooperating agencies on actions that benefit their purposes and needs, and are the only source available to produce the maps to prove their claim these turns are historical. Decision makers must rely on the accuracy of those maps. I am not aware of available alternative sources for maps that are independent of the agency. Since the agency should be considered biased in the decision

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- FAA requires 15° divergence between aircraft, and airspace is protected based on procedures. Controllers rely on consistency of flight tracks to notice when things are off such as winds affecting flight paths, an aircraft has turned to the wrong heading due to a mistake or emergency situation, etc. Often small deviations from the norm is what alerts controllers to developing situations.
- 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, so it does not meet the Purpose and Need to enhance NAS safety and efficiency at SEA during north-flow operations.
- The FAA is developing National tools which would better enable ATC to predict when aircraft will arrive in their airspace. Having better prediction tools would enable ATC to better manage the demand in their airspace. Since "Demand Management" is being developed nationally, it is outside of the scope of this CATEX and is not considered within the Alternatives section.
- The FAA does not determine the number of operations at a given airport. That is a business decision made by airlines, with input from the airport. The FAA also does not control an airline's schedules. Rather the FAA is tasked with managing the aircraft in the National Airspace System(NAS). Similarly, the FAA does not have any discretion to reduce or increase overall operational levels in the NAS. Furthermore the FAA does not own airports which are typically owned by local municipalities. Therefore changing Airline schedules, implementing a hub and spoke system to handle statewide demand, multi-airport systems to handle regional demand, JBLM joint use, JBLM relocation and continued use of the Paine Field to handle regional demand are all outside of the FAA scope and were not included as part of the alternatives considered in the CATEX.

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making process due to their need to initiate this turn for efficiency, I am asking the agency to rewrite their assessment based on a no action that evaluates no turns with an action that includes turns. I am asking for the re-write based on the many letters citizens have written stating there is no history of these turns and other reasons below. New noise of new turns and new air quality impacts and cumulative past, present and reasonably foreseeable future effects and cumulative effects of noise and emissions combined devastating for a community. Nobody should argue about that fact. But the fact FAA and the Port are now engaged in providing information that makes the claim these turns are historical is again, another breach of the public trust and the agency trying to avoid admission of "new" and significant effects on both the human and natural environment. The law is to avoid impacts not disclosure of impacts. 14

Prior to the legal action by the city of Burien challenging the process initiating the turn, the Port provided a set of maps that show no or very few lines heading west. It is impossible to know which of these few lines are general aviation, turboprops or missed approaches. Again, long-term community members in the impact area have no recollection of turboprop overflights over west Burien. 15

Below are pictures of one day operations *before* the action of the new west turn procedure and *after* July 2016 received by QSC before the legal action by the city of Burien and are representative of the experience of the community members who have voiced concerns and written letters since July 2016. The non-automatic turns that predate the automatic procedure initiated in July 2016 were fanned over a wide area.

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14. The FAA undertakes a noise analysis based upon flight track data. The noise exposure of the Proposed Action Alternative was based upon flight track 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. To evaluate the noise exposure of not turning any south bound turboprops goes against the flight track data. See figure 13 in Section 2.

15. As shown in Figure 13 in Section 2, west Burien have historically had turboprops turn over them.

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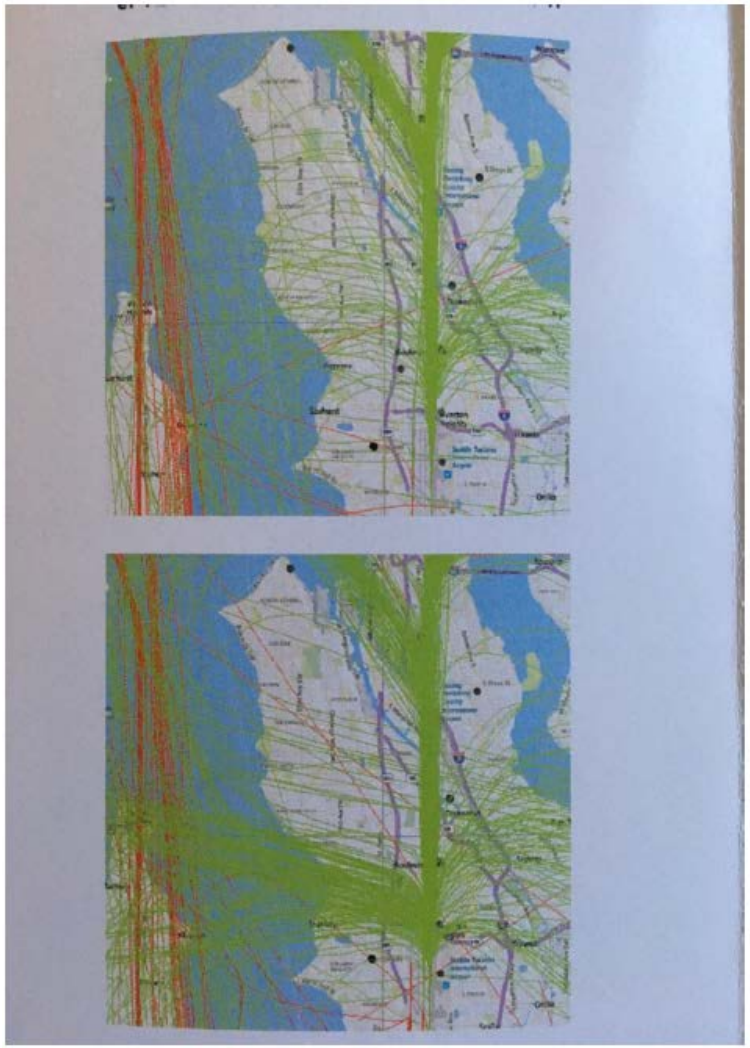

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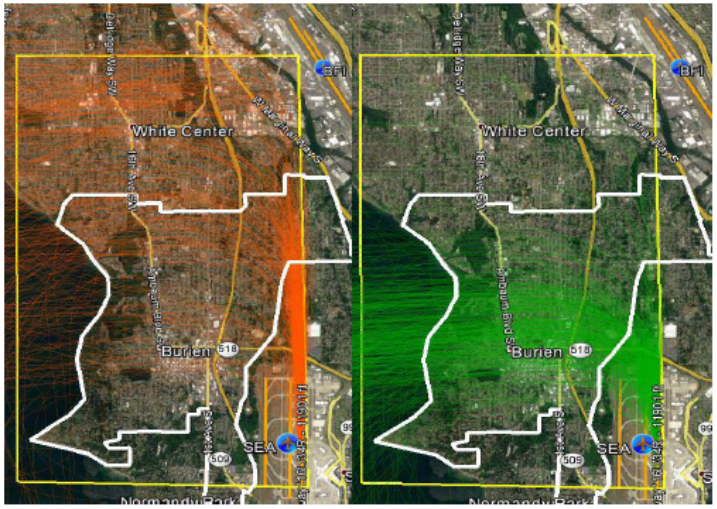
Pictures below on page 2 of 9 Figure 1 and 2 of the before and after of "random" 60 days of turboprop flights over west Burien provided in the FAA's summary may be including the three days in August each year when Blue Angels practice and perform. During that time all planes in north flow are turned directly west for a few hours per day to avoid airspace conflicts. This is an unusual event but historical. We do not know if these two comparisons are the same random days or what those days are.

16

Comparing pictures with two different colors of lines and backgrounds as Figure 1 and 2 presented (below from the summary) is not appropriate. The reddish brown lines placed over reddish brown terrain in Figure 1 (below left) that represent the before the automatic turn cannot be discerned. The picture where the bright green lines in the "after" picture over grey terrain (below right) can be easily seen. Why would the agency provide comparisons that cannot easily be compared unless desiring to confuse the reader? Again, we do not know what these flights are, whether during Seafair, turboprops, missed approaches, general aviation because no details have been provided for what days or operations these are. Additionally, the before picture disagrees with before pictures provided to QSC prior to the legal action by the city of Burien.

17



I believe a case has been made for reasonable doubt as to whether the FAA has provided proof of a ***historical*** west turn over Burien. If the history of the turn is not thoroughly established as FAA claims, then a comparison between a no-action and with project may be significant and warrant an EIS. If all reviewing parties wish to accept the basis of a historical use then there are still "additional" impacts

14

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16. As noted in the preliminary environmental analysis – the images of the flight tracks were only of westerly turned south bound turboprops in north flow.

The days were randomly picked between Aug 1st 2016 – Jan 2017. The same days were used to model the no Action alternative, from the previous year.

17. Thank you for pointing this out to us. It is hoped that Figure 13 is clearer.

	Dates	
	No Action	Proposed Action
1	8/2/2015	8/2/2016
2	8/3/2015	8/3/2016
3	8/6/2015	8/6/2016
4	8/11/2015	8/11/2016
5	8/12/2015	8/12/2016
6	8/14/2015	8/14/2016
7	8/18/2015	8/18/2016
8	8/24/2015	8/24/2016
9	8/26/2015	8/26/2016
10	8/27/2015	8/27/2016
11	8/28/2015	8/28/2016
12	8/30/2015	8/30/2016
13	8/31/2015	8/31/2016
14	9/18/2015	9/18/2016
15	9/24/2015	9/24/2016
16	9/26/2015	9/26/2016
17	9/29/2015	9/29/2016
18	10/1/2015	10/1/2016

	Dates	
	No Action	Proposed Action
19	10/7/2015	10/7/2016
20	10/11/2015	10/11/2016
21	10/14/2015	10/14/2016
22	10/16/2015	10/16/2016
23	10/24/2015	10/24/2016
24	10/27/2015	10/27/2016
25	10/29/2015	10/29/2016
26	10/30/2015	10/30/2016
27	10/31/2015	10/31/2016
28	11/2/2015	11/2/2016
29	11/4/2015	11/4/2016
30	11/7/2015	11/7/2016
31	11/8/2015	11/8/2016
32	11/11/2015	11/11/2016
33	11/12/2015	11/12/2016
34	11/18/2015	11/18/2016
35	11/19/2015	11/19/2016
36	11/28/2015	11/28/2016

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related to frequency of use, potential increased future use, random changes of pattern, additional aircraft types, etc. There is also a history of impacts that predate this turn, predate frequency of use and a future action by the Port of Seattle that will increase the intensity of impacts.

ENVIRONMENTAL JUSTICE

If historical turns are not proven, if purpose and need for safety is not justified, if comparison of no action to the action are dissimilar because of these considerations, then there is a significant impact to the human population both past, present and foreseeable future.

FAA has identified an EJ community within the area that will be most affected by the turn. This community has not received proper notification of the proposed action. Requirements for the type of communication methods needed to facilitate a complete understanding of the project and the impacts must be completed prior to agency approvals. This area meets and exceeds the requirements under Title VI. Just one of the many census tracts which will be affected by the turn has poverty income levels, speaks 26 languages, 20% have no access to healthcare and are predominately minority. In comparison to King County, there are double the average children per household. There are greater levels of concern expressed in EPA guidance for EJ communities for children. EPA MEMORANDUM dated 4/4/1996 states: 5

Section 309 EIS reviews…"should consider whether there is a possibility of disproportionate impact on children related to the proposed action." 18

FAA must consider that it is not just the duty to inform but to also educate people on how they can protect themselves, property, and children, provide adequate consideration, mitigation, and enhancement of the past damage where possible. It is incumbent upon the agency to openly disclose the significant impact aviation cumulative noise and emissions has on the human environment and take responsibility for any damage it may have and will cause to human health and the environment using the most up to date scientific methods available. 12 13

The State Department of Public Health has developed a Washington Tracking Network mapping device based on reported health outcomes for use to determine where significant risk, exposures and negative health outcomes are occurring. The map below shows clearly that health damage follows the flight path and stretches into the Kent, Auburn valley. The blue dot is the airport.

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	Dates	
	No Action	Proposed Action
37	12/1/2015	12/1/2016
38	12/2/2015	12/2/2016
39	12/3/2015	12/3/2016
40	12/5/2015	12/5/2016
41	12/7/2015	12/7/2016
42	12/14/2015	12/14/2016
43	12/15/2015	12/15/2016
44	12/17/2015	12/17/2016
45	12/18/2015	12/18/2016
46	12/24/2015	12/24/2016
47	12/26/2015	12/26/2016
48	12/30/2015	12/30/2016

	Dates	
	No Action	Proposed Action
49	1/1/2016	1/1/2017
50	1/6/2016	1/6/2017
51	1/9/2016	1/9/2017
52	1/12/2016	1/12/2017
53	1/14/2016	1/14/2017
54	1/18/2016	1/18/2017
55	1/19/2016	1/19/2017
56	1/20/2016	1/20/2017
57	1/22/2016	1/22/2017
58	1/23/2016	1/23/2017
59	1/24/2016	1/24/2017
60	1/30/2016	1/30/2017

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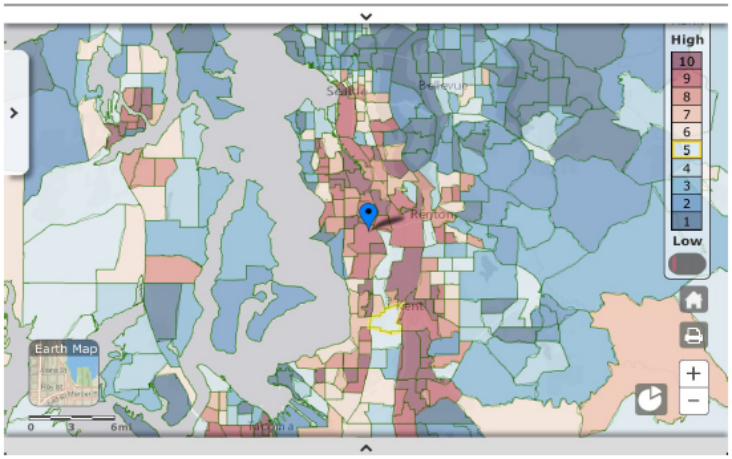

The State Board of Health writing in 2000 in a report on environmental justice writing on behalf of findings of the State Department of Public Health regarding negative health outcomes in the Sea-Tac Airport communities:

"EPA explains that "fair treatment means that no population, due to policy or economic disempowerment, is forced to bear a disproportionate burden of the negative human health or environmental impacts of pollution or other environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, and local and tribal programs and policies" (U.S. Environmental Protection Agency, 1998).

Of particular interest to the Committee is the specific claim that disproportionate exposures produce adverse health outcomes that are also borne disproportionately by these populations. It has been well documented in the State of Washington that low-income and minority populations have poorer health status than the overall population and have higher rates of a variety of diseases, including cancer and asthma. Many complex factors interact to produce health disparities among populations. Environmental and occupational exposures, access to medical care, nutrition, behavioral choices, and genetic variability, all contribute and are related. Where one lives and works is often less a matter of choice than the result of socioeconomic status. It is usually the case that people in the lower socioeconomic strata are more likely to live in

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the most hazardous environments and to work in the most hazardous occupations (Olden, 1998). *[page 7]*

Community Health Concerns around SeaTac Airport Community members living near the SeaTac Airport identified several concerns related to air pollution from operations at the airport (Washington State Department of Health et al., February and December 1999). These reports can be accessed through http://www.doh.wa.gov/EHSPHL/Epidemiology/NICE/HTML/nicepubs.htm. A March 2000 report prepared jointly by DOH, the Washington State Department of Ecology, the Puget Sound Clean Air Agency, Public Health—Seattle and King County and several other agencies and community representatives found that, in the SeaTac Airport area, there are statistically significantly higher rates of the following conditions:

- lung cancer cases within one mile of the airport compared to the rest of King County and to Washington State;
- oral and pharyngeal cancer cases within one mile of the airport compared to Washington State;
- deaths from lung cancer and chronic obstructive pulmonary disease in an area approximately three miles to the west and north and one mile to the east and south of the airport (defined by census tracts) compared to King County; and
- hospital admission for asthma and pneumonia/influenza in an area approximately three miles to the west, north and east and one half mile to the south of the airport (defined by zip codes) compared to King County.

The March 2000 report recommended that an air quality study be conducted around SeaTac Airport. This recommendation was, in part, forwarded because of environmental justice concerns. The report states, "fundamental to the concept of environmental equity is the value that one group of people not incur environmental exposures from commercial activities from which another group benefits. Those who use SeaTac Airport often derive great financial and other benefits from worldwide travel. The extent to which these benefits come at the expense of environmental degradation affecting the people who live around the airport is unknown, since a comprehensive air quality study has not been performed at SeaTac Airport to determine the impacts attributable to airplane emissions and airport-related traffic" (Washington State Department of Health et al., 2000, p. 8). *[pages 14, 15] (emphasis added)*

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Significant Impact of Aviation

Q400 turboprops are jets with the fan on the outside of the engine rather than inside and are powered by jet fuel. Jet fuel odors, residues, sooty fallout, unburned fuel droplets, aerosols, metals, toxics, criteria pollutants, are dropped from overhead aircraft and have a ground level impact below 3,000 feet

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19. Response 10

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altitude.[1]. Tens of thousands of people live below this flight path, there is no buy-out buffer and no insulation or past mitigation for this population.

FAA asserts this project has less or no impact compared to flight paths to the north and south of the airport they have in the past acknowledged ***have*** an impact. In fact, there is a buffer, insulation and programs worth 400 million that have been previously applied to mitigate this impact on residents.

This document does not discuss any mitigation plan because FAA does not acknowledge either:

1) There is an impact
2) There is any greater impact than what has been experienced in the past

They do however acknowledge increased frequency which should require a new FAR 150 program. Port plans to dramatically increase operations at Sea-Tac will necessitate an even greater degree of need for more turns. Past practice of the Port to injure people and their property first and then mitigate after damage has occurred is unacceptable.

There are no current studies available that I am aware of considering the effects of cumulative noise and emission impacts on human health. The document FAA has issued assumes either that living below aircraft operations has no effect on the environment or that the effects are so minor that increased use of a certain flight path will create no additional impacts. This contradicts reason and logic. Aircraft, like cars, trucks and busses, use fuel and create emissions. Their engines create noise. These should be considered together.

Ultrafine particulate emissions from aviation sources that have a unique small size and ground level impact from overhead sources has become a large concern. The small size of the particle once inhaled allows penetration through the membrane barrier, can travel into the bloodstream reaching the heart and brain. A study similar to one done near LAX that found an unusually large amount and rate of ultrafine in the flight paths has been planned for the area around Sea-Tac. The FAA should wait on approving any new flight paths until the research is completed. Port representatives have spoken in favor of the legislation proposal and are also interested in the results.

The FAA is aware of the EJ community. I believe there is nothing more arbitrary and capricious than ordering all the damage and disruption to go over people FAA already knew were living in extreme poverty and suffering with health problems. EO 12898 was written for this very purpose, to keep powerful agencies from abusing the disproportionately disadvantaged.

AIR QUALITY

The document assumes no further impact but the basis for no impact has not been established. It is possible the FAA has failed to model emissions of the operation of this plane properly. The noise data used in the model is based on operation of the Q400 that is not typical of the low flying full power turn needed for flying through Burien airspace. Emission profiles might be based on this wrong data input. However, there is no current inventory for this plane at Sea-Tac because it was not predicted to be used

[1] EDMS see 1994 FAA/POS Appendix D Air Pollutant Methodology page D-15,

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20. This is incorrect. The FAA is asserting that the difference between the noise and air quality exposures of the No action and the Proposed Action is below any applicable criteria.

21. There has been some assertions that the noise modelling software, AEDT utilizes the FAA Advisory Circular 36-3H, "Estimated Airplane Noise Levels in A-Weighted Decibels" for calculating flight track noise within AEDT. This is not the case. AEDT uses a fleet database, containing acoustic data based upon power settings and distance (NPS data), augmented by a database of spectral characteristics as well as additional aircraft-specific data to support several noise adjustments. The NPD data present the aircraft source noise level for a given operational mode and power setting at a range of slant distances from the aircraft to account for acoustic propagation through a standard atmosphere. For fixed wing aircraft, each NPD is associated with an engine power setting. NPDs at different power settings represent the different types of noise generated by those power settings.

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when the last thorough study of aviation emissions was done in 1996. There are similar aircraft types but no emission inventory that comes close to the numbers of Q400 operating today.

The future maximum numbers of turboprops predicted for peak hour air quality emission impact in 1996 for 2020 was 13.55. Currently the Port reported 52.83 per day for May 2016. Total operations are increasing by 10% per year. At this rate there would be 77.34 per hour by 2020 and the baseline of 25 year old data is nonexistent now, and used wrong predictions. We are currently experiencing four times the level predicted and it is five years early.

The FAA has no basis to determine there is little or no additional impact because they have not done air measurements or modeling of the local airshed to determine if it is at its limits for impacts. There are no close regional monitors that PSCAA operates and the closest state monitoring station is at Beacon Hill. So there are no historical data, current modeling or monitoring to assure anyone that the airshed can stand thousands additional polluters driving through the neighborhood. The analysis in 1996 is outdated and obsolete. The predictions for future compliance with all applicable air quality laws cannot be assured without a new evaluation. This is another reason the turn should be evaluated together with the SAMP which will include a new and revised inventory.

The certification of air quality compliance included a need for reevaluation in 2010 and a general conformity update. I am not aware this has occurred.

Air quality impacts around airports have been documented by independent experts in the past and I would like to provide a brief explanation of relevant topics an a link in case the reader would like to reference what might be major AQ problems around airports in need of further study:

"Lung illnesses more likely near Logan Airport"

A current study found asthma rates in children living close to the Boston Logan Airport to be four times greater than that for children living elsewhere.
http://www.mass.gov/eohhs/gov/departments/dph/programs/environmental-health/investigations/logan-airport-health-study.html

NJIT "...people living, working, or simply within nine square miles of airports are exposed to air pollution that is 10 times higher than areas outside this zone."
http://graduatedegrees.online.njit.edu/resources/msce/msce-infographics/deadly-airport-toxins/

"Environmental Factors Like Pollution Cause a Quarter of Deaths, W.H.O Says"
http://www.nytimes.com/2016/03/15/health/environmental-factors-like-pollution-cause-a-quarter-...

Symposium on health effects of transportation related air pollution:
https://www.youtube.com/watch?v=2RuxN0Tvzyg&list=PLFD3C97820F0483A6&index=5

Study of ultrafine particulate at LAX found levels equal to an entire freeway system concentrated in flight paths for 10 miles from the runway ends. Ultrafine particulate has been studied and much of this research is well known. Among other effects, particulate is known to cause and or contribute to heart and lung function effects. See: https://news.usc.edu/22663/Air-Pollution-Found-to-Pose-Greater-Danger-to-Health-than-Earlier-Thought/ Premature deaths have been associated with particulate pollution in major US cities. Sampling at properties in flight paths has found sooty debris including PAH. (1994 Sea-Tac Master Plan Update Environmental Impact Statement Appendix D – 93) The photo below

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Debi Wagner

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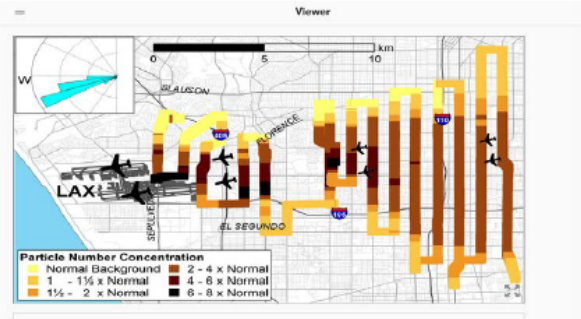
shows the results of the ultrafine particulate monitoring for LAX. See article:
http://www.latimes.com/local/la-me-0529-lax-pollution-20140529-story.html



In conclusion I would like to summarize the comments I have made:

1) FAA has failed to provide a proper document
2) FAA has failed to coordinate with the Port as a cooperating agency
3) FAA has failed to provide any purpose and need for the action
4) FAA has failed to produce any reasonable alternatives to the proposed action
5) FAA has failed to communicate with and evaluate the ej community impacts
6) FAA has failed to provide reasonable assurance of no additional or future air quality impacts.

Sincerely,

Debi L. Wagner

1520 SW 158th St.

Burien, WA 98166

Debi.wagner@icloud.com

206 241.1553

Response to Comment 671

1

2

Comment 672

Debi Wagner

Page 1

From: Debi Wagner <debiw@burienwa.gov>
Sent: Friday, June 16, 2017 3:33 PM
To: 9-ATO-WSA-Public-Comments (FAA)
Cc: Walter Bala; Larry; Lisa Marshall; Tony Piasecki;
matthew.adams@dentons.com; Larry
Subject: Turboprop Ops
Attachments: IMG_0371.PNG; IMG_0199 (1).JPG; co2 tonnes (1).PNG

Please accept these additional comments as a supplement to my original comments accepted by FAA on the New Procedure to turn turboprops over Burien.

AIR QUALITY/CLIMATE

The procedure, should it be implemented, will add throughput capacity at Sea-Tac Airport. The intensity of use of the turn may vary over time increasing the emissions of toxics, criteria pollutants, particulate and other air pollution including climate change emissions in the airshed. This is primarily due to moving the slower aircraft from the flight path more quickly, allowing more large jet operations to take off and land. 1

The City of Burien is a very densely populated, heavily polluted area as evidenced by past studies (ESL 1973, Radian EPA Air Toxics 1986, DOE 1991, MFG 1993, FSEIS, SEIS 3rd Runway 1996, EPA NAMS/TAMS 2001 Air toxics Grant, 1998-2001 SDPH Zip Code Survey, 2001 SBOH Environmental Justice report, 2007 DOE State Greenhouse Gas Emission Inventory, 2015 Dr. Larson ultrafine particulate and health asthma screening. Other supplemental reports from other parts of the country confirm that airports are a significant contributor to air quality degradation, risk and health impacts primarily affecting those who live and work in the area. (See recent NJIT Air Toxics report included in my original comments). 2

Risks to health impacts and the environment will continue to grow as the airport increases operations. More polluters equals more pollution. The risks to the local community have already been acknowledged in the FAA EJ analysis. Anecdotal evidence from Flight Pattern Kids showing areas of greatest impact follow the flight path. Attachment #1

Response to Comment 672

1. Response 7

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Debi Wagner

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EJ screen shows these same areas at 90 to 100th percentile of risk, exposure and negative health outcomes. State Department of Health areas of impact mirror these areas. Attachment #2

Attached is a graph showing how much of an increase aviation is supplying to global climate emissions. Attachment #3 As you can see within the next 20 years there will be 7.8 billions of global tons of CO2 that is not addressed anywhere for reduction programs.

The City of Burien and its residents live, work and recreate next to the single largest facility producer of greenhouse gas emissions in the county. This turn will allow for an increase in emissions over time. The airport is presently growing by 10% per year, having increased their greenhouse gas emission inventory dramatically over the past several years where 30% overall growth has pushed the inventory from 4.2 million metric tons per year of CO2 in 2007 to 5.4 million metric tons in 2015 or equal to 22% of the county total to 25% of the county total respectively. This does not include the 1.5 to 2 thousand annual tons per year of NOx, methane and black carbon, all contributors to climate impacts. By 2034, planned growth could easily push this inventory to 50% of the county total and near 10 million metric tons per year if the trend continues. Even though all emissions are not produced within the airshed, there are no current methods for the total impact of the entire flight to be captured and CO2 is a global issue, not just a local concern.

FAA has failed to discuss the potential of the turn to increase overall operations/capacity/throughput, thereby increasing emissions in the airshed.

This one path will become many paths, the airshed will be further damaged and residents' health will suffer. Overall air quality is already bad. Overall emissions are already too high. Climate emissions have crossed the limit of tolerance and will continue to grow rapidly. 1

FAA has an obligation under the CAA to assure their programs and projects will not worsen overall air quality. This program will worsen air quality. Even if it could be proven the Q400 does not have a large air quality impact, which we don't know because there are no current AQ analysis for the airport that includes this aircraft, 3

Response to Comment 672

3. Response 2

Comment 672

Debi Wagner

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accommodating more throughput at the airport within blocks of Burien residential homes will. Since no current scientific, modeling or monitoring data has been provided to justify no pending danger from potential AQ violations, exceedances, it is impossible for FAA to claim no impacts.

FAA has failed to disclose they have little or no information to assert no further AQ impacts or that the airshed is in compliance with the NAAQS, CAA, Conformity and poses no risk.

Pending studies on ultrafine particulate and cumulative noise and emissions studies are some of the newest discoveries to date. A recent study found that cumulative noise (roadway) and emissions from the surface transportation sources when combined posed a greater health risk. http://www.ctvnews.ca/health/noise-pollution-and-air-pollution-both-have-negative-effects-on-heart-health-study-1.3442567#

FAA failed to disclose the lack of information in making an informed decision. 4

I believe this project violates the intent of the law, jeopardizes the health and welfare of citizens, and threatens to undo all climate goals for the county.

Thank you,

Debi Wagner

Response to Comment 672

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Comment 672

Debi Wagner

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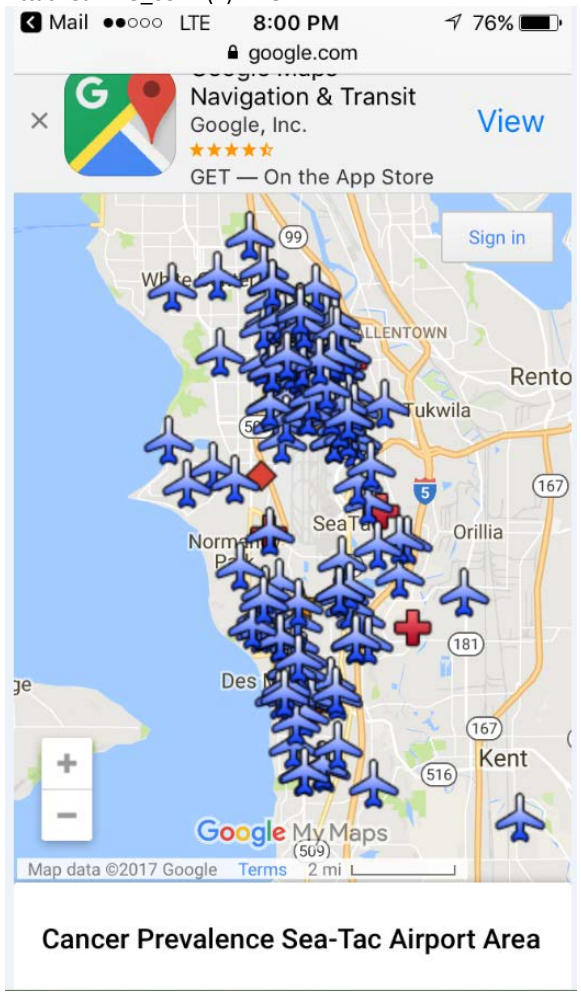
Attached IMG_0371 (2).PNG



Response to Comment 672

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Debi Wagner

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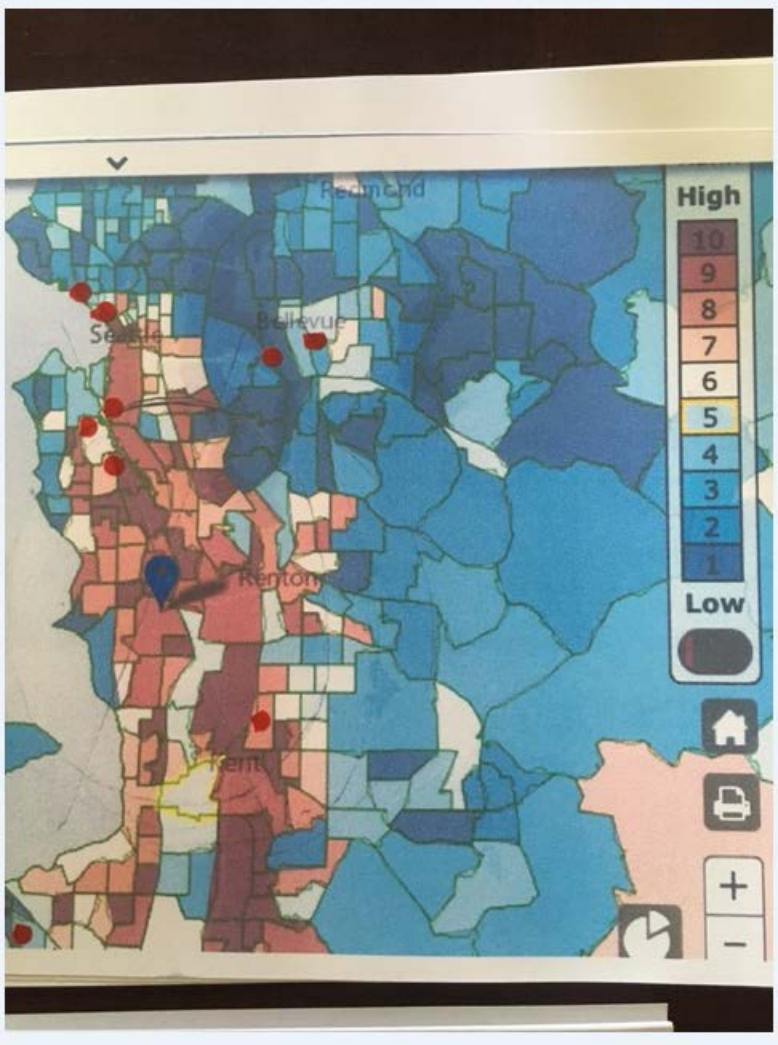
Attached IMG_0199 (1) (2).JPG



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Attached co2 tonnes (1) (2).PNG

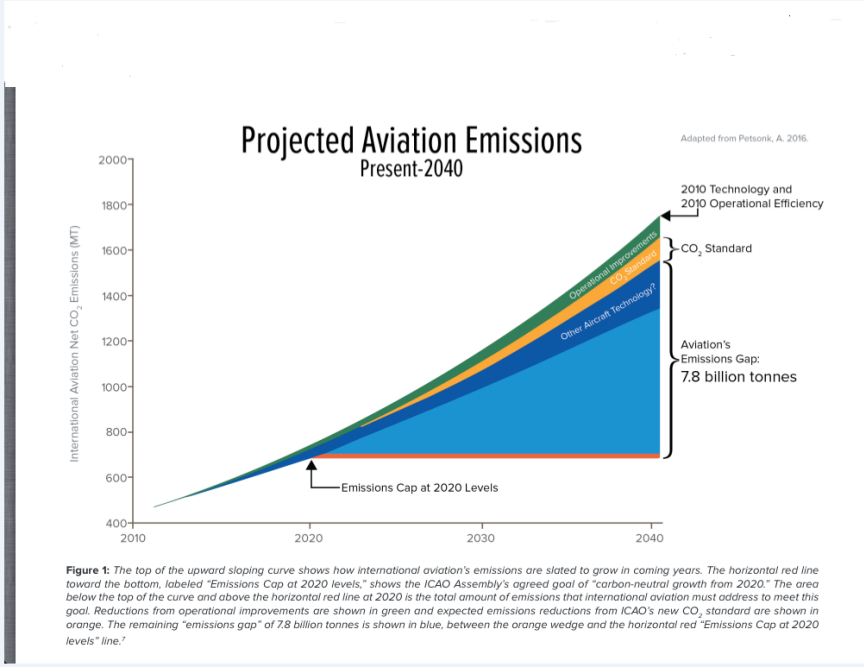

Figure 1: *The top of the upward sloping curve shows how international aviation's emissions are slated to grow in coming years. The horizontal red line toward the bottom, labeled "Emissions Cap at 2020 levels," shows the ICAO Assembly's agreed goal of "carbon-neutral growth from 2020." The area below the top of the curve and above the horizontal red line at 2020 is the total amount of emissions that international aviation must address to meet this goal. Reductions from operational improvements are shown in green and expected emissions reductions from ICAO's new CO_2 standard are shown in orange. The remaining "emissions gap" of 7.8 billion tonnes is shown in blue, between the orange wedge and the horizontal red "Emissions Cap at 2020 levels" line.*[2]

Response to Comment 672

CERTIFICATE OF SERVICE - CM/ECF

I certify that on April 23, 2019, I electronically filed the **PETITIONER'S FURTHER EXCERPTS OF RECORD** with the Clerk of the Court for the United States Court of Appeals for the Ninth Circuit by using the appellate CM/ECF system. Counsel for all parties are registered to use that system and, to my knowledge, will receive copies of this document upon its filing.

/s/Matthew G. Adams
Matthew G. Adams

UNITED STATES COURT OF APPEALS

FOR THE NINTH CIRCUIT

FILED

APR 24 2019

MOLLY C. DWYER, CLERK
U.S. COURT OF APPEALS

CITY OF BURIEN,

Petitioner,

v.

DANIEL K. ELWELL, Acting Administrator and FEDERAL AVIATION ADMINISTRATION,

Respondents.

No. 18-71705

FAA No.
Federal Aviation Administration

ORDER

The reply brief submitted on April 23, 2019 is filed.

Within 7 days of this order, petitioner is ordered to file 7 copies of the brief in paper format with gray covers, accompanied by certification (attached to the end of each copy of the brief) that the brief is identical to the version submitted electronically. The Form 18 certificate is available on the Court's website at http://www.ca9.uscourts.gov/forms/.

The Court has reviewed the further excerpts of record submitted on April 24, 2019. Within 7 days of this order, petitioner is ordered to file 4 copies of the excerpts in paper format securely bound on the left side, with white covers.

The paper copies shall be submitted to the principal office of the Clerk. The address for regular U.S. mail is P.O. Box 193939, San Francisco, CA 94119-3939.

The address for overnight mail is 95 Seventh Street, San Francisco, CA 94103-1526.

FOR THE COURT:

MOLLY C. DWYER
CLERK OF COURT

By: Kevin Wing Gee
Deputy Clerk
Ninth Circuit Rule 27-7

大成 DENTONS

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July 18, 2019

Molly C. Dwyer
Clerk of the Court
United States Court of Appeals for the Ninth
Circuit
James R. Browning Courthouse
95 Seventh Street
San Francisco, CA 94103

Re: *City of Burien v. Federal Aviation Administration, et al.*, No. 18-71705
Notice of Supplemental Authority under Fed. R. App. P. 28(j)

Dear Ms. Dwyer:

Petitioner the City of Burien, Washington, respectfully submits notice of the United States Supreme Court's recent decision in *Kisor v. Wilkie*, 588 U.S. ___ (2019).

In *Kisor*, the Supreme Court squarely and exhaustively addressed the practice of deferring to federal agency interpretations of their own regulations, commonly referred to as "*Auer*" or "*Seminole Rock*" deference. The Court emphasized that "*Auer* deference is not the answer to every question of interpreting an agency's rules. Far from it." *Kisor*, Slip Op. at 11. It then discussed "some of the limits inherent in the *Auer* doctrine." *Id*. at 13. "First and foremost" among those limits, "a court should not afford *Auer* deference unless the regulation is genuinely ambiguous." *Id*. Moreover, "before concluding that a rule is genuinely ambiguous, a court must exhaust all the 'traditional tools' of construction." *Id*. at 13-14.

Kisor confirms that this case should be resolved on the basis of the plain language of the Federal Aviation Administration rule at issue — a "categorical exclusion" from National Environmental Policy Act review. *See* Petitioner's Reply Brief at 11-13. Because there is no ambiguity in the categorical exclusion, Federal Defendants' interpretation is not entitled to deference. *Kisor*, Slip. Op. at 13 (deference absent ambiguity "would permit the agency, under the guise of interpreting a regulation, to create *de facto* a new regulation"); *cf*. Federal Respondents' Answering Brief at 22, 26-27.

To be clear, *Kisor* does not require this Court to overrule *Alaska Center for the Environment v. United States Forest Service*, 189 F.3d 851 (9th Cir. 1999), cited by the Federal Respondents (at 22) as an example of judicial deference to agency interpretation of a categorical exclusion. Rather, *Kisor* simply underscores that the deference applied in *Alaska Center* is appropriate only where a categorical exclusion is genuinely ambiguous. *Kisor*, Slip. Op. at 11-14. As the City explained in its briefing, there is no such ambiguity here. *See* Petitioner's Reply Brief at 11-13.

Respectfully submitted,

s/ Matthew G. Adams
Matthew G. Adams
(415) 882-0351
matthew.adams@dentons.com
Counsel for Petitioner

Word Count: 320
Enclosure

cc: All counsel of record (via ECF)

Syllabus

NOTE: Where it is feasible, a syllabus (headnote) will be released, as is being done in connection with this case, at the time the opinion is issued. The syllabus constitutes no part of the opinion of the Court but has been prepared by the Reporter of Decisions for the convenience of the reader. See *United States* v. *Detroit Timber & Lumber Co.,* 200 U. S. 321, 337.

SUPREME COURT OF THE UNITED STATES

Syllabus

KISOR *v.* WILKIE, SECRETARY OF VETERANS AFFAIRS

CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

No. 18–15. Argued March 27, 2019—Decided June 26, 2019

Petitioner James Kisor, a Vietnam War veteran, first sought disability benefits from the Department of Veterans Affairs (VA) in 1982, alleging that he had developed post-traumatic stress disorder from his military service. The agency denied his initial request, but in 2006, Kisor moved to reopen his claim. The VA this time agreed he was eligible for benefits, but it granted those benefits only from the date of his motion to reopen, not (as Kisor had requested) from the date of his first application. The Board of Veterans' Appeals—a part of the VA—affirmed that retroactivity decision, based on its interpretation of an agency rule governing such claims. The Court of Appeals for Veterans Claims affirmed.

The Federal Circuit also affirmed, but it did so by applying a doctrine called *Auer* (or sometimes, *Seminole Rock*) deference. See *Auer* v. *Robbins*, 519 U. S. 452; *Bowles* v. *Seminole Rock & Sand Co.*, 325 U. S. 410. Under that doctrine, this Court has long deferred to an agency's reasonable reading of its own genuinely ambiguous regulations. The Court of Appeals concluded that the VA regulation at issue was ambiguous, and it therefore deferred to the Board's interpretation of the rule. Kisor now asks the Court to overrule *Auer*, as well as its predecessor *Seminole Rock*, discarding the deference those decisions give to agencies.

Held: The judgment is vacated and remanded.

869 F. 3d 1360, vacated and remanded.

JUSTICE KAGAN delivered the opinion of the Court with respect to Parts I, II–B, III–B, and IV, holding that *Auer* and *Seminole Rock* are not overruled. Pp. 11–19, 25–29.

Syllabus

(a) This Court's deference doctrine is rooted in a presumption that Congress intended for courts to defer to agencies when they interpret their own ambiguous rules. The Court adopts that presumption for a set of reasons related to the comparative attributes of courts and agencies in answering interpretive questions. But when the reasons for the presumption do not hold up, or when countervailing reasons outweigh them, courts should not give deference to an agency's reading. The Court has thus cabined *Auer*'s scope in varied and critical ways.

First and foremost, a court should not afford *Auer* deference unless, after exhausting all the "traditional tools" of construction, *Chevron U. S. A. Inc.* v. *Natural Resources Defense Council, Inc.*, 467 U. S. 837, 843, n. 9, the regulation is genuinely ambiguous. A court must carefully consider the text, structure, history, and purpose of a regulation before resorting to deference. If genuine ambiguity remains, the agency's reading must still fall "within the bounds of reasonable interpretation." *Arlington* v. *FCC*, 569 U. S. 290, 296.

And even then, not every reasonable agency reading of a genuinely ambiguous rule should receive *Auer* deference. Rather, a court must also make an independent inquiry into whether the character and context of the agency interpretation entitles it to controlling weight. See, *e.g., Christopher* v. *SmithKline Beecham Corp.*, 567 U. S. 142, 155. The inquiry along this dimension does not reduce to an exhaustive test, but the Court has laid out some especially important markers for identifying when *Auer* deference is and is not appropriate. To begin with, the regulatory interpretation must be the agency's authoritative or official position, rather than any more *ad hoc* statement not reflecting the agency's views. Next, the agency's interpretation must in some way implicate its substantive expertise, as the basis for deference ebbs when the subject matter of a dispute is distant from the agency's ordinary duties. Finally, an agency's reading of a rule must reflect its "fair and considered judgment." *Auer*, 519 U. S., at 462. A court should decline to defer, for example, to a merely "'convenient litigating position,'" *Christopher*, 567 U. S., at 155, or to a new interpretation that creates "unfair surprise" to regulated parties, *Long Island Care at Home, Ltd.* v. *Coke*, 551 U. S. 158, 170. Pp. 11–19.

(b) *Stare decisis* cuts strongly against overruling *Auer*. Adherence to precedent is "a foundation stone of the rule of law," *Michigan* v. *Bay Mills Indian Community*, 572 U. S. 782, 798, and any departure from the doctrine demands "special justification," *Halliburton Co.* v. *Erica P. John Fund, Inc.*, 573 U. S. 258, 266. That is even more than usually so in the circumstances here. First, Kisor asks the Court to overrule a "long line of precedents"—each one reaffirming the rest

and going back 75 years or more. *Bay Mills*, 572 U. S., at 798. Second, because *Auer* deference pervades the whole corpus of administrative law, abandoning it would cast doubt on many settled constructions of rules. And third, even if the Court is wrong about *Auer*, "Congress remains free to alter what [the Court has] done." *Patterson* v. *McLean Credit Union*, 491 U. S. 164, 172–173. For approaching a century, Congress has let this deference regime work side-by-side with both the Administrative Procedure Act (APA) and the many statutes delegating rulemaking power to agencies. This Court would thus need a particularly "special justification" to now reverse *Auer*.

Kisor offers nothing of that ilk. Nearly all of his arguments relate to whether the doctrine is wrong or poorly reasoned. He does not claim that *Auer* deference is "unworkable," a traditional basis for overruling a case, *Patterson*, 491 U. S., at 173, or point to changes in legal rules that make *Auer* a "doctrinal dinosaur," *Kimble* v. *Marvel Entertainment, LLC*, 576 U. S. ___, ___. Instead, his lone special justification is that the administrative state has evolved substantially since this Court decided *Seminole Rock* in 1945. It is true that agencies have far-reaching influence today; that is one reason the Court has taken care to reinforce the limits of *Auer* deference. But it is no answer to the growth of agencies for courts to take over their expertise-based, policymaking functions. Pp. 25–28.

(c) Turning to Kisor's own case, a remand is necessary for two reasons. First, the Federal Circuit jumped the gun in declaring the VA's regulation ambiguous before bringing all its interpretive tools to bear on the question. Second, the Federal Circuit assumed too fast that *Auer* deference should apply in the event of genuine ambiguity, rather than assessing whether the interpretation is of the sort that Congress would want to receive deference. On remand, the Court of Appeals must reconsider whether *Auer* deference is warranted, bearing in mind the principles outlined in this opinion. Pp. 28–29.

JUSTICE KAGAN, joined by JUSTICE GINSBURG, JUSTICE BREYER, and JUSTICE SOTOMAYOR, concluded in Parts II–A and III–A:

(a) *Auer* deference is rooted in a presumption that Congress would generally want the agency to play the primary role in resolving regulatory ambiguities. See *Martin* v. *Occupational Safety and Health Review Comm'n*, 499 U. S. 144, 151–153. In part, the presumption arises because the agency that promulgated a rule is in the "better position [to] reconstruct" its original meaning. *Id.,* at 152. In still greater measure, the presumption stems from an awareness that resolving genuine regulatory ambiguities often "'entail[s] the exercise of judgment grounded in policy concerns,'" an area where agencies have a comparative advantage over courts. *Thomas Jefferson Univ.* v. *Shalala*, 512 U. S. 504, 512. Finally, the presumption reflects the

Syllabus

well-known benefits of uniformity in interpreting ambiguous rules. *Auer* deference promotes "resolving interpretive issues by uniform administrative decision, rather than piecemeal by litigation," *Ford Motor Credit Co.* v. *Milhollin*, 444 U. S. 555, 568. Pp. 4–11.

(b) None of Kisor's arguments provide good reason to reconsider *Auer* deference. First, he claims that *Auer* is inconsistent with the APA's judicial review provision, which instructs reviewing courts to "determine the meaning" of an agency action. 5 U. S. C. §706. Even when a court defers to a regulatory reading, however, it acts consistently with Section 706. That provision does not specify the standard of review a court should use in "determin[ing] the meaning" of an ambiguous rule. This Court thus presumes that Congress would want courts to do so by reviewing agency interpretations for reasonableness. That is especially so because Section 706, when enacted, was understood to restate the present law of judicial review—which would have included deference under *Seminole Rock*. Nor does *Auer* circumvent the APA's rulemaking requirements, which require regulations to go through notice and comment before they can bind third parties. Even though a court might defer to an agency's interpretation of a regulation, the agency's interpretation itself never forms the basis for an enforcement action. Rather, an agency bringing an enforcement action must always rely on a rule that went through notice and comment. And courts, in turn, always retain the final authority to approve—or not—an agency's reading of that notice-and-comment rule. See *Perez* v. *Mortgage Bankers Assn.*, 575 U. S. 92, ___.

Kisor's policy and constitutional arguments fail just as roundly. As a policy matter, he contends that *Auer* encourages agencies to issue vague and open-ended regulations, confident that they can later impose whatever interpretation of those rules they prefer. But no real evidence backs up that assertion and strong incentives cut in the opposite direction. Finally, Kisor asserts that *Auer* deference violates "separation-of-powers principles" by vesting both legislative and judicial functions in one branch. If that objection is to agencies' usurping the interpretive role of courts, *Auer*—when properly understood and applied—does no such thing. And if the objection is instead to the supposed commingling of functions within an agency, this Court has explained that even when agency "activities take 'legislative' and 'judicial' forms," they continue to be "exercises of the 'executive Power,'" and thus raise no constitutional concerns. *Arlington*, 569 U. S., at 304–305, n. 4. Pp. 19–25.

KAGAN, J., announced the judgment of the Court and delivered the opinion of the Court with respect to Parts I, II–B, III–B, and IV, in which ROBERTS, C. J., and GINSBURG, BREYER, and SOTOMAYOR, JJ.,

joined, and an opinion with respect to Parts II–A and III–A, in which GINSBURG, BREYER, and SOTOMAYOR, JJ., joined. ROBERTS, C. J., filed an opinion concurring in part. GORSUCH, J., filed an opinion concurring in the judgment, in which THOMAS, J., joined, in which KAVANAUGH, J., joined as to Parts I, II, III, IV, and V, and in which ALITO, J., joined as to Parts I, II, and III. KAVANAUGH, J., filed an opinion concurring in the judgment, in which ALITO, J., joined.

NOTICE: This opinion is subject to formal revision before publication in the preliminary print of the United States Reports. Readers are requested to notify the Reporter of Decisions, Supreme Court of the United States, Washington, D. C. 20543, of any typographical or other formal errors, in order that corrections may be made before the preliminary print goes to press.

SUPREME COURT OF THE UNITED STATES

No. 18–15

JAMES L. KISOR, PETITIONER *v.* ROBERT WILKIE, SECRETARY OF VETERANS AFFAIRS

ON WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

[June 26, 2019]

JUSTICE KAGAN announced the judgment of the Court and delivered the opinion of the Court with respect to Parts I, II–B, III–B, and IV, and an opinion with respect to Parts II–A and III–A, in which JUSTICE GINSBURG, JUSTICE BREYER, and JUSTICE SOTOMAYOR join.

This Court has often deferred to agencies' reasonable readings of genuinely ambiguous regulations. We call that practice *Auer* deference, or sometimes *Seminole Rock* deference, after two cases in which we employed it. See *Auer* v. *Robbins*, 519 U. S. 452 (1997); *Bowles* v. *Seminole Rock & Sand Co.*, 325 U. S. 410 (1945). The only question presented here is whether we should overrule those decisions, discarding the deference they give to agencies. We answer that question no. *Auer* deference retains an important role in construing agency regulations. But even as we uphold it, we reinforce its limits. *Auer* deference is sometimes appropriate and sometimes not. Whether to apply it depends on a range of considerations that we have noted now and again, but compile and further develop today. The deference doctrine we describe is potent in its place, but cabined in its scope. On remand, the Court of Appeals should decide whether it applies to the agency interpretation at issue.

I

We begin by summarizing how petitioner James Kisor's case made its way to this Court. Truth be told, nothing recounted in this Part has much bearing on the rest of our decision. The question whether to overrule *Auer* does not turn on any single application, whether right or wrong, of that decision's deference doctrine. But a recitation of the facts and proceedings below at least shows how the question presented arose.

Kisor is a Vietnam War veteran seeking disability benefits from the Department of Veterans Affairs (VA). He first applied in 1982, alleging that he had developed post-traumatic stress disorder (PTSD) as a result of his participation in a military action called Operation Harvest Moon. The report of the agency's evaluating psychiatrist noted Kisor's involvement in that battle, but found that he "d[id] not suffer from PTSD." App. 12, 14. The VA thus denied Kisor benefits. There matters stood until 2006, when Kisor moved to reopen his claim. Based on a new psychiatric report, the VA this time agreed that Kisor suffered from PTSD. But it granted him benefits only from the date of his motion to reopen, rather than (as he requested) from the date of his first application.

The Board of Veterans' Appeals—a part of the VA, represented in Kisor's case by a single administrative judge—affirmed that timing decision, based on its interpretation of an agency rule. Under the VA's regulation, the agency could grant Kisor retroactive benefits if it found there were "relevant official service department records" that it had not considered in its initial denial. See 38 CFR §3.156(c)(1) (2013). The Board acknowledged that Kisor had come up with two new service records, both confirming his participation in Operation Harvest Moon. But according to the Board, those records were not "relevant" because they did not go to the reason for the denial—that Kisor did not have PTSD. See App. to Pet. for

Cert. 43a ("[The] documents were not relevant to the decision in May 1983 because the basis of the denial was that a diagnosis of PTSD was not warranted, not a dispute as to whether or not the Veteran engaged in combat"). The Court of Appeals for Veterans Claims, an independent Article I court that initially reviews the Board's decisions, affirmed for the same reason.

The Court of Appeals for the Federal Circuit also affirmed, but it did so based on deference to the Board's interpretation of the VA rule. See *Kisor* v. *Shulkin*, 869 F. 3d 1360, 1368 (2017). Kisor had argued to the Federal Circuit that to count as "relevant," a service record need not (as the Board thought) "counter[] the basis of the prior denial"; instead, it could relate to some other criterion for obtaining disability benefits. *Id.,* at 1366 (internal quotation marks omitted). The Federal Circuit found the regulation "ambiguous" as between the two readings. *Id.,* at 1367. The rule, said the court, does not specifically address "whether 'relevant' records are those casting doubt on the agency's prior [rationale or] those relating to the veteran's claim more broadly." *Ibid.* So how to choose between the two views? The court continued: "Both parties insist that the plain regulatory language supports their case, and neither party's position strikes us as unreasonable." *Id.*, at 1368. Because that was so, the court believed *Auer* deference appropriate: The agency's construction of its own regulation would govern unless "plainly erroneous or inconsistent with the VA's regulatory framework." *Ibid.* (internal quotation marks omitted). Applying that standard, the court upheld the Board's reading—and so approved the denial of retroactive benefits.

We then granted certiorari to decide whether to overrule *Auer* and (its predecessor) *Seminole Rock*. 586 U. S. ___ (2018).

II

Before addressing that question directly, we spend some time describing what *Auer* deference is, and is not, for. You might view this Part as "just background" because we have made many of its points in prior decisions. But even if so, it is background that matters. For our account of why the doctrine emerged—and also how we have limited it—goes a long way toward explaining our view that it is worth preserving.

A

Begin with a familiar problem in administrative law: For various reasons, regulations may be genuinely ambiguous. They may not directly or clearly address every issue; when applied to some fact patterns, they may prove susceptible to more than one reasonable reading. Sometimes, this sort of ambiguity arises from careless drafting—the use of a dangling modifier, an awkward word, an opaque construction. But often, ambiguity reflects the well-known limits of expression or knowledge. The subject matter of a rule "may be so specialized and varying in nature as to be impossible"—or at any rate, impracticable—to capture in its every detail. *SEC* v. *Chenery Corp.*, 332 U. S. 194, 203 (1947). Or a "problem[] may arise" that the agency, when drafting the rule, "could not [have] reasonably foresee[n]." *Id.,* at 202. Whichever the case, the result is to create real uncertainties about a regulation's meaning.

Consider these examples:

- In a rule issued to implement the Americans with Disabilities Act (ADA), the Department of Justice requires theaters and stadiums to provide people with disabilities "lines of sight comparable to those for members of the general public." 28 CFR pt. 36, App. A, p. 563 (1996). Must the Washington Wiz-

ards construct wheelchair seating to offer lines of sight over spectators when they rise to their feet? Or is it enough that the facility offers comparable views so long as everyone remains seated? See *Paralyzed Veterans of Am.* v. *D. C. Arena L. P.*, 117 F. 3d 579, 581–582 (CADC 1997).

- The Transportation Security Administration (TSA) requires that liquids, gels, and aerosols in carry-on baggage be packed in containers smaller than 3.4 ounces and carried in a clear plastic bag. Does a traveler have to pack his jar of truffle pâté in that way? See *Laba* v. *Copeland*, 2016 WL 5958241, *1 (WDNC, Oct. 13, 2016).

- The Mine Safety and Health Administration issues a rule requiring employers to report occupational diseases within two weeks after they are "diagnosed." 30 CFR §50.20(a) (1993). Do chest X-ray results that "scor[e]" above some level of opacity count as a "diagnosis"? What level, exactly? See *American Min. Congress* v. *Mine Safety and Health Admin.*, 995 F. 2d 1106, 1107–1108 (CADC 1993).

- An FDA regulation gives pharmaceutical companies exclusive rights to drug products if they contain "no active moiety that has been approved by FDA in any other" new drug application. 21 CFR §314.108(a) (2010). Has a company created a new "active moiety" by joining a previously approved moiety to lysine through a non-ester covalent bond? See *Actavis Elizabeth LLC* v. *FDA*, 625 F. 3d 760, 762–763 (CADC 2010); Tr. of Oral Arg. 12, 35.[1]

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[1] In case you're wondering, the regulatory definition of active moiety is "[t]he molecule or ion, excluding those appended portions of the molecule

- Or take the facts of *Auer* itself. An agency must decide whether police captains are eligible for overtime under the Fair Labor Standards Act. According to the agency's regulations, employees cannot receive overtime if they are paid on a "salary basis." 29 CFR §541.118(a) (1996). And in deciding whether an employee is salaried, one question is whether his pay is "subject to reduction" based on performance. *Ibid.* A police department's manual informs its officers that their pay might be docked if they commit a disciplinary infraction. Does that fact alone make them "subject to" pay deductions? Or must the department have a practice of docking officer pay, so that the possibility of that happening is more than theoretical? 519 U. S., at 459–462.

In each case, interpreting the regulation involves a choice between (or among) more than one reasonable reading. To apply the rule to some unanticipated or unresolved situation, the court must make a judgment call. How should it do so?

In answering that question, we have often thought that a court should defer to the agency's construction of its own regulation. For the last 20 or so years, we have referred to that doctrine as *Auer* deference, and applied it often.[2] But

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that cause the drug to be an ester, salt (including a salt with hydrogen or coordination bonds), or the noncovalent derivative (such as a complex, chelate, or clathrate) of the molecule, responsible for the physiological or pharmacological action of the drug substance." 21 CFR §314.3(b) (2018).

[2] See, *e.g.*, *PLIVA, Inc.* v. *Mensing*, 564 U. S. 604, 613 (2011); *Chase Bank USA, N. A.* v. *McCoy*, 562 U. S. 195, 208–210 (2011); *Coeur Alaska, Inc.* v. *Southeast Alaska Conservation Council*, 557 U. S. 261, 274–275 (2009); *Riegel* v. *Medtronic, Inc.*, 552 U. S. 312, 328 (2008); *Long Island Care at Home, Ltd.* v. *Coke*, 551 U. S. 158, 171 (2007); *Washington State Dept. of Social and Health Servs.* v. *Guardianship Estate of Keffeler*, 537 U. S. 371, 387–388 (2003).

the name is something of a misnomer. Before the doctrine was called *Auer* deference, it was called *Seminole Rock* deference—for the 1945 decision in which we declared that when "the meaning of [a regulation] is in doubt," the agency's interpretation "becomes of controlling weight unless it is plainly erroneous or inconsistent with the regulation." 325 U. S., at 414.[3] And *Seminole Rock* itself was not built on sand. Deference to administrative agencies traces back to the late nineteenth century, and perhaps beyond. See *United States* v. *Eaton*, 169 U. S. 331, 343 (1898) ("The interpretation given to the regulations by the department charged with their execution . . . is entitled to the greatest weight"); see Brief for Administrative Law Scholars as *Amici Curiae* 5, n. 3 (collecting early cases); Brief for AFL–CIO as *Amicus Curiae* 8 (same).

We have explained *Auer* deference (as we now call it) as rooted in a presumption about congressional intent—a presumption that Congress would generally want the agency to play the primary role in resolving regulatory ambiguities. See *Martin* v. *Occupational Safety and Health Review Comm'n*, 499 U. S. 144, 151–153 (1991).

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[3] Our (pre-*Auer*) decisions applying *Seminole Rock* deference are legion. See, *e.g.*, *Shalala* v. *Guernsey Memorial Hospital*, 514 U. S. 87, 94–95 (1995); *Thomas Jefferson Univ.* v. *Shalala*, 512 U. S. 504, 512 (1994); *Stinson* v. *United States*, 508 U. S. 36, 44–45 (1993); *INS* v. *National Center for Immigrants' Rights, Inc.*, 502 U. S. 183, 189–190 (1991); *Robertson* v. *Methow Valley Citizens Council*, 490 U. S. 332, 358–359 (1989); *Mullins Coal Co. of Va.* v. *Director, Office of Workers' Compensation Programs*, 484 U. S. 135, 159 (1987); *Lyng* v. *Payne*, 476 U. S. 926, 939 (1986); *Fidelity Fed. Sav. & Loan Assn.* v. *De la Cuesta*, 458 U. S. 141, 158, n. 13 (1982); *Blanding* v. *DuBose*, 454 U. S. 393, 401 (1982) (*per curiam*); *Ford Motor Credit Co.* v. *Milhollin*, 444 U. S. 555, 566 (1980); *United States* v. *Larionoff*, 431 U. S. 864, 872 (1977); *Northern Indiana Public Service Co.* v. *Porter County Chapter of Izaak Walton League of America, Inc.*, 423 U. S. 12, 15 (1975) (*per curiam*); *Ehlert* v. *United States*, 402 U. S. 99, 105 (1971); *INS* v. *Stanisic*, 395 U. S. 62, 72 (1969); *Thorpe* v. *Housing Authority of Durham*, 393 U. S. 268, 276 (1969); *Udall* v. *Tallman*, 380 U. S. 1, 16–17 (1965).

Congress, we have pointed out, routinely delegates to agencies the power to implement statutes by issuing rules. See *id.,* at 151. In doing so, Congress knows (how could it not?) that regulations will sometimes contain ambiguities. See *supra,* at 4. But Congress almost never explicitly assigns responsibility to deal with that problem, either to agencies or to courts. Hence the need to presume, one way or the other, what Congress would want. And as between those two choices, agencies have gotten the nod. We have adopted the presumption—though it is always rebuttable—that "the power authoritatively to interpret its own regulations is a component of the agency's delegated lawmaking powers." *Martin*, 499 U. S., at 151. Or otherwise said, we have thought that when granting rulemaking power to agencies, Congress usually intends to give them, too, considerable latitude to interpret the ambiguous rules they issue.

In part, that is because the agency that promulgated a rule is in the "better position [to] reconstruct" its original meaning. *Id.,* at 152. Consider that if you don't know what some text (say, a memo or an e-mail) means, you would probably want to ask the person who wrote it. And for the same reasons, we have thought, Congress would too (though the person is here a collective actor). The agency that "wrote the regulation" will often have direct insight into what that rule was intended to mean. *Mullins Coal Co. of Va.* v. *Director, Office of Workers' Compensation Programs*, 484 U. S. 135, 159 (1987). The drafters will know what it was supposed to include or exclude or how it was supposed to apply to some problem. To be sure, this justification has its limits. It does not work so well, for example, when the agency failed to anticipate an issue in crafting a rule (*e.g.,* if the agency never thought about whether and when chest X-rays would count as a "diagnosis"). See *supra,* at 5. Then, the agency will not be uncovering a specific intention; at most (though this is not

nothing), it will be offering insight into the analogous issues the drafters considered and the purposes they designed the regulation to serve. And the defense works yet less well when lots of time has passed between the rule's issuance and its interpretation—especially if the interpretation differs from one that has come before. All that said, the point holds good for a significant category of "contemporaneous" readings. *Lyng* v. *Payne*, 476 U. S. 926, 939 (1986). Want to know what a rule means? Ask its author.

In still greater measure, the presumption that Congress intended *Auer* deference stems from the awareness that resolving genuine regulatory ambiguities often "entail[s] the exercise of judgment grounded in policy concerns." *Thomas Jefferson Univ.* v. *Shalala*, 512 U. S. 504, 512 (1994) (internal quotation marks omitted). Return to our TSA example. See *supra,* at 5. In most of their applications, terms like "liquids" and "gels" are clear enough. (Traveler checklist: Pretzels OK; water not.) But resolving the uncertain issues—the truffle pâtés or olive tapenades of the world—requires getting in the weeds of the rule's policy: Why does TSA ban liquids and gels in the first instance? What makes them dangerous? Can a potential hijacker use pâté jars in the same way as soda cans? Or take the less specialized-seeming ADA example. See *supra,* at 4–5. It is easy enough to know what "comparable lines of sight" means in a movie theater—but more complicated when, as in sports arenas, spectators sometimes stand up. How costly is it to insist that the stadium owner take that sporadic behavior into account, and is the viewing value received worth the added expense? That cost-benefit calculation, too, sounds more in policy than in law. Or finally, take the more technical "moiety" example. See *supra,* at 5–6. Or maybe, don't. If you are a judge, you probably have no idea of what the FDA's rule means, or whether its policy is implicated when a previously

approved moiety is connected to lysine through a non-ester covalent bond.

And Congress, we have thought, knows just that: It is attuned to the comparative advantages of agencies over courts in making such policy judgments. Agencies (unlike courts) have "unique expertise," often of a scientific or technical nature, relevant to applying a regulation "to complex or changing circumstances." *Martin*, 499 U. S., at 151; see *Thomas Jefferson*, 512 U. S., at 512. Agencies (unlike courts) can conduct factual investigations, can consult with affected parties, can consider how their experts have handled similar issues over the long course of administering a regulatory program. See *Long Island Care at Home, Ltd.* v. *Coke*, 551 U. S. 158, 167–168 (2007). And agencies (again unlike courts) have political accountability, because they are subject to the supervision of the President, who in turn answers to the public. See *Free Enterprise Fund* v. *Public Company Accounting Oversight Bd.*, 561 U. S. 477, 499 (2010); *Pauley* v. *BethEnergy Mines, Inc.*, 501 U. S. 680, 696 (1991) (discussing as a matter of democratic accountability the "proper roles of the political and judicial branches" in filling regulatory gaps). It is because of those features that Congress, when first enacting a statute, assigns rulemaking power to an agency and thus authorizes it to fill out the statutory scheme. And so too, when new issues demanding new policy calls come up within that scheme, Congress presumably wants the same agency, rather than any court, to take the laboring oar.

Finally, the presumption we use reflects the well-known benefits of uniformity in interpreting genuinely ambiguous rules. We have noted Congress's frequent "preference for resolving interpretive issues by uniform administrative decision, rather than piecemeal by litigation." *Ford Motor Credit Co.* v. *Milhollin*, 444 U. S. 555, 568 (1980). That preference may be strongest when the interpretive issue

arises in the context of a "complex and highly technical regulatory program." *Thomas Jefferson*, 512 U. S., at 512. After all, judges are most likely to come to divergent conclusions when they are least likely to know what they are doing. (Is there anything to be said for courts all over the country trying to figure out what makes for a new active moiety?) But the uniformity justification retains some weight even for more accessible rules, because their language too may give rise to more than one eminently reasonable reading. Consider *Auer* itself. See *supra,* at 6. There, four Circuits held that police captains were "subject to" pay deductions for disciplinary infractions if a police manual said they were, even if the department had never docked anyone. Two other Circuits held that captains were "subject to" pay deductions only if the department's actual practice made that punishment a realistic possibility. See *Auer*, 519 U. S., at 460. Had the agency issued an interpretation before all those rulings (rather than, as actually happened, in a brief in this Court), a deference rule would have averted most of that conflict and uncertainty. See *Christopher* v. *SmithKline Beecham Corp.*, 567 U. S. 142, 158, n. 17 (2012) (noting for this reason that *Auer* deference imparts "predictability to the administrative process" (internal quotation marks omitted)). *Auer* deference thus serves to ensure consistency in federal regulatory law, for everyone who needs to know what it requires.

B

But all that said, *Auer* deference is not the answer to every question of interpreting an agency's rules. Far from it. As we explain in this section, the possibility of deference can arise only if a regulation is genuinely ambiguous. And when we use that term, we mean it—genuinely ambiguous, even after a court has resorted to all the standard tools of interpretation. Still more, not all reasonable

agency constructions of those truly ambiguous rules are entitled to deference. As just explained, we presume that Congress intended for courts to defer to agencies when they interpret their own ambiguous rules. See *supra,* at 7–11. But when the reasons for that presumption do not apply, or countervailing reasons outweigh them, courts should not give deference to an agency's reading, except to the extent it has the "power to persuade." *Christopher*, 567 U. S., at 159 (quoting *Skidmore* v. *Swift & Co.*, 323 U. S. 134, 140 (1944)). We have thus cautioned that *Auer* deference is just a "general rule"; it "does not apply in all cases." *Christopher*, 567 U. S., at 155. And although the limits of *Auer* deference are not susceptible to any rigid test, we have noted various circumstances in which such deference is "unwarranted." *Ibid.* In particular, that will be so when a court concludes that an interpretation does not reflect an agency's authoritative, expertise-based, "fair[, or] considered judgment." *Ibid.* (quoting *Auer*, 519 U. S., at 462); cf. *United States* v. *Mead Corp.*, 533 U. S. 218, 229–231 (2001) (adopting a similar approach to *Chevron* deference).

We take the opportunity to restate, and somewhat expand on, those principles here to clear up some mixed messages we have sent. At times, this Court has applied *Auer* deference without significant analysis of the underlying regulation. See, *e.g., United States* v. *Larionoff*, 431 U. S. 864, 872 (1977) (stating that the Court "need not tarry" over the regulation's language given *Seminole Rock*). At other times, the Court has given *Auer* deference without careful attention to the nature and context of the interpretation. See, *e.g., Thorpe* v. *Housing Authority of Durham*, 393 U. S. 268, 276, and nn. 22–23 (1969) (deferring to an agency's view as expressed in letters to third parties). And in a vacuum, our most classic formulation of the test—whether an agency's construction is "plainly erroneous or inconsistent with the regulation," *Seminole*

Rock, 325 U. S., at 414—may suggest a caricature of the doctrine, in which deference is "reflexive." *Pereira* v. *Sessions*, 585 U. S. ___, ___ (2018) (Kennedy, J., concurring) (slip op., at 2). So we cannot deny that Kisor has a bit of grist for his claim that *Auer* "bestows on agencies expansive, unreviewable" authority. Brief for Petitioner 25. But in fact *Auer* does no such thing: It gives agencies their due, while also allowing—indeed, obligating—courts to perform their reviewing and restraining functions. So before we turn to Kisor's specific grievances, we think it worth reinforcing some of the limits inherent in the *Auer* doctrine.[4]

First and foremost, a court should not afford *Auer* deference unless the regulation is genuinely ambiguous. See *Christensen* v. *Harris County*, 529 U. S. 576, 588 (2000); *Seminole Rock*, 325 U. S., at 414 (deferring only "if the meaning of the words used is in doubt"). If uncertainty does not exist, there is no plausible reason for deference. The regulation then just means what it means—and the court must give it effect, as the court would any law. Otherwise said, the core theory of *Auer* deference is that sometimes the law runs out, and policy-laden choice is what is left over. See *supra,* at 9–10. But if the law gives an answer—if there is only one reasonable construction of a regulation—then a court has no business deferring to any other reading, no matter how much the agency insists it would make more sense. Deference in that circumstance would "permit the agency, under the guise of interpreting a regulation, to create *de facto* a new regulation." See *Christensen*, 529 U. S., at 588. *Auer* does not, and indeed could not, go that far.

And before concluding that a rule is genuinely ambigu-

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[4]The proper understanding of the scope and limits of the *Auer* doctrine is, of course, not set out in any of the opinions that concur only in the judgment.

ous, a court must exhaust all the "traditional tools" of construction. *Chevron U. S. A. Inc.* v. *Natural Resources Defense Council, Inc.*, 467 U. S. 837, 843, n. 9 (1984) (adopting the same approach for ambiguous statutes). For again, only when that legal toolkit is empty and the interpretive question still has no single right answer can a judge conclude that it is "more [one] of policy than of law." *Pauley*, 501 U. S., at 696. That means a court cannot wave the ambiguity flag just because it found the regulation impenetrable on first read. Agency regulations can sometimes make the eyes glaze over. But hard interpretive conundrums, even relating to complex rules, can often be solved. See *id.,* at 707 (Scalia, J., dissenting) (A regulation is not ambiguous merely because "discerning the only possible interpretation requires a taxing inquiry"). To make that effort, a court must "carefully consider[]" the text, structure, history, and purpose of a regulation, in all the ways it would if it had no agency to fall back on. *Ibid.* Doing so will resolve many seeming ambiguities out of the box, without resort to *Auer* deference.

If genuine ambiguity remains, moreover, the agency's reading must still be "reasonable." *Thomas Jefferson*, 512 U. S., at 515. In other words, it must come within the zone of ambiguity the court has identified after employing all its interpretive tools. (Note that serious application of those tools therefore has use even when a regulation turns out to be truly ambiguous. The text, structure, history, and so forth at least establish the outer bounds of permissible interpretation.) Some courts have thought (perhaps because of *Seminole Rock*'s "plainly erroneous" formulation) that at this stage of the analysis, agency constructions of rules receive greater deference than agency constructions of statutes. See, *e.g., Ohio Dept. of Medicaid* v. *Price*, 864 F. 3d 469, 477 (CA6 2017). But that is not so. Under *Auer*, as under *Chevron*, the agency's reading must fall "within the bounds of reasonable interpretation." *Arlington* v. *FCC*, 569 U. S. 290, 296 (2013). And let there be no mistake: That is a requirement an agency can fail.

Still, we are not done—for not every reasonable agency reading of a genuinely ambiguous rule should receive *Auer* deference. We have recognized in applying *Auer* that a court must make an independent inquiry into whether the character and context of the agency interpretation entitles it to controlling weight. See *Christopher*, 567 U. S., at 155; see also *Mead*, 533 U. S., at 229–231, 236–237 (requiring an analogous though not identical inquiry for *Chevron* deference). As explained above, we give *Auer* deference because we presume, for a set of reasons relating to the comparative attributes of courts and agencies, that Congress would have wanted us to. See *supra,* at 7–11. But the administrative realm is vast and varied, and we have understood that such a presumption cannot always hold. Cf. *Mead*, 533 U. S., at 236 ("tailor[ing] deference to [the] variety" of administrative action); *Arlington*, 569 U. S., at 309–310 (BREYER, J., concurring in part and concurring in judgment) (noting that "context-specific[] factors" may show that "Congress would [not] have intended the agency to resolve [some] ambiguity"). The inquiry on this dimension does not reduce to any exhaustive test. But we have laid out some especially important markers for identifying when *Auer* deference is and is not appropriate.

To begin with, the regulatory interpretation must be one actually made by the agency. In other words, it must be the agency's "authoritative" or "official position," rather than any more ad hoc statement not reflecting the agency's views. *Mead*, 533 U. S., at 257–259, and n. 6 (Scalia, J., dissenting). That constraint follows from the logic of *Auer* deference—because Congress has delegated rulemaking power, and all that typically goes with it, to the agency alone. Of course, the requirement of "authoritative" action must recognize a reality of bureaucratic life: Not everything the agency does comes from, or is even in the name of, the Secretary or his chief advisers. So, for example, we

have deferred to "official staff memoranda" that were "published in the Federal Register," even though never approved by the agency head. *Ford Motor Credit*, 444 U. S., at 566, n. 9, 567, n. 10 (declining to "draw a radical distinction between" agency heads and staff for *Auer* deference). But there are limits. The interpretation must at the least emanate from those actors, using those vehicles, understood to make authoritative policy in the relevant context. See, *e.g., Paralyzed Veterans*, 117 F. 3d, at 587 (refusing to consider a "speech of a mid-level official" as an "authoritative departmental position"); *N. Y. State Dept. of Social Servs.* v. *Bowen*, 835 F. 2d 360, 365–366 (CADC 1987) (rejecting the idea that an "informal memorandum" recounting a telephone conversation between employees could count as an "authoritative pronouncement"); *Exelon Generation Co.* v. *Local 15, Int'l Brotherhood of Elec. Workers, AFL–CIO*, 676 F. 3d 566, 576–578 (CA7 2012) (declining deference when the agency had itself "disclaimed the use of regulatory guides as authoritative"). If the interpretation does not do so, a court may not defer.

Next, the agency's interpretation must in some way implicate its substantive expertise. Administrative knowledge and experience largely "account [for] the presumption that Congress delegates interpretive lawmaking power to the agency." *Martin*, 499 U. S., at 153. So the basis for deference ebbs when "[t]he subject matter of the [dispute is] distan[t] from the agency's ordinary" duties or "fall[s] within the scope of another agency's authority." *Arlington*, 569 U. S., at 309 (opinion of BREYER, J.). This Court indicated as much when it analyzed a "split enforcement" scheme, in which Congress divided regulatory power between two entities. *Martin*, 499 U. S., at 151. To decide "*whose* reasonable interpretation" of a rule controlled, we "presum[ed] Congress intended to invest interpretive power" in whichever actor was "best position[ed] to

develop" expertise about the given problem. *Id.*, at 149, 153. The same idea holds good as between agencies and courts. "Generally, agencies have a nuanced understanding of the regulations they administer." Brief for Respondent 33. That point is most obvious when a rule is technical; think back to our "moiety" or "diagnosis" examples. See *supra*, at 5–6. But more prosaic-seeming questions also commonly implicate policy expertise; consider the TSA assessing the security risks of pâté or a disabilities office weighing the costs and benefits of an accommodation. See *ibid.* Once again, though, there are limits. Some interpretive issues may fall more naturally into a judge's bailiwick. Take one requiring the elucidation of a simple common-law property term, see *Jicarilla Apache Tribe* v. *FERC*, 578 F. 2d 289, 292–293 (CA10 1978), or one concerning the award of an attorney's fee, see *West Va. Highlands Conservancy, Inc.* v. *Norton*, 343 F. 3d 239 (CA4 2003). Cf. *Adams Fruit Co.* v. *Barrett*, 494 U. S. 638, 649–650 (1990) (declining to award *Chevron* deference when an agency interprets a judicial-review provision). When the agency has no comparative expertise in resolving a regulatory ambiguity, Congress presumably would not grant it that authority.[5]

Finally, an agency's reading of a rule must reflect "fair and considered judgment" to receive *Auer* deference. *Christopher*, 567 U. S., at 155 (quoting *Auer*, 519 U. S., at 462). That means, we have stated, that a court should decline to defer to a merely "convenient litigating position" or "*post hoc* rationalizatio[n] advanced" to "defend past agency action against attack." *Christopher*, 567 U. S., at

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[5] For a similar reason, this Court has denied *Auer* deference when an agency interprets a rule that parrots the statutory text. See *Gonzales* v. *Oregon*, 546 U. S. 243, 257 (2006). An agency, we explained, gets no "special authority to interpret its own words when, instead of using its expertise and experience to formulate a regulation, it has elected merely to paraphrase the statutory language." *Ibid.*

155 (quoting *Bowen* v. *Georgetown Univ. Hospital*, 488 U. S. 204, 213 (1988) and *Auer*, 519 U. S., at 462).[6] And a court may not defer to a new interpretation, whether or not introduced in litigation, that creates "unfair surprise" to regulated parties. *Long Island Care*, 551 U. S., at 170. That disruption of expectations may occur when an agency substitutes one view of a rule for another. We have therefore only rarely given *Auer* deference to an agency construction "conflict[ing] with a prior" one. *Thomas Jefferson*, 512 U. S., at 515. Or the upending of reliance may happen without such an explicit interpretive change. This Court, for example, recently refused to defer to an interpretation that would have imposed retroactive liability on parties for longstanding conduct that the agency had never before addressed. See *Christopher*, 567 U. S., at 155–156. Here too the lack of "fair warning" outweighed the reasons to apply *Auer*. *Id.,* at 156 (internal quotation marks omitted).

* * *

The upshot of all this goes something as follows. When it applies, *Auer* deference gives an agency significant leeway to say what its own rules mean. In so doing, the doctrine enables the agency to fill out the regulatory scheme Congress has placed under its supervision. But that phrase "when it applies" is important—because it often doesn't. As described above, this Court has cabined

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[6] The general rule, then, is not to give deference to agency interpretations advanced for the first time in legal briefs. See *Bowen*, 488 U. S., at 212–213. But we have not entirely foreclosed that practice. *Auer* itself deferred to a new regulatory interpretation presented in an *amicus curiae* brief in this Court. There, the agency was not a party to the litigation, and had expressed its views only in response to the Court's request. "[I]n the circumstances," the Court explained, "[t]here [was] simply no reason to suspect that the interpretation [did] not reflect the agency's fair and considered judgment on the matter in question." *Auer*, 519 U. S., at 462.

Auer's scope in varied and critical ways—and in exactly that measure, has maintained a strong judicial role in interpreting rules. What emerges is a deference doctrine not quite so tame as some might hope, but not nearly so menacing as they might fear.

III

That brings us to the lone question presented here—whether we should abandon the longstanding doctrine just described. In contending that we should, Kisor raises statutory, policy, and constitutional claims (in that order). But he faces an uphill climb. He must first convince us that *Auer* deference is wrong. And even then, he must overcome *stare decisis*—the special care we take to preserve our precedents. In the event, Kisor fails at the first step: None of his arguments provide good reason to doubt *Auer* deference. And even if that were not so, Kisor does not offer the kind of special justification needed to overrule *Auer,* and *Seminole Rock,* and all our many other decisions deferring to reasonable agency constructions of ambiguous rules.

A

Kisor first attacks *Auer* as inconsistent with the judicial review provision of the Administrative Procedure Act (APA). See 5 U. S. C. §706. As Kisor notes, Congress enacted the APA in 1946—the year after *Seminole Rock*—to serve as "the fundamental charter of the administrative state." Brief for Petitioner 26 (internal quotation marks omitted). Section 706 of the Act, governing judicial review of agency action, states (among other things) that reviewing courts shall "determine the meaning or applicability of the terms of an agency action" (including a regulation). According to Kisor, *Auer* violates that edict by thwarting "meaningful judicial review" of agency rules. Brief for Petitioner 29. Courts under *Auer*, he asserts (now in the

language of Section 706), "abdicate their office of determining the meaning" of a regulation. *Id.,* at 27 (internal quotation marks omitted).

To begin with, that argument ignores the many ways, discussed above, that courts exercise independent review over the meaning of agency rules. See *supra,* at 13–18. As we have explained, a court must apply all traditional methods of interpretation to any rule, and must enforce the plain meaning those methods uncover. There can be no thought of deference unless, after performing that thoroughgoing review, the regulation remains genuinely susceptible to multiple reasonable meanings and the agency's interpretation lines up with one of them. And even if that is the case, courts must on their own determine whether the nature or context of the agency's construction reverses the usual presumption of deference. Most notably, a court must consider whether the interpretation is authoritative, expertise-based, considered, and fair to regulated parties. All of that figures as "meaningful judicial review." Brief for Petitioner 29.

And even when a court defers to a regulatory reading, it acts consistently with Section 706. That provision does not specify the standard of review a court should use in "determin[ing] the meaning" of an ambiguous rule. 5 U. S. C. §706. One possibility, as Kisor says, is to review the issue *de novo*. But another is to review the agency's reading for reasonableness. To see the point, assume that a regulatory (say, an employment) statute expressly instructed courts to apply *Auer* deference when reviewing an agency's interpretations of its ambiguous rules. Nothing in that statute would conflict with Section 706. Instead, the employment law would simply make clear *how* a court is to "determine the meaning" of such a rule—by deferring to an agency's reasonable reading. *Ibid*. Of course, that is not the world we know: Most substantive statutes do not say anything about *Auer* deference, one way or the other.

But for all the reasons spelled out above, we have long presumed (subject always to rebuttal) that the Congress delegating regulatory authority to an agency intends as well to give that agency considerable latitude to construe its ambiguous rules. See *supra,* at 7–11. And that presumption operates just like the hypothesized statute above. Because of it, once again, courts do not violate Section 706 by applying *Auer*. To the contrary, they fulfill their duty to "determine the meaning" of a rule precisely by deferring to the agency's reasonable reading. See Sunstein & Vermeule, The Unbearable Rightness of *Auer*, 84 U. Chi. L. Rev. 297, 306 (2017) (If Congress intends "that the meaning of a regulation turns on the agency's interpretation of its meaning," then courts comply with Section 706's command to "'determine the meaning' [of the regulation] by deferring to that view"); cf. *Arlington*, 569 U. S., at 317 (ROBERTS, C. J., dissenting) (similarly addressing why *Chevron* deference comports with Section 706). Section 706 and *Auer* thus go hand in hand.

That is especially so given the practice of judicial review at the time of the APA's enactment. Section 706 was understood when enacted to "restate[] the present law as to the scope of judicial review." See Dept. of Justice, Attorney General's Manual on the Administrative Procedure Act 108 (1947); see also *Vermont Yankee Nuclear Power Corp.* v. *Natural Resources Defense Council, Inc.*, 435 U. S. 519, 546 (1978) (noting that this Court gives some deference to the Manual "because of the role played by the Department of Justice in drafting the legislation"). We have thus interpreted the APA not to "significantly alter the common law of judicial review of agency action." *Heckler* v. *Chaney*, 470 U. S. 821, 832 (1985) (internal quotation marks omitted). That pre-APA common law included *Seminole Rock* itself (decided the year before) along with prior decisions foretelling that ruling. See *supra,* at 7. Even assume that the deference regime laid

out in those cases had not yet fully taken hold. At a minimum, nothing in the law of that era required all judicial review of agency interpretations to be *de novo*. Cf. Manning, Constitutional Structure and Judicial Deference to Agency Interpretations of Agency Rules, 96 Colum. L. Rev. 612, 635–636 (1996) (arguing that courts before the APA used "flexible, common law methods to review administrative action"). And so nothing suggests that Section 706 imposes that requirement. Or otherwise said: If Section 706 did not change the law of judicial review (as we have long recognized), then it did not proscribe a deferential standard then known and in use.

Kisor next claims that *Auer* circumvents the APA's rulemaking requirements. Section 553, as Kisor notes, mandates that an agency use notice-and-comment procedures before issuing legislative rules. See 5 U. S. C. §§553(b), (c). But the section allows agencies to issue "interpret[ive]" rules without notice and comment. See §553(b)(A). A key feature of those rules is that (unlike legislative rules) they are not supposed to "have the force and effect of law"—or, otherwise said, to bind private parties. *Perez* v. *Mortgage Bankers Assn.*, 575 U. S. 92, ___ (2015) (slip op., at 3) (internal quotation marks omitted). Instead, interpretive rules are meant only to "advise the public" of how the agency understands, and is likely to apply, its binding statutes and legislative rules. *Ibid.* But consider, Kisor argues, what happens when a court gives *Auer* deference to an interpretive rule. The result, he asserts, is to make a rule that has never gone through notice and comment binding on the public. See Brief for Petitioner 21, 29. Or put another way, the interpretive rule ends up having the "force and effect of law" without ever paying the procedural cost. *Mortgage Bankers*, 575 U. S., at ___ (slip op., at 3).

But this Court rejected the identical argument just a few years ago, and for good reason. In *Mortgage Bankers*,

we held that interpretive rules, even when given *Auer* deference, do *not* have the force of law. See 575 U. S., at ___, and n. 4 (slip op., at 10, and n. 4). An interpretive rule itself never forms "the basis for an enforcement action"—because, as just noted, such a rule does not impose any "legally binding requirements" on private parties. *National Min. Assn.* v. *McCarthy*, 758 F. 3d 243, 251 (CADC 2014). An enforcement action must instead rely on a legislative rule, which (to be valid) must go through notice and comment. And in all the ways discussed above, the meaning of a legislative rule remains in the hands of courts, even if they sometimes divine that meaning by looking to the agency's interpretation. See *supra,* at 13–18. Courts first decide whether the rule is clear; if it is not, whether the agency's reading falls within its zone of ambiguity; and even if the reading does so, whether it should receive deference. In short, courts retain the final authority to approve—or not—the agency's reading of a notice-and-comment rule. See *Mortgage Bankers,* 575 U. S., at ___, n. 4 (slip op., at 10, n. 4) ("[I]t is the court that ultimately decides whether a given regulation means what the agency says"). No binding of anyone occurs merely by the agency's say-so.

And indeed, a court deciding whether to give *Auer* deference must heed the same procedural values as Section 553 reflects. Remember that a court may defer to only an agency's authoritative and considered judgments. See *supra,* at 15–18. No *ad hoc* statements or *post hoc* rationalizations need apply. And recall too that deference turns on whether an agency's interpretation creates unfair surprise or upsets reliance interests. See *supra,* at 18. So an agency has a strong incentive to circulate its interpretations early and widely. In such ways, the doctrine of *Auer* deference reinforces, rather than undermines, the ideas of fairness and informed decisionmaking at the core of the APA.

To supplement his two APA arguments, Kisor turns to policy, leaning on a familiar claim about the incentives *Auer* creates. According to Kisor, *Auer* encourages agencies to issue vague and open-ended regulations, confident that they can later impose whatever interpretation of those rules they prefer. See Brief for Petitioner 37–41. That argument received its fullest elaboration in a widely respected law review article pre-dating *Auer*. See Manning, 96 Colum. L. Rev., at 654–669. More recently, the concern about such self-delegation has appeared in opinions from this Court, starting with several from Justice Scalia calling for *Auer*'s reconsideration. See, *e.g., Christopher,* 567 U. S., at 158 (citing Manning, *supra,* at 655–668); *Decker* v. *Northwest Environmental Defense Center*, 568 U. S. 597, 620–621 (2013) (Scalia, J., concurring in part and dissenting in part) (citing Manning, *supra*); *Talk America, Inc.* v. *Michigan Bell Telephone Co.*, 564 U. S. 50, 69 (2011) (Scalia, J., concurring) (principally relying on Manning, *supra*).

But the claim has notable weaknesses, empirical and theoretical alike. First, it does not survive an encounter with experience. No real evidence—indeed, scarcely an anecdote—backs up the assertion. As two noted scholars (one of whom reviewed thousands of rules during four years of government service) have written: "[W]e are unaware of, and no one has pointed to, any regulation in American history that, because of *Auer*, was designed vaguely." Sunstein & Vermeule, 84 U. Chi. L. Rev., at 308. And even the argument's theoretical allure dissipates upon reflection. For strong (almost surely stronger) incentives and pressures cut in the opposite direction. "[R]egulators want their regulations to be effective, and clarity promotes compliance." Brief for Administrative Law Scholars as *Amici Curiae* 18–19. Too, regulated parties often push for precision from an agency, so that they know what they can and cannot do. And ambiguities

in rules pose risks to the long-run survival of agency policy. Vagueness increases the chance of adverse judicial rulings. And it enables future administrations, with different views, to reinterpret the rules to their own liking. Add all of that up and Kisor's ungrounded theory of incentives contributes nothing to the case against *Auer*.

Finally, Kisor goes big, asserting (though fleetingly) that *Auer* deference violates "separation-of-powers principles." See Brief for Petitioner 43. In his view, those principles prohibit "vest[ing] in a single branch the law-making and law-interpreting functions." *Id.,* at 45. If that objection is to agencies' usurping the interpretive role of courts, this opinion has already met it head-on. Properly understood and applied, *Auer* does no such thing. In all the ways we have described, courts retain a firm grip on the interpretive function. See *supra,* at 13–18; *Mortgage Bankers,* 575 U. S., at ___, n. 4 (slip op., at 10, n. 4). If Kisor's objection is instead to the supposed commingling of functions (that is, the legislative and judicial) within an agency, this Court has answered it often before. See, *e.g., Withrow* v. *Larkin*, 421 U. S. 35, 54 (1975) (permitting such a combination of functions); *FTC* v. *Cement Institute*, 333 U. S. 683, 702 (1948) (same). That sort of mixing is endemic in agencies, and has been "since the beginning of the Republic." *Arlington*, 569 U. S., at 304–305, n. 4. It does not violate the separation of powers, we have explained, because even when agency "activities take 'legislative' and 'judicial' forms," they continue to be "exercises of[] the 'executive Power'"—or otherwise said, ways of executing a statutory plan. *Ibid.* (quoting U. S. Const., Art. II, §1, cl. 1). So Kisor's last argument to dispatch *Auer* deference fails as roundly as the rest.

B

If all that were not enough, *stare decisis* cuts strongly against Kisor's position. "Overruling precedent is never a

small matter." *Kimble* v. *Marvel Entertainment, LLC*, 576 U. S. ___, ___ (2015) (slip op., at 7). Adherence to precedent is "a foundation stone of the rule of law." *Michigan* v. *Bay Mills Indian Community*, 572 U. S. 782, 798 (2014). "[I]t promotes the evenhanded, predictable, and consistent development of legal principles, fosters reliance on judicial decisions, and contributes to the actual and perceived integrity of the judicial process." *Payne* v. *Tennessee*, 501 U. S. 808, 827 (1991). To be sure, *stare decisis* is "not an inexorable command." *Id.,* at 828. But any departure from the doctrine demands "special justification"—something more than "an argument that the precedent was wrongly decided." *Halliburton Co.* v. *Erica P. John Fund, Inc.*, 573 U. S. 258, 266 (2014).

And that is even more than usually so in the circumstances here. First, Kisor asks us to overrule not a single case, but a "long line of precedents"—each one reaffirming the rest and going back 75 years or more. *Bay Mills*, 572 U. S., at 798; see nn. 2, 3, *supra*. This Court alone has applied *Auer* or *Seminole Rock* in dozens of cases, and lower courts have done so thousands of times. Deference to reasonable agency interpretations of ambiguous rules pervades the whole corpus of administrative law. Second, because that is so, abandoning *Auer* deference would cast doubt on many settled constructions of rules. As Kisor acknowledged at oral argument, a decision in his favor would allow relitigation of any decision based on *Auer*, forcing courts to "wrestle [with] whether or not *Auer*" had actually made a difference. Tr. of Oral Arg. 30; see *id.,* at 47 (Solicitor General agreeing that "every single regulation that's currently on the books whose interpretation has been established under *Seminole Rock* now [would have] to be relitigated anew"). It is the rare overruling that introduces so much instability into so many areas of law, all in one blow.

And third, even if we are wrong about *Auer*, "Congress

remains free to alter what we have done." *Patterson* v. *McLean Credit Union*, 491 U. S. 164, 172–173 (1989) (stating that when that is so, "[c]onsiderations of *stare decisis* have special force"). In a constitutional case, only we can correct our error. But that is not so here. Our deference decisions are "balls tossed into Congress's court, for acceptance or not as that branch elects." *Kimble*, 576 U. S., at ___ (slip op., at 8). And so far, at least, Congress has chosen acceptance. It could amend the APA or any specific statute to require the sort of *de novo* review of regulatory interpretations that Kisor favors. Instead, for approaching a century, it has let our deference regime work side-by-side with both the APA and the many statutes delegating rulemaking power to agencies. It has done so even after we made clear that our deference decisions reflect a presumption about congressional intent. See *Martin*, 499 U. S., at 151; *supra*, at 7–8. And it has done so even after Members of this Court began to raise questions about the doctrine. See, *e.g., Talk America*, 564 U. S., at 67–69 (Scalia, J., concurring). Given that history—and Congress's continuing ability to take up Kisor's arguments—we would need a particularly "special justification" to now reverse *Auer*.

Kisor offers nothing of that ilk. Nearly all his arguments about abandoning precedent are variants of his merits claims. We hear again, if in different parts of his briefs, that *Auer* deference frustrates "the policies embodied in the APA" and violates the separation of powers. Reply Brief 13, and n. 5; Brief for Petitioner 47–48. More generally, we learn that *Seminole Rock* was "wrong on its own terms" and "badly reasoned." *Id.,* at 47 (internal quotation marks omitted). Of course, it is good—and important—for our opinions to be right and well-reasoned. But that is not the test for overturning precedent. Kisor does not claim that *Auer* deference is "unworkable," a traditional basis for overruling a case. *Patterson*, 491

U. S., at 173. Nor does he point to changes in legal rules that make *Auer* a "doctrinal dinosaur." *Kimble*, 576 U. S., at ___ (slip op., at 11). All he can muster is that "[t]he administrative state has evolved substantially since 1945." Brief for Petitioner 53. We do not doubt the point (although we note that *Auer* and other key deference decisions came along after most of that evolution took place). Still more, we agree with Kisor that administrative law doctrines must take account of the far-reaching influence of agencies and the opportunities such power carries for abuse. That is one reason we have taken care today to reinforce the limits of *Auer* deference, and to emphasize the critical role courts retain in interpreting rules. But it is no answer to the growth of agencies for courts to take over their expertise-based, policymaking functions. Who knows? Maybe in 1945, the FDA was not thinking about "active moieties." See *supra,* at 5–6. But still, today—just as *Seminole Rock* and *Auer* held—it should have leeway to say what that term means.

IV

With that, we can finally return to Kisor's own case. You may remember that his retroactive benefits depend on the meaning of the term "relevant" records in a VA regulation. See *supra,* at 2–3. The Board of Veterans' Appeals, through a single judge's opinion, understood records to be relevant only if they relate to the basis of the VA's initial denial of benefits. By contrast, Kisor argued that records are relevant if they go to any benefits criterion, even one that was uncontested. The Federal Circuit upheld the Board's interpretation based on *Auer* deference.

Applying the principles outlined in this opinion, we hold that a redo is necessary for two reasons. First, the Federal Circuit jumped the gun in declaring the regulation ambiguous. We have insisted that a court bring all its interpretive tools to bear before finding that to be so. See

supra, at 13–14. It is not enough to casually remark, as the court did here, that "[b]oth parties insist that the plain regulatory language supports their case, and neither party's position strikes us as unreasonable." 869 F. 3d, at 1368; see *supra,* at 13–14. Rather, the court must make a conscientious effort to determine, based on indicia like text, structure, history, and purpose, whether the regulation really has more than one reasonable meaning. The Solicitor General argued in this Court that the Board's reading is the only reasonable one. See Brief for Respondent 49–50. Perhaps Kisor will make the converse claim below. Before even considering deference, the court must seriously think through those positions.

And second, the Federal Circuit assumed too fast that *Auer* deference should apply in the event of genuine ambiguity. As we have explained, that is not always true. A court must assess whether the interpretation is of the sort that Congress would want to receive deference. See *supra,* at 15–18. The Solicitor General suggested at oral argument that the answer in this case might be no. He explained that all 100 or so members of the VA Board act individually (rather than in panels) and that their roughly 80,000 annual decisions have no "precedential value." Tr. of Oral Arg. 64. He thus questioned whether a Board member's ruling "reflects the considered judgment of the agency as a whole." *Ibid.*; cf. *Mead*, 533 U. S., at 233 (declining to give *Chevron* deference to rulings "being churned out at a rate of 10,000 a year at an agency's 46 scattered offices"). We do not know what position the Government will take on that issue below. But the questions the Solicitor General raised are exactly the kind the court must consider in deciding whether to award *Auer* deference to the Board's interpretation.

We accordingly vacate the judgment below and remand the case for further proceedings.

It is so ordered.

SUPREME COURT OF THE UNITED STATES

No. 18–15

JAMES L. KISOR, PETITIONER *v.* ROBERT WILKIE, SECRETARY OF VETERANS AFFAIRS

ON WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

[June 26, 2019]

CHIEF JUSTICE ROBERTS, concurring in part.

I join Parts I, II–B, III–B, and IV of the Court's opinion. We took this case to consider whether to overrule *Auer* v. *Robbins*, 519 U. S. 452 (1997), and *Bowles* v. *Seminole Rock & Sand Co.*, 325 U. S. 410 (1945). For the reasons the Court discusses in Part III–B, I agree that overruling those precedents is not warranted. I also agree with the Court's treatment in Part II–B of the bounds of *Auer* deference.

I write separately to suggest that the distance between the majority and JUSTICE GORSUCH is not as great as it may initially appear. The majority catalogs the prerequisites for, and limitations on, *Auer* deference: The underlying regulation must be genuinely ambiguous; the agency's interpretation must be reasonable and must reflect its authoritative, expertise-based, and fair and considered judgment; and the agency must take account of reliance interests and avoid unfair surprise. JUSTICE GORSUCH, meanwhile, lists the reasons that a court might be persuaded to adopt an agency's interpretation of its own regulation: The agency thoroughly considered the problem, offered a valid rationale, brought its expertise to bear, and interpreted the regulation in a manner consistent with earlier and later pronouncements. Accounting for variations in verbal formulation, those lists have much in

common.

That is not to say that *Auer* deference is just the same as the power of persuasion discussed in *Skidmore* v. *Swift & Co.*, 323 U. S. 134 (1944); there is a difference between holding that a court ought to be persuaded by an agency's interpretation and holding that it should defer to that interpretation under certain conditions. But it is to say that the cases in which *Auer* deference is warranted largely overlap with the cases in which it would be unreasonable for a court not to be persuaded by an agency's interpretation of its own regulation.

One further point: Issues surrounding judicial deference to agency interpretations of their own regulations are distinct from those raised in connection with judicial deference to agency interpretations of statutes enacted by Congress. See *Chevron U. S. A. Inc.* v. *Natural Resources Defense Council, Inc.*, 467 U. S. 837 (1984). I do not regard the Court's decision today to touch upon the latter question.

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JUSTICE GORSUCH, with whom JUSTICE THOMAS joins, with whom JUSTICE KAVANAUGH joins as to Parts I, II, III, IV, and V, and with whom JUSTICE ALITO joins as to Parts I, II, and III, concurring in the judgment.

It should have been easy for the Court to say goodbye to *Auer* v. *Robbins*.[1] In disputes involving the relationship between the government and the people, *Auer* requires judges to accept an executive agency's interpretation of its own regulations even when that interpretation doesn't represent the best and fairest reading. This rule creates a "systematic judicial bias in favor of the federal government, the most powerful of parties, and against everyone else."[2] Nor is *Auer*'s biased rule the product of some congressional mandate we are powerless to correct: This Court invented it, almost by accident and without any meaningful effort to reconcile it with the Administrative Procedure Act or the Constitution. A legion of academics, lower court judges, and Members of this Court—even *Auer*'s author—has called on us to abandon *Auer*. Yet today a bare majority flinches, and *Auer* lives on.

Still, today's decision is more a stay of execution than a

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[1] 519 U. S. 452 (1997).

[2] Larkin & Slattery, The World After *Seminole Rock* and *Auer*, 42 Harv. J. L. & Pub. Pol'y 625, 641 (2019) (internal quotation marks omitted).

pardon. The Court cannot muster even five votes to say that *Auer* is lawful or wise. Instead, a majority retains *Auer* only because of *stare decisis*. And yet, far from standing by that precedent, the majority proceeds to impose so many new and nebulous qualifications and limitations on *Auer* that THE CHIEF JUSTICE claims to see little practical difference between keeping it on life support in this way and overruling it entirely. So the doctrine emerges maimed and enfeebled—in truth, zombified.

Respectfully, we owe our colleagues on the lower courts more candid and useful guidance than this. And judges owe the people who come before them nothing less than a fair contest, where every party has an equal chance to persuade the court of its interpretation of the law's demands. One can hope that THE CHIEF JUSTICE is right, and that whether we formally overrule *Auer* or merely neuter it, the results in most cases will prove the same. But means, not just ends, matter, and retaining even this debilitated version of *Auer* threatens to force litigants and lower courts to jump through needless and perplexing new hoops and in the process deny the people the independent judicial decisions they deserve. All to what end? So that we may *pretend* to abide *stare decisis*?

Consider this case. Mr. Kisor is a Marine who lost out on benefits for post-traumatic stress disorder when the court of appeals deferred to a regulatory interpretation advanced by the Department of Veterans Affairs. The court of appeals was guilty of nothing more than faithfully following *Auer*. But the majority today invokes *stare decisis*, of all things, to vacate that judgment and tell the court of appeals to try again using its newly retooled, multi-factored, and far less determinate version of *Auer*. Respectfully, I would stop this business of making up excuses for judges to abdicate their job of interpreting the law, and simply allow the court of appeals to afford Mr. Kisor its best independent judgment of the law's meaning.

The Court's failure to be done with *Auer*, and its decision to adorn *Auer* with so many new and ambiguous limitations, all but guarantees we will have to pass this way again. When that day comes, I hope this Court will find the nerve it lacks today and inter *Auer* at last. Until then, I hope that our judicial colleagues on other courts will take courage from today's ruling and realize that it has transformed *Auer* into a paper tiger.

I. How We Got Here

Where did *Auer* come from? Not from the Constitution, some ancient common law tradition, or even a modern statute. Instead, it began as an unexplained aside in a decision about emergency price controls at the height of the Second World War. Even then, the dictum sat on the shelf, little noticed, for years. Only in the last few decades of the 20th century did lawyers and courts really begin to dust it off and shape it into the reflexive rule of deference to regulatory agencies we know today. And they did so without ever pausing to consider whether a rule like that could be legally justified or even made sense. *Auer* is really little more than an accident.

A

Before the mid-20th century, few federal agencies engaged in extensive rulemaking, and those that did rarely sought deference for their regulatory interpretations.[3] But when the question arose, this Court did not hesitate to say that judges reviewing administrative action should decide all questions of law, including questions concerning the meaning of regulations. As Justice Brandeis put it, "[t]he inexorable safeguard which the due process clause assures is . . . that there will be opportunity for a court to determine whether the applicable rules of law . . . were ob-

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[3] See Knudsen & Wildermuth, Unearthing the Lost History of *Seminole Rock*, 65 Emory L. J. 47, 55, 65, 68 (2015) (Lost History).

served."[4] Unsurprisingly, the government's early, longstanding, and consistent interpretation of a statute, regulation, or other legal instrument could count as powerful *evidence* of its original public meaning.[5] But courts respected executive interpretations only because and to the extent "they embodied understandings made roughly contemporaneously with . . . enactment and stably maintained and practiced since that time," not "because they were executive as such."[6]

Writing for four Members of the Court, JUSTICE KAGAN suggests that *Auer*'s very different approach to the interpretation of agency regulations was foreshadowed as early as this Court's 1898 decision in *United States* v. *Eaton*.[7] *Ante*, at 7. But this is mistaken. The question in that case was whether Mr. Eaton's appointment as temporary viceconsul to Siam was consistent with State Department regulations. After several pages of careful and independent legal analysis, the Court held that the regulations did authorize the appointment. That conclusion, the Court explained, was "rendered necessary by a consideration of

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[4] *St. Joseph Stock Yards Co.* v. *United States*, 298 U. S. 38, 73 (1936) (concurring opinion). See also *FTC* v. *Gratz*, 253 U. S. 421, 427 (1920); *ICC* v. *Union Pacific R. Co.*, 222 U. S. 541, 547 (1912); *Belden* v. *Chase*, 150 U. S. 674, 698 (1893); *Decatur* v. *Paulding*, 14 Pet. 497, 515 (1840); accord, Woolhandler, Judicial Deference to Administrative Action—A Revisionist History, 43 Admin. L. Rev. 197, 206–207 (1991).

[5] Bamzai, The Origins of Judicial Deference to Executive Interpretation, 126 Yale L. J. 908, 930–947 (2017) (Origins).

[6] *Id.*, at 943, 962; cf. *NLRB* v. *Noel Canning*, 573 U. S. 513, 572–573 (2014) (Scalia, J., concurring in judgment) (an "open, widespread, and unchallenged" governmental practice can "guide [courts'] interpretation" of an ambiguous text, but it cannot "alter" the meaning of that text); *Edward's Lessee* v. *Darby*, 12 Wheat. 206, 210 (1827) ("In the construction of a doubtful and ambiguous law, the cotemporaneous construction of those who were called upon to act under the law, and were appointed to carry its provisions into effect, is entitled to very great respect").

[7] 169 U. S. 331.

the text."[8] Only *after* reaching this conclusion did the Court observe that the State Department had previously adopted the same construction, noting along the way that the Department's views were "entitled to the greatest weight" and that the Court saw "no reason in this case to doubt [their] correctness."[9] *Eaton* thus simply followed the well-worn path of acknowledging that an agency's interpretation of a regulation can supply *evidence* of its meaning.[10] Nowhere did the Court even hint that it would have deferred to the State Department's views about the meaning of the law if its own independent textual analysis had not led it to the same conclusion.

All this is borne out by the Court's later teachings in *Skidmore* v. *Swift & Co.* in 1944.[11] The question there was whether the time overnight employees spent waiting to respond to fire alarms could amount to compensable overtime under the Fair Labor Standards Act. The lower courts had held as a matter of law that it could not. In an opinion by Justice Jackson, this Court reversed. The Court first held, based on its own independent analysis, that "no principle of law found either in the statute or in Court decisions precludes waiting time from also being working time."[12] Only then did the Court consider "what, if any, deference courts should pay" to the views of the Administrator of the Labor Department's Wage and Hour

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[8] *Id.*, at 342.

[9] *Id.*, at 342–343.

[10] Cf. Newman, How Courts Interpret Regulations, 35 Cal. L. Rev. 509, 521, and n. 78 (1947) (noting that *Eaton* suggested administrative interpretations could be "'persuasive' but not binding").

[11] 323 U. S. 134.

[12] *Id.*, at 136–137. Much of the legal analysis supporting this conclusion was contained in the companion case, *Armour & Co.* v. *Wantock*, 323 U. S. 126 (1944), which made no mention of any administrative interpretations. *Id.*, at 129–134; see *Skidmore*, 323 U. S., at 136 (citing the "reasons set forth in the *Armour* case decided herewith").

Division.[13] And on that question the Court reaffirmed the traditional rule that an agency's interpretation of the law is "not controlling upon the courts" and is entitled only to a weight proportional to "the thoroughness evident in its consideration, the validity of its reasoning, its consistency with earlier and later pronouncements, and all those factors which give it power to persuade."[14] At the time, the influential administrative law scholar Kenneth Culp Davis considered this "[a]n entirely reliable statement" of the law.[15]

B

In truth, the seeds of the *Auer* doctrine were first planted only in 1945, in *Bowles* v. *Seminole Rock & Sand Co.*[16] That case involved regulations issued by the Office of Price Administration (OPA), which Congress had tasked with stabilizing the national economy during the Second World War through the use of emergency price controls. It was in that context that the Court declared—for the first time and without citing any authority—that "if the meaning of [the regulation were] in doubt," the agency's interpretation would merit "controlling weight unless it is plainly erroneous or inconsistent with the regulation."[17]

Yet even then it was far from clear how much weight

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[13] *Id.*, at 139.

[14] *Id.*, at 140; see also *id.*, at 139 (the agency's views "are not, of course, conclusive, even in the cases with which they directly deal" and do not "bin[d] a district court's processes, as an authoritative pronouncement of a higher court might do").

[15] Davis, Administrative Rules—Interpretative, Legislative, and Retroactive, 57 Yale L. J. 919, 936–939, and n. 86 (1948); see also K. Davis, Administrative Law §249, p. 901 (1951) ("[S]ubstitution of judicial judgment on the content of interpretative rules is always permissible, even though the reviewing court may give 'weight' or 'great weight' to the rule. The best guide may be the Court's formula in *Skidmore* . . . ").

[16] 325 U. S. 410.

[17] *Id.*, at 414.

the Court really placed on the agency's interpretation. As it had in *Eaton*, the Court in *Seminole Rock* began with an extended discussion of "the plain words of the regulation," which led it to conclude that the text "clearly" supported the government's position.[18] Only after reaching that conclusion based on its own independent analysis did the Court proceed to add that "[a]ny doubts . . . are removed by reference to the administrative construction."[19]

So confused was all this that readers at the time didn't perceive *Seminole Rock*'s dictum as changing anything. Professor Davis observed that the Court's discussion about giving "controlling weight" to the agency's interpretation was an unexplained aside that made no difference to the case's outcome.[20] The dictum, too, was readily explained as reflecting the unusual factual context in which the case arose, involving an emergency government program created to deal with "unique circumstances of war and economic depression."[21] And the Court decided *Seminole Rock* the same Term it issued *Skidmore*, where it reaffirmed the traditional rule that an agency's views about the law may *persuade* a court but can never *control* its judgment. In fact, the Court in *Seminole Rock* was careful to note that the OPA interpretation before it bore many of the characteristics *Skidmore* would have recognized as increasing its persuasive force: It had been announced concurrently with the regulation, disseminated widely to the regulated community, and adhered to consistently by the agency.[22]

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[18] *Id.*, at 414–417.

[19] *Id.*, at 417.

[20] See Davis, Scope of Review of Federal Administrative Action, 50 Colum. L. Rev. 559, 597 (1950).

[21] Lost History 60; see also Anthony, The Supreme Court and the APA: Sometimes They Just Don't Get It, 10 Admin. L. J. Am. U. 1, 12 (1996).

[22] 325 U. S., at 417–418; see Pojanowski, Revisiting *Seminole Rock*, 16 Geo. J. L. & Pub. Pol'y 87, 88 (2018) ("A closer look at *Seminole Rock* suggests an unremarkable application of the less-deferential standard

No wonder, then, that for many years after the decision, courts "connected *Seminole Rock* more closely with the deference framework . . . under *Skidmore*" and generally engaged in a *Skidmore*-type analysis, accepting the agency's interpretation "only after independently examining the regulation and concluding that the agency interpretation was sound."[23] If *Seminole Rock*'s "controlling weight" dictum was afforded any force, it was usually only in the price control context; even then it was ordinarily extended only to "official" agency interpretations that were published contemporaneously with the regulation and widely distributed.[24] The Fourth Circuit exemplified the early understanding of *Seminole Rock* when it observed—citing both *Seminole Rock* and *Skidmore*—that "under settled principles" an official agency interpretation in an opinion letter was entitled only to "respectful consideration."[25] The letter, the court stressed, did not "have the effect of law," and "[i]t would be absurd to hold that the courts must subordinate their judgment as to the meaning of a . . . regulation to the mere unsupported opinion of an associate counsel in an administrative department."[26]

C

This Court did not cite *Seminole Rock*'s "controlling weight" dictum again until 1965, in *Udall* v. *Tallman*.[27] And though *Tallman* "did very little to advance the jurisprudential understanding of *Seminole Rock*," it certainly helped fuel the expansion of so-called "*Seminole Rock*

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of review of *Skidmore*").

[23] Lost History 94–97; see Pojanowski, *supra*, at 92–96.

[24] Lost History 65–68.

[25] *Southern Goods Corp.* v. *Bowles*, 158 F. 2d 587, 590 (1946).

[26] *Ibid.*

[27] 380 U. S. 1, 4, 17–18 (accepting a regulatory interpretation by the Secretary of the Interior that was consistent, widely disseminated, and heavily relied upon, while not suggesting any disagreement with the Secretary's interpretation).

deference."[28] From the 1960s on, this Court and lower courts began to cite the *Seminole Rock* dictum with increasing frequency and in a wider variety of circumstances, but still without much explanation. They also increasingly divorced *Seminole Rock* from *Skidmore*.[29]

Auer represents the apotheosis of this line of cases. In the name of what some now call the *Auer* doctrine, courts have in recent years "mechanically applied and reflexively treated" *Seminole Rock*'s dictum "as a constraint upon the careful inquiry that one might ordinarily expect of courts engaged in textual analysis."[30] Under *Auer*, judges are forced to subordinate their own views about what the law means to those of a political actor, one who may even be a party to the litigation before the court. After all, if the court agrees that the agency's reading is the best one, *Auer* does no real work; the doctrine matters only when a court would conclude that the agency's interpretation is *not* the best or fairest reading of the regulation.

To be sure, JUSTICE KAGAN paints a very different picture of *Auer*, asking us to imagine it riding to the rescue only in cases where the scales of justice are evenly balanced between two equally persuasive readings. But that's a fantasy: "If nature knows of such equipoise in legal arguments, the courts at least do not."[31] In the real world the judge uses his traditional interpretive toolkit, full of canons and tiebreaking rules, to reach a decision about the best and fairest reading of the law. Of course, there are close cases and reasonable judges will sometimes disagree. But every day, in courts throughout this country, judges manage with these traditional tools to reach conclusions about the meaning of statutes, rules of proce-

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[28] Lost History 80.

[29] See generally *id.*, at 68–92, 98.

[30] *Id.*, at 53.

[31] Scalia, Judicial Deference to Administrative Interpretations of Law, 1989 Duke L. J. 511, 520.

dure, contracts, and the Constitution. Yet when it comes to interpreting federal regulations, *Auer* displaces this process and requires judges instead to treat the agency's interpretation as controlling even when it is "not . . . the best one."[32]

If that were not troubling enough, *Auer* has also become "a doctrine of uncertain scope and application."[33] This Court has never offered meaningful guidance on how to decide whether the agency's reading is "reasonable" enough to demand judicial deference—and lower courts have drawn that line in wildly different places.[34] Deepening the confusion, this Court and lower courts have, over time, tried to soften *Auer*'s rigidity by declaring that it "might" not apply in some ill-defined circumstances, such as when the agency's interpretation "conflicts with a prior interpretation" or reflects a "convenient litigating position" or a "*post hoc* rationalization" for past agency action.[35] All this has resulted in "widespread confusion" about when and how to apply *Auer* deference.[36]

In light of *Auer*'s many problems, it should come as no surprise that several Members of this Court,[37] along with

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[32] *Decker* v. *Northwest Environmental Defense Center*, 568 U. S. 597, 613 (2013); see *Pauley* v. *BethEnergy Mines, Inc.*, 501 U. S. 680, 702 (1991) (the agency's interpretation "need not be the best or most natural one by grammatical or other standards").

[33] Hickman & Thomson, The *Chevron*ization of *Auer*, 103 Minn. L. Rev. Headnotes 103, 105 (2019).

[34] See Kavanaugh, Fixing Statutory Interpretation, 129 Harv. L. Rev. 2118, 2134–2144 (2016).

[35] *Christopher* v. *SmithKline Beecham Corp.*, 567 U. S. 142, 155 (2012) (alterations and internal quotation marks omitted).

[36] Leske, Splits in the *Rock*: The Conflicting Interpretations of the *Seminole Rock* Deference Doctrine by the U. S. Courts of Appeals, 66 Admin. L. Rev. 787, 832 (2014); see Hickman & Thomson, *supra*, at 111 (noting a "glut of recent cases in which members of the same court are openly divided on the proper application of *Auer*").

[37] See *Perez* v. *Mortgage Bankers Assn.*, 575 U. S. 92, ___–___ (2015) (ALITO, J., concurring in part and concurring in judgment) (slip op., at

a great many lower court judges[38] and members of the legal academy,[39] have questioned *Auer*'s validity and pleaded with this Court to reconsider it.

D

That's where things stood when James Kisor asked the Department of Veterans Affairs to reopen his disability benefits claim. Mr. Kisor served as a United States Marine from 1962 through 1966 and saw combat in Vietnam.

1–2); *id.*, at ___–___ (Scalia, J., concurring in judgment) (slip op., at 1–5); *id.*, at ___–___ (THOMAS, J., concurring in judgment) (slip op., at 8–23); *Decker*, 568 U. S., at 615–616 (ROBERTS, C. J., joined by ALITO, J., concurring); *id.*, at 616–621 (Scalia, J., concurring in part and dissenting in part); *Talk America, Inc.* v. *Michigan Bell Telephone Co.*, 564 U. S. 50, 67–69 (2011) (Scalia, J., concurring); see also Kavanaugh, Keynote Address: Justice Scalia and Deference 19:06 (June 2, 2016), http://vimeo.com/169758593 (predicting "that *Auer* will someday be overruled and that Justice Scalia's dissent in *Decker* will be the law of the land").

[38] See, *e.g.*, *Forrest Gen. Hospital* v. *Azar*, ___ F. 3d ___, ___, 2019 WL 2417409, *7 (CA5 2019); *San Diego Gas & Elec. Co.* v. *FERC*, 913 F. 3d 127, 145, n. 4 (CADC 2019) (Randolph, J., dissenting); *United States* v. *Havis*, 907 F. 3d 439, 450–452 (CA6 2018) (Thapar, J., concurring), vacated, 921 F. 3d 628, on reh'g en banc, ___ F. 3d ___ (CA6 2019); *Marsh* v. *J. Alexander's LLC*, 905 F. 3d 610, 652–653 (CA9 2018) (Ikuta, J., dissenting); *Egan* v. *Delaware River Port Auth.*, 851 F. 3d 263, 279 (CA3 2017) (Jordan, J., concurring in judgment); *Perez* v. *Loren Cook Co.*, 803 F. 3d 935, 938, n. 2 (CA8 2015) (en banc); *Johnson* v. *McDonald*, 762 F. 3d 1362, 1366–1368 (CA Fed. 2014) (O'Malley, J., concurring); *Exelon Generation Co.* v. *Local 15, Int'l Brotherhood of Elec. Workers, AFL–CIO*, 676 F. 3d 566, 576, n. 5 (CA7 2012).

[39] See, *e.g.*, Hickman & Thomson, *supra*, at 111–113; Adler, *Auer* Evasions, 16 Geo. J. L. & Pub. Pol'y 1, 26 (2018); Pojanowski, 16 Geo. J. L. & Pub. Pol'y, at 99; Knudsen & Wildermuth, Lessons From the Lost History of *Seminole Rock*, 22 Geo. Mason L. Rev. 647, 667 (2015); Leske, *supra*, at 789–793; Molot, The Judicial Perspective in the Administrative State: Reconciling Modern Doctrines of Deference with the Judiciary's Structural Role, 53 Stan. L. Rev. 1, 108–110 (2000); Anthony, 10 Admin. L. J., at 4–12; Manning, Constitutional Structure and Judicial Deference to Agency Interpretations of Agency Rules, 96 Colum. L. Rev. 612, 696 (1996).

In the early 1980s, a VA counselor observed that Mr. Kisor was battling depression and suicidal thoughts and suggested he might be suffering from post-traumatic stress disorder. In light of this, Mr. Kisor filed a claim for disability benefits in 1982. But, in the end, the VA denied the claim.

In 2006, Mr. Kisor sought to reopen the matter. In connection with that request, he presented new evidence, including a psychiatrist's report diagnosing him with PTSD and additional records documenting his service in Vietnam. The VA reopened Mr. Kisor's claim and granted him disability benefits effective June 5, 2006, the date he had submitted his new request. Mr. Kisor argued that a VA regulation entitled him to an earlier effective date for disability benefits, one tracing back to his original submission in 1982. But the Board of Veterans Appeals concluded that the applicable regulation didn't authorize that relief.

Mr. Kisor appealed the Board's ruling all the way to the Federal Circuit, arguing that the Board had misinterpreted the relevant regulation. The Federal Circuit affirmed. Relying on the *Auer* doctrine, the court held that it had no choice but to treat the Board's interpretation as "'controlling'" unless that interpretation was "'plainly erroneous or inconsistent with the regulatio[n].'"[40] Without even trying to determine who had the better reading of the regulation, the Board or Mr. Kisor, the court declared that "[t]he Board's interpretation does not strike us as either plainly erroneous or inconsistent with the VA's regulatory framework."[41] Case closed.

Mr. Kisor sought and was denied rehearing en banc. Three judges dissented and joined those who have questioned "the logic behind continued adherence to the [*Auer*] doctrine"; they argued that, without *Auer* deference, Mr.

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[40] *Kisor* v. *Shulkin*, 869 F. 3d 1360, 1367 (2017).

[41] *Id.*, at 1368.

Kisor's reading of the regulation would likely prevail.[42] Mr. Kisor then asked us to grant certiorari to reconsider *Auer*. Thinking it past time to do so, we granted the petition.[43]

II. The Administrative Procedure Act

When this Court speaks about the rules governing judicial review of federal agency action, we are not (or shouldn't be) writing on a blank slate or exercising some common-law-making power. We are supposed to be applying the Administrative Procedure Act. The APA is a "seminal" statute that Congress wrote to define the relationship between courts and agencies.[44] Some have even described it as a kind of constitution for our "administrative state." Yet, remarkably, until today this Court has never made any serious effort to square the *Auer* doctrine with the APA. Even now, only four Justices make the attempt. And for at least two reasons, their arguments are wholly unpersuasive.

A

The first problem lies in §706. That provision instructs reviewing courts to "decide all relevant questions of law" and "set aside agency action . . . found to be . . . not in accordance with law."[45] Determining the meaning of a statute or regulation, of course, presents a classic legal question. But in case these directives were not clear enough, the APA further directs courts to "determine the meaning" of any relevant "agency action," including any rule issued by the agency.[46] The APA thus requires a

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[42] *Kisor* v. *Shulkin*, 880 F. 3d 1378, 1379 (CA Fed. 2018) (opinion of O'Malley, J.).

[43] 586 U. S. ___ (2018).

[44] *Abbott Laboratories* v. *Gardner*, 387 U. S. 136, 140 (1967).

[45] 5 U. S. C. §706.

[46] *Ibid.*; see §551(13) (defining "agency action").

reviewing court to resolve for itself any dispute over the proper interpretation of an agency regulation. A court that, in deference to an agency, adopts something other than the best reading of a regulation isn't "decid[ing]" the relevant "questio[n] of law" or "determin[ing] the meaning" of the regulation. Instead, it's allowing the agency to dictate the answer to that question. In doing so, the court is abdicating the duty Congress assigned to it in the APA.[47]

JUSTICE KAGAN seeks to address the glaring inconsistency between our judge-made rule and the controlling statute this way. On her account, the APA tells a reviewing court to "determine the meaning" of regulations, but it does not tell the court "*how*" to do that. Thus, we are told, reading the regulation for itself and deferring to the agency's reading are just two equally valid ways for a court to fulfill its statutory duty to "determine the meaning" of the regulation. *Ante*, at 20–21.

But the APA isn't as anemic as that. Its unqualified command requires the court to determine legal questions—including questions about a regulation's meaning—by its own lights, not by those of political appointees or bureaucrats who may even be self-interested litigants in the case at hand. Nor can there be any doubt that, when Congress wrote the APA, it knew perfectly well how to require judicial deference to an agency when it wished—in fact, Congress repeatedly specified deferential standards for judicial review *elsewhere* in the statute.[48] But when it

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[47] The case before us doesn't arise under the APA, but the statute that governs here is plainly modeled on the APA and contains essentially the same commands. It directs a reviewing court to "decide all relevant questions of law" and to "set aside any regulation or any interpretation thereof" that is "not in accordance with law." 38 U. S. C. §7292(d)(1).

[48] See, *e.g.*, §706(2)(A) (arbitrary and capricious, abuse of discretion); §706(2)(E) (substantial evidence); see also *Universal Camera Corp.* v.

comes to the business of interpreting regulations, no such command exists; instead, Congress told courts to "determine" those matters for themselves. Though one hardly needs to be an academic to recognize the point, "commentators in administrative law have 'generally acknowledged' that Section 706 seems to require de novo review on questions of law."[49]

What the statutory language suggests, experience confirms. If *Auer* deference were really just another way for courts to "determine the meaning" of regulations under §706, you might expect that a final judicial "determination" would at least settle, as a matter of precedent, the question of what the regulation "means." Of course, even after one court has spoken on a regulation's meaning, that

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NLRB, 340 U. S. 474, 482, n. 14 (1951) (noting that as originally proposed, the APA's judicial review provision would have included an explicit requirement for courts to accord "due weight" to "the experience, technical competence, specialized knowledge, and legislative policy of the agency involved as well as the discretionary authority conferred upon it" (internal quotation marks omitted)).

[49] Duffy, Administrative Common Law in Judicial Review, 77 Texas L. Rev. 113, 194–195 (1998); see Merrill, Capture Theory and the Courts: 1967–1983, 72 Chi.-Kent L. Rev. 1039, 1085–1086 (1997) (noting the "embarrassing" fact that "the APA appears to compel th[e] conclusion" that "courts should decide all questions of law de novo"). See also, *e.g.*, Origins 985; Mashaw, Rethinking Judicial Review of Administrative Action: A Nineteenth Century Perspective, 32 Cardozo L. Rev. 2241, 2243 (2011); Garrett, Legislating Chevron, 101 Mich. L. Rev. 2637, 2640 (2003); Molot, Reexamining *Marbury* in the Administrative State: A Structural and Institutional Defense of Judicial Power over Statutory Interpretation, 96 Nw. U. L. Rev. 1239, 1249 (2002); Anthony, 10 Admin. L. J. Am. U., at 9–10; Farina, Statutory Interpretation and the Balance of Power in the Administrative State, 89 Colum. L. Rev. 452, 473, and n. 85 (1989); Starr, Sunstein, Willard, & Morrison, Judicial Review of Administrative Action in a Conservative Era, 39 Admin. L. Rev. 353, 368 (1987) (remarks of Prof. Sunstein); Pierce & Shapiro, Political and Judicial Review of Agency Action, 59 Texas L. Rev. 1175, 1182 (1981); 4 K. Davis, Administrative Law §30.01, pp. 190–191 (1958).

court or another might properly give weight to a new agency interpretation as part of the court's own decision-making process. See *supra*, at 6. But in light of *National Cable & Telecommunications Assn.* v. *Brand X Internet Services*,[50] courts have interpreted *Auer* as forbidding a court from ever "determin[ing] the meaning" of a regulation with the force that normally attaches to precedent, because an agency is always free to adopt a different view and insist on judicial deference to its new judgment.[51] And if an agency can not only control the court's initial decision but also revoke that decision at any time, how can anyone honestly say the court, rather than the agency, ever really "determine[s]" what the regulation means?

To test the point further, consider a statute that tells a court to "determin[e]" an appropriate sentence in a criminal case.[52] If the judge said he was sending a defendant to prison for longer than he believed appropriate only in deference to the government's "reasonable" sentencing recommendation, would anyone really think that complied with the law? Or take a statute that instructs a court to "determine" whether a consent judgment proposed by the government in a civil antitrust case "is in the public interest."[53] If a court thought the proposed judgment harmful to the public but decided to defer to the government's "reasonable" contrary view anyway, would anyone suggest the court had complied with Congress's instruction?

Nor does JUSTICE KAGAN's reading of §706 offer any logical stopping point. If courts can "determine the meaning" of a regulation by deferring to any "reasonable" agency reading, then why not by deferring to *any* agency reading? If it were really true that the APA has nothing to say

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[50] 545 U. S. 967 (2005).

[51] See, *e.g.*, *In re Lovin*, 652 F. 3d 1349, 1353–1354 (CA Fed. 2011); *Levy* v. *Sterling Holding Co.*, 544 F. 3d 493, 502–503 (CA3 2008).

[52] 18 U. S. C. §3553(a).

[53] 15 U. S. C. §16(e)(1).

about *how* courts decide what regulations mean, then it would follow that the APA tolerates a rule that "the agency is always right." And if you find yourself in a place as absurd as that, you might want to consider whether you've taken a wrong turn along the way.

B

The problems don't end there. *Auer* is also incompatible with the APA's instructions in §553. That provision requires agencies to follow notice-and-comment procedures when issuing or amending legally binding regulations (what the APA calls "substantive rules"), but not when offering mere interpretations of those regulations.[54] An agency wishing to adopt or amend a binding regulation thus must publish a proposal in the Federal Register, give interested members of the public an opportunity to submit written comments on the proposal, and consider those comments before issuing the final regulation. Under the APA, that regulation then carries the force of law unless and until it is amended or repealed.[55] By contrast, an agency can announce an interpretation of an existing substantive regulation without advance warning and in pretty much whatever form it chooses.

Auer effectively nullifies the distinction Congress drew here. Under *Auer*, courts must treat as "controlling" not only an agency's duly promulgated rules but also its mere interpretations—even ones that appear only in a legal brief, press release, or guidance document issued without affording the public advance notice or a chance to comment. For all practical purposes, "the new interpretation might as well be a new regulation."[56] *Auer* thus obliterates a distinction Congress thought vital and supplies

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[54] See *Perez*, 575 U. S., at ___–___ (slip op., at 2–3).

[55] *United States* v. *Nixon*, 418 U. S. 683, 695–696 (1974).

[56] *Perez*, 575 U. S., at ___ (THOMAS, J., concurring in judgment) (slip op., at 16).

agencies with a shortcut around the APA's required procedures for issuing and amending substantive rules that bind the public with the full force and effect of law.[57]

Think of it this way. We've held that the Constitution's specification of a "single, finely wrought" procedure for the enactment of statutes (bicameralism and presentment) necessarily implies that Congress cannot amend an enacted statute without following that procedure—say, by allowing a single House to change what the law requires.[58] By the same logic, Congress's specification in the APA of procedures for the creation of new substantive rules (like notice and comment) necessarily implies that an agency cannot amend a substantive rule without following those procedures. To hold otherwise, as *Auer* demands, subverts the APA's design.

Certain *amici* contend this argument is "out of place" in this particular case because the VA happened to issue the interpretation challenged here in an adjudicative proceeding.[59] But the premise on which they proceed—that the APA permits agencies to issue "controlling" amendments to their regulations in adjudicative proceedings—is not correct. Once an agency issues a substantive rule through notice and comment, it can amend that rule only by following the same notice-and-comment procedures.[60] Whether an agency issues its interpretation in a press release or something it chooses to call an "adjudication," all we have is the agency's opinion about what an existing rule means, something that the APA tells us is *not* binding in a court of law or on the American people.

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[57] *Ibid.*; see *id.*, at ___ (Scalia, J., concurring in judgment) (slip op., at 3) (*Auer* lets agencies "use [interpretive] rules not just to advise the public, but also to bind them").

[58] See *INS* v. *Chadha*, 462 U. S. 919, 951, 954 (1983).

[59] Brief for Administrative Law Scholars as *Amici Curiae* 9–10, n. 4.

[60] See *Perez*, 575 U. S., at ___ (slip op., at 8); *Marseilles Land & Water Co.* v. *FERC*, 345 F. 3d 916, 920 (CADC 2003).

If that won't work, JUSTICE KAGAN tries an alternative argument from nearly the opposite direction. She replies that affording *Auer* deference to an agency's interpretation of its own rules never offends the APA because the agency's interpretation lacks "the force of law" associated with substantive rules. Agency interpretations lack this force, we are told, because a court always retains the power to decide at least whether the interpretation is entitled to deference. *Ante*, at 22–23. But this argument rests on an implausibly narrow understanding of what it means for an agency action to bear the force of law. Under JUSTICE KAGAN's logic, even a binding substantive rule would lack the force of law because a court retains the power to decide whether the rule is arbitrary and capricious and thus invalid under the APA. But no one believes that. While an agency interpretation, just like a substantive rule, "must meet certain conditions before it gets deference," "once it does so [*Auer* makes it] every bit as binding as a substantive rule."[61] To suggest that *Auer* does not make an agency's interpretive guidance "binding o[n] anyone," *ante*, at 23, is linguistic hocus-pocus.

C

If *Auer* cannot be squared with the text of the APA, JUSTICE KAGAN suggests it at least conforms to a reasonable "presumption about congressional intent." *Ante*, at 7. The theory seems to be that whenever Congress grants an agency "rulemaking power," it *also* implicitly gives the agency "'the power authoritatively to interpret'" whatever rules the agency chooses to adopt. *Ante*, at 8. But against the clear statutory commands Congress gave us in the APA, what sense does it make to "presume" that Congress really, secretly, wanted courts to treat agency interpreta-

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[61] *Perez*, 575 U. S., at ___ (Scalia, J., concurring in judgment) (slip op., at 3).

tions as binding? Normally, this Court does not allow hidden legislative intentions to "muddy" such plainly expressed statutory directives.[62]

Even on its own terms, too, this argument proves pretty muddy. It goes something like this: The drafters of the APA did not intend to "'significantly alter'" established law governing judicial review of agency action as of 1946; the *Auer* doctrine was part of that established law; therefore, the APA implicitly requires courts to afford agencies *Auer* deference. *Ante*, at 21–22. But neither of this syllogism's essential premises stands on solid ground.

Take the major premise—that those who adopted the APA intended to work no change in the established law of judicial review of agency action. JUSTICE KAGAN is right, of course, that Attorney General Clark claimed as much shortly after the APA's passage. *Ante*, at 21. But his view, which reflected the interests of the executive branch, was far from universally shared. Others, including many members of Congress, thought the APA would clarify, if not expand, the scope of judicial review. For example, Senator McCarran, the Chairman of the Judiciary Committee, wrote that it would be "hard . . . for anyone to argue that this Act did anything other than cut down the 'cult of discretion' so far as federal law is concerned."[63] And both the House and Senate reports on the APA said it was intended to "provid[e] that questions of law are for courts rather than agencies to decide in the last analysis."[64]

Just five years after the APA's passage, this Court

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[62] *Milner* v. *Department of Navy*, 562 U. S. 562, 572 (2011).

[63] McCarran, Improving "Administrative Justice": Hearings and Evidence; Scope of Judicial Review, 32 A. B. A. J. 827, 893 (1946).

[64] H. R. Rep. No. 1980, 79th Cong., 2d Sess., 44 (1946); accord, S. Rep. No. 752, 79th Cong., 1st Sess., 28 (1945); 92 Cong. Rec. 5654 (1946) (statement of Rep. Walter). See also Shepherd, Fierce Compromise: The Administrative Procedure Act Emerges from New Deal Politics, 90 Nw. U. L. Rev. 1557, 1662–1666 (1996).

seemed to side with those who thought the APA was intended to do more than just summarize existing law. In an opinion by Justice Frankfurter, the Court opined that the APA required courts to assume "*more* responsibility" for reviewing agency decisions "than some courts ha[d] shown in the past."[65] One early commentator likewise observed that the APA seemed designed to eliminate all doubt that questions of law "shall be decided by the reviewing Court for itself, and in the exercise of its own independent judgment"; "[m]ore explicit words to impose this mandate," he thought, "could hardly be found."[66]

JUSTICE KAGAN's syllogism runs into even more trouble with its minor premise—that the *Auer* doctrine was a well-established part of the common law background when Congress enacted the APA in 1946. As we've seen, this Court planted the seeds of *Auer* deference for the first time in dictum in *Seminole Rock*, just a year before Congress passed the APA. See Part I–B, *supra*. And that dictum did not somehow immediately become an entrenched part of the common law: For years following *Seminole Rock*, courts and "commentators largely ignored" it,[67] and those who took notice weren't sure what to make of it. Professor Davis, for example, doubted that the dictum could be "taken at face value" given that it seemed "irreconcilable" with the Court's approach in other cases.[68] In truth, when Congress passed the APA the law of judicial review of agency action was in a confused state. During the con-

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[65] *Universal Camera*, 340 U. S., at 490 (emphasis added).

[66] Dickinson, Administrative Procedure Act: Scope and Grounds of Broadened Judicial Review, 33 A. B. A. J. 434, 516 (1947). See also Origins 990–991 (critiquing the Attorney General's characterization of the APA as "inherently question begging" and unsupported by any analysis).

[67] Adler, 16 Geo. J. L. & Pub. Pol'y, at 7; see Lost History 63; Pojanowski, 16 Geo. J. L. & Pub. Pol'y, at 95–96.

[68] Davis, 50 Colum. L. Rev., at 597–598; see also Davis, 57 Yale L. J., at 936, n. 72; Newman, 35 Cal. L. Rev., at 521–522.

gressional hearings on the bill, one witness's suggestion that Congress should leave the scope of judicial review "as it now is" drew this fair reply from Representative Walter, chairman of the House Subcommittee on Administrative Law and author of the House Report on the APA: "You say 'as it now is.' Frankly, I do not know what it now is . . . . [T]he Supreme Court apparently changes its mind daily."[69]

III. The Constitution

Not only is *Auer* incompatible with the APA; it also sits uneasily with the Constitution. Article III, §1 provides that the "judicial Power of the United States" is vested exclusively in this Court and the lower federal courts. A core component of that judicial power is "'the duty of interpreting [the laws] and applying them in cases properly brought before the courts.'"[70] As Chief Justice Marshall put it, "[i]t is emphatically the province and duty of the judicial department to say what the law is."[71] And never, this Court has warned, should the "judicial power . . . be shared with [the] Executive Branch."[72] Yet that seems to be exactly what *Auer* requires.

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Our Nation's founders were painfully aware of the dangers of executive and legislative intrusion on judicial decision-making. One of the abuses of royal power that led to the American Revolution was King George's attempt

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[69] Hearings on H. R. 184 et al. before the House Committee on the Judiciary, 79th Cong., 1st Sess., 38 (1945); see Origins 988–989.

[70] *Patchak* v. *Zinke*, 583 U. S. ___, ___ (2018) (plurality opinion) (slip op., at 5) (quoting *Massachusetts* v. *Mellon*, 262 U. S. 447, 488 (1923)).

[71] *Marbury* v. *Madison*, 1 Cranch 137, 177 (1803); see also *Wayman* v. *Southard*, 10 Wheat. 1, 46 (1825) ("[T]he legislature makes, the executive executes, and the judiciary construes the law"); The Federalist No. 78, p. 467 (C. Rossiter ed. 1961) (A. Hamilton).

[72] *Miller* v. *Johnson*, 515 U. S. 900, 922 (1995).

to gain influence over colonial judges.[73] Colonial legislatures, too, had interfered with the courts' independence "at the behest of private interests and factions."[74] These experiences had taught the founders that "'there is no liberty if the power of judgment be not separated from the legislative and executive powers.'"[75] They knew that when political actors are left free not only to adopt and enforce written laws, but also to control the interpretation of those laws, the legal rights of "litigants with unpopular or minority causes or . . . who belong to despised or suspect classes" count for little.[76] Maybe the powerful, well-heeled, popular, and connected can wheedle favorable outcomes from a system like that—but what about everyone else? They are left always a little unsure what the law is, at the mercy of political actors and the shifting winds of popular opinion, and without the chance for a fair hearing before a neutral judge. The rule of law begins to bleed into the rule of men.

Experiencing all this in their own time, the founders

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[73] See Declaration of Independence ¶11.

[74] *Plaut* v. *Spendthrift Farm*, *Inc.*, 514 U. S. 211, 220–221 (1995).

[75] The Federalist No. 78, at 466.

[76] *Palmore* v. *United States*, 411 U. S. 389, 412 (1973) (Douglas, J., dissenting); see *Oil States Energy Services*, *LLC* v. *Greene's Energy Group*, *LLC*, 584 U. S. ___, ___ (2018) (GORSUCH, J., dissenting) (slip op., at 3) ("[W]hen an independent judiciary gives ground to bureaucrats in the adjudication of cases, the losers will often prove the unpopular and vulnerable"); *United States* v. *Hatter*, 532 U. S. 557, 568–569 (2001) (quoting John Marshall's admonition that a judge who may be called on to decide a dispute "'between the most powerful individual in the community, and the poorest and most unpopular'" must be "'perfectly and completely independent, with nothing to influence or control him but God and his conscience'" (alterations omitted)); Jackson, The Meaning of Statutes: What Congress Says or What the Court Says, 34 A. B. A. J. 535, 536 (1948) ("[T]he interpretation of [the laws'] fair meaning . . . should be made by judges as independent of politics as humanly possible and not serving the interests of the class for whom, or a majority by whom, legislation is enacted").

sought to ensure that those who came after them would not. Believing that "[n]o maxim was better established" than "that the power of making ought to be kept distinct from that of expounding, the laws,"[77] they designed a judiciary that would be able to interpret the laws "free from potential domination by other branches of government."[78] To that end, they resisted proposals that would have subjected judicial decisions to review by political actors.[79] And they rejected the British tradition of using the upper house of the legislature as a court of last resort, out of fear that a body with "even a partial agency in passing bad laws" would operate under the "same spirit" in "interpreting them."[80] Instead, they gave federal judges life tenure, subject only to removal by impeachment; and they guaranteed that the other branches could not reduce judges' compensation so long as they remained in office.

The founders afforded these extraordinary powers and protections not for the comfort of judges, but so that an independent judiciary could better guard the people from the arbitrary use of governmental power. And sitting atop the judicial branch, this Court has always carried a special duty to "jealously guar[d]" the Constitution's promise of judicial independence.[81] So we have long resisted any effort by the other branches to "'usurp a court's power to interpret and apply the law to the circumstances before it.'"[82] The judicial power to interpret the law, this Court has held, "can no more be shared with another branch

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[77] 2 Records of the Federal Convention of 1787, p. 75 (M. Farrand ed. 1911); see also Manning, 96 Colum. L. Rev., at 640–648.

[78] *United States* v. *Will*, 449 U. S. 200, 218 (1980).

[79] See The Federalist No. 81, at 482 (A. Hamilton).

[80] *Id.*, at 483.

[81] *Northern Pipeline Constr. Co.* v. *Marathon Pipe Line Co.*, 458 U. S. 50, 60 (1982) (plurality opinion).

[82] *Bank Markazi* v. *Peterson*, 578 U. S. ___, ___ (2016) (slip op., at 12) (alterations omitted).

than the Chief Executive, for example, can share with the Judiciary the veto power, or the Congress share with the Judiciary the power to override a Presidential veto."[83]

Auer represents no trivial threat to these foundational principles. Under the APA, substantive rules issued by federal agencies through notice-and-comment procedures bear "the 'force and effect of law'"[84] and are part of the body of federal law, binding on private individuals, that the Constitution charges federal judges with interpreting. Yet *Auer* tells the judge that he must interpret these binding laws to mean not what he thinks they mean, but what an executive agency says they mean. Unlike Article III judges, executive officials are not, nor are they supposed to be, "wholly impartial."[85] They have their own interests, their own constituencies, and their own policy goals—and when interpreting a regulation, they may choose to "press the case for the side [they] represen[t]" instead of adopting the fairest and best reading.[86] *Auer* thus means that, far from being "kept distinct," the powers of making, enforcing, and interpreting laws are united in the same hands—and in the process a cornerstone of the rule of law is compromised.

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[83] *Stern* v. *Marshall*, 564 U. S. 462, 483 (2011) (internal quotation marks omitted).

[84] *Perez*, 575 U. S., at ___ (slip op., at 2); see *Chrysler Corp.* v. *Brown*, 441 U. S. 281, 295–296 (1979). To be sure, our precedent allowing executive agencies to issue legally binding regulations to govern private conduct may raise constitutional questions of its own. See, *e.g.*, *Department of Transportation* v. *Association of American Railroads*, 575 U. S. 43, ___–___ (2015) (THOMAS, J., concurring in judgment) (slip op., at 4–11).

[85] Cox, Judge Learned Hand and the Interpretation of Statutes, 60 Harv. L. Rev. 370, 390 (1947).

[86] *Id.*, at 390–391, and n. 58; see also Kavanaugh, 129 Harv. L. Rev., at 2151 (in pursuing their policy goals, "[e]xecutive branch agencies often think they can take a particular action unless it is *clearly forbidden*").

Consider an analogy. The Court has long held that Congress cannot "'indirectly control the action of the courts, by requiring of them a construction of the law according to its own views.'"[87] If Congress disagrees with how courts are interpreting an existing statute, it is free to amend the statute to establish a different rule going forward. What it cannot do is issue "a mandate . . . to compel the courts to construe and apply [existing law], not according to the judicial, but according to the legislative judgment."[88] As early as 1804, when a lawyer argued before this Court that an Act of the North Carolina legislature could not control the Court's construction of an earlier North Carolina statute because "[t]o declare what the law is, or has been, is a judicial power," not a legislative power, the Court stopped him, deeming the point too plain for argument.[89]

But if the legislature can't control a judge's interpretation of an existing statute, how can an executive agency control a judge's interpretation of an existing and equally binding regulation? *Auer* allows an agency to do exactly what this Court has always said a legislature cannot do: "compel the courts to construe and apply" a law on the books, "not according to the judicial . . . judgment," but according to the judgment of another branch.[90] When we defer to an agency interpretation that differs from what we believe to be the best interpretation of the law, we compromise our judicial independence and deny the people who come before us the impartial judgment that the Constitution guarantees them. And we mislead those whom we serve by placing a judicial *imprimatur* on what is, in

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[87] *Plaut*, 514 U. S., at 225 (quoting T. Cooley, Constitutional Limitations 95 (1868)).

[88] *Id.*, at 95; see also *Bank Markazi*, 578 U. S., at ___, n. 17 (slip op., at 12, n. 17).

[89] *Ogden* v. *Blackledge*, 2 Cranch 272, 277.

[90] Cooley, *supra*, at 95.

fact, no more than an exercise of raw political executive power.[91]

B

What do our colleagues have to say about these concerns? A majority has nothing to offer, and JUSTICE KAGAN dismisses them out of hand. In fact, she barely mentions the Constitution, other than to assure us that *Auer* does not allow agencies to "usur[p] the interpretive role of courts" because "courts retain a firm grip on the interpretive function" through their ability to decide whether *Auer* deference applies. *Ante*, at 25. But that is no assurance at all. The judicial power has always been understood to provide the people with a neutral arbiter who bears the responsibility and duty to "expound and interpret" the governing law, not just the power to say whether *someone else's* interpretation, let alone the interpretation of a self-interested political actor, is "reasonable."[92]

To be sure, it's conceivable that Congress might seek to limit the ability of judges to remedy an adverse agency action. It might, for example, provide that a court shall have power to set aside agency action pursuant to a regulation only if the action was based on an unreasonable interpretation of the regulation. But even assuming the constitutionality of a hypothetical statute like that, *Auer* is different. It does not *limit* the scope of the judicial power; instead, it seeks to *coopt* the judicial power by requiring an Article III judge to decide a case before him according

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[91] Cf. *Cary* v. *Curtis*, 3 How. 236, 253, 257 (1845) (Story, J., dissenting) (if the "right to interpret the laws" is taken away from courts and "confided to an executive functionary," then "the judicial power, designed by the Constitution to be the final and appellate jurisdiction to interpret our laws, is superseded in its most vital and important functions").

[92] *Marbury*, 1 Cranch, at 177.

to principles that he believes do not accurately reflect the law. Under *Auer*, a judge is required to lay aside his independent judgment and declare affirmatively that a regulation *means* what the agency *says* it means—and, thus, that the law *is* what the agency *says* it is. Then the judge is compelled to exercise his judicial authority to adjust private rights and obligations based on the agency's (mis)understanding of the law. If *Auer* were a statute, it would not be an exercise of Congress's "power (within limits) to tell the courts what *classes* of cases they may decide," or what relief they may supply, but a forbidden attempt "to prescribe or superintend *how* they decide those cases."[93] And in the absence of any statute like that, this Court surely should not so freely give away to the executive branch its assigned responsibility to interpret the laws. "Abdication of responsibility is not part of the constitutional design."[94]

In the end, JUSTICE KAGAN's only real reply is this: However misguided it may be to hand over our interpretive powers to executive agencies, at least there isn't a mountain of empirical evidence showing that agencies have used this power to deliberately write "vague and open-ended" regulations to maximize their interpretive leeway. *Ante*, at 24. But even this misses the point. Whether or not regulations are "'designed'" to be vague, *ibid.*, many can be read in different ways, especially when new and unanticipated applications arise; cases like that come before the courts all the time. Without *Auer*'s shadow hanging over them, parties would receive a fair hearing before an impartial judge. The agency's interpretation would sometimes be rejected; and that, in turn, might lead it to solicit public comment on possible amendments to the

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[93] *Arlington* v. *FCC*, 569 U. S. 290, 297 (2013) (emphasis added).

[94] *Clinton* v. *City of New York*, 524 U. S. 417, 452 (1998) (Kennedy, J., concurring).

regulation, which would provide an opportunity for public input that might produce better policy. But with *Auer*, there is no fair hearing and no need for the agency to amend the regulation through notice and comment. Whether purposeful or not, the agency's failure to write a clear regulation winds up increasing its power, allowing it to both write and interpret rules that bear the force of law—in the process uniting powers the Constitution deliberately separated and denying the people their right to an independent judicial determination of the law's meaning.

IV. Policy Arguments

Lacking support elsewhere, JUSTICE KAGAN is forced to resort to policy arguments to defend *Auer*. But even the most sensible policy argument would not empower us to ignore the plain language of the APA or the demands of the Constitution. And as we've seen, those documents reflect a very different "policy" judgment by the people and their representatives. Besides, the policy arguments offered today are not just unpersuasive, they are troubling.

Take the first and boldest offering. JUSTICE KAGAN suggests that determining the meaning of a regulation is largely a matter of figuring out what the "person who wrote it . . . intended." *Ante*, at 8. In this way, we're told, a legally binding regulation isn't all that different from "a memo or an e-mail"—if you "[w]ant to know what [it] means," you'd better "[a]sk its author." *Ante*, at 8–9. But the federal government's substantive rules are not like memos or e-mails; they are binding edicts that carry the force of law for all citizens. And if the rule of law means anything, it means that we are governed by the public meaning of the words found in statutes and regulations, not by their authors' private intentions. This is a vital part of what it means to have "a government of laws, and

not of men."[95] When judges interpret a regulation, what we are trying to get at, as Justice Holmes explained long ago, is not the "particular intent" of those who wrote it, but "what [its] words would mean [to] a normal speaker of English . . . in the circumstances in which they were used."[96] If the best reading of the regulation turns out to be something other than what the agency claims to have intended, the agency is free to rewrite the regulation; but its secret intentions are not the law.

Nor does JUSTICE KAGAN's account of the interpretive process even wind up supporting *Auer*. If a court's goal in interpreting a regulation really were to determine what its author "intended," *Auer* would be an almost complete mismatch with the goal. Agency personnel change over time, and an agency's policy priorities may shift dramatically from one presidential administration to another. Yet *Auer* tells courts that they must defer to the agency's *current* view of what the regulation ought to mean, which may or may not correspond to the views of those who actually wrote it. If interpreting a regulation really were just like reading an e-mail, *Auer* would be like seeking guidance about the e-mail's meaning, years or decades later, from the latest user of the computer from which the e-mail was sent. We've repeatedly rejected that approach in the context of statutory interpretation. While Members of this Court sometimes disagree about the usefulness of *pre-enactment* legislative history, we all agree that legislators' statements about the meaning of an already-enacted statute are not "a legitimate tool of statutory interpreta-

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[95] *Marbury*, 1 Cranch, at 163.

[96] Holmes, The Theory of Legal Interpretation, 12 Harv. L. Rev. 417, 417–418 (1899); see *INS* v. *Cardoza-Fonseca*, 480 U. S. 421, 452–453 (1987) (Scalia, J., concurring in judgment) ("Judges interpret laws rather than reconstruct legislators' intentions"); H. Hart & A. Sacks, The Legal Process 1375 (1994) ("Unenacted intentions or wishes cannot be given effect as law").

tion,'" much less a controlling one.[97] So why on earth would we give "controlling weight" to an agency's statements about the meaning of an already-promulgated regulation?

Proceeding farther down this doubtful path, JUSTICE KAGAN asserts that resolving ambiguities in a regulation "sounds more in policy than in law" and is thus a task more suited to executive officials than judges. *Ante*, at 9. But this claim, too, contradicts a basic premise of our legal order: that we are governed not by the shifting whims of politicians and bureaucrats, but by written laws whose meaning is fixed and ascertainable—if not by all members of the public, then at least by lawyers who can advise them and judges who must apply the law to individual cases guided by the neutral principles found in our traditional tools of interpretation. The text of the regulation is treated *as* the law, and the agency's policy judgment has the force of law *only* insofar as it is embodied in the regulatory text. If "new issues demanding new policy calls" arise that aren't addressed in existing regulations, *ante*, at 10, the solution is for the agency to promulgate new regulations using the notice-and-comment procedures set forth in the APA. But an agency has no warrant to compel judges to change the law to conform with the agency's current policy preferences.

To be sure, during the period of *Auer*'s ascendancy some suggested that the meaning of written law is always "radically indeterminate" and that judges expounding it are "for the most part, guided by policy—not text."[98] And in an environment like that it was perhaps thought a small step to conclude that, if legal disputes are going to be

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[97] *United States* v. *Woods*, 571 U. S. 31, 48 (2013).

[98] O'Scannlain, "We Are All Textualists Now": The Legacy of Justice Antonin Scalia, 91 St. John's L. Rev. 303, 304–305 (2017) (contesting the radical indeterminacy of legal texts).

resolved on political grounds, then they ought to be resolved by real politicians in the executive branch rather than ersatz politicians on the bench. But the proposed cure proved worse than the disease. Arguments like these surrendered the judgment embodied in our Constitution and the APA that courts owe the people they serve their independent legal judgment about the law's meaning. Besides, we've long since come to realize that the real cure doesn't lie in turning judges into rubber stamps for politicians, but in redirecting the judge's interpretive task back to its roots, away from open-ended policy appeals and speculation about legislative intentions and toward the traditional tools of interpretation judges have employed for centuries to elucidate the law's original public meaning. Today it is even said that we judges are, to one degree or another, "all textualists now."[99]

Pursuing a more modest tack, JUSTICE KAGAN next suggests that *Auer* is justified by the respect due agencies' "technical" expertise. *Ante*, at 10. But no one doubts that courts should pay close attention to an expert agency's views on technical questions in its field. Just as a court "would want to know what John Henry Wigmore said about an issue of evidence law [or] what Arthur Corbin thought about a matter of contract law," so too should courts carefully consider what the Food and Drug Administration thinks about how its prescription drug safety regulations operate.[100] The fact remains, however, that even agency experts "can be wrong; even Homer nodded."[101] *Skidmore* and the traditional approach it embodied recognized both of these facts of life long ago, explaining that, while courts should of course afford respectful

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[99] *Id.*, at 313; see Siegel, Textualism and Contextualism in Administrative Law, 78 B. U. L. Rev. 1023, 1057 (1998).

[100] Larkin & Slattery, 42 Harv. J. L. & Pub. Pol'y, at 647.

[101] *Ibid.*

consideration to the expert agency's views, they must remain open to competing expert and other evidence supplied in an adversarial setting. Respect for an agency's technical expertise demands no more.

JUSTICE KAGAN's final policy argument is that *Auer* promotes "consistency" and "uniformity" in the interpretation of regulations. *Ante*, at 10–11. If we let courts decide what regulations mean, she warns, they might disagree, and it might take some time for higher courts to resolve those disagreements. But consistency and uniformity are hardly grounds on which *Auer*'s advocates should wish to fight. The judicial process is how we settle disputes about the meaning of written law, and our judicial system is more than capable of producing a single, uniform, and stable interpretation that will last until the regulation is amended or repealed. Meanwhile, under *Auer* courts often disagree about whether deference is warranted, see *supra*, at 10–11, and a regulation's "meaning" can be transformed with the stroke of a pen any time there is a new presidential administration. "Consistency," "uniformity," and stability in the law are hardly among *Auer*'s crowning achievements.

V. *Stare Decisis*

In the end, a majority declines to endorse JUSTICE KAGAN's arguments and insists only that, even if *Auer* is not "right and well-reasoned," we're stuck with it because of the respect due precedent. *Ante*, at 27.

But notice: While pretending to bow to *stare decisis*, the majority goes about reshaping our precedent in new and experimental ways. True, the majority admits, this Court has in the past accorded *Auer* deference "'reflexive[ly],'" "without significant analysis of the underlying regulation" or "careful attention to [its] nature and context," and encouraged lower courts to do the same. *Ante*, at 12–13. But no more. From now on, the majority says, not only

must judges "exhaust all the 'traditional tools' of construction" to decide whether the agency's interpretation is "reasonable," they must also make "an independent inquiry into whether the character and context of the agency interpretation" justifies deference. *Ante*, at 13–15. The majority candidly admits that it finds it impossible to "reduce" this new inquiry "to any exhaustive test," so it settles for laying out some "markers." *Ante*, at 15. What are the markers? We are told that courts should often—but not always—withhold deference from an interpretation offered by mid-level agency staff; often—but not always—withhold deference from a nontechnical, "prosaic-seeming" interpretation; often—but not always—withhold deference from an interpretation advanced for the first time in an *amicus* brief; and often—but not always—withhold deference from an interpretation that conflicts with an earlier one. See *ante*, at 15–18. The only certainty in all this is that the majority isn't really much moved by *stare decisis*; everyone recognizes, to one degree or another, that *Auer* cannot stand. And between our remaining choices—continuing to make up new deference rules, or returning to the text of the APA and the approach to judicial review that prevailed for most of our history—the answer should have been easy.

A

There are serious questions about whether *stare decisis* should apply here at all. To be sure, *Auer*'s narrow holding about the meaning of the regulation at issue in that case may be entitled to *stare decisis* effect. The same may be true for the specific holdings in other cases where this Court has applied *Auer* deference. But does *stare decisis* extend beyond those discrete holdings and bind future Members of this Court to apply *Auer*'s broader deference framework?

It seems doubtful that *stare decisis* demands that much.

We are not dealing with a precedent that purported to settle the meaning of a single statute or regulation or resolve a particular case. The *Auer* doctrine claims to do much more than that—to prescribe an interpretive methodology governing every future dispute over the meaning of every regulation. In other contexts, we do not regard statements in our opinions about such generally applicable interpretive methods, like the proper weight to afford historical practice in constitutional cases or legislative history in statutory cases, as binding future Justices with the full force of horizontal *stare decisis*.[102] Why, then, should we regard as binding *Auer*'s statements about the weight to afford agencies' interpretations in regulatory cases? To the extent *Auer* purports to dictate "the interpretive inferences that future Justices must draw in construing statutes and regulations that the Court has never engaged," it may well "exceed the limits of stare decisis."[103]

Even if our past expressions of support for *Auer* deference bear *some* precedential force, they certainly are not entitled (as the majority suggests, *ante*, at 26–27) to the special, heightened form of *stare decisis* we reserve for narrow statutory decisions. In contrast to precedents that fix the meaning of *particular* statutes and generate reliance interests in the process, the *Auer* doctrine is an abstract default rule of interpretive methodology that settles nothing of its own force. And this Court has recognized

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[102] See Criddle & Staszewski, Against Methodological Stare Decisis, 102 Geo. L. J. 1573, 1577, and n. 12 (2014); C. Oldfather, Methodological Stare Decisis and Constitutional Interpretation, in Precedent in the United States Supreme Court 135, 135–136 (C. Peters ed. 2013).

[103] Kozel, Statutory Interpretation, Administrative Deference, and the Law of Stare Decisis, 97 Texas L. Rev. 1125, 1159 (2019); see Raso & Eskridge, *Chevron* as a Canon, Not a Precedent: An Empirical Study of What Motivates Justices in Agency Deference Cases, 110 Colum. L. Rev. 1727, 1765–1766 (2010) (concluding that in practice, this Court has not treated administrative-deference regimes such as *Chevron* and *Auer* as binding precedents).

that it is "inconsistent with the Court's proper role" to insist that Congress exercise its legislative power to overturn such erroneous and judicially invented "default rule[s]."[104] That should be especially so here because *Auer*'s default rule undermines judicial independence, which this Court has a special responsibility to defend.

Nor is it entirely clear that Congress *could* overturn the *Auer* doctrine legislatively. The majority describes *Auer* as a "presumption" about how courts should interpret statutes granting rulemaking power to agencies. *Ante*, at 12. Congress can, of course, *rebut* the presumption on a statute-by-statute basis, or even for all past statutes. But can Congress *eliminate* the *Auer* presumption for future statutes? Perhaps—but legislation like that would raise questions, which the majority does not address, about the ability of one Congress to entrench its preferences by attempting to control the interpretation of legislation enacted by future Congresses.[105] We should not be in the business of tossing "'balls . . . into Congress's court,'" *ante*, at 27, that would explode with constitutional questions if Congress tried to pick them up.

B

Even assuming for argument's sake that standard *stare decisis* considerations apply, they still do not require us to retain *Auer*. Even the majority implicitly recognizes this much, as it proceeds to vacate a lower court judgment that faithfully applied *Auer* and instruct that court to try again using the majority's new directions. If *stare decisis* allows us so freely to remodel *Auer*, it's hard to see on what ac-

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[104] *South Dakota* v. *Wayfair, Inc.*, 585 U. S. ___, ___ (2018) (slip op., at 18).

[105] See, *e.g.*, Alexander & Prakash, Mother May I? Imposing Mandatory Prospective Rules of Statutory Interpretation, 20 Const. Comment. 97 (2003); Elhauge, Preference-Estimating Statutory Default Rules, 102 Colum. L. Rev. 2027, 2109–2110, and nn. 231–233 (2002).

count it might require us to retain it.

We do not lightly overturn precedents, and we seek always to honor the thoughtful guidance of those who have preceded us. At the same time, everyone agrees that *stare decisis* is not an "'inexorable command,'"[106] and this Court should not always remain bound to decisions whose "rationale no longer withstands 'careful analysis.'"[107] Recognizing the need for balance in this area, the Court has, over time, fashioned principles to guide our treatment of precedent. Those principles call on us to consider factors such as "the quality of [the precedent's] reasoning, the workability of the rule it established, its consistency with other related decisions, developments since the decision was handed down, and reliance on the decision."[108] As applied to *Auer*, all of these considerations weigh strongly in favor of bidding farewell to the doctrine rather than keeping it on life support.

First, we've already seen that no persuasive rationale supports *Auer*. From its humble origins as an unexplained bit of dictum in a wartime case about emergency price controls, the *Auer* doctrine evolved into a rigid rule of deference—all without any serious attempt by this Court to rationalize it or reconcile it with the APA, the Constitution, or traditional modes of judicial review. See Part I, *supra*. Even its fiercest defenders acknowledge that "*Auer* deference has not remained static over time" and urge the Court to continue to "shape" and "refin[e]" the doctrine.[109] Today's decision attempts just such a "refinement" by hedging *Auer* with new qualifications and limitations. See *ante*, at 11–18. This shifting ground "undermin[es] the

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[106] *Pearson* v. *Callahan*, 555 U. S. 223, 233 (2009).

[107] *Arizona* v. *Gant*, 556 U. S. 332, 348 (2009) (quoting *Lawrence* v. *Texas*, 539 U. S. 558, 577 (2003)).

[108] *Janus* v. *State*, *County*, *and Municipal Employees*, 585 U. S. ___, ___–___ (2018) (slip op., at 34–35).

[109] Brief for Administrative Law Scholars as *Amici Curiae* 13.

force of *stare decisis*."[110]

Second, today's ruling all but admits that *Auer* has not proved to be a workable standard. Even before this latest overhaul, uncertainty surrounding *Auer*'s scope and application had caused many to question whether there was any "practical benefit" in continuing to apply *Auer* "rather than a less deferential but more flexible and open-ended standard like *Skidmore*."[111] See *supra*, at 10–11. Nor does the majority's kinder, gentler version of *Auer* promise to solve the problem. On the contrary, its newly mandated inquiry into the "character and context of the agency interpretation," which it admits cannot be reduced "to any exhaustive test," *ante*, at 15, seems destined only to compound the confusion. See *supra*, at 35. Many words come to mind to describe the tasks we assign lower court judges today, but "workable" is not among them.

Third, the *Auer* doctrine is, as we have also already seen, out of step with how courts normally interpret written laws. When we interpret a regulation, we typically (at least when there is no agency say-so) proceed in the same way we would when interpreting any other written law: We "begin our interpretation of the regulation with its text" and, if the text is unclear, we "turn to other canons of interpretation" and tie-breaking rules to resolve the ambiguity.[112] And when we interpret an ambiguous *statute*, we never ask what current members of Congress think it means; in fact, we've held unanimously that legislators' post-enactment views about a statute's meaning are not

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[110] *Knick* v. *Township of Scott*, *ante*, at 22; see *Janus*, 585 U. S., at ___ (slip op., at 23). See also Lost History 54–92; Knudsen & Wildermuth, 22 Geo. Mason L. Rev., at 658–664.

[111] Hickman & Thomson, 103 Minn. L. Rev. Headnotes, at 110.

[112] *Green* v. *Brennan*, 578 U. S. ___, ___ (2016) (slip op., at 5); see, *e.g.*, *National Assn. of Home Builders* v. *Defenders of Wildlife*, 551 U. S. 644, 668–669 (2007) (construing regulation in light of text, history, and canon against surplusage).

even a "'legitimate tool of statutory interpretation.'"[113] Affording "controlling weight" to regulators' post-promulgation views about the meaning of an ambiguous regulation is hard to square with these usual judicial practices.[114]

Fourth, the explosive growth of the administrative state over the last half-century has exacerbated *Auer*'s potential for mischief. When the Court first uttered its dictum in *Seminole Rock*, the administrative state was new and the APA was only a gleam in Congress's eye. Even 20 years later, when the Court began reviving the *Seminole Rock* dictum and turning it into a new deference doctrine, it was not yet apparent how pervasive the administrative state would become in the lives of ordinary Americans. Now, in the 21st century, "[t]he administrative state wields vast power and touches almost every aspect of daily life."[115] Among other things, it produces "'reams of regulations'"[116]—so many that they dwarf the statutes enacted by Congress. As of 2018, the Code of Federal Regulations filled 242 volumes and was about 185,000 pages long,

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[113] *Woods*, 571 U. S., at 48; see also *Bruesewitz* v. *Wyeth LLC*, 562 U. S. 223, 242 (2011); *Jones* v. *United States*, 526 U. S. 227, 238 (1999); *United States* v. *Mine Workers*, 330 U. S. 258, 281–282 (1947).

[114] To be sure, under *Chevron U. S. A. Inc.* v. *Natural Resources Defense Council, Inc.*, 467 U. S. 837 (1984), we sometimes defer to an agency's construction of a *statute*. But there are serious questions, too, about whether *that* doctrine comports with the APA and the Constitution. See, *e.g.*, *Pereira* v. *Sessions*, 585 U. S. ___, ___–___ (2018) (Kennedy, J., concurring); *Michigan* v. *EPA*, 576 U. S. ___, ___–___ (2015) (THOMAS, J., concurring); *Perez*, 575 U. S., at ___–___ (Scalia, J., concurring in judgment) (slip op., at 2–3). Regardless, it would be a mistake to suppose that *Auer* is in any way a "logical corollary to *Chevron*." *Decker*, 568 U. S., at 620 (Scalia, J., concurring in part and dissenting in part).

[115] *Arlington*, 569 U. S., at 313 (ROBERTS, C. J., dissenting) (internal quotation marks omitted).

[116] *Federal Maritime Comm'n* v. *South Carolina Ports Authority*, 535 U. S. 743, 755 (2002).

almost quadruple the length of the most recent edition of the U. S. Code.[117] And agencies add thousands more pages of regulations every year. Whether you think this administrative fecundity is a good or a bad thing, it surely means that the cost of continuing to deny citizens an impartial judicial hearing on the meaning of disputed regulations has increased dramatically since this Court started down this road.

Fifth, *Auer* has generated no serious reliance interests. The only parties that might have relied on *Auer*'s promise of deference are agencies that use *post hoc* interpretations to bypass the APA's notice-and-comment procedures. But this Court has never suggested that the convenience of government officials should count in the balance of *stare decisis*, especially when weighed against the interests of citizens in a fair hearing before an independent judge and a stable and knowable set of laws. In short, "'[t]he fact that [agencies] may view [*Auer* deference] as an entitlement does not establish the sort of reliance interest that could outweigh the countervailing interest'" of all citizens "'in having their constitutional rights fully protected.'"[118]

Coming closer to the mark, the majority worries that "abandoning *Auer* deference would cast doubt on many settled constructions" of regulations on which regulated parties might have relied. *Ante*, at 26. But, again, decisions construing particular regulations might retain *stare decisis* effect even if the Court announced that it would no longer adhere to *Auer*'s interpretive methodology. After all, decisions construing particular statutes continue to

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[117] See Office of the Federal Register, Code of Federal Regulations: Total Pages 1938–1949, and Total Volumes and Pages 1950–2018, http://www.federalregister.gov/uploads/2019/04/cfrTotalPages2018.pdf; *United States* v. *Secretary*, *Fla. Dept. of Corrections*, 778 F. 3d 1223, 1225 (CA11 2015).

[118] *Janus*, 585 U. S., at ___ (slip op., at 45) (quoting *Gant*, 556 U. S., at 349).

command respect even when the interpretive methods that led to those constructions fall out of favor. Besides, if the majority is correct that abandoning *Auer* would require revisiting regulatory constructions that were upheld based on *Auer* deference, the majority's revision of *Auer* will yield exactly the same result. There are innumerable lower court decisions that have followed this Court's lead and afforded *Auer* deference mechanically, without conducting the inquiry the Court now holds is required. Today's ruling casts no less doubt on the continuing validity of those decisions than we would if we simply moved on from *Auer*.

*

Overruling *Auer* would have taken us directly back to *Skidmore*, liberating courts to decide cases based on their independent judgment and "follow [the] agency's [view] only to the extent it is persuasive."[119] By contrast, the majority's attempt to remodel *Auer*'s rule into a multi-step, multi-factor inquiry guarantees more uncertainty and much litigation. Proceeding in this convoluted way burdens our colleagues on the lower courts, who will have to spend time debating deference that they could have spent interpreting disputed regulations. It also continues to deny the people who come before us the neutral forum for their disputes that they rightly expect and deserve.

But this cloud may have a silver lining: The majority leaves *Auer* so riddled with holes that, when all is said and done, courts may find that it does not constrain their independent judgment any more than *Skidmore*. As reengineered, *Auer* requires courts to "exhaust all the 'traditional tools' of construction" before they even consider deferring to an agency. *Ante*, at 13–14. And those tools

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[119] *Gonzales* v. *Oregon*, 546 U. S. 243, 269 (2006); see *Christopher*, 567 U. S., at 159 (applying *Skidmore* after concluding that agency's interpretation did not merit *Auer* deference).

include all sorts of tie-breaking rules for resolving ambiguity even in the closest cases. Courts manage to make do with these tools in many other areas of the law, so one might hope they will hardly ever find them inadequate here. And if they do, they will now have to conduct a further inquiry that includes so few firm guides and so many cryptic "markers" that they will rarely, if ever, have to defer to an agency regulatory interpretation that differs from what they believe is the best and fairest reading.

But whatever happens, this case hardly promises to be this Court's last word on *Auer*. If today's opinion ends up reducing *Auer* to the role of a tin god—officious, but ultimately powerless—then a future Court should candidly admit as much and stop requiring litigants and lower courts to pay token homage to it. Alternatively, if *Auer* proves more resilient, this Court should reassert its responsibility to say what the law is and afford the people the neutral forum for their disputes that they expect and deserve.

SUPREME COURT OF THE UNITED STATES

No. 18–15

JAMES L. KISOR, PETITIONER *v.* ROBERT WILKIE, SECRETARY OF VETERANS AFFAIRS

ON WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

[June 26, 2019]

JUSTICE KAVANAUGH, with whom JUSTICE ALITO joins, concurring in the judgment.

I agree with JUSTICE GORSUCH's conclusion that the *Auer* deference doctrine should be formally retired. I write separately to emphasize two points.

First, I agree with THE CHIEF JUSTICE that "the distance between the majority and JUSTICE GORSUCH is not as great as it may initially appear." *Ante,* at 1 (opinion concurring in part). The majority's approach in Part II–B of its opinion closely resembles the argument advanced by the Solicitor General to "clarif[y] and narro[w]" *Auer*. Brief for Respondent 15. Importantly, the majority borrows from footnote 9 of this Court's opinion in *Chevron* to say that a reviewing court must "exhaust all the 'traditional tools' of construction" before concluding that an agency rule is ambiguous and deferring to an agency's reasonable interpretation. *Ante,* at 14 (quoting *Chevron U. S. A. Inc.* v. *Natural Resources Defense Council, Inc.*, 467 U. S. 837, 843, n. 9 (1984)). If a reviewing court employs all of the traditional tools of construction, the court will almost always reach a conclusion about the best interpretation of the regulation at issue. After doing so, the court then will have no need to adopt or defer to an agency's contrary interpretation. In other words, the footnote 9 principle, taken seriously, means that courts will have no

reason or basis to put a thumb on the scale in favor of an agency when courts interpret agency regulations.

Formally rejecting *Auer* would have been a more direct approach, but rigorously applying footnote 9 should lead in most cases to the same general destination. Umpires in games at Wrigley Field do not defer to the Cubs manager's in-game interpretation of Wrigley's ground rules. So too here.

To be sure, some cases involve regulations that employ broad and open-ended terms like "reasonable," "appropriate," "feasible," or "practicable." Those kinds of terms afford agencies broad policy discretion, and courts allow an agency to reasonably exercise its discretion to choose among the options allowed by the text of the rule. But that is more *State Farm* than *Auer*. See *Motor Vehicle Mfrs. Assn. of United States, Inc.* v. *State Farm Mut. Automobile Ins. Co.*, 463 U. S. 29 (1983).

In short, after today's decision, a judge should engage in appropriately rigorous scrutiny of an agency's interpretation of a regulation, and can simultaneously be appropriately deferential to an agency's reasonable policy choices within the discretion allowed by a regulation.

Second, I also agree with THE CHIEF JUSTICE that "[i]ssues surrounding judicial deference to agency interpretations of their own regulations are distinct from those raised in connection with judicial deference to agency interpretations of statutes enacted by Congress." *Ante,* at 2. Like THE CHIEF JUSTICE, "I do not regard the Court's decision" not to formally overrule *Auer* "to touch upon the latter question." *Ibid.*

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August 7, 2019

Molly C. Dwyer
Clerk of Court
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James R. Browning Courthouse
95 Seventh Street
San Francisco, California 94103

Re: No. 18-71705, *City of Burien v. Federal Aviation Administration*
Response to City of Burien's Notice of Supplemental Authority

Dear Ms. Dwyer:

The Federal Aviation Administration hereby responds to the City of Burien's July 18, 2019 submission of supplemental authority, namely, *Kisor v. Wilkie*, 139 S. Ct. 2400 (2019).

The FAA agrees with the City that *Kisor* does not alter the fundamental point about this case, i.e., that it "should be resolved on the basis of the plain language of the [FAA] rule at issue—a 'categorical exclusion' from National Environmental Policy Act review." As the FAA argued in its answering brief (pp. 25–26), the challenged action falls within that plain language, and so the action is subject to simplified environmental review under the exclusion.

The FAA further argued (p. 26) that *if* the Court concludes that the language of the categorical exclusion "is ambiguous, FAA's interpretation of its scope is afforded deference." In this regard, the FAA again agrees with the City that *Kisor* clarifies that "a court should not afford [such] deference unless the regulation is genuinely ambiguous." 139 S. Ct. at 2415. Moreover, a court should defer to an agency's interpretation of a regulation only where it represents a reasonable, fair, and authoritative position implicating the issuing agency's substantive expertise. *Id.* at 2415–18. Those factors are present here. *See* Answering Brief 22–27.

Accordingly, *Kisor* confirms the argument set forth in the FAA's answering brief that the agency decision challenged by the City was properly the subject of a simplified environmental review process.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that on this 7th day of August 2019, I electronically filed the foregoing document with the Ninth Circuit using CM/ECF. I also certify that the foregoing document is being served this day on all counsel of record via transmission of Notice of Electronic Filing generated by CM/ECF.

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U.S. COURT OF APPEALS

NOT FOR PUBLICATION

UNITED STATES COURT OF APPEALS

FOR THE NINTH CIRCUIT

CITY OF BURIEN, Petitioner, v. DANIEL K. ELWELL, Acting Administrator; and FEDERAL AVIATION ADMINISTRATION, Respondents.	No. 18-71705 MEMORANDUM*

Appeal from the Federal Aviation Administration

Argued and Submitted October 23, 2019
Seattle, Washington

Before: IKUTA and BENNETT, Circuit Judges, and RAKOFF,** District Judge.

Petitioner, the City of Burien ("Burien"), is a town located to the west of the Seattle-Tacoma Airport ("Sea-Tac"). Burien challenges the FAA's decision to approve a procedure for turning southbound turboprops to the west in certain wind

* This disposition is not appropriate for publication and is not precedent except as provided by Ninth Circuit Rule 36-3.

** The Honorable Jed S. Rakoff, United States District Judge for the Southern District of New York, sitting by designation.

conditions ("the Procedure"). The Procedure automates a formerly manual process of assigning headings to such turboprops, and has the effect of concentrating low-flying planes over Burien after takeoff. Burien argues that the FAA failed to comply with the National Environmental Policy Act ("NEPA"), 42 U.S.C. §§ 4321 et seq., when it approved the Procedure. We agree in part.

NEPA requires agencies such as the FAA to consider and document the environmental impacts of their actions prior to implementing them. 42 U.S.C. § 4332(2)(c). Although NEPA usually requires agencies to conduct some form of environmental analysis before they act, an agency may identify certain actions as "categorical exclusions" ("CATEXs") that are exempt from environmental review. CATEXs are reserved for actions that do not "individually or cumulatively have a significant effect on the human environment." 40 C.F.R. § 1508.4. While agencies promulgate their own rules for identifying and applying CATEXs, all agencies must "provide for certain extraordinary circumstances in which a normally excluded action may have a significant environmental impact" such that environmental review is required. *Id.*

The FAA has promulgated a series of CATEXs, listed in FAA Order 1050.1F. The same Order explains that extraordinary circumstances exist such that application of these CATEXs is inappropriate if (1) one of twelve enumerated

"extraordinary circumstances" exists and (2) the action "may have a significant impact." One such extraordinary circumstance includes actions likely to "cumulatively create a significant impact on the human environment." Before applying a CATEX, the FAA must prepare "concise" supporting documentation citing the CATEX used, describing why its application is appropriate, and explaining that there are no relevant extraordinary circumstances.

In this case, the FAA determined that environmental review was not required before it approved the Procedure because this action fell within a CATEX for "modifications to currently approved procedures conducted below 3,000 feet [above ground level] that do not significantly increase noise over noise sensitive areas." FAA Order 1050.1F, ¶ 5-6.5i. While Burien argues that this determination was arbitrary and capricious for multiple reasons, we are persuaded by only one of these reasons. We agree that the FAA acted arbitrarily and capriciously by failing to consider all "reasonably foreseeable" future actions at Sea-Tac in its analysis of whether a cumulative impacts extraordinary circumstance existed. 40 C.F.R. § 1508.7.

Specifically, even though the FAA considered a number of past, present, and reasonably foreseeable future actions within the study area in its cumulative impacts analysis, it failed to even mention future actions taking place at Sea-Tac

itself, even to dismiss them as not reasonably foreseeable. Most notably, the FAA failed to address any cumulative impacts that might stem from projects described in Sea-Tac's Sustainable Airport Master Plan ("SAMP"). Given that the FAA was involved in the funding and development of the SAMP, and that a final SAMP document listing specific expansion projects was published only weeks after the Procedure was approved in April 2018, the FAA had to be well aware of these planning documents and the substantial airport expansion described in them. The FAA should have addressed them in its cumulative impacts analysis.

The dissent primarily relies on case law suggesting that a "reasonably foreseeable future action" does not include a project "that is not yet proposed" and is "remote in time." *Jones v. Nat'l Marine Fisheries Serv.*, 741 F.3d 989, 1000 (9th Cir. 2013). But here, the FAA's own "Desk Reference" that guides its interpretation of relevant categorical exclusions expressly states that "[a]n action

may be reasonably foreseeable even in the absence of a specific proposal."[1] FAA 1050.1F Desk Reference (July 2015). The Desk Reference further provides that the existence of "planning documents" (like the SAMP), even if short of an official proposal, provides important evidence for determining whether a future project is reasonably foreseeable. In such circumstances, even if the FAA concludes that the planned projects are "improbable or remote," the Desk Reference specifically recommends that such actions "be mentioned in the NEPA document with an indication that they are not reasonably foreseeable." Indeed, the agency in *Jones*

[1] The dissent errs in suggesting that this internal guidance document is not a proper source of interpretive guidance. Although the dissent is correct that the Desk Reference states that it "may not be cited as the source of requirements under laws, regulations, Executive Orders, DOT or FAA directives, or other authorities," it omits the first clause of the sentence which explicitly states that the "Desk Reference may be cited only as a reference for the guidance it contains." In fact, the FAA quoted the Desk Reference in its answering brief when attempting to define future actions as improbable or remote even though they have been mentioned in planning documents. Thus, while the Desk Reference is not an independent source of law regulating the FAA, it can properly serve as guidance for interpreting FAA Order 1050.1F, which is an independent source of law regulating the FAA. *See Alaska Dep't of Envtl. Conservation v. E.P.A.*, 540 U.S. 461, 464 (2004) (finding that although internal guidance lacks dispositive force, "cogent administrative interpretations not the products of formal rulemaking nevertheless warrant respect" (citations and internal changes omitted)). *Probert v. Family Centered Servs. of Alaska, Inc.*, 651 F.3d 1007 (9th Cir. 2011), does not change this outcome. That case found that internal guidance was not "a proper source of interpretive guidance" where the guidance explained that "it is not used as a device for establishing interpretive policy." *Id.* at 1012. The Desk Reference contains no such language.

had addressed the future plans raised by plaintiffs and declined to examine their cumulative impacts, noting significant challenges facing the potential future projects and that the agency "would consider the impacts of future projects if permits were sought for them." 741 F.3d at 995, 1000-1001. The agency, by failing to even mention the SAMP thus did not meet its obligation to explain its actions under NEPA. *Alaska Ctr. For Env't v. U.S. Forest Serv.*, 189 F.3d 851, 859 (9th Cir. 1999) ("When an agency decides to proceed with an action in the absence of an EA or EIS, the agency must adequately explain its decision.").

The dissent further asserts that the FAA did not need to consider the SAMP in its cumulative impacts analysis because this court had previously held that approving a change in flight pattern for turboprops does not produce a significant impact. *See Barnes v. U.S. Dep't of Transp.*, 655 F.3d 1124 (9th Cir. 2011). However, the language from *Barnes* that the dissent primarily relies on was focused on indirect effects under 40 C.F.R. § 1508.8(b), rather than cumulative impacts under 40 C.F.R. § 1508.7, and is not controlling here. 655 F.3d at 1137-39.

To the extent the dissent reads FAA Order 1050.1F to release the FAA from any obligation to consider whether extraordinary circumstances exist upon a generalized finding that an action does not generate a significant impact, it reads FAA Order 1050.1F in a manner that conflicts with 40 C.F.R. § 1508.4. The

obligation to conduct an extraordinary circumstances analysis imposed by 40 C.F.R. § 1508.4 arises once an agency has already found that an action does not "individually or cumulatively have a significant effect on the human environment" -- in other words, once the agency has preliminarily found that application of a CATEX is appropriate. However, if a preliminary finding that application of a CATEX is appropriate meant that the agency did not have to conduct an extraordinary circumstances analysis, there would be no situation in which the agency would have to do so. Adopting the dissent's reading would thus render the first prong of FAA Order 1050.1F's extraordinary impacts definition superfluous, and violate 40 C.F.R. § 1508.4's requirement that all agencies "provide for certain extraordinary circumstances in which a normally excluded action may have a significant environmental impact."

The bottom line is that, even though the FAA's analysis rambles on for 128 pages, that cannot excuse its failure to even address whether a "Master Plan" for a major expansion of the airport -- a plan that the FAA staff had commissioned and that was only weeks away from being published -- encompassed a "reasonably foreseeable future action" that should be considered within the FAA's cumulative impact analysis.

We thus GRANT the petition for review in part and REMAND this case to the FAA with instructions to consider the potential cumulative impact of all relevant reasonably foreseeable future actions -- including those which may exist in the SAMP documents -- as part of its extraordinary circumstances analysis pursuant to 40 C.F.R. § 1508.7.[2]

DENIED IN PART, GRANTED AND REMANDED IN PART.

[2] We also GRANT the Petitioner's motion to correct the record as to Exhibit 1 and motion for consideration of extra-record evidence as to Exhibit 5. We DENY the motion for consideration of extra-record evidence as to Exhibits 2, 3, 4, 6, and 7.

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City of Burien v. FAA, 18-71705

IKUTA, Circuit Judge, dissenting:

"It's never enough, no it's never enough, No matter what I say" are the lyrics to a song by an American heavy metal band,[1] but it could be the anthem of a federal agency attempting to comply with the National Environmental Policy Act (NEPA). Here the Federal Aviation Administration (FAA) provided a thorough 128-page analysis, which established beyond doubt that its modification to a flight plan fits into a categorical exclusion and does not create an "extraordinary circumstance." Indeed, the majority does not claim otherwise; instead, it merely repeats the refrain that the FAA's analysis was "never enough," because it did not consider the cumulative impacts of speculative project ideas that were neither adopted nor proposed by the Port of Seattle for its airport. I dissent.

I

NEPA requires federal agencies taking "major Federal actions significantly affecting the quality of the human environment," 42 U.S.C. § 4332, to take a "hard look" at the environmental consequences of a decision, *Save the Peaks Coal. v. U.S. Forest Serv.*, 669 F.3d 1025, 1036 (9th Cir. 2012). The agency that promulgates NEPA regulations, the Council on Environmental Quality (CEQ),

[1] Five Finger Death Punch, *Never Enough*, The Way of the Fist (Prospect Park Records 2007).

provides that agencies may categorically exclude certain types of federal actions "which do not individually or cumulatively have a significant effect on the human environment" from the requirement to prepare an environmental assessment or an environmental impact statement. 40 C.F.R. § 1508.4. The regulations also require agencies to consider exceptions to these exclusions by providing for "extraordinary circumstances in which a normally excluded action may have a significant environmental effect." *Id.*

The FAA has developed a guidance document, Order 1050.1F, for complying with NEPA's requirements. Among other things, the Order includes a list of categorical exclusions. *See* FAA Order 1050.1F, Chapter 5. One such exclusion is set forth in Paragraph 5-6.5(i), which provides that "modifications to currently approved procedures conducted below 3,000 feet AGL that do not significantly increase noise over noise sensitive areas" are exempt from NEPA's requirement to prepare further environmental analysis. The Order also provides that "extraordinary circumstances" constitute an exception to those exclusions. Under Paragraph 5-2, "an extraordinary circumstance exists if a proposed action involves" two circumstances: (1) the proposed action must involve any of a list of 12 circumstances described in Paragraph 5-2(b); and (2) the proposed action "has the potential for a significant impact." *Id.* ¶ 5-2(b). One of the 12 listed

circumstances is a catchall: a project that has a "[l]ikelihood to directly, indirectly, or cumulatively create a significant impact on the human environment." *Id.* ¶ 5-2(b)(12).

We give broad deference to the FAA's decisions regarding its NEPA compliance. We have explained that "an agency's interpretation of the meaning of its own categorical exclusion should be given controlling weight unless plainly erroneous or inconsistent with the terms used in the regulation." *Alaska Ctr. For Env't v. U.S. Forest Serv.*, 189 F.3d 851, 857 (9th Cir. 1999). We also defer to the agency's determination as to whether a proposed action falls within the "extraordinary circumstances" exception. *See Id.* "Once the agency considers the proper factors and makes a factual determination on whether the impacts are significant or not, that decision implicates substantial agency expertise and is entitled to deference. *Id.*

In this case, the FAA proposed a modification to the flight plan used by southbound turboprops. After determining the modification would not have significant noise effects, the FAA concluded that the modification to the flight plan fell within the scope of categorical exclusion Paragraph 5-6.5(i) and that no extraordinary circumstances exist. Therefore, the FAA concluded that no further NEPA review was required. Under our deferential review, the FAA's reasoning

and conclusions are unassailable, and the majority errs in crediting the City's argument.

II

The City's challenge to the FAA's compliance is typical of this sort of environmental litigation: it argues that the FAA failed to do enough in analyzing the effects of the flight plan modification. The City frames this challenge as an argument that the FAA's proposed flight plan modification constituted an extraordinary circumstance under the FAA's Order. Under the first prong of the FAA's extraordinary circumstance exception, the City claims the project has a "[l]ikelihood to directly, indirectly, or cumulatively create a significant impact on the human environment." Order 1050.1F, ¶ 5-2(b)(12). Under the second prong, the City claims that the proposed action "has the potential for a significant impact." *Id.* ¶ 5-2(b).

Neither prong is satisfied. On its face, the City's claim that the proposed project involves a "[l]ikelihood to directly, indirectly, or cumulatively create a significant impact on the human environment" is entirely meritless. The FAA thoroughly examined the potential impacts of the flight plan modification, including providing extensive studies of the noise impacts. The FAA's conclusion that the flight plan modification would not have such impacts is well supported,

and the City does not provide any evidence to the contrary.

Instead, the City argues, and the majority agrees, that the FAA made a procedural error by failing to consider the cumulative impacts of the flight modification program together with the Seattle-Tacoma Airport's Sustainable Airport Master Plan (SAMP). As a result, according to the City and the majority, the FAA's decision to rely on the categorical exclusion for the flight plan modification was arbitrary and capricious, and its NEPA compliance must be redone.

This conclusion is flatly wrong. A cumulative impact is "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions." 40 C.F.R. § 1508.7. A "reasonably foreseeable future action" does not include a project "that is not yet proposed" and is "remote in time." *Jones v. Nat'l Marine Fisheries Serv.*, 741 F.3d 989, 1000 (9th Cir. 2013). A project is generally not "proposed" until the agency has issued a Notice of Intent to commence NEPA compliance. *N. Alaska Envtl. Ctr. v. Kempthorne*, 457 F.3d 969, 980 (9th Cir. 2006). Unless a project has been proposed and is not too remote in time, "a cumulative effects analysis would be both speculative and premature." *Jones*, 741 F.3d at 1000 (9th Cir. 2013) (citation omitted); *see also League of Wilderness Defs./Blue Mountains*

Biodiversity Project v. Connaughton, 752 F.3d 755, 762 (9th Cir. 2014) ("Although projects need not be finalized before they are reasonably foreseeable, they must be more than merely contemplated.") (internal quotation marks omitted) (citations omitted)).

In this case, the FAA discharged its obligation to consider cumulative impacts of eight proposed projects, but reasonably concluded that the projects discussed in the SAMP were too speculative and remote in time. The 2015 SAMP does not identify any projects at all; rather, it merely "describes the goals and objectives established by the Port of Seattle commission to guide the SAMP, the SAMP process, and how SAMP goals and objectives will guide preparation of a recommended development plan." In other words, it was a plan to make a plan. The 2018 SAMP (which was not completed when the FAA decided to rely on the categorical exclusion) described "an optimal layout of facilities required to satisfy the unconstrained 20-year forecast demand," including a set of "enabling and capacity improvement projects required to accommodate forecast demand in 2027," which it labeled "near-term projects." This planning document, prepared by consultants for the Port's consideration, is far removed from a proposed agency action; the Port did not issue any Notice of Intent for any of the projects described in the SAMP, nor does the SAMP suggest that the Port was close to doing so. At

most, these projects were "merely contemplated." *Connaughton*, 752 F.3d at 762 (internal quotation marks omitted). It would be speculative and premature for the FAA to consider the cumulative impacts of a flight modification along with these consultant planning ideas. *See Kleppe v. Sierra Club*, 427 U.S. 390, 406 (1976); *Connaughton*, 752 F.3d at 762.

The majority seems to think the FAA was arbitrary and capricious merely because it failed to mention the SAMP. Again, this echoes the typical demand of many litigants that agencies must always do more to comply with NEPA. But an agency need not provide documentation on every piece of available information before relying on a categorical exclusion. Indeed, the CEQ "strongly discourages procedures that would require the preparation of additional paperwork to document that an activity has been categorically excluded." Guidance Regarding NEPA Regulations, 48 Fed. Reg. 34,263-01, 34,265 (July 28, 1983). Here, the FAA did all that was required under its guidance document, Order 1050.1F, and more: it issued a 128-page Categorical Exclusion document in which it (1) cited to the applicable categorical exclusion, (2) described how the flight modification plan fell within the categorical exclusion, and (3) explained why there are no extraordinary circumstances that would preclude the flight modification plan from being categorically excluded. The majority errs in requiring the equivalent of an

environmental impact statement from the FAA.

In invalidating the FAA's decision as arbitrary and capricious, the majority relies primarily on an internal FAA guidance document, FAA 1050.1F Desk Reference (July 2015). Maj. at 4–5. The majority neglects to note that the Desk Reference itself states that it "may not be cited as the source of requirements under laws, regulations, Executive Orders, DOT or FAA directives, or other authorities." Such an internal guidance document does not impose judicially enforceable duties on the FAA, *cf. Lockwood v. Comm'r Social Sec. Admin.*, 616 F.3d 1068, 1072 (9th Cir. 2010), nor is it "a proper source of interpretive guidance," *Probert v. Family Centered Servs. of Alaska, Inc.*, 651 F.3d 1007, 1012 (9th Cir. 2011). Accordingly, the Desk Reference provides no support for the majority's conclusion that the FAA failed to discharge its obligations under NEPA.[2] But even if the FAA were legally required to follow the Desk Reference (and even if the City had raised that argument), any error by the FAA in failing to state expressly that the SAMP ideas are improbable or remote constitutes harmless error under basic principles of administrative law. *See* 5 U.S.C. § 706; *Ground Zero Ctr. for Non-Violent Action*

[2] Despite the majority's heavy reliance on the Desk Reference, the City itself did not specifically and distinctly argue that the FAA failed to follow the Desk Reference and that failing to do so made its decision arbitrary and capricious. Because "[w]e will not manufacture arguments for an appellant," the majority errs in doing so here. *Greenwood v. F.A.A.*, 28 F.3d 971, 977 (9th Cir. 1994).

v. U.S. Dep't of Navy, 860 F.3d 1244, 1252 (9th Cir. 2017) ("When considering an agency's failure to comply with NEPA, we examine whether the error materially impeded NEPA's goals—that is, whether the error caused the agency not to be fully aware of the environmental consequences of the proposed action, thereby precluding informed decisionmaking and public participation, or otherwise materially affected the substance of the agency's decision." (internal quotation marks omitted)).

Even if the first prong of the FAA's extraordinary circumstances exception is satisfied, the second is not, because the City has not established that the flight plan modification "[m]ay have a significant impact" on the human environment. In fact, the City fails to offer any theory about how the flight plan modification will have such an impact. The City vaguely suggests that the flight plan modification, in conjunction with the speculative SAMP, would increase demand at the airport and therefore have a growth-inducing effect. But we have conclusively rejected that theory. *See Barnes v. U.S. Dep't of Transp.*, 655 F.3d 1124 (9th Cir. 2011). As we explained in *Barnes*, the FAA does not have to account for the growth-inducing effects of a flight arrival path or changes in flight patterns because such changes (as opposed to "a major ground capacity expansion project") "increase demand only marginally, if at all." *Id.* at 1138. In other words,

changes in flight patterns do not have a significant growth-inducing impact. Accordingly, the FAA's flight plan modification is deemed to increase demand only marginally, and therefore is not a "significant impact" for purposes of the second prong of the definition for "extraordinary circumstances." The City does not even suggest (let alone establish) any other theory as to how the flight plan modification, considered with the SAMP, could have a significant impact on the human environment.

In sum, the FAA followed its Order and appropriately determined that the flight plan modification was covered by a categorical exclusion. The City has failed to provide any evidence indicating that the FAA erred in not expressly analyzing the SAMP, or that the flight plan modification has any significant impact on the human environment. In fact, neither the City nor the majority can identify any reason that the proposed flight plan modification does not fit within the FAA's categorical exclusion. In holding otherwise, the majority not only fails to give proper deference to the FAA, but also provides encouragement to the City's litigation strategy of "never enough." I dissent.

United States Court of Appeals for the Ninth Circuit

Office of the Clerk
95 Seventh Street
San Francisco, CA 94103

Information Regarding Judgment and Post-Judgment Proceedings

Judgment

- This Court has filed and entered the attached judgment in your case. Fed. R. App. P. 36. Please note the filed date on the attached decision because all of the dates described below run from that date, not from the date you receive this notice.

Mandate (Fed. R. App. P. 41; 9th Cir. R. 41-1 & -2)

- The mandate will issue 7 days after the expiration of the time for filing a petition for rehearing or 7 days from the denial of a petition for rehearing, unless the Court directs otherwise. To file a motion to stay the mandate, file it electronically via the appellate ECF system or, if you are a pro se litigant or an attorney with an exemption from using appellate ECF, file one original motion on paper.

Petition for Panel Rehearing (Fed. R. App. P. 40; 9th Cir. R. 40-1)
Petition for Rehearing En Banc (Fed. R. App. P. 35; 9th Cir. R. 35-1 to -3)

(1) A. Purpose (Panel Rehearing):

- A party should seek panel rehearing only if one or more of the following grounds exist:
  - A material point of fact or law was overlooked in the decision;
  - A change in the law occurred after the case was submitted which appears to have been overlooked by the panel; or
  - An apparent conflict with another decision of the Court was not addressed in the opinion.
- Do not file a petition for panel rehearing merely to reargue the case.

B. Purpose (Rehearing En Banc)

- A party should seek en banc rehearing only if one or more of the following grounds exist:

- ► Consideration by the full Court is necessary to secure or maintain uniformity of the Court's decisions; or
- ► The proceeding involves a question of exceptional importance; or
- ► The opinion directly conflicts with an existing opinion by another court of appeals or the Supreme Court and substantially affects a rule of national application in which there is an overriding need for national uniformity.

(2) Deadlines for Filing:

- A petition for rehearing may be filed within 14 days after entry of judgment. Fed. R. App. P. 40(a)(1).
- If the United States or an agency or officer thereof is a party in a civil case, the time for filing a petition for rehearing is 45 days after entry of judgment. Fed. R. App. P. 40(a)(1).
- If the mandate has issued, the petition for rehearing should be accompanied by a motion to recall the mandate.
- *See* Advisory Note to 9th Cir. R. 40-1 (petitions must be received on the due date).
- An order to publish a previously unpublished memorandum disposition extends the time to file a petition for rehearing to 14 days after the date of the order of publication or, in all civil cases in which the United States or an agency or officer thereof is a party, 45 days after the date of the order of publication. 9th Cir. R. 40-2.

(3) Statement of Counsel

- A petition should contain an introduction stating that, in counsel's judgment, one or more of the situations described in the "purpose" section above exist. The points to be raised must be stated clearly.

(4) Form & Number of Copies (9th Cir. R. 40-1; Fed. R. App. P. 32(c)(2))

- The petition shall not exceed 15 pages unless it complies with the alternative length limitations of 4,200 words or 390 lines of text.
- The petition must be accompanied by a copy of the panel's decision being challenged.
- An answer, when ordered by the Court, shall comply with the same length limitations as the petition.
- If a pro se litigant elects to file a form brief pursuant to Circuit Rule 28-1, a petition for panel rehearing or for rehearing en banc need not comply with Fed. R. App. P. 32.

- The petition or answer must be accompanied by a Certificate of Compliance found at Form 11, available on our website at www.ca9.uscourts.gov under *Forms.*
- You may file a petition electronically via the appellate ECF system. No paper copies are required unless the Court orders otherwise. If you are a pro se litigant or an attorney exempted from using the appellate ECF system, file one original petition on paper. No additional paper copies are required unless the Court orders otherwise.

Bill of Costs (Fed. R. App. P. 39, 9th Cir. R. 39-1)

- The Bill of Costs must be filed within 14 days after entry of judgment.
- See Form 10 for additional information, available on our website at www.ca9.uscourts.gov under *Forms.*

Attorneys Fees

- Ninth Circuit Rule 39-1 describes the content and due dates for attorneys fees applications.
- All relevant forms are available on our website at www.ca9.uscourts.gov under *Forms* or by telephoning (415) 355-7806.

Petition for a Writ of Certiorari

- Please refer to the Rules of the United States Supreme Court at www.supremecourt.gov

Counsel Listing in Published Opinions

- Please check counsel listing on the attached decision.
- If there are any errors in a published opinion, please send a letter **in writing within 10 days** to:
  - ► Thomson Reuters; 610 Opperman Drive; PO Box 64526; Eagan, MN 55123 (Attn: Jean Green, Senior Publications Coordinator);
  - ► and electronically file a copy of the letter via the appellate ECF system by using "File Correspondence to Court," or if you are an attorney exempted from using the appellate ECF system, mail the Court one copy of the letter.

UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

Form 10. Bill of Costs

Instructions for this form: http://www.ca9.uscourts.gov/forms/form10instructions.pdf

9th Cir. Case Number(s)

Case Name

The Clerk is requested to award costs to (*party name(s)*):

I swear under penalty of perjury that the copies for which costs are requested were actually and necessarily produced, and that the requested costs were actually expended.

Signature **Date**

*(use "*s/[typed name]*" to sign electronically-filed documents)*

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UNITED STATES COURT OF APPEALS

FOR THE NINTH CIRCUIT

FILED

NOV 27 2019

MOLLY C. DWYER, CLERK
U.S. COURT OF APPEALS

CITY OF BURIEN,

Petitioner,

v.

DANIEL K. ELWELL, Acting Administrator and FEDERAL AVIATION ADMINISTRATION,

Respondents.

No. 18-71705

FAA No.
Federal Aviation Administration

ORDER

At the direction of the Court, the parties shall bear their own costs.

FOR THE COURT:

MOLLY C. DWYER
CLERK OF COURT

By: Matthew Marcopulos
Deputy Clerk
Ninth Circuit Rule 27-7

UNITED STATES COURT OF APPEALS

FOR THE NINTH CIRCUIT

FILED

JAN 21 2020

MOLLY C. DWYER, CLERK
U.S. COURT OF APPEALS

CITY OF BURIEN,

Petitioner,

v.

DANIEL K. ELWELL, Acting Administrator and FEDERAL AVIATION ADMINISTRATION,

Respondents.

No. 18-71705

FAA No.
Federal Aviation Administration

MANDATE

The judgment of this Court, entered November 27, 2019, takes effect this date.

This constitutes the formal mandate of this Court issued pursuant to Rule 41(a) of the Federal Rules of Appellate Procedure.

FOR THE COURT:

MOLLY C. DWYER
CLERK OF COURT

By: Craig Westbrooke
Deputy Clerk
Ninth Circuit Rule 27-7

KAPLAN KIRSCH ROCKWELL

SAN FRANCISCO
BOSTON
DENVER
NEW YORK
WASHINGTON, DC

January 27, 2020

Molly C. Dwyer, Clerk of the Court
United States Court of Appeals for the Ninth Circuit
James R. Browning Courthouse
95 Seventh Street
San Francisco, CA 94103

Request for Publication
Re: *City of Burien v. Federal Aviation Administration, et al,* (Case No. 18-71705)

Dear Ms. Dwyer:

Petitioner the City of Burien, Washington, respectfully requests publication of this Court's November 27, 2019, Memorandum Disposition pursuant to Circuit Rules 36-2 and 36-4.

The Memorandum Disposition satisfies Circuit Rule 36-2's criteria for publication for each of the following reasons:

1. The National Environmental Policy Act ("NEPA") requires federal agencies to identify, evaluate, and disclose to the public a proposed action's cumulative impacts — defined as the action's "incremental impact . . . when added to other past, present, and reasonably foreseeable future actions." *See* 40 C.F.R. § 1508.7. Prior cases have reached different conclusions about whether (and under what circumstances) a "future action" may be "reasonably foreseeable" before it has been formally proposed. *Compare, e.g., Earth Island Inst. v. U.S. Forest Serv.*, 351 F.3d 1291, 1307-08 (9th Cir. 2003) (future action "reasonably foreseeable" prior to formal proposal), *with Jones v. Nat'l Marine Fisheries Serv.*, 741 F.3d 989, 1000 (9th Cir. 2013) (future action not "reasonably foreseeable" where remote in time and not yet proposed). The Memorandum Disposition helps clarify this issue by (a) explaining that an agency's own regulations and guidance may determine whether a "future action" is "reasonably foreseeable" before it has been formally proposed (Memorandum Disposition at 4-5); and (b) distinguishing cases like *Jones*, in which agency regulations and guidance play no role in determining reasonable foreseeability (*id.*).

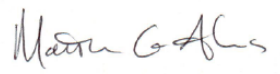
2. In *Barnes v. U.S. Department of Transportation*, 655 F.3d 1124, 1138 (9th Cir. 2011), this Court observed that the construction of a new airport runway has a "unique potential to spur demand, which sets it apart from other airport improvements, like changing flight patterns." The Memorandum Disposition clarifies that the Federal Aviation Administration must nonetheless

evaluate, on a project-by-project basis, cumulative environmental impacts relating to flight path changes. *See* Memorandum Disposition at 6-7.

In sum, the Memorandum Disposition "modifies or clarifies a rule of federal law," and is therefore suitable for publication under Circuit Rule 36-2.

A motion to recall the January 21, 2020, mandate for the limited purpose of considering this request for publication will be filed herewith.

Respectfully submitted,



Matthew G. Adams

cc: All counsel of record (via ECF)

Case No. 18-71705

IN THE UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

CITY OF BURIEN, WASHINGTON

Petitioner,

v.

FEDERAL AVIATION ADMINISTRATION, *et al.*,

Respondents.

On Petition for Review from the Federal Aviation Administration

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PETITIONER'S MOTION TO RECALL MANDATE

Matthew G. Adams (CA Bar # 229021)
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Petitioner the City of Burien, Washington, respectfully moves for recall of this Court's January 21, 2020, mandate for the limited purpose of permitting consideration of the City's Request for Publication, filed herewith. *See, e.g., Zipfel v. Halliburton Co.*, 861 F.2d 565, 567 (9th Cir. 1988) (confirming authority to recall mandate if necessary for the Court's own processes).

Respectfully submitted,

KAPLAN KIRSCH & ROCKWELL LLP

Dated: January 27, 2020

By: /s/ Matthew G. Adams
Matthew G. Adams

Counsel for Petitioner

CERTIFICATE OF COMPLIANCE

The undersigned certifies that, according to the word count provided by Microsoft Word, the body of the foregoing contains 57 words and is in 14-point Times New Roman, which is proportionally spaced.

/s/ Matthew G. Adams

Matthew G. Adams

CERTIFICATE OF SERVICE

I certify that on January 27, 2020, I electronically filed PETITIONER'S MOTION TO RECALL MANDATE with the Clerk of the Court for the United States Court of Appeals for the Ninth Circuit by using the appellate CM/ECF system. Counsel for all parties are registered to use that system, and, to my knowledge, will receive copies of this document upon its filing.

/s/ Matthew G. Adams

Matthew G. Adams

FILED

JAN 28 2020

MOLLY C. DWYER, CLERK
U.S. COURT OF APPEALS

UNITED STATES COURT OF APPEALS

FOR THE NINTH CIRCUIT

CITY OF BURIEN, Petitioner, v. DANIEL K. ELWELL, Acting Administrator; FEDERAL AVIATION ADMINISTRATION, Respondents.	No. 18-71705 ORDER

Before: IKUTA and BENNETT, Circuit Judges, and RAKOFF,* District Judge.

Petitioner's motion to recall the mandate (Dkt. 61) and request for publication (Dkt. 60) are DENIED.

* The Honorable Jed S. Rakoff, United States District Judge for the Southern District of New York, sitting by designation.