
ANCHORAGE INTERNATIONAL AIRPORT
FAR PART 150 UPDATE

Prepared under Federal Aviation Regulations, Part 150

FINAL NOISE COMPATIBILITY PROGRAM - 1999

Prepared by: Harris Miller Miller & Hanson Inc.
945 University Avenue, Suite 201
Sacramento, California 95825

in association with:

HNTB
The Greenbusch Group

Prepared for: State of Alaska Department of Transportation and Public Facilities

Anchorage International Airport
State of Alaska DOT & PF
P.O. Box 196960
Anchorage, AK 99519-6960

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**ERRATA SHEET
ANCHORAGE INTERNATIONAL AIRPORT
FAR PART 150 UPDATE
FINAL NOISE COMPATIBILITY PROGRAM 1999**

Please make the following corrections to this document.

Section 3, Proposed Elements of Revised Noise Compatibility Program, page 19

Add the following paragraph to the beginning of this section.

"This Chapter presents AIA's Revised NCP. Each measure is summarized briefly. Chapter 5 provides the detailed analysis on the recommended noise abatement measures and other measures considered. Chapter 6 provides the detailed analysis on recommended land use measures and other measures considered."

Section 3.1, Overall Benefits of the Proposed Revised NCP, page 19

Remove the word "the" between the words "Proposed" and "Revised" in the section title.

Section 3.2.3 New Measure: Conduct Detailed NADP Study, page 22

Add the following sentence after the fourth sentence in the first paragraph.

"This study would not "customize" any airline's NADP for use at AIA, but would simply help AIA determine for each airline which of their established NADPs would provide the greatest noise abatement benefit."

Section 3.2.4 New Measure: Implement a Noise Abatement Departure Track for Commuter Aircraft Departing Runway 6R/L, page 22

Remove the last sentence in the first paragraph and substitute the following sentence.

"The noise exposure from individual commuter aircraft overflights to noise sensitive land uses in some areas of south Anchorage can be reduced by concentrating commuter aircraft departures over commercial and open space areas and the Minnesota Boulevard transportation corridor."

Section 3.3.5, Existing Measure: Comprehensive Planning, page 25

Remove the words "of the original AIA Part 150 Study" and substitute the words "in this".

Section 3.3.6, Existing Measure: Planning Commission Review, page 26

Add the following text to the end of the second sentence in the first paragraph.



"and above, and to refer to the recommended guidelines for land use within these areas presented in Section 6.4, Recommended Land Use Guidelines for the AIA Part 150 Study Update, starting on page 148 of this NCP."

Section 3.3.7, Existing Measure: Public Land Development Criteria, page 26

Add the following text to the end of the second sentence in the first paragraph.

"and above, and to refer to the recommended guidelines for land use within these areas presented in Section 6.4, Recommended Land Use Guidelines for the AIA Part 150 Study Update, starting on page 148 of this NCP."

Section 3.4.4, Existing Measure: Regulations and Agreements, page 30

Remove the words *"the noise abatement regulations"* from the first sentence, and substitute the words *"airport noise abatement policies."*

Add the following sentence to the end of the first paragraph.

"Any AIA noise abatement policies, regulations or agreements drafted or amended under this measure will be submitted for FAA review prior to implementation."

Section 3.4.8, New Measure: Airfield Signs, page 32

Add the following sentence before the last sentence in the first paragraph.

"The wording, design, and location of these signs will be reviewed by FAA prior to implementation of this measure."

Section 3.4.10, New Measure: Pilot Manual Insert, page 33

Add the following sentence before the last sentence in the first paragraph.

"The pilot manual insert will be reviewed by FAA prior to implementation of this measure."

Section 3.5, Additional Measure to be Implemented Outside of the AIA Part 150 Update Process, page 33

Replace the word *"three"* with the word *"two"* in the first sentence.

Section 5.7.1, Require Noise Abatement Power Reductions on All Runway 6 and Runway 14 Takeoffs, page 75

Add the following paragraph at the end of the section.

"AIA used SEL data instead of DNL data in analyzing this measure, as it was considered to be the most appropriate means to determine the ability of specific aircraft operating procedures to reduce noise exposure. It is expected that if the

SEL on individual events can be reduced, this will result in a corresponding result in the DNL contours."

Table 5.11, Commuter Arrival and Departure Corridor to the Southeast, page 107

Change the third sentence of the "Description" paragraph to read as follows.

"Concentration of flight activity in this corridor could reduce noise associated with individual overflights in some noise sensitive areas."

Section 6.4.2, Consideration of Aircraft Noise Exposure Levels Below DNL 65 dB, page 153

Add the following paragraph to the end of the section.

"AA's use of the 60 DNL contour is consistent with Appendix A of FAA's Part 150 regulations which states that local needs or values may dictate further delineation of noise impacts at less than 65 DNL. The local need to look beyond the 65 DNL was identified in AIA's previous Part 150 NCP approved in 1988. As identified in the earlier study, AIA believes that it is important to ensure that development in the 60 DNL contours be evaluated to ensure continued land use compatibility in areas around AIA as operations expand. Areas within the 60 DNL contour are significantly impacted by airport operations in specific configurations and it is the residences within the 60-65 DNL contours which generate the largest number of complaint calls. Under this NCP, areas outside the 65 and above DNL contours are not eligible for sound proofing funds or other federally funded noise mitigation projects under the Airport Improvement Program. Therefore, it is essential that the noise levels in these areas be addressed during the land use planning and development processes available."



**Anchorage
International
Airport**

May 28, 1999

State of Alaska DOT & PF
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USA 99519-6960
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Ms. Patricia Sullivan
Federal Aviation Administration
Airports Division
222 West 7th Avenue, Box 14
Anchorage, AK 99513

Dear Ms. Sullivan:

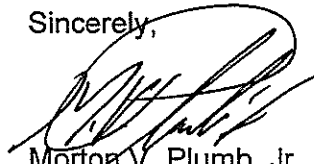
Anchorage International Airport (AIA) is pleased to submit five (5) copies of the Final AIA Noise Compatibility Program (NCP) for Federal Aviation Administration (FAA) review and approval. This document was prepared in accordance with Federal Aviation Regulation (FAR) Part 150, Airport Noise Compatibility Planning, Appendix B – Noise Compatibility Programs. This NCP revises AIA's previous FAA-approved NCP, which received a Record of Approval on November 18, 1988. This NCP does not revise AIA's NEM, which were determined to be in compliance with the requirements of FAR Part 150 in January 1999. This NEM shall serve as AIA's official NEM until significant progress in implementing this NCP has been accomplished.

This NCP was developed as part of AIA's Part 150 Noise Compatibility Study Update. There has been extensive public review and input throughout the Study process. Availability of the Draft NCP was advertised in the Anchorage Daily News and the Federation of Community Council newsletter. Copies were provided to the Technical Advisory Committee (TAC) and other interested members of the public. Public comments were received throughout the Study process, including at a final TAC meeting and public hearing on February 9, 1999. The public testimony received at this hearing, written comments received, and AIA's response to comments received are included in Appendix C of this NCP.

AIA's NCP Update includes a comprehensive review of AIA's existing program and examination of new measures to further reduce or prevent incompatibilities. This Final AIA NCP recommends 27 measures: four noise abatement measures, thirteen land use measures, and ten continuing program measures. AIA looks forward to receiving FAA approval of the Final AIA NCP and implementing the revised program.

Thank you for your time and effort in reviewing this document. If you have any questions regarding this document or other airport noise issues, feel free to call Maryellen Tuttell at 266-2543.

Sincerely,



Morton V. Plumb, Jr.
Airport Director

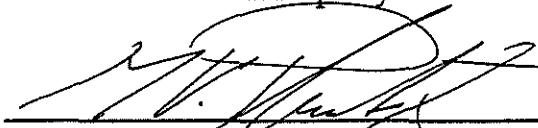
Enclosure: Final AIA Noise Compatibility Program

CERTIFICATION

This is to certify the following:

- (1) that the Noise Compatibility Program, Noise Exposure Maps, and associated documentation for Anchorage International Airport submitted in this volume to the Federal Aviation Administration under Federal Aviation Regulations Part 150, Subpart B, Section 150.23, are true and complete under penalty of 18 U.S.C Part 1001;
- (2) all interested parties have been afforded opportunity to submit their views, data, and comments concerning the correctness and adequacy of the revised existing and forecast conditions noise exposure map, and of the descriptions of forecast aircraft operations; and
- (3) the proposed Noise Compatibility Program elements are recommended by the State of Alaska DOT & PF and not by a consultant or other third party.

By:



Title:

Morton V. Plumb, Jr.
Airport Director

Date:

May 28, 1999

Airport Name: *Anchorage International Airport*
Airport Owner: *State of Alaska Department of Transportation and Public Facilities*
Airport Operator: *State of Alaska Department of Transportation and Public Facilities*

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LIST OF ACRONYMS

AC	-	Advisory Circular
AIA	-	Anchorage International Airport
ALPA	-	Airline Pilots Association
ANOMS	-	Aircraft Noise and Operations Monitoring System
ATA	-	Air Transport Association
ATCT	-	Air Traffic Control Tower
DNL	-	Day-Night Average Sound Level
DOT and PF	-	State of Alaska Department of Transportation and Public Facilities
FAA	-	Federal Aviation Administration
FAR	-	Federal Aviation Regulation
FICON	-	Federal Interagency Committee on Noise
FICUN	-	Federal Interagency Committee on Urban Noise
FMS	-	Flight Management System
GA	-	General Aviation
GIS	-	Geographic Information System
HMMH	-	Harris Miller Miller and Hanson Inc.
HUD	-	Department of Housing and Urban Development
ICAO	-	International Civil Aviation Organization
IFR	-	Instrument Flight Rules
INM	-	FAA's Integrated Noise Model
MOA	-	Municipality of Anchorage
NAC	-	Noise Advisory Committee
NADP	-	Noise Abatement Departure Profile
NBAA	-	National Business Aviation Association
NCP	-	Noise Compatibility Program
NEM	-	Noise Exposure Map
NEPA	-	National Environmental Policy Act
NLR	-	Noise Level Reduction
REC	-	Real Estate Commission
SEL	-	Sound Exposure Level
SID	-	Standard Instrument Departure
TAC	-	Technical Advisory Committee
VFR	-	Visual Flight Rules

1. INTRODUCTION

Part 150 of the Federal Aviation Regulations (FAR), "Airport Noise Compatibility Planning"¹, sets forth standards for airport operators to use in documenting noise exposure in the airport environs and establishing programs to minimize noise-related land use incompatibilities. This document is the second volume of documentation for a revised Part 150 submission to the Federal Aviation Administration (FAA) for Anchorage International Airport (AIA). The first volume, AIA's Noise Exposure Map 1998, was accepted by FAA in January 1999.

1.1 FAR Part 150 Overview

Part 150 sets forth a process for airport proprietors to follow in developing, and obtaining FAA approval of programs to reduce or eliminate incompatibilities between airport-generated noise and surrounding land uses. Part 150 prescribes specific standards and systems for:

- measuring noise;
- estimating cumulative noise exposure using computer models;
- describing noise exposure (including instantaneous, single event, and cumulative levels);
- coordinating Noise Compatibility Program (NCP) development with local land use officials and other interested parties;
- documenting the analytical process and development of the compatibility program;
- submitting documentation to the FAA;
- FAA and public review processes; and
- FAA approval or disapproval of the submission.

A formal submission to the FAA under FAR Part 150 includes two volumes of documentation: (1) a Noise Exposure Map (NEM) and (2) an NCP, as described in the following subsections.

1.1.1 Noise Exposure Map

The NEM describes the airport layout and operation, aircraft-related noise exposure, land uses in the airport environs, and the resulting noise/land use compatibility situation. The NEM must address two time frames: (1) data representing the year of submission (the "existing conditions") and (2) the fifth calendar year following the year of submission (the "forecast conditions"). It includes graphic depiction of existing and future noise exposure resulting from aircraft operations, and of land uses in the airport environs. The NEM documentation describes the data collection and analysis undertaken in its development. This document incorporates the NEM documentation, by reference.

The AIA NEM 1998 recently accepted by FAA presented existing conditions noise contours for 1997, and five year forecast case contours for 2002. Chapter 4 of this volume presents abated NEMs for both of those years, assuming the implementation of this revised NCP.

¹ 14 CFR Part 150

2 Anchorage International Airport FAR Part 150 Update

1.1.2 The NCP

The NCP is essentially a list of the actions the airport proprietor proposes to undertake to minimize existing and future noise/land use incompatibilities. The NCP documentation must recount the development of the program, including a description of all measures considered, the reasons that individual measures were accepted or rejected, how measures will be implemented and funded, and the predicted effectiveness of individual measures and the overall program.

Official FAA acceptance of the NEM and approval of the NCP does not eliminate requirements for formal environmental assessment of any proposed actions pursuant to requirements of the National Environmental Policy Act (NEPA). However, acceptance of the submission is a prerequisite to application for funding of implementation actions.

1.1.3 FAR Part 150 Guidance on NCPs

To receive FAA approval, this revised NCP must meet FAR Part 150 requirements. Part 150 directs the airport operator to evaluate the noise control actions and develop an NCP which--

- Reduces existing noncompatible uses and prevents or reduces the probability of the establishment of additional noncompatible uses;
- Does not impose an undue burden on interstate and foreign commerce;
- Provides for revision (of the program if the noise exposure map is revised);
- Is not unjustly discriminatory;
- Does not derogate safety or adversely affect the safe and efficient use of airspace;
- To the extent practicable, meets both local needs and needs of the national air transportation system, considering tradeoffs between economic benefits derived from the airport and the noise impact;
- Can be implemented in a manner consistent with all the powers and duties of the Administrator of FAA.

FAR Part 150 states that cumulative aircraft noise exposure of Day-Night Average Sound Level (DNL) 65 dB and greater are incompatible with noise sensitive uses such as homes, schools, and churches. FAR Part 150 also permits a reasonably-determined, locally adopted DNL value to be used in lieu of the federal DNL 65 dB criteria. The original AIA Part 150 Study adopted DNL 60 dB as a local planning standard for certain land use measures. Part 150 studies quantify incompatibilities by counting the number of homes, schools, and churches within the incompatible DNL areas. The number of impacted people is estimated by multiplying the average number of people per dwelling unit by the number of dwelling units within the

incompatible DNL areas. Therefore, the basis of evaluating the benefits of proposed noise abatement measures is to compare the number of people and/or dwellings impacted under the abated DNL contours to the number of people and/or dwellings impacted under base case noise contours. Efforts to reduce the number of impacted people/dwellings usually focus on reducing the highest levels of impact first.

1.2 Organization of this Volume

This chapter presents an overview of Part 150 (Section 1.1), information on the submission and approval of the original NEM and NCP (1.3), information on the submission of the NEM prepared in the first phase of this study (1.4), identification of the major parties involved in the development of the NCP (1.5), a summary of the steps taken in development of this revised NCP (1.6), and a completed copy of the FAA's NCP review checklist (1.7).

The balance of the document is organized into seven other sections:

- Chapter 2 summarizes the existing NCP;
- Chapter 3 presents the proposed elements of this revised NCP, including its overall benefit and the benefits of individual elements;
- Chapter 4 presents the abated base case (1997) and five-year forecast case (2002) NEMs for AIA, with the implementation of this revised NCP;
- Chapter 5 summarizes the screening and analysis of noise abatement alternatives that the study team undertook in the development of this revised NCP;
- Chapter 6 presents a summary of the screening and analysis of land use alternatives; and
- Chapter 7 summarizes the public involvement program that the State of Alaska and its consultants implemented in the development of this revised NCP.

1.3 The Original AIA Part 150 Study

The State of Alaska Department of Transportation and Public Facilities (State DOT and PF) completed its first Part 150 Study for AIA in 1987, herein referred to as the original AIA Part 150 Study. The FAA completed its review of the NEM and determined that it was in compliance with Part 150 in October 1988. The FAA approved the NCP in January 1991.

1.4 Revised Noise Exposure Map

The State DOT and PF initiated this AIA Part 150 Update in May 1995, and submitted NEM documentation to the FAA in November 1998. The FAA determined the NEM to be in compliance with Part 150 in January 1999. Chapter 4 presents the abated NEM that includes the effects of the noise abatement actions the State DOT and PF included in this revised NCP.

1.5 Project Roles and Responsibilities

Several groups had major roles in the development of this revised NCP, including the State DOT and PF, the consulting team, the Technical Advisory Committee (TAC), and the FAA.

1.5.1 State DOT and PF

As the "airport operator", the State DOT and PF has authority over the entire AIA Part 150 Update, including ultimate responsibility for determining what elements are included in this revised NCP. The State DOT and PF is also responsible for pursuing implementation of ultimately adopted measures.

The State DOT and PF retained a team of consultants to conduct the technical work required to fulfill Part 150 analysis and documentation requirements. Section 1.5.2 describes the composition of the consulting team and the general assignment of responsibilities among its members.

The State DOT and PF established the TAC to ensure that appropriate outside entities and groups were given official representation in the study process. The TAC is the key element of a comprehensive public involvement program that the State DOT and PF conducted over the course of the update, as described in Chapter 7.

The FAA also has a key role in any Part 150 study, as discussed in Section 1.5.4.

1.5.2 Consulting Team

The AIA Part 150 Update is one element of a contract between the State DOT and PF and the firm of Harris Miller Miller & Hanson Inc. (HMMH) as the airport's prime consultant. HMMH has overall project management responsibility for the AIA Part 150 Update and for all noise-related technical elements. HNTB, a subcontractor to HMMH, is responsible for aviation planning, airspace analysis, and land use planning expertise. Another subcontractor to HMMH, The Greenbusch Group, is responsible for assisting with the noise measurement program.

1.5.3 Technical Advisory Committee

The TAC includes representatives from a very broad spectrum of entities with interest in the AIA Part 150 Update process and its products. These entities include government agencies with aviation and land use responsibilities; private sector interests, particularly in the aviation industry; and representatives of the affected communities in the airport's environs.

The TAC members are responsible for representing their constituents throughout the study process, including commenting on the adequacy and accuracy of collected data, simplifying assumptions, and technical analyses. The TAC also serves as a forum for the varied interest

groups to discuss complex issues and share their very different perspectives on the aircraft noise issue.

1.5.4 Federal Aviation Administration

The FAA has ultimate review authority over the NCP submitted under Part 150. Their review encompasses the details of technical documentation as well as broader issues of safety and constitutionality of recommended noise abatement measures.

FAA involvement includes participation by staff from at least three levels in the agency: (1) local, (2) regional, and (3) national.

- The airport's **Air Traffic Control Tower (ATCT)** provides significant input in several areas, including: radar data from their ARTS2A equipment, operational data from their files, judgement regarding safety and capacity effects of alternative noise abatement measures, and on implementation requirements.
- On a regional level, the FAA's **Alaska Airport Division** also has several roles. The **Air Traffic Division** staff will support the ATCT, with final review and decision authority over changes in flight procedures. The **Airports Division** will determine whether or not the NEM satisfies all requirements and will conduct the initial FAA review of the NCP submission.
- On a national level, the FAA's Washington headquarters performs the final review of the NEM and NCP submissions for technical and legal adequacy.

1.6 Development of the Revised NCP

The development of an NCP begins with a screening of all actions which could reduce potential land use incompatibilities identified in the NEM. Noise compatibility measures fall into two principal categories: (1) "noise abatement" measures to reduce the size or change the shape of the noise contours so as to minimize incompatibilities and (2) "land use" measures to correct current incompatibilities and to prevent future incompatibilities. Most NCPs also include a third category of "continuing program measures" related to the ongoing implementation and monitoring of the noise abatement and land use measures.

Part 150 requires that an airport proprietor consider at least the following seven categories of noise compatibility planning alternatives.²

1. Land acquisition and interests therein
2. Barriers, shielding, public building soundproofing
3. Preferential runway system

² Paragraphs B150.7(b) (1) through (7) of FAR Part 150 list these seven categories.

4. Flight procedures
5. Restrictions on type/class of aircraft
 - a. deny use based on Federal standards
 - b. capacity limits based on noisiness
 - c. noise abatement procedures
 - d. landing fees based on noise or time
 - e. curfews
6. Other actions with beneficial impact
7. Other FAA recommendations

Category 1 addresses only land use measures. Category 2 addresses both noise abatement measures (barriers) and land use measures (soundproofing). Categories 3 through 5 address only noise abatement measures. As discussed in Chapters 4, 5, and 6, this study evaluated measures from all seven categories, and other potentially beneficial actions proposed by the FAA, other study participants, and the public.

It is appropriate for NCP development to focus initially on noise abatement measures, which tend to be less controversial and less expensive to implement than land use measures. The NCP process then focuses on land use measures, to address remaining land use incompatibilities. Finally, the process addresses continuing program measures that are necessary to implement the measures and to monitor the results.

The project study team (i.e., the State DOT and PF staff and their consultants) undertook the development of the NCP for AIA following four principal steps:

- Review of existing NCP and screening of alternatives,
- Analysis of noise abatement alternatives,
- Analysis of land use alternatives, and
- Recommendation of revised NCP.

The consultants prepared background analysis and documentation for each of the first three steps and presented the results at publicly advertised TAC workshops. The project team prepared and distributed informational packets prior to each TAC meeting. TAC members and any other interested parties had opportunity to provide written comments during, and subsequent to, each of these meetings. The State DOT and PF staff also made numerous public briefings to the Municipality of Anchorage (MOA) Planning and Zoning Commission and Community Councils. The State DOT and PF held a final public hearing on this revised NCP on February 9, 1999.

This volume summarizes the information and analysis presented at the TAC meetings and documents the public involvement process. Copies of meeting minutes, sign-in sheets, and comments sheets for the first nine TAC meetings are included in the NEM and are incorporated here by reference. Comments received at the final TAC meeting and final public hearing are discussed in Chapter 7.

1.7 FAA NCP Checklist

FAA has distributed an implementation memorandum which includes a checklist of required items associated with the NCP. To assist readers in reviewing this document, Table 1.1 presents this checklist, and indicates the location(s), in this document, of each required item.

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Table 1.1 Part 150 NCP Checklist (page 1 of 5)

Source: Federal Aviation Administration, 1989

FAR PART 150 NCP CHECKLIST--PART I			
Airport Name: Anchorage International Airport	REVIEWER:		
	Yes/No/ NA	Page/Other Reference	Notes/ Comments
I. IDENTIFICATION and SUBMISSION of PROGRAM:			
A. Submission is properly identified:			
1. FAR 150 NCP?	Yes	Cover letter and Sec. 1	
2. NEM and NCP together?	No		
3. Program Revision?	Yes		
B. Airport and Airport Operator's name identified?	Yes	p. v	
C. NCP transmitted by airport operator's cover letter?	Yes	Cover letter	
II. CONSULTATION: [150.23]			
A. Documentation includes narrative of public participation and consultation process?	Yes	Ch. 7	
B. Identification of consulted parties:			
1. all parties in 150.23 c consulted?	Yes	Ch. 7	
2. public and planning agencies identified?	Yes	Ch. 7	
3. agencies in 2., above, correspond to those indicated on the NEM?	Yes	Ch. 7	
C. Satisfies 150.23(d) requirements:			
1. documentation shows active and direct participation of parties in B., above?	Yes	Ch. 7	See also NEM, incorporated by reference
2. active and direct participation of general public?	Yes	Ch. 7	
3. participation was prior to and during development of NCP and prior to submittal to FAA?	Yes	Ch. 7	
4. indicates adequate opportunity afforded to submit views, data, etc.?	Yes	Ch. 7	
D. Evidence included of notice and opportunity for a public hearing on NCP?	Yes	Ch. 7	

Table 1.1 Part 150 NCP Checklist (page 2 of 5)
 Source: Federal Aviation Administration, 1989

FAR PART 150 NCP CHECKLIST—PART I			
Airport Name: Anchorage International Airport	REVIEWER		
	Yes/No/ NA	Page/Other Reference	Notes/ Comments
E. Documentation of comments:			
1. includes summary of public hearing comments, if hearing was held?	Yes	Ch. 7, Appendix C	
2. includes copy of all written material submitted to operator?	Yes	Ch. 7, Appendix C	In NEM, incorporated by reference
3. includes operator's response/disposition of written and verbal comments?	Yes	Ch. 7, Appendix C	
F. Informal agreement received from FAA on flight procedures?	Yes	Sec. 3.6.3	
III. NOISE EXPOSURE MAPS: [150.23, B150.3; 150.35(f)] (This section of the checklist is not a substitute for the Noise Exposure Map checklist. It deals with maps in the context of the NCP submission.)			
A. Inclusion of NEMs and supporting documentation:			
1. Map documentation either included or incorporated by reference?	Yes	Sec. 1.1.1 and Ch. 4	
2. Maps previously found in compliance by FAA?	Yes	Ch. 4	January 1999
3. Compliance determination still valid?	Yes	Ch. 4	
4. Does 180-day period have to wait for map compliance finding?	No	Ch. 4	
B. Revised NEMs submitted with program: (Review using NEM checklist if map revisions included in NCP submittal)			
1. Revised NEMs included with program?	Yes	Ch. 4	
2. Has airport operator requested FAA to make a determination on the NEM(s) when NCP approval is made?	No	Ch. 4	
C. If program analysis uses noise modeling:			
1. INM, HNM or FAA-approved equivalent?	Yes	Ch. 4	INM 5.1
2. Monitoring in accordance with A150.5?	Yes	NEM, Ch. 5	
D. Existing condition and 5-year maps clearly identified as the official NEMs?	No	Ch. 4	

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Table 1.1 Part 150 NCP Checklist (page 3 of 5)

Source: Federal Aviation Administration, 1989

FAR PART 150 NCP CHECKLIST--PART I			
Airport Name: Anchorage International Airport	REVIEWER:		
	Yes/No/ NA	Page/Other Reference	Notes/ Comments
IV. CONSIDERATION of ALTERNATIVES: [B150.7, 150.23(e)]			
A. At a minimum, are the alternatives below considered?			
1. land acquisition and interests therein, including air rights, easements, and development rights?	Yes	Ch. 6	
2. barriers, acoustical shielding, public building soundproofing	Yes	Sec. 6.6.2 and 6.6.3	
3. preferential runway system	Yes	Sec. 5.6	
4. flight procedures	Yes	Sec. 5.7 and 5.8	
5. restrictions on type/class of aircraft (at least one restriction below must be checked): a. deny use based on Federal standards b. capacity limits based on noisiness c. noise abatement takeoff/approach procedures d. landing fees based on noise or time of day e. nighttime restrictions	Yes	Sec. 5.9	
B. Responsible implementing authority identified for each considered alternative?	Yes		
C. Analysis of alternative measures:		Chapter 5, Tables 5.4 - 5.12, Chapter 6, Tables 6.13-6.24	
1. measures clearly described?	Yes		
2. measures adequately analyzed?	Yes		
3. adequate reasoning for rejecting alternatives?	Yes		
D. Other actions recommended by the FAA?	n.a.	n.a.	
V. ALTERNATIVES RECOMMENDED for IMPLEMENTATION: [150.23(e), B150.7(c); 150.35(b), B150.5]			
A. Document clearly indicates:			
1. alternatives recommended for implementation?	Yes	Chapter 3	
2. final recommendations are airport operator's, not those of consultant or third party?	Yes	Chapter 3 and Certification Sheet	

Table 1.1 Part 150 NCP Checklist (page 4 of 5)

Source: Federal Aviation Administration, 1989

FAR PART 150 NCP CHECKLIST--PART I			
Airport Name: Anchorage International Airport	REVIEWER		
	Yes/No/ NA	Page/Other Reference	Notes/ Comments
B. Do all program recommendations :			
1. relate directly or indirectly to reduction of noise and non-compatible land uses?	Yes	Chapter 3 (especially Sec. 3.1), and Chapters 5, and 6	
2. contain description of contribution to overall effectiveness of program?	Yes		
3. noise/land use benefits quantified to extent possible?	Yes		
4. include actual/anticipated effect on reducing noise exposure within non-compatible areas shown on NEM?	Yes		
5. effects based on relevant and reasonable expressed assumptions?	Yes		
6. have adequate supporting data to support its contribution to the noise/land use compatibility?	Yes		
C. Analysis appears to support program standards set forth in 150.35(b) and B150.5?	Yes		
D When use restrictions are recommended:			
1. Are alternatives with potentially significant noise/compatible land use benefits thoroughly analyzed so that appropriate comparisons and conclusions can be made?	n.a.	n.a.	
2. use restrictions coordinated with APP-600 prior to making determination on start of 180-days?	n.a.	n.a.	
E Do the following also meet Part 150 analytical standards?:			
1. formal recommendations which continue existing practices?	Yes	Chapters 2, 3, 5 and 6	
2. new recommendations or changes proposed at end of Part 150 process?	Yes	Chapter 3	
F Documentation indicates how recommendations may change previously adopted plans?	Yes	Chapters 2, 3, 5 and 6	

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Table 1.1 Part 150 NCP Checklist (page 5 of 5)

Source: Federal Aviation Administration, 1989

FAR PART 150 NCP CHECKLIST--PART I			
Airport Name: Anchorage International Airport	REVIEWER:		
	Yes/No/ NA	Page/Other Reference	Notes/ Comments
G. Documentation also:			
1. identifies agencies which are responsible for implementing each recommendation?	Yes	Sec. 3.6.2 and Tables 3.5, 3.6, and 3.7	
2. indicates whether those agencies have agreed to implement?	Yes	Sec. 3.6.3	
3. indicates essential government actions necessary to implement recommendations?	Yes	Sec. 3.6 and Tables 3.5, 3.6, and 3.7	
H. Time frame:			
1. includes agreed-upon schedule to implement alternatives?	Yes	Sec. 3.6 and Table 3.5, 3.6, and 3.7	
2. indicates period covered by the program?	Yes	Sec. 3.6.1	
I. Funding/Costs:			
1. includes costs to implement alternatives?	Yes	Sec. 3.6 and Tables 3.5, 3.6, and 3.7	
2. includes anticipated funding sources?	Yes	Sec. 3.6 and Tables 3.5, 3.6, and 3.7	
VI. PROGRAM REVISION: [150.23(e)(9)] Supporting documentation includes provision for revision?	Yes	Sec. 3.4.5 and Table 3.7	

2. ORIGINAL NOISE COMPATIBILITY PROGRAM

The original AIA Part 150 Study NCP proposed 21 measures including six noise abatement measures, ten land use control measures, and five continuing program measures. FAA did not take action on two of the proposed noise abatement measures. The FAA approved three of the remaining noise abatement measures, and all of the land use and continuing program measures. Appendix A presents a copy of the FAA's "Record of Approval" on the original AIA Part 150 Study NCP submission.

Each of the original NCP elements is re-examined in the context of this AIA Part 150 Update, as documented in Chapters 3, 5, and 6 (for the continuing program measures, noise abatement measures, and land use measures, respectively).

Section 2.1 summarizes the existing noise abatement measures, Section 2.2 the existing land use measures, and Section 2.3 the existing continuing program measures.

2.1 Aircraft Noise Abatement Measures

The FAA approved the implementation of three of the six aircraft noise abatement measures, including the following.

- Maximize Nighttime Preferential Runway Use of Runway 32

Maximization of Runway 32 departures during the nighttime hours, supplemented by preferential departures on Runway 24 and arrivals on Runway 14 when Runway 32 is incompatible with wind conditions.

- Adopt and Incorporate Advisory Circular (AC) 91-53 and National Business Aviation Association's (NBAA) Close-in Procedure

Encouraging the use of AC 91-53 and NBAA Close-In departure procedures by those aircraft capable of using them and still meeting required altitude restrictions.

- Preferential Runway Use Program for the Lake Hood Float Plane Base

Implementation of a preferential runway use program after construction of new runway and waterlane facilities at the Lake Hood Float Plane Base, located northwest of existing facilities, followed by closure of the existing gravel runway and two existing waterlanes. Relocation of facilities should be accompanied by the tightening of approach and departure routes over noise-sensitive areas.

Table 2.1 presents the implementation status of each of these noise abatement measures.

Table 2.1 Summary of Noise Abatement Measures, as Approved and As Implemented

Source: HMMH, 1998

Measure as FAA Approved	Implementation Status
Maximize Nighttime Preferential Use of Runway 32	Implemented - AIA Bulletin 98-04, "Noise Abatement Procedures," establishes the preferential runway use program. The bulletin has been modified several times since the Record of Approval was issued. The current bulletin identifies Runway 32 as the preferred departure runway. Runway 24 is the second priority departure runway at night. The bulletin also identifies Runway 14 as the preferred arrival runway when Runway 24 is being used for departures.
Adopt and Incorporate AC 91-53 and NBAA's Close-in Procedure	Implemented - AIA Bulletin 98-04, "Noise Abatement Procedures," requires the use of Noise Abatement Departure Profiles (NADPs) for aircraft departing AIA. The bulletin has been modified several times since the Record of Approval was issued. The current bulletin requires the use of the International Civil Aviation Organization (ICAO) B or FAA AC 91-53A Close-in NADP when departing east or south from AIA. These NADPs were adopted based on the analysis of this AIA Part 150 Update.
Implement a Preferential Runway Use Program for Lake Hood Float Plane Base	Implemented - Although this measure was tied to the expansion of the Lake Hood Float Plane Base, which did not occur, a preferential runway use program was implemented through AIA Bulletin 97-05 based on the existing Lake Hood Float Plane Base configuration.

Comments in the Record of Approval indicate that FAA felt that the two measures below were related and addressed traffic separation and airspace issues that would require FAA air traffic division review and approval through an FAR Part 93 revision. In addition, FAA determined that the effectiveness of these two measures with respect to noise benefits had not been demonstrated in the original AIA Part 150 NCP documentation. Therefore, FAA took no action on the following two measures.

- Traffic Separation

Control the traffic pattern size for the dirt strip and Lake Hood Float Plane Base by limiting the number of aircraft in the pattern.

- Displace Threshold at East End of East/West Waterlanes

Displace the east/west waterlanes approximately 1,000 feet to the west to keep landing aircraft higher over the noise sensitive areas.

A proposed measure to restrict touch-and-go training operations at the Lake Hood Float Plane Base was disapproved by FAA due to a lack of ". . . identified, specific noise benefits above the 65 DNL contour." AIA has worked with the FAA outside of the FAR Part 150 process to

reduce the impacts of touch-and-go operations by discouraging them during nighttime hours and by routing aircraft over non-residential areas when possible.

2.2 Compatible Land Use Measures

The original AIA Part 150 Study NCP identified ten land use measures:

- **Compatible Land Use Zoning**

Any land currently in the present and/or projected DNL 60 dB contours shall not be re-zoned for residential use. Some locations are excluded from this policy with the implementation of mitigation measures. Also, for land now zoned for residential use, no re-zoning may occur to increase population densities. Finally, for all present non-residential zoning, no multi-family or single-family homes may be constructed in the present and/or projected DNL 60 dB contours.

- **Mobile Home Restrictions**

No additional mobile homes, mobile home parks, or camper parks will be permitted in the present and projected DNL 60 dB contours.

- **Building Code for Soundproofing**

Local regulations should be amended to require forced air circulation systems with "summer switches" or "continuous on" settings in all new residential construction in the DNL 60 dB contours.

- **Easements for Subdivisions**

Avigation easements should be obtained for all new residential subdivisions in the present and projected DNL 60 dB contours and for commercial developments involving actual or potential residential uses. The easement wording should make clear to the grantor that his/her property is located in a noise-impacted area and that these noise impacts could increase.

- **Noise Levels on Plats**

Subdivision plats should carry a note indicating the noise levels over the property and the potential for noise impacts. The plat note must be made known to buyers before a land sale is executed and be worded similar to the following: "Note: the subject property, or portions of thereof, is located in an area subject to potentially disruptive aircraft noise levels, which might be annoying to users of the property and interfere with its unrestricted use. Contact the municipal planning department to determine the most recently calculated levels of present and future aircraft noise over the property."

- Comprehensive Planning

Amend the Anchorage Bowl Comprehensive Development Plan to reflect the findings and recommendations of the AIA Part 150 Update. These changes include adding the noise barrier/buffer/trail strip along the northeastern border of the airport, and reflecting the recommended re-use options for lands immediately to the east, south, and west of the airport.

- Planning Commission Review

This is a measure to provide MOA planners with noise compatibility planning criteria to be used when reviewing government and private development plans.

- Public Land Development Criteria

This measure provides guidelines for the development of land tracks adjacent to the airport. The development parameters require that the land tracks be used in a manner compatible with airport noise. Also, the land use may not preclude long-term airport expansion that might be required beyond the planning period.

- Sound Barrier Walls and Berms

Construction of noise berms or barriers along the northeast boundary of the airport, to be concurrent with the development of the Lake Hood Float Plane Base. Building a noise barrier along the east boundary of the Lake Hood Float Plane Base would result in the reduction of single-event noise exposure levels. The design of the noise barrier should be consistent with local development standards.

- Sound Buffers

A buffer area should be provided to ensure sufficient distance between nearby homes and aircraft operating areas. A corridor, 200 feet wide, is recommended on the outside of the berm. The corridor should be used in accordance with the Anchorage Park, Greenbelt, and Recreation Facility Plan.

Table 2.2 presents the implementation status each of these mitigation measures.

Table 2.2 Summary of Land Use Measures, as Approved and as Implemented

Source: HMMH 1998

Measure as FAA Approved	Measure as Implemented
Compatible Use Zoning	Ordinance amendment passed by Planning and Zoning Commission; Assembly postponed until completion of AIA Part 150 Update.
Mobile Home Restrictions	Ordinance amendment passed by Planning and Zoning Commission; Assembly postponed until completion of AIA Part 150 Update.
Building Code for Soundproofing	Discussions with MOA are underway.
Noise Levels on Plats	Implemented on a case-by-case basis.
Easements for Subdivisions	Not implemented due to MOA legal staff concerns.
Comprehensive Planning	Comprehensive Plan currently being updated. AIA is working with MOA to incorporate consideration of airport noise levels.
Planning Commission Review	Discussions with MOA will continue.
Public Land Development Criteria	Will be addressed in the Comprehensive Plan Update currently underway.
Sound Barrier Walls and Berms	Not implemented due to cancellation of the Lake Hood Float Plane Base expansion project.
Sound Buffers	Not implemented due to cancellation of the Lake Hood Float Plane Base expansion project.

2.3 Continuing Program Measures

The original AIA Part 150 Study NCP identified five potential continuing program measures, all of which were recommended for implementation and all of which the FAA approved, including:

- Noise advisory committee
- Noise monitoring
- Complaint response
- Regulations and agreements
- Plan review and evaluation

Table 2.3 presents information on the continuing program measures and their implementation status.

Table 2.3 Summary of Continuing Program Measures, as Approved and as Implemented

Measure as FAA Approved	Measure as Implemented
Noise Advisory Committee	Not implemented.
Noise Monitoring	Implemented using portable noise monitors and ad hoc measurements.
Complaint Response	Implemented through a noise complaint line, complaint recording and analysis process, and response to callers.
Regulations and Agreements	Implemented through AIA Bulletins, agreements with FAA Air Traffic Control, and dissemination of noise abatement procedures to the aircraft operators.
Plan Review and Evaluation	Implemented through the establishment of the AIA Noise Program Manager position, ongoing review of adherence to the established noise abatement procedures, and the undertaking of the AIA Part 150 Update.

3. PROPOSED ELEMENTS OF REVISED NOISE COMPATIBILITY PROGRAM

The revised NCP for AIA includes 27 measures: four noise abatement measures, thirteen land use measures, and ten continuing program measures. Table 3.2 (page 21) lists the noise abatement measures. Table 3.3 (page 23) lists the land use measures. Table 3.4 (page 29) lists the continuing program measures.

As noted in Section 1.5.1, the State DOT and PF had overall responsibility for the conduct of the AIA Part 150 Update, including ultimate responsibility for the recommendation of measures for inclusion in the revised NCP. *All of the final NCP measures that this document proposes for implementation are the recommendations of the State DOT and PF, and not those of the project consultants or any other third party. See checklist item V.A.2, page 10.*

Sections 3.2, 3.3, and 3.4 summarize the noise abatement, land use, and continuing program measures, respectively, that the State DOT and PF proposes for inclusion in the revised NCP. Section 3.5 discusses the benefits of shifting flight tracks away from the Anchorage Bowl area and increasing outreach to the General Aviation (GA) community which the State DOT and PF will pursue with FAA ATC staff, but not as an element of the NCP. Section 3.6 summarizes the NCP implementation documentation requirements set forth in the FAA's NCP checklist.

3.1 Overall Benefits of the Proposed the Revised NCP

This revised NCP will reduce incompatible land use in the AIA environs by (1) the implementation of noise abatement measures, which decreases the size of the DNL contours and (2) the adoption of remedial and preventive land use measures to mitigate existing incompatibilities and deter future incompatibilities.

With the implementation of the proposed noise abatement elements of the revised NCP, there will be five areas with land uses that are incompatible, according to FAR Part 150 guidelines. These five areas are shown in Figure 4.1 the "Existing Conditions (1997) Noise Exposure Map with Implementation of Revised Noise Compatibility Program", on page 41. All five of the areas are within the DNL 65 to 70 dB contour interval for both (1997 and 2002) analysis years. These five areas are clearly identified in Figure 4.1 and include:

- Three areas near the gravel strip at the Lake Hood Float Plane Base, within the Turnagain Community Council Boundary;
- One area along the north side of International Airport Road, within the Spenard Community Council Boundary; and
- One area southeast of the Runway 24L landing threshold near Delong Lake and Connors Lake, within the Sand Lake Community Council Boundary.

A portion of one area near the gravel strip at the Lake Hood Float Plane Base and a portion of the area southeast of the Runway 24L landing threshold near Delong Lake are within the DNL 70 to 75 dB contour interval for both (1997 and 2002) analysis years.

Table 3.1 summarizes the residential population within the existing conditions and five-year forecast contours for the current and proposed revised NCPs. The bottom line of the table summarizes the overall benefit of the revised noise abatement elements of the revised program. The net effect is approximately an 5.4% reduction in affected population within 1997 noise contours and approximately a 1.9% reduction in affected population within 2002 noise contours.

Table 3.1 Comparison of the Estimated Residential Population within the Existing Condition and Five-Year Forecast NEMs for the Existing and Proposed NCPs

Year and Case (DNL 60 dB and Greater)	1997 Existing Condition	2002 Future Condition
	Residents	Residents
With Existing NCP	8,246	7,102
With This Revised NCP	7,798	6,968
Reduction (Effect of NCP Revisions)	448	134

3.2 Noise Abatement Measures

Noise abatement measures reduce aircraft noise or shift the noise away from sensitive areas. They include five principal categories of options: (1) preferential runway use options; (2) changes in cockpit flight procedures (e.g., power settings, rates of climb); (3) changes in flight track geometry or flight track usage; (4) airport use restrictions (e.g., limitations on the time or frequency of operations for all aircraft, or for noisier classes of aircraft); and (5) changes in airport layout which help to divert noise from sensitive areas (e.g., new or revised runways, runup areas, or noise barriers). These five categories cover the range of noise abatement alternatives required for consideration by Part 150.

AIA's four proposed noise abatement procedures fell into three of the five principal categories of options which included: (1) preferential runway use options; (2) changes in cockpit flight procedures (e.g., power settings, rates of climb); and (3) changes in flight track geometry or flight track usage.

Chapter 5 summarizes the process that the study team followed in evaluating noise abatement measures. Based on these analyses, and taking into account public input, the State DOT and PF selected the elements to include in the revised NCP. Table 3.2 summarizes the four

proposed noise abatement elements, noting whether each is an existing measure, a modification to an existing measure, or a new measure.

Following the table, subsections discuss each of the proposed noise abatement measures individually, including identification of their actual or anticipated effect on reducing noise exposure within non-compatible areas (see FAA checklist item V.B.4, page 11 of this document).

Table 3.2 Summary of Proposed Noise Abatement Elements of Revised NCP, Compared to FAA-Approved Elements of Existing NCP

Existing NCP Element as Approved by FAA	Proposed Revision or New Measure	FAA Action Requested
<i>Preferential Runway Measures</i>		
Existing Measure: Maximize Nighttime Preferential Use of Runway 32	Revised Measure: Enhance Nighttime Runway Use.	Develop and follow new Tower Order re-prioritizing the preferred runway use.
<i>Noise Abatement Flight Procedures</i>		
Existing Measure: Adopt and Incorporate AC 91-53 and NBAA's Close-in Procedure	Revised Measure: Implement consistent thrust cutback power for departures on Runways 6 and 14. AC 91-53A "Close-in" or ICAO B.	Provide airspace review, revise "climb as rapidly as practical" phraseology in the KNIK and ANC SIDS.
None applicable.	New Measure: Conduct detailed study to optimize NADPs and make recommendations. Estimated budget: \$75,000.	Approval and funding of federal share of NADP study.
<i>Noise Abatement Flight Paths</i>		
None applicable.	New Measure: Implement a noise abatement departure track for commuter aircraft departing Runway 6L/R.	Provide airspace review, approve track, assist with pilot adherence to track.
<i>Airport Use Measures</i>		
None applicable.	None.	None.
<i>Airport Layout Measures</i>		
None applicable.	None.	None.

3.2.1 Revised Measure: Enhance Nighttime Runway Use Program

Departures on Runways 6R and 6L fly over the largest concentration of population near AIA. Nighttime departures on these runways east contribute significantly to the noise exposure impact area within the existing and future NEMs as well as noise complaints received by the State DOT and PF. Departing on Runway 24L and 24R and landing on Runway 14 at night to the greatest extent possible (consistent with weather, traffic volume, and safety) keeps aircraft noise over the Cook Inlet and away from noise sensitive uses. As a result of this procedure, some residents near the eastern AIA boundary may notice a change in the character of nighttime noise.

Actual or Anticipated Benefits of Measure: This measure should reduce the population and dwelling units exposed to aircraft noise from nighttime departures.

3.2.2 Revised Measure: Implement consistent thrust cutback power reductions for departures on Runways 6 and 14

The original AIA Part 150 Study NCP included the use of a thrust cut back procedure (AC 91-53) that has since been revised by FAA. In addition, this AIA Part 150 Update revealed that there is a wide range of power settings used on departure, including some that may provide no noise reduction. The analysis concluded the noise reduction could be improved if the new FAA- and ICAO-approved NADPs are adopted and used consistently for Runway 6R, Runway 6L, and Runway 14 departures. The State DOT and PF should adopt the AC 91-53A "Close-in" or ICAO B NADPs for Runways 6R/6L and Runway 14 departures.

Actual or Anticipated Benefits of Measure: This measure benefits areas south and east of AIA by reducing the noise produced by departing aircraft.

3.2.3 New Measure: Conduct Detailed NADP Study

The original AIA Part 150 Study identified the use of NADPs as an important measure in reducing cumulative and single-event noise exposure in the communities near AIA. The Airline Pilots Association (ALPA) supports the selection of the appropriate AC 91-53A NADP at each airport and runway end. This AIA Part 150 Update recommends (Section 3.2.2) the use of the current versions of these procedures as recommended by FAA, ICAO, and the NBAA. Because the interpretation of the NADPs varies from airline to airline, a detailed NADP study would help AIA and the airlines identify the optimum FAA- and ICAO-approved NADPs for use at AIA by airline, aircraft type, and runway end. The type of detailed study required to identify optimum NADPs by airline, aircraft type, and runway end is beyond the scope of this AIA Part 150 Update. The State DOT and PF estimates the cost of a detailed NADP study to be \$75,000.

Actual or Anticipated Benefits of Measure: This measure would ensure the maximum noise reduction from the use of NADPs is achieved.

3.2.4 New Measure: Implement a Noise Abatement Departure Track for Commuter Aircraft Departing Runway 6R/L

Due to the proximity of their gates to the departure runway end and for traffic separation purposes, commuter aircraft depart to the east using Runway 6L and Runway 6R more than all other directions combined. The noise exposure to noise sensitive land uses can be reduced if the commuter aircraft departures were concentrated over a major roadway, open space, and commercial uses.

Actual or Anticipated Benefits of Measure: A reduction in noise sensitive land uses exposed to aircraft noise impacts.

3.3 Land Use Measures

Table 3.3 summarizes the 13 proposed land use elements of the revised NCP. The following subsections describe the measures and provide estimates of their actual or anticipated effect on reducing incompatible land uses.

3.3.1 Existing Measure: Compatible Use Zoning

This compatible use zoning measure would encourage noise compatible development and prevent the introduction of new noise sensitive uses through restrictions on rezoning and conditional use permits within the existing 1997 DNL 60 dB noise contour. This measure from the original AIA Part 150 Study was modified to apply to the existing rather than future DNL 60 dB contour. Although it is a measure continued from the original AIA Part 150 Study, it is not yet fully implemented. An ordinance implementing this measure was passed by the MOA Planning and Zoning Commission, but the MOA Assembly has postponed action on the ordinance pending completion of this AIA Part 150 Update.

Actual or Anticipated Benefits of Measure: This measure could prevent the introduction of approximately 3,000 people to aircraft noise levels greater than DNL 60 dB.

3.3.2 Existing Measure: Mobile Home Camper Park Restrictions

Due to the nature of their construction, mobile homes and campers do not provide significant exterior to interior noise level reductions. In addition, these structures cannot be cost effectively sound insulated. Therefore, this measure is designed to preclude the development of especially noise sensitive residential uses within the 1997 DNL 60 dB contour. This measure from the original AIA Part 150 Study was modified to apply to the existing rather than future DNL 60 dB contour. Although it is a measure continued from the original AIA Part 150 Study, it is not yet fully implemented. An ordinance implementing this measure was passed by the MOA Planning and Zoning Commission, but the MOA Assembly has postponed action on the ordinance pending completion of this AIA Part 150 Update.

Actual or Anticipated Benefits of Measure: Cannot be determined in advance, because it is impossible to anticipate the number of new mobile homes and camper parks that may be developed.

Table 3.3 Summary of Proposed Land Use Elements of Revised NCP Compared to FAA-Approved Elements of Existing NCP

New or Existing Element	Description of Measure	FAA Action Requested
Existing Measure: Compatible Use Zoning	Establish a firm policy against re-zoning or authorizing conditional uses for any new development of residences of any type within the 1997 DNL 60 dB contour.	Existing measure modified to apply to existing rather than future DNL 60 dB contour. No new FAA approval required.
Existing Measure: Mobile Home and Camper Park Restrictions	Establish a firm policy against re-zoning or authorizing conditional uses for any new development of mobile home structures and camper parks within the 1997 DNL 60 dB contour.	Existing measure modified to apply to existing rather than future DNL 60 dB contour. No new FAA approval required.
Revised Measure: Soundproofing Requirement for New Development	Require new residential development within the 1997 DNL 60 dB contour to provide acceptable interior noise levels. This measure has been modified to increase flexibility in meeting the noise reduction requirements.	Existing measure modified to apply to existing rather than future DNL 60 dB contour. No new FAA approval required.
Existing Measure: Noise Levels on Plats	Place noise levels on plats of all new subdivisions or land uses involving residential structures within the 1997 DNL 60 dB contour.	Existing measure modified to apply to existing rather than future DNL 60 dB contour. No new FAA approval required.
Existing Measure: Comprehensive Planning	Provides policy guidance for all types of future development within the 1997 DNL 60 dB contour as well as increased awareness of noise environment for the real estate and development communities and members of the public.	Existing measure, no new FAA approval required.
Existing Measure: Planning Commission Review	Provides policy guidance for consideration of all types of proposed development within the 1997 DNL 60 dB contour.	Existing measure modified to apply to existing rather than future DNL 60 dB contour. No new FAA approval required.
Existing Measure: Public Land Development Criteria	Provides policy guidance for development of public uses within the 1997 DNL 60 dB contour.	Existing measure modified to apply to existing rather than future DNL 60 dB contour. No new FAA approval required.
New Measure: Noise Overlay Zone	Enhances implementation of the other measures such as conventional zoning, limitations on conditional use permits, and subdivision regulations. Also enhances ability of potential property purchasers to make informed decisions. The estimated budget is \$50,000.	FAA approval required.
New Measure: Fair Disclosure Policy	Notifies potential property purchasers within the 1997 DNL 60 dB contour of aircraft noise impacts.	FAA approval required.
New Measure: Land Banking	Public acquisition of noise impacted vacant property with the 1997 DNL 65 dB contour for future public use.	FAA approval required. Approval of any Federal funding would be contingent upon demonstrated benefits of specific proposals.
New Measure: Soundproofing for Existing Development	Establish a noise insulation program to ensure acceptable interior noise levels for existing residences within the 1997 DNL 65 dB contour.	New measure, FAA approval required. Approval of any Federal funding would be contingent upon demonstrated benefits of specific proposals.
New Measure: Sound Buffers/Barriers	Establish sound buffers/noise barriers to provide noise level reduction for residential areas immediately adjacent to AIA.	New measure, FAA approval required. Approval of any Federal funding would be contingent upon demonstrated benefits of specific proposals.
New Measure: Ground Noise Study	Conduct detailed study of aircraft ground noise exposure and recommend specific measures. Estimated budget: \$180,000.	Approval and federal share of ground noise study.

3.3.3 Revised Measure: Soundproofing Requirement for New Development

This measure from the original AIA Part 150 Study would establish a noise plan requiring new residences within the DNL 60 dB contour to incorporate sound insulation into the construction and to be equipped with a forced air circulation system to permit operation year round with the capability to completely exchange the air in the home twice each day and supply a 20 percent change of fresh air every hour. This measure was modified by eliminating the requirement for a forced air circulation system and allowing greater flexibility in meeting the interior noise level reductions required. This measure was also modified to apply to the existing rather than the future DNL 60 dB contour. Although it is a measure continued from the original AIA Part 150 Study, it is not yet implemented. The State DOT and PF and MOA are currently discussing this measure.

Actual or Anticipated Benefits of Measure: The interior noise levels of all new construction subject to this measure would meet the FAR Part 150 DNL 45 dB requirement.

3.3.4 Existing Measure: Noise Levels on Plats

This measure would require noise levels to be noted on plats of all new subdivisions or land uses involving residential structures with the 1997 DNL 60 dB contours as part of the subdivision platting review process. This measure from the original AIA Part 150 Study was modified to apply to the existing rather than future DNL 60 dB contour. The measure is currently implemented on a case-by-case basis.

Actual or Anticipated Benefits of Measure: Future property owners would be notified of aircraft noise levels and builders would be required to incorporate sound attenuation measures into construction.

3.3.5 Existing Measure: Comprehensive Planning

This measure recommends an amendment of the Anchorage Bowl Comprehensive Plan to incorporate the compatible land use recommendations of the original AIA Part 150 Study NCP.

Actual or Anticipated Benefits of Measure: Would provide policy guidance for all types of future development within the 1997 DNL 60 dB contour as well as increased awareness of the AIA noise environment for the real estate and development communities and members of the public. The Comprehensive Plan is currently being updated and the State DOT and PF is working with the MOA to ensure that land use compatibility in the AIA environs is being addressed.

3.3.6 Existing Measure: Planning Commission Review

This measure recommends the adoption of the noise compatibility planning criteria as outlined and the guidelines for land use compatibility review provided within the NCP for use in all planning activities pertaining to areas within the 1997 DNL 60 dB contours. This measure from the original AIA Part 150 Study was modified to apply to the existing rather than future DNL 60 dB contour. The State DOT and PF is working with the Planning and Zoning Commission on this issue.

Actual or Anticipated Benefits of Measure: Would provide policy guidance for consideration of all types of proposed development within the 1997 DNL 60 dB contour.

3.3.7 Existing Measure: Public Land Development Criteria

This measure recommends the adoption of a policy on the use of public land within the 1997 DNL 60 dB contours. This measure from the original AIA Part 150 Study was modified to apply to the existing rather than future DNL 60 dB contour. The State DOT and PF is working with the MOA to ensure that this measure will be addressed in the Comprehensive Plan update.

Actual or Anticipated Benefits of Measure: Would provide policy guidance for development of public uses within the 1997 DNL 60 dB contour.

3.3.8 New Measure: Noise Overlay Zone

This measure establishes an overlay zone based on noise contours to add conditions to underlying conventional zoning districts. This technique would overlay zones based on aircraft noise levels to prescribe special requirements and restrictions on noise-sensitive land uses in these zones.

Actual or Anticipated Benefits of Measure: Would enhance the implementation of other measures such as conventional zoning, limitations on conditional use permits, and subdivision regulations. Would also enhance the ability of potential property purchasers to make informed decisions.

3.3.9 New Measure: Fair Disclosure Policy

This measure would ensure the disclosure of relevant information on aircraft noise levels in sales documents during residential property transactions. This technique is similar to truth in sales laws relating to any type of purchase.

Actual or Anticipated Benefits of Measure: Enhances the ability of potential property purchasers to make informed decisions. As many as 2,000 potential new residents in the 1997 DNL 60 dB contour could benefit.

3.3.10 New Measure: Land Banking

This measure recommends public acquisition of noise impacted property for future public use. This technique involves the fee-simple purchase of privately-owned, vacant land by a local public agency to prevent non-compatible land use development and to hold such property for later public use not necessarily related to aviation.

Actual or Anticipated Benefits of Measure: Could enhance the ability of the State DOT and PF and/or MOA to establish compatible public uses on vacant properties within the 1997 DNL 65 dB contour.

3.3.11 New Measure: Soundproofing for Existing Development

This measure recommends sound insulation of existing private homes within the 1997 DNL 65 dB contour. This technique would involve State DOT and PF funding of soundproofing of existing private homes and public uses such as schools. Aviation easements are typically obtained in return for property owner participation.

Actual or Anticipated Benefits of Measure: As many as 650 dwellings could be eligible for soundproofing.

3.3.12 New Measure: Investigate Sound Buffers/Barriers

Sound barrier walls and/or berms and open space may be used to reduce aircraft ground noise communities adjacent to AIA. This technique may be appropriate to consider in various areas affected by ground noise. Implementation of this measure would follow a detailed study of aircraft ground noise problems at AIA.

Actual or Anticipated Benefits of Measure: Could provide noise reduction for residential areas immediately adjacent to AIA.

3.3.13 New Measure: Conduct Detailed Aircraft Ground Noise Study

Noise from aircraft operations on the ground (e.g., taxiing, engine runups, and auxiliary power unit usage) were discussed in the original AIA Part 150 Study. The original AIA Part 150 Study focused on these issues in the vicinity of Lake Hood Float Plane Base which was to be expanded. The expansion did not occur and the recommend noise barriers were not constructed. Since the time of the original AIA Part 150 Study, community concern regarding noise from aircraft ground operations has increased. The type of detailed study required to address these problems is beyond the scope of this AIA Part 150 Update. To address these concerns, the State DOT and PF will conduct a detailed aircraft ground noise study that will examine the extent of the aircraft ground noise problem and recommend appropriate mitigation measures, which may include barriers, berms, ground runup enclosures as well as changes in aircraft ground operation regulations. The State DOT and PF will seek FAA funding for the study which has an estimated cost of \$180,000.

Actual or Anticipated Benefits of Measure: This measure will be used to evaluate the potential for sound buffers/barriers to minimize aircraft ground noise impacts in residential areas immediately adjacent to AIA.

3.4 Continuing Program Measures

Continuing program measures are administrative actions which the State DOT and PF will use to implement, monitor, and manage the noise abatement and land use measures. Section 3.4.1 through 3.4.10 summarizes the State DOT and PF's bases for recommending these continuing program measures. Table 3.4 summarizes the ten proposed measures, noting whether each is an existing measure, a modification to an existing measure, or a new measure.

3.4.1 Existing Measure: Noise Advisory Committee

Although the establishment of a Noise Advisory Committee (NAC) was a recommendation of the original AIA Part 150 Study, the Committee was never established. NACs are critical to the successful implementation of NCPs. A NAC would: monitor the State DOT and PF's progress in implementing the NCP, provide input and guidance when difficulties arise, streamline the decision making process, and provide a means of disseminating information about the NCP directly to the affected public. The current AIA Part 150 Update TAC membership provides a logical starting point for the creation of an ongoing NAC. The TAC was been intimately involved in the development of the NCP as discussed in Chapter 7. Quarterly meetings of the NAC are likely to be sufficient to keep the implementation program moving.

Actual or Anticipated Benefit of Measure: The NAC would provide a formal mechanism for ongoing dialogue with community, airport users, and FAA on noise issues.

3.4.2 Revised Measure: Noise Monitoring

The original AIA Part 150 Study recommended noise monitoring by a consultant on an as-needed basis. AIA staff conducted a limited number of noise measurements using noise measurement equipment which has since become outdated. HMMH conducted noise measurements as a part of this AIA Part 150 Update. The results were useful in identifying the cumulative noise exposure in the community as well as identifying difference in the noise exposure of individual aircraft operations. Noise monitoring continues to be a useful element of the NCP. However, the State DOT and PF's outdated monitors should be replaced with state-of-the-art equipment and supplemented by the addition of flight track monitoring capabilities. The flight track monitoring system is critical to the monitoring and implementation of the approved noise abatement measures.

The State DOT and PF seeks to purchase an integrated aircraft noise and flight track monitoring system with a combination of permanent and portable noise monitors, flight track monitoring system, and central database management

Table 3.4 Summary of Proposed Continuing Program Elements of Revised NCP, Compared to FAA-Approved Elements of Approved NCP.

Existing NCP Element as Approved by FAA	Proposed Revision or New Measure	FAA Action Requested
Existing Measure: Noise Advisory Committee	Formalize the Committee membership, role, and meeting schedule.	None.
Revised Measure: Noise Monitoring	Purchase an aircraft noise and operations monitoring system (ANOMS). Estimated budget: \$1.5 million.	Approval and funding of federal share of ANOMS purchase.
Existing Measure: Complaint Response	Continue the current complaint collection system and response process.	None.
Existing Measure: Regulations and Agreements	Review and revise applicable regulations and agreements as appropriate.	FAA ATCT concurrence with Letters of Agreement and Tower Orders.
Existing Measure: NEM and NCP Review and Revision	Review and evaluate refinements to the Part 150 plan. Continuing review through ANOMS and Noise Program Manager reports to NAC. Update NEMs within five years or as required by changes in airport layout or operation. Update NCP as required.	FAA technical assistance and funding as appropriate.
None applicable.	New Measure: Noise Program Manager. Recognizes an existing AIA staff position not included in original AIA Part 150 Study.	None.
None applicable.	New Measure: Noise information page on the AIA Web site.	None.
None applicable.	New Measure: Airfield signs. Purchase and install eight on-airfield signs to advertise revised NCP. Estimated budget: \$30,000.	Approval and funding of federal share of signs.
None applicable.	New Measure: Conduct Public Information Program. Estimated cost: \$10,000.	Approval and funding of federal share of printing costs.
None applicable.	New Measure: Prepare and distribute a pilot manual insert. Estimated cost: \$5,000.	Approval and funding of federal share of printing costs.

capabilities. The State DOT and PF estimates that the cost of the system will be approximately \$1.5 million.

Actual or Anticipated Benefits of Measure: The monitoring system provides the State DOT and PF with objective and accurate information to use in implementing NCP elements, monitoring the effectiveness of the NCP, and responding to citizen inquiries. It is particularly effective as a tool for educating the public and pilots on proper noise abatement procedures and other noise issues.

3.4.3 Existing Measure: Complaint Response

The State DOT and PF has followed the original AIA Part 150 Study recommendation of collecting and analyzing aircraft noise complaints. The current complaint hotline provides information on airport operations and allows the caller to record a noise comment or complaint. The Noise Hotline is checked Monday through Friday by the Noise Program Manager. These noise complaints should be entered into the AIA noise complaint data base. The level of noise complaints could require AIA's administrative staff to transcribe complaints and enter them into the database. The level of effort to record and respond to complaints should be monitored. This effort should not interfere with the Noise Program Manager's ability to implement the NCP. If it does, a Noise Program Technician should be hired.

Actual or Anticipated Benefits of Measure: Continuation of the current complaint system provides an efficient means of recording and responding to noise complainants and provides a method of tracking noise complaint data.

3.4.4 Existing Measure: Regulations and Agreements

This measure in the original AIA Part 150 Study included a wide range of measures designed to establish the noise abatement regulations, obtain agreements with the FAA ATCT, and disseminate the noise abatement procedures to the aircraft operators. The State DOT and PF implemented most of the original AIA Part 150 Study recommendations under this measure. The outstanding measures will be implemented as part of the revised NCP. These measures included signs and notices, revision of the Standard Instrument Departure Procedures, and a pilot guide which is discussed below.

Actual or Anticipated Benefits of Measure: Increased adherence to noise abatement measures through widespread notification and dissemination of the noise abatement regulations.

3.4.5 Existing Measure: NEM and NCP Review and Revision

This element provides continuing review and revision of the NEM and NCP as well as providing for amendments to the NCP between updates. This existing element of the approved NCP includes the following steps:

- Initial AIA staff review of airport procedure changes proposed by the public, pilots, FAA, Noise Program Manager, or other parties, including, as appropriate, development of a detailed technical report, including computer modeling, field testing, and impact and cost analyses, as appropriate.
- When appropriate, review by the NAC at its next meeting.
- Review by the FAA to determine feasibility and air traffic impacts.

- Review and written response by affected operators, including the number of operations impacted and the anticipated costs or savings.
- Provision of a recommendation to the NAC, FAA, other affected parties, and the general public, and proposal for NCP revision as appropriate.

The State DOT and PF will update the NEM every five years, or as required by changed conditions, pursuant to FAA guidelines.³ Should the revised NEM indicate that changed conditions have diminished the effectiveness or efficiency of the NCP, the State DOT and PF will evaluate the NCP and update it as required.

Actual or Anticipated Benefits of Measure: This measure provides for updating the NEM and the NCP as needed, to ensure their continued efficiency and effectiveness. The NCP must be a dynamic plan that can respond to changes in airport operating conditions and to changes in external conditions, such as land uses. The existing NCP, as implemented by the State DOT and PF, has reflected a high degree of flexibility to such changes.

3.4.6 New Measure: Noise Program Manager

Following the original AIA Part 150 Study, the State DOT and PF established a Noise Program Manager position at AIA. The Noise Program manager is responsible for community liaison regarding noise issues, collection of and response to noise complaints, implementation of the NCP, and ongoing noise compatibility planning efforts. This measure recognizes the existence of the position and acknowledges the key role the Noise Program Manager will play in implementing the revised NCP.

The Noise Program Manager's current duties include other non-noise issues. However, this responsibility may need to be diminished as increasing elements of the NCP become active. AIA management and the NAC should regularly evaluate the Noise Program Manager's responsibilities and workload. The Noise Program Manager may need the assistance of a Noise Program Technician as the day-to-day workload increases.

³ § 150.21(d) of FAR Part 150 states:

If, after submission of a noise exposure map under paragraph (a) of this section, any change in the operation of the airport would create any "substantial, new noncompatible use" in any area depicted on the map beyond that which is forecast for the fifth calendar year after the date of submission, airport operator shall, in accordance with this section, promptly prepare and submit a revised noise exposure map. A change in the operation of an airport creates a substantial new noncompatible use if that change results in an increase in the yearly day-night average sound level of 1.5 dB or greater in either a land area which was formerly compatible but is thereby made noncompatible under Appendix A (Table 1), or in a land area which was previously determined to be noncompatible under that Table and whose noncompatibility is now significantly increased.

Actual or Anticipated Benefits of Measure: The Noise Program Manager is a critical element of the ongoing implementation and success of the NCP.

3.4.7 New Measure: Noise Information Page on the AIA Web Site

AIA maintains a home page on the Internet that includes information about the airfield layout, available services, and historical level of operations. AIA's web page also provides information about the State DOT and PF's aircraft noise control regulations, AIA's noise abatement program, and the AIA Part 150 Update. The State DOT and PF's web page could be improved by adding an e-mail link to the Noise Program Manager and should be updated upon completion of the AIA Part 150 Update to include information on the adopted NCP and implementation status of the approved measures.

Actual or Anticipated Benefits of Measure: This measure provides another avenue for the State DOT and PF to disseminate information about its noise control efforts and to receive input from interested persons.

3.4.8 New Measure: Airfield Signs

The State DOT and PF plans to install up to eight signs on AIA and Lake Hood Float Plane Base that inform departing pilots of the key noise abatement procedures and indicate locations and headings for ground runup procedures. The signs will be located where aircraft hold prior to takeoff and where aircraft conduct runups. Although the original AIA Part 150 Study NCP included signs, the State DOT and PF has not yet purchased them. Therefore, FAA funding is required. The State DOT and PF estimates the cost of these signs at \$30,000.

Actual or Anticipated Benefits of Measure: This measure is an important means of maximizing the benefits of noise abatement measures.

3.4.9 New Measure: Public Information Program

The AIA staff will pursue a public information program through verbal and written briefings to the NAC, MOA Planning and Zoning Commission, and neighboring Community Councils. This program should also include an educational seminar on aircraft noise disclosure for local realtors, developers, and lenders. The State DOT and PF will develop AIA "fact sheets" on aircraft noise issues at AIA that respond to frequently asked questions about noise at AIA. The State DOT and PF may also develop a quarterly newsletter dedicated to airport noise issues. The cost for implementing this measure is estimated to be \$10,000.

Actual or Anticipated Benefits of Measure: This measure is a critical component of the ongoing dialogue with outside parties, to ensure that the NCP operates efficiently and effectively.

3.4.10 New Measure: Pilot Manual Insert

Most pilots operating at AIA in multi-engine or jet aircraft and many of those operating in single engine aircraft subscribe to a service which provides regular updates to a reference manual on instrument procedures in use at airports. This publication is produced by Jeppesen Sanderson, Inc. The State DOT and PF will arrange for the printing of a full-color informational insert on in a format that is compatible with the Jeppesen Sanderson manual. These types of inserts have been a very successful means of educating pilots on the details of noise abatement procedures. The original AIA Part 150 Study NCP did not anticipate the use of this measure. Based on their effectiveness at other airports, the State DOT and PF proposes to include it in the revised NCP. Costs for implementing this measure are estimated to be \$5,000.

Actual or Anticipated Benefits of Measure: This measure is an important means of maximizing the benefits of noise abatement measures.

3.5 Additional Measures to be Implemented Outside of the AIA Part 150 Update Process

Three additional measures analyzed during the AIA Part 150 Update process are discussed below. These measures will be pursued outside of the AIA Part 150 Update process.

3.5.1 Shift Runway 32 Departures North, Shift Runway 6R Arrivals South

The AIA Part 150 Update examined two flight track measures for areas well outside of the 60 DNL dB contour: (1) shifting to the north, Runway 32 nighttime departures that turn eastbound and (2) shifting to the south, Runway 6R arrivals from the east at night. Anchorage FAA ATC personnel concluded that these changes could be accommodated. These changes will not affect the DNL 65 dB contour and will be accomplished by FAA outside of the AIA Part 150 Update process.

3.5.2 GA Program

Although specific noise abatement measures considered for the Lake Hood Float Plane Base were not recommended for inclusion in the NCP, the State DOT and PF has committed to pursuing a pilot awareness and education program for GA users. This program will include meetings with individual pilots and pilot associations, noise information sheets mailed to tie down and float slip permit holders, and additional signage regarding noise abatement on the lakes. The goal of the program will be to educate pilots about the GA noise impacts on the community and how these impacts can be reduced. Since this program is not expected to change the seasonal or annual DNL contours around the Lake Hood Float Plane Base, it will be pursued outside of the AIA Part 150 Update process.

3.6 NCP Implementation

Part 150 includes extensive requirements related to NCP implementation, including:

- identification of the time period covered by the program,
- identification of parties responsible for implementation of each program element,
- indication that responsible parties have agreed to implement the measure,
- schedule for implementation of the program,
- essential government actions, and
- anticipated funding sources.

3.6.1 Time Period Covered by the Revised NCP

In the absence of unanticipated changes in forecast conditions, this revised NCP covers five years from the date of submission.

3.6.2 Implementation Responsibility

Part 150 requires that the NCP clearly identify the person(s) or entity(ies) responsible for implementing each recommended element. Tables 3.5, 3.6, and 3.7 identify parties with major implementation responsibility.

According to FAA's definition of implementation responsibility⁴, the State DOT and PF, as airport operator, must initiate the implementation of all noise abatement measures. Clearly, however, the FAA and pilots have key roles related to the implementation of aircraft operational measures. The FAA ATC personnel must provide instructions to pilots related to preferential runway use and noise abatement flight tracks. Pilots must cooperate by following FAA ATC instructions and by utilizing noise abatement cockpit procedures, when safe to do so.

The State DOT and PF, the MOA, and the FAA share responsibility for implementation of land use measures. The State DOT and PF will seek assistance from MOA in the implementation and administration of these programs (all incompatible land within the DNL 65 dB contour is within the MOA). The State DOT and PF will work with MOA to coordinate, publicize, and administer preventive land use measures (including land use and zoning changes, fair disclosure programs, and land acquisition). The FAA is involved in implementation of land use measures, through program approval and funding assistance.

The State DOT and PF has the lead responsibility for continuing program measures. FAA will assist by providing funding and assisting in ongoing program review. The MOA will assist by cooperating in ongoing program review.

⁴ As set forth in FAA AC 150/5020-1, "Noise Control and Compatibility Planning for Airports", August 5, 1982.

Table 3.5 Summary of NCP Implementation Details for Proposed Noise Abatement Elements of Revised NCP

Proposed Measure	Implementation Actions and Responsible Parties	Anticipated Costs and Funding Sources	Anticipated Schedule
Preferential Runway Measures			
Enhance nighttime runway use program - Minimize Runway 6 departures at night. Increase the use of Runway 24 departure and Runway 14 landing configuration at night.	State DOT and PF requests that FAA implement revised procedure. FAA reviews, approves, and implements.	None.	1999 (immediately following NCP approval).
Noise Abatement Flight Procedures			
Conduct Detailed NADP Study	FAA reviews and approves as element of revised NCP. State DOT and PF selects aviation noise consultant to conduct study.	\$75,000. FAA funding up to 93.75%.	1999 (immediately following NCP approval.)
Implement consistent thrust cutback power for departures on Runways 6 and 14.	State DOT and PF conducts NADP Study. Based on the results of the NADP Study, State DOT and PF requests that FAA implement revised procedure. FAA reviews, approves, and implements.	None.	1999 (immediately following NCP approval).
Noise Abatement Flight Tracks			
Implement a noise abatement departure track for commuter aircraft departing Runway 6L/R	State DOT and PF requests that FAA implement revised procedure. FAA reviews, approves, and implements.	None.	1999 (immediately following NCP approval).

Table 3.6 Summary of NCP Implementation Details for Proposed Land Use Elements of Revised NCP

Proposed Measure	Implementation Actions and Responsible Parties	Anticipated Costs and Funding Sources	Anticipated Schedule
Compatible Use Zoning	State DOT and PF assists with drafting required ordinance. MOA adopts and enforces it.	None.	Ongoing.
Mobile Home Restrictions	State DOT and PF assists with drafting required ordinance. MOA adopts and enforces it.	None.	Ongoing.
Soundproofing Requirement for New Development	State DOT and PF assists with drafting required building code revisions. MOA adopts and enforces it.	None.	Ongoing.
Noise Levels on Plats	State DOT and PF requests plat notes. MOA adopts and enforces them.	None.	Ongoing.
Comprehensive Planning	State DOT and PF provides input into the Comprehensive Plan. MOA adopts and enforces it.	None.	Ongoing.
Planning Commission Review	State DOT and PF assists with drafting compatibility criteria. Planning Commission adopts and enforces it.	None.	Ongoing.
Public Land Development Criteria	State DOT and PF assists with drafting required ordinance. MOA adopts and enforces it.	None.	Ongoing.
Noise Overlay Zone	State DOT and PF assists with drafting required ordinance. MOA adopts and enforces it.	Approximately \$50,000 for consulting assistance. FAA funding up to 93.75%.	2000 (following NCP approval).
Fair Disclosure Policy	State DOT and PF submits legislation to the Alaska Legislature or submits revisions to the Real Estate Commission (REC). REC revises and distributes disclosure form.	None.	Ongoing.
Land Banking	The State DOT and PF identifies acquisition area with MOA. State DOT and PF or MOA purchase vacant residential properties.	Fair market value cost of land. FAA funding up to 93.75%.	2000 and beyond (following NCP approval).
Soundproofing of Existing Buildings	The State DOT and PF develops program, applies for federal funds, and administers program.	Approximately \$14 million. FAA funding up to 93.75%.	2001 and beyond (following NCP approval).
Conduct Detailed Ground Noise Study	FAA reviews and approves as element of revised NCP. State DOT and PF selects aviation noise consultant to conduct study.	\$180,000. FAA funding up to 93.75%.	2000 (immediately following NCP approval.)
Sound Buffers/Barriers	The State DOT and PF manages design and construction of barriers based on ground noise study findings.	Unknown property acquisition and construction costs. FAA funding up to 93.75%.	2001 and beyond (following NCP approval).

Table 3.7 Summary of NCP Implementation Details for Proposed Continuing Program Elements of Revised NCP

Proposed Measure	Implementation Actions and Responsible Parties	Anticipated Costs and Funding Sources	Anticipated Schedule
Noise Advisory Committee	State DOT and PF formalizes membership and sets meeting schedule.	None.	1999
Noise and Operations Monitoring System	FAA reviews and approves as element of revised NCP. State DOT and PF applies for funding, selects vendor, manages installation.	\$1.5 million. FAA funding up to 93.75%.	2000 (immediately following NCP approval.)
Continue the current complaint collection system and response process.	State DOT and PF continues to implement.	None.	Continuing.
Regulations and Agreements	FAA reviews and approves as element of revised NCP. State DOT and PF recommends wording of regulations and agreements.	None.	Continuing.
Noise Program Manager	State DOT and PF continues to implement.	State DOT and PF pays staff salary, benefits, and overhead.	Continuing.
AIA Noise Web Page	State DOT and PF to continues to improve web page contents and links.	None.	Continuing.
Airfield signs	FAA reviews and approves as element of revised NCP. State DOT and PF acquires and installs signs.	\$30,000. FAA funding up to 93.75%.	2000 - 2001
Public information program	FAA reviews and approves as element of revised NCP. State DOT and PF develops text, prints and distributes materials.	\$10,000. FAA funding up to 93.75%.	Ongoing.
Distribute Pilot Inserts	State DOT and PF prepares and distributes a noise abatement insert for flight manuals. FAA assists with review.	\$5,000. FAA funding up to 93.75%.	2000
NEM and NCP review and revision	State DOT and PF pursues on continuing basis. FAA assists in review and approval.	Undetermined consulting assistance. FAA funding up to 93.75%.	Continuing.

Through the TAC meetings, the State DOT and PF staff and consulting team members have discussed the proposed NCP elements with the FAA, pilot representatives, and MOA. They have indicated their support for the revised NCP.

3.6.3 Indication of Agreement to Implement

As the lead agency in the implementation of all measures, the State DOT and PF clearly agrees to its responsibilities. The FAA ATCT, chief pilots, and representatives of the Alaska Airmen's Association have endorsed the revised noise abatement measures through participation in the AIA Part 150 Update process, which included TAC meetings, public meetings, and direct discussions with the FAA and the chief pilots. AIA and HMMH staff have discussed the preventive land use measures with MOA land use and zoning staffs as well as the Planning and Zoning Commission and have received their general endorsements of the proposed actions.

3.6.4 Further Environmental Review

Federal or local regulations may require further environmental review prior to the implementation of some NCP measures. The State DOT and PF will not initiate the implementation of any measure until it, the FAA, or other responsible agency have satisfied any such requirements. It is not appropriate to initiate any such review until the FAA has completed the NCP approval process.

3.6.5 Summary of Implementation Actions, Responsibilities, Costs, Funding Sources, and Schedules

Tables 3.5, 3.6, and 3.7 summarize implementation details for each proposed element of the revised NCP, in the noise abatement, land use, and continuing program categories, respectively.

4. ABATED NOISE EXPOSURE MAPS WITH IMPLEMENTATION OF REVISED NOISE COMPATIBILITY PROGRAM

As discussed in Section 1.4, the first phase of this AIA Part 150 Update involved the submission to FAA of revised NEM documentation for AIA, including existing conditions (1997) and five-year forecast (2002) maps. FAA issued a finding of compliance with FAR Part 150 for the revised NEM in January 1999.

The abated NEMs identify the current areas of noncompatible land use near AIA, and provide a basis for the evaluation of revisions to the NCP. As discussed in Section 1.6, the logical first step in developing an NCP is to evaluate existing noise abatement alternatives, so as to minimize noncompatible land uses. Following the selection of a preferred package of noise abatement measures, the study team prepared abated noise contours and land use analyses for the existing conditions and five-year forecast cases. Figures 4.1 and 4.2 present these noise contours, and relevant land use data. These two figures represent the abated Noise Exposure Maps with implementation of the revised NCP. Since they represent conditions that have not yet been achieved, the State DOT and PF is *not* submitting them for FAA review and acceptance. The NEMs found in compliance in January 1999 shall serve as AIA's official NEMs until significant progress in implementing the NCP has been accomplished.

The abated contours were developed using the FAA's Integrated Noise Model, Version 5.1 (INM 5.1), including the standard noise and performance database. Section 5 of the NEM documentation discusses the INM and its inputs in detail. Section 5 of the NEM also discusses the noise measurements that were made in compliance with FAR Part 150 Appendix A Section 150.5.

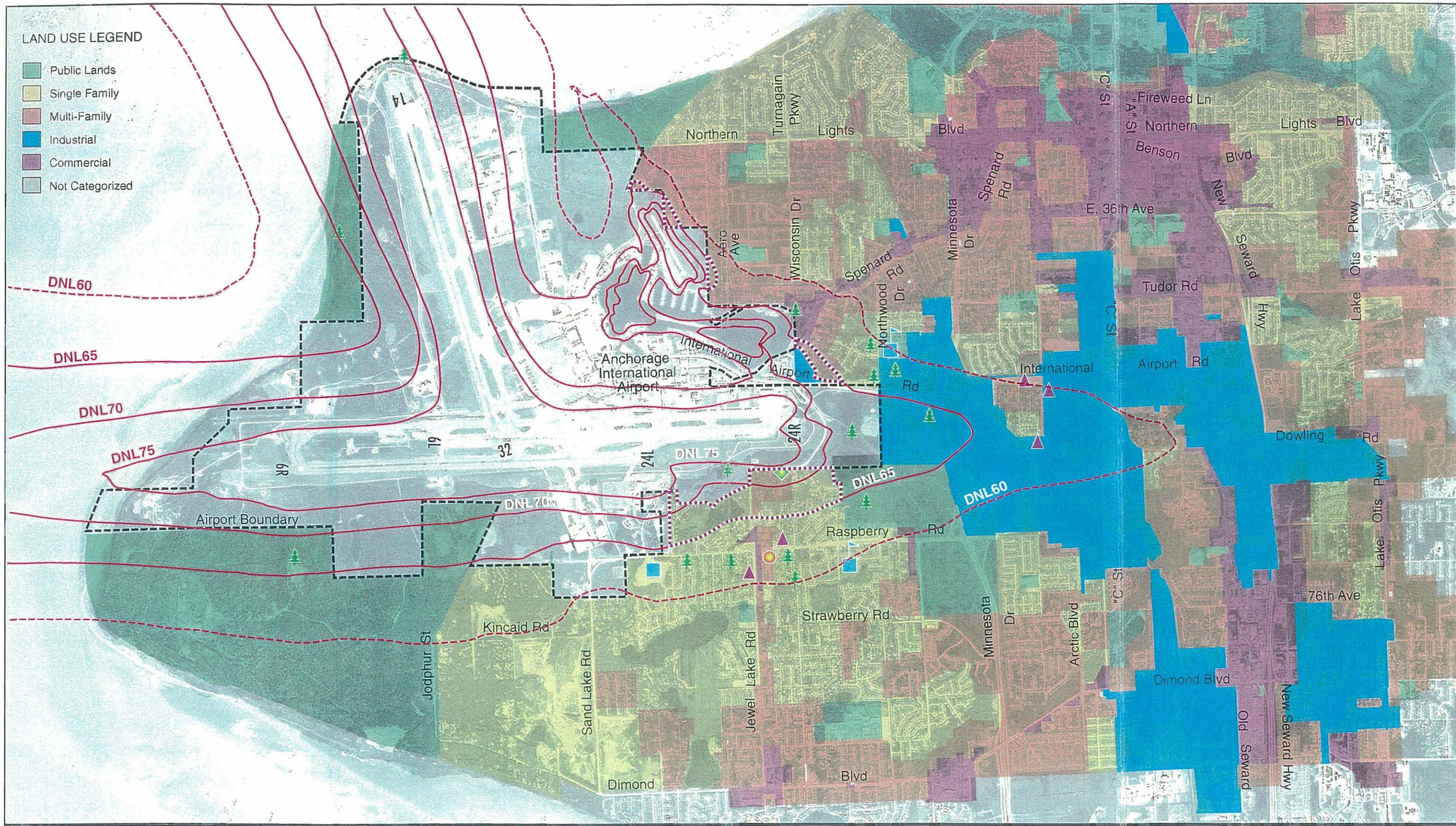
Figures 4.1 and 4.2 include the airport boundary and major land use categories (through shading). The MOA has land use control jurisdiction for the entire area depicted in Figures 4.1 and 4.2. The figures also show the locations of noise sensitive public buildings within the DNL contours. As noted in the legends of the figures and as discussed in Section 3.1, there are five areas of noncompatible land within the existing and five-year forecast case DNL 65 dB contours. Two areas are within the DNL 70 dB contour for both the existing and future cases.

Tables 4.1 and 4.2 present the estimated on- and off-airport land areas (in square miles) within these two abated NEM contour cases. Tables 4.3 and 4.4 present the estimated residential population within the two abated contour cases.

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LAND USE LEGEND

- Public Lands
- Single Family
- Multi-Family
- Industrial
- Commercial
- Not Categorized



- Schools
- Churches
- Parks
- Daycare
- Pre-school

- DNL Contours
- Noncompatible Residential Land Use

Existing Conditions (1997) Noise Exposure Map with Implementation of Revised Noise Compatibility Program
 Figure 4.1

Anchorage International Airport F.A.R. Part 150 Update

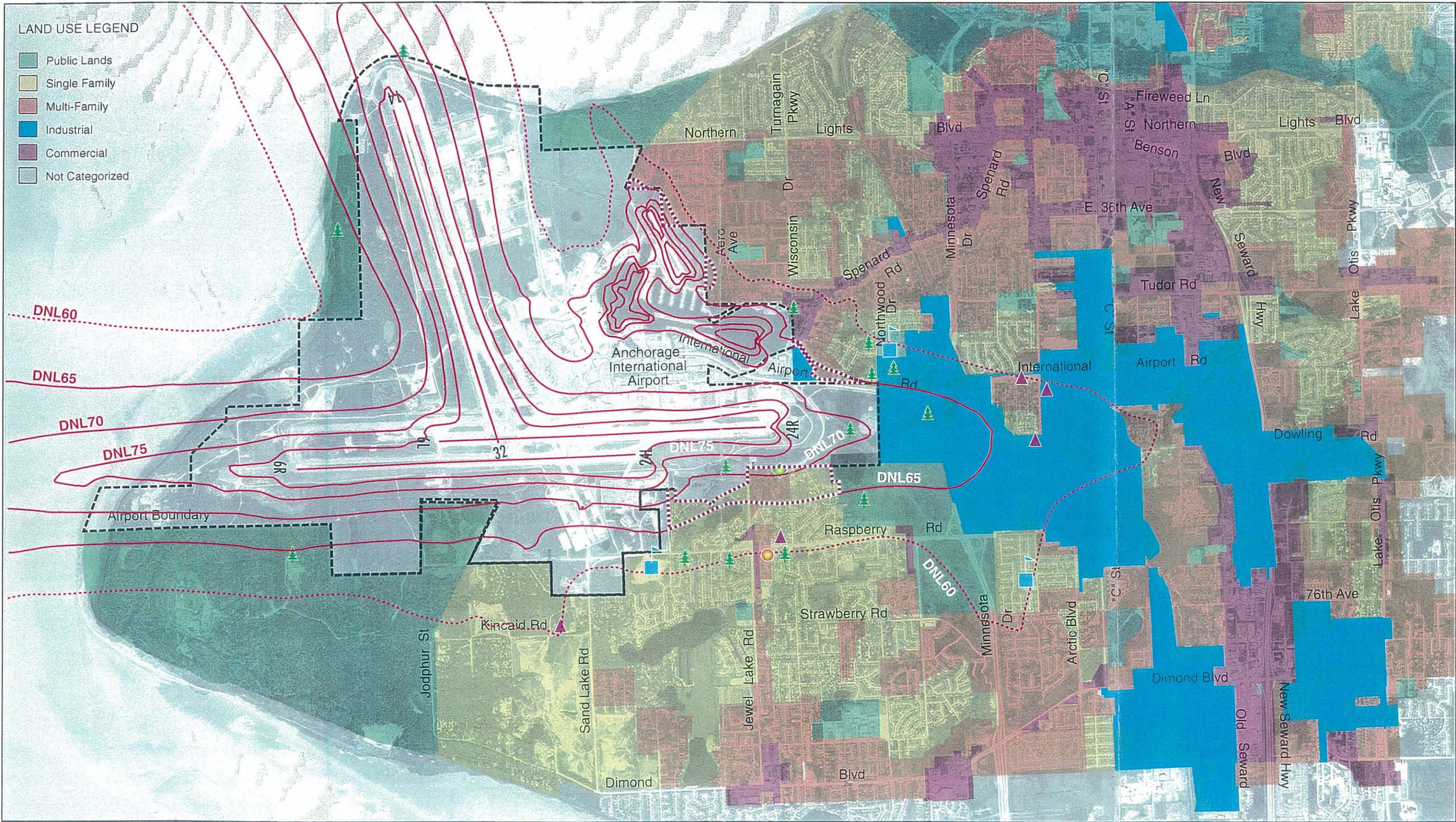
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HNTB

NORTH

LAND USE LEGEND

- Public Lands
- Single Family
- Multi-Family
- Industrial
- Commercial
- Not Categorized



- Schools
- Churches
- Parks
- Daycare
- Pre-school

- DNL Contours
- Noncompatible Residential Land Use

**Five-Year Forecast (2002) Noise Exposure Map
with Implementation of Revised Noise Compatibility Program**

Figure 4.2

Anchorage International Airport F.A.R. Part 150 Update



Table 4.1 Estimated Land Area (in square miles) within Abated 1997 NEM Contours with Implementation of the Revised NCP

Contour Interval	On Airport Land	Off Airport Land	Total
60-64 dB	0.78	3.64	4.42
65-70 dB	1.84	1.39	3.23
70-75 dB	1.51	0.30	1.81
75+ dB	2.53	0.17	2.70

Table 4.2 Estimated Land Area (in square miles) within Abated 2002 NEM Contours with Implementation of the Revised NCP

Contour Interval	On Airport Land	Off Airport Land	Total
60-64 dB	1.10	3.62	4.72
65-70 dB	2.31	0.77	3.08
70-75 dB	1.44	0.25	1.69
75+ dB	2.13	0.13	2.26

Table 4.3 Estimated Residential Population within Abated 1997 NEM Contours with Implementation of the Revised NCP

Contour Interval	Existing Population
60-64 dB	6,353
65-69 dB	1,182
70-74 dB	263
+75 dB	0
Total	7,798

Table 4.4 Estimated Residential Population within Abated 2002 NEM Contours with Implementation of the Revised NCP

Contour Interval	Existing Population
60-64 dB	5,693
65-69 dB	1,118
70-74 dB	157
+75 dB	0
Total	6,968

5. SCREENING AND ANALYSIS OF POTENTIAL NOISE ABATEMENT MEASURES

Noise abatement measures reduce the amount of noise generated at the airport or shift the noise away from sensitive areas. As discussed in Section 1.6, Part 150 identifies the range of noise abatement alternatives that an airport proprietor must consider in developing an NCP. They include five principal categories of options:

- preferential runway use options;
- changes in cockpit flight procedures (e.g., power settings, rates of climb);
- changes in flight track geometry or flight track usage;
- airport use restrictions (e.g., limitations on the time or frequency of operations); and
- airport layout changes which help to divert noise from sensitive areas (e.g., new or revised runways, runup areas, or noise barriers).

The first step in the evaluation of noise abatement alternatives was to identify all reasonable candidate measures. The study team based the list of candidates on four principal sources:

- measures considered in the original AIA Part 150 Study;
- other measures currently in use at AIA;
- measures that the public recommended for consideration; and
- other potentially beneficial measures identified by the FAA, State DOT and PF, or consultant staffs.

Sections 5.1 through 5.4 discuss each of these sources. Section 5.5 summarizes the full list of alternatives that the study team considered, according to the five Part 150 categories listed above. Sections 5.6 through 5.10 summarize the analyses that the study team performed on the alternatives in each of these five categories. These analyses are the bases on which the State DOT and PF selected measures for inclusion in the revised NCP, as presented in Chapter 3.

5.1 Noise Abatement Measures Considered in Development of Original AIA Part 150 Study NCP

In the original AIA Part 150 Study, the State DOT and PF evaluated 24 noise abatement alternatives and proposed six for implementation, three of which the FAA approved. Table 5.1 lists the 24 alternatives considered and identifies those that the State DOT and PF recommended for implementation. For each measure that the State DOT and PF did not recommend, the table indicates the principal reason that it was dropped from consideration. Table 5.1 also summarizes the FAA's decision regarding each of the recommended measures. As discussed in Section 2.1, three of the six measures were approved. Appendix A of this document presents a copy of the FAA's "Record of Decision" on the original AIA Part 150 Study NCP submission.

Table 5.1 Noise Abatement Options Considered in the Original AIA Part 150 Study

Alternative	Part 150 Recommendation	FAA Decision
Maximize Nighttime Preferential Runway Use of Runway 32, supplemented by Preferential Runway Use of 24L.	Recommended as a refinement of the continuing preferential runway system	Approved
Rotational Runway Use	Not recommended, most effective when impacts are distributed equally	Not applicable
Implementation of a preferential runway use program after construction of new runway and waterlane facilities at the Lake Hood Float Plane Base, located northwest of existing facilities, followed by closure of the existing gravel runway and two existing waterlanes.	Recommended in conjunction with airfield improvements	Approved
Eliminate KNIK 3 SID	Not recommended, would not affect the DNL 65 dB contour	Not applicable
Establish Traffic Separation Procedures for Operations at the Lake Hood Float Plane Base	Recommended	Airspace review required. No demonstrated noise benefit. FAA took no action.
Night Curfew on All Aircraft and Operations	Not recommended due to impact on interstate and foreign commerce	Not applicable
Night Curfew on Departures	Not recommended due to impact on interstate and foreign commerce	Not applicable
Night Curfew on Aircraft Based on Noise Levels	Not recommended, overly restrictive	Not applicable
Differential Landing Fees Based on Time of Day	Not recommended, little noise benefit	Not applicable
Differential Landing Fees Based on Noise Levels	Not recommended, little noise benefit	Not applicable
Airport Capacity Limitations, Cap Total Operations	Not recommended, constrains capacity may not reduce noise	Not applicable
Airport Capacity Limitations, Noise Budget	Not recommended, may be discriminatory and is administratively complex	Not applicable
Restrictions of Aircraft Based on Noise Levels, Specified Lmax	Not recommended, legally complex and limited facilities for excluded aircraft to use	Not applicable

Restrictions of Aircraft Based on Noise Levels, FAR Part 36	Not recommended, unreasonable given level of noise impact at AIA	Not applicable
Engine Runup Restrictions, Night, Routine Maintenance	Not recommended, not of significant benefit to the noise abatement program	Not applicable
Engine Runup Restrictions, Night, All Purpose	Not recommended, not of significant benefit to the noise abatement program	Not applicable
Restrict Touch-and-Go Operations at Lake Hood Float Plane Base	Recommended	Disapproved
Reduced Thrust Takeoffs	Not recommended due to varying runway conditions	Not applicable
Encouraged use of AC 91-53 and NBAA Close-In departure procedures by those aircraft capable of using them and still meeting required altitude restrictions.	Recommended	Approved
Use Maximum Climb Procedure	Not recommended, would not reduce noise levels	Not applicable
Minimum Approach Altitudes	Not recommended, no affect on noise contours	Not applicable
Approach Procedures to Reduce Noise	Not recommended, no affect on noise contours	Not applicable
Relocation of the threshold for west approaches to the east-west waterlane at the Lake Hood Float Plane Base	Recommended	Airspace review required. No demonstrated noise benefit. FAA took no action.

The State DOT and PF has been successful in implementing each of the FAA-approved noise abatement measures. With FAA assistance, the State DOT and PF revised some of the measures based on experience, to maximize their effectiveness. Table 5.2 summarizes the implementation status of each approved measure.

5.2 Other Measures Currently in Use at AIA

Since the original AIA Part 150 Study NCP was approved, the State DOT and PF has adopted aircraft runup regulations at AIA. AIA Bulletin 98-04 establishes engine run-up areas and nighttime runup procedures as well as documenting AIA's preferential runway use program. AIA Bulletin 97-05 establishes Lake Hood Float Plane Base Noise Abatement Procedures including a preferential water lane use program, touch and go procedures, and noise reduction procedures.

5.3 Additional Measures Recommended by Study Participants

Members of the TAC identified several monitoring and implementation alternatives for consideration, as listed below.

- Provide immediate flight track and aircraft identification.
- Install a noise monitoring system.
- Prepare plotted visual approach tracks for the Susitna River visual and 24 arrivals.
- Monitor runway use and enforce runway use guidelines.
- Study whether air carriers are complying with the April 1994 Noise Abatement Bulletin.
- Provide altitude tracks for departures to the South and to the East.
- Identify the noise makers and work with them to reduce impacts.
- Prepare noise abatement inserts for Jeppesen Approach Plates.
- Place signs at runway ends with noise abatement procedures.

All but one of these measures, the Susitna River and 24 arrivals visual approach tracks, were incorporated into the continuing program measures described in Section 3.4. The visual approaches along the Susitna River and to Runways 24 L and 24R do not contribute significantly to the AIA noise environment. Therefore, there would be no noise benefit to preparing plotted visual approach tracks for these arrivals.

5.4 Other Potentially Beneficial Measures

One additional measure was suggested during discussions with Alaska Airlines about the NADP's they fly at AIA. Alaska Airlines suggested that a greater noise reduction could be achieved if the use of an NADP for Runway 6R departures was combined with a turn to the south prior to the Seward Highway. This potential measure was brought to the TAC and they agreed that it was worthy of further consideration. This potentially beneficial measure is discussed and analyzed in Section 5.7.6.

5.5 Full List of Noise Abatement Alternatives

Table 5.3 presents the full list of noise abatement alternatives that this study addressed. The table organizes the alternatives according to Part 150's five general categories, and indicates each alternative's status in the original AIA Part 150 Study NCP. The following sections address each of the options in detail, in the order listed.

Table 5.2 Implementation of the Approved Noise Abatement Measures from Original AIA Part 150 Study NCP

Measure as FAA Approved	Measure as Implemented	Implementation Status and Costs
Maximization of Runway 32 departures during the nighttime hours, supplemented by preferential departures on Runway 24 and arrivals on Runway 14 when Runway 32 is incompatible with wind conditions.	AIA Bulletin 98-04, "Noise Abatement Procedures," establishes the preferential runway use program. The bulletin has been modified several times since the Record of Approval was issued. The current bulletin identifies Runway 32 as the preferred departure runway. Runway 24 is the second priority departure runway at night. The bulletin also identifies Runway 14 as the preferred arrival runway when Runway 24 is being used for departures.	Implemented. The costs of adhering to the preferential runway use system are insignificant.
Encourage the use of AC 91-53 Close-in and NBAA departure procedures by those aircraft capable of using them and still meeting required altitude restrictions.	AIA Bulletin 98-04, "Noise Abatement Procedures," requires the use of NADPs for aircraft departing AIA. The bulletin has been modified several times since the Record of Approval was issued. The current bulletin requires the use of the ICAO B or FAA AC 91-53A Close-in NADP when departing east or south from AIA. These NADPs were adopted based on the analysis of this Part 150 Update.	Partially implemented. Use of noise abatement departures profiles reduce engine wear and save fuel. The costs savings are insignificant.
Implementation of a preferential runway use program after construction of new runway and waterlane facilities at Lake Hood Float Plane Base, located northwest of existing facilities, followed by closure of the existing gravel runway and two existing waterlanes.	Although this measure was tied to the expansion of the Lake Hood Float Plane Base, which did not occur, a preferential runway use program was implemented through AIA Bulletin 97-05 based on the existing Lake Hood Float Plane Base configuration.	Implemented.

Table 5.3 Full List of Noise Abatement Alternatives for Consideration in Revised NCP

Category	Alternative	Original AIA Part 150 Study NCP Status
Preferential Runway Use Alternatives	Alternate runway use so everyone can share the noise equally.	Not recommended
	Reduce east departures.	Not included in original AIA Part 150 Study NCP
	Change preferential runway use to: Depart Runways 24L/R, Land Runways 14 and 24R.	Not included in original AIA Part 150 Study NCP
	Redirect as much "heavy" aircraft traffic as possible away from AIA Runway 6.	Not included in original AIA Part 150 Study NCP
	Use only Runways 24 and 32 for heavy-jets between 9 pm and 7 am.	Not included in original AIA Part 150 Study NCP
	Enhance nighttime runway use program	Not Included in original AIA Part 150 Study NCP
	Revise Runway Use Program for Commuters	Not included in original AIA Part 150 Study NCP
	Lake Hood Float Plane Base Preferential Runway Use Program	Recommended and Approved
Cockpit Procedure Modification Alternatives	Require noise abatement power reductions on all Runway 6 and Runway 14 takeoffs.	Recommended and approved (pilot-in-command decides when safe to use)
	Use higher altitude on approach until late on base leg or on final.	Not recommended
	Increase altitude of float planes to a minimum of 1,000 feet over the Turnagain Subdivision.	Not Included in original AIA Part 150 Study NCP
	Study the implementation of mandatory power reduction for departures to the South and East.	Recommended and approved (pilot-in-command decides when safe to use)
	Eliminate thrust reduction on Runway 32 and 24 departures, require it for Runways 14 and 6.	Not included in original AIA Part 150 Study NCP
	Combine early turn with NADP for Runway 6 departures	Not included in original AIA Part 150 Study NCP
	"Keep 'em High" Program	Not included in original AIA Part 150 Study NCP
Preferential Flight Track Alternatives	Move downwind leg for Runway 24L and Runway 24R out over the water.	Not included in original AIA Part 150 Study NCP
	Do away with 50 degree right turn at 400 feet above ground level for Runway 14 takeoffs.	Not included in original AIA Part 150 Study NCP
	Require aircraft to fly runway heading for Runway 14 takeoffs.	Not included in original AIA Part 150 Study NCP

	Require aircraft to fly over the gravel pits after runway 14 takeoff.	Not included in original AIA Part 150 Study NCP
	Eliminate KNIK 5 SID.	Not recommended
	Turn aircraft south on ANC 2 heading at 2,000 feet MSL or if climb gradient is not met.	Not included in original AIA Part 150 Study NCP
	Study what departure routes to the South and East will over-fly the least densely populated areas.	Not included in original AIA Part 150 Study NCP
	Study the implementation of mandatory climb corridors for departures to the South and East.	Not included in original AIA Part 150 Study NCP
	Eliminate the ANC 2 SID from the "U.S. Terminal Procedures, Alaska Vol. 1 of 1."	Not included in original AIA Part 150 Study NCP
	Require aircraft departing Runway 6 to turn before reaching the Seward Highway.	Not included in original AIA Part 150 Study NCP
	Modify FMS procedures to minimize overflight of noise sensitive areas.	Not included in original AIA Part 150 Study NCP
	Use "fanning" to spread the noise of aircraft departing Runway 14.	Not included in original AIA Part 150 Study NCP
	Turn Runway 14 departures right to a 240 degree heading.	Not included in original AIA Part 150 Study NCP
	Move Lake Hood Float Plane Base arrivals over Fish Creek, a mostly undeveloped green belt.	Not included in original AIA Part 150 Study NCP
	Commuter noise abatement arrival and departure corridors to the southeast	Not included in original AIA Part 150 Study NCP
Airport Use Restriction Alternatives	Limit Kulis runups to daytime hours.	Not included in original AIA Part 150 Study NCP
	Prohibit overflight of residential communities from 10 pm to 7 am.	Not included in original AIA Part 150 Study NCP
	Prohibit Runway 6 heavy-jet departures between 9 pm and 7 am.	Not included in original AIA Part 150 Study NCP
	Prohibit operations between 10 pm and 7 am.	Not recommended
	Require noise reduction kits on older engines.	Not recommended
	Prohibit Stage 2 aircraft from using the airport.	Not recommended
	Study the number of Stage 2 departures between 10 pm and 7 am.	Not included in original AIA Part 150 Study NCP
	Study whether any Stage 1 aircraft are departing between 10 pm and 7 am.	Not included in original AIA Part 150 Study NCP
	Study banning Stage 1 aircraft departures from 10 pm to 7 am.	Not included in original AIA Part 150 Study NCP

	Provide a reduction in landing fees for carriers who comply with the Noise Abatement Bulletin.	Not included in original AIA Part 150 Study NCP
	Place a cap on the number of Stage 2 aircraft departures from AIA.	Not recommended
	Gradually eliminate Stage 2 aircraft.	Not recommended
	Restrict length of time engines may be runup or run at idle on cargo ramp.	Not recommended
	Limit cargo loads so cargo jets can depart north all the time.	Not included in original AIA Part 150 Study NCP
	Limit the size and horsepower rating of aircraft using Lake Hood Float Plane Base.	Not included in original AIA Part 150 Study NCP
	Replace single-bladed propellers with shorter treble propellers.	Not included in original AIA Part 150 Study NCP
	Restrict Lake Hood Float Plane Base Touch and Goes	Recommended and disapproved
Airport Layout Modification Alternatives	Extend Runway 14 to the north to get Runway 14 departures higher over the Tanaina Hills.	Not included in original AIA Part 150 Study NCP

5.6 Preferential Runway Use Alternatives

The objective of preferential runway measures is to optimize runway utilization under wind, weather, demand, and airport layout constraints, to minimize population impacts by taking advantage of uneven development around the airport. In general, it is preferable to maximize departures over less populated areas, because departures are generally noisier than arrivals. Five preferential runway use measures were suggested: (1) alternate runway use so that everyone can share the noise equally; (2) reduce east departures; (3) change preferential runway use to: Depart Runways 24L/R, Land Runways 14 and 24; (4) redirect as much heavy traffic as possible away from Runway 6; (5) use only Runways 24 and 32 for heavy-jets between 9 pm and 7 am; and (6) enhance nighttime runway use program.

5.6.1 Alternate Runway Use So Everyone Can Share the Noise Equally

AIA's current preferential runway use policy seeks to maximize aircraft operations over the water. On an annual average bases, the overwhelming majority of air carrier jet departures are to the north on Runway 32 with the majority of arrivals occurring from the west on Runways 6R and 6L. Alternating runway use would significantly increase the size of the DNL contours in the residential areas east and south of AIA. Additional dwelling units and people would be exposed to incompatible levels of aircraft noise. Increasing noise impacts is contrary to the objective of the AIA Part 150 Update, which is to reduce the number of dwelling units and people exposed to incompatible levels of noise from aircraft operations at AIA. Therefore, FAA is not likely to approve this measure. Accordingly, the State DOT and PF did not recommend this measure for detailed analysis.

5.6.2 Reduce East Departures

Reducing east departures by air carrier jet aircraft would reduce the size of the DNL contours east of the airport, which would reduce the number of dwelling units and people impacted by incompatible levels of aircraft noise. As stated above, AIA's existing preferential runway use program seeks to minimize east departures. Further reductions in east departures, consistent with the safety and efficiency should be encouraged. The State DOT and PF recommended that this measure receive detailed study. Two measures that were designed to reduce east departures were evaluated: Enhance Nighttime Runway Use in Section 5.6.6 and Extend Runway 24R to the West to Reduce East Departures in Section 5.10.2 .

5.6.3 Change Preferential Runway Use to: Depart Runways 24L/R, Land Runways 14 and 24R

Adopting a preference for departing on Runways 24L and 24R and landing on Runway 14 would further the State DOT and PF's policy of maximizing over-water operation to reduce aircraft noise impacts. The State DOT and PF recommended that this measure receive detailed study. This potential measure was examined under Section 5.10.2 - Extend Runway 24R to the West to Reduce East Departures.

5.6.4 Redirect as Much Heavy Traffic as Possible Away from Runway 6

Due to their size, their number of operations, and their noise characteristics, "heavy" jet operations are a focus of the communities near AIA. In addition, runway length/gradient limitations cause some heavy jet aircraft to depart Runway 6R when Runway 32 is the active departure runway. The recent extension of Runway 32 has reduced heavy jet departures on Runway 6R. Audits performed by the State DOT and PF have shown a very high level (over 95%) of compliance with AIA Bulletins that define the preferential runway use system. That is, heavy jets appear to be departing Runway 6R when they need the additional length or down-sloping gradient to takeoff safely. Therefore, further reductions of east departures by heavy jet aircraft would require further lengthening of Runway 32, Runway 24R or Runway 24L. The State DOT and PF recommended that the noise benefits of lengthening of Runway 24R be studied in detail. This potential measure was examined under Section 5.10.2 - Extend Runway 24R to the West to Reduce East Departures.

5.6.5 Use Only Runways 24 and 32 for Heavy-Jets Between 9 pm and 7 am

This potential measure is equivalent to a night curfew on heavy jet operations on Runway 6R, Runway 6L, and Runway 14. During the course of a year, wind, weather, and traffic conditions dictate that these Runways 6R, 6L, and 14 be used for heavy jet departures during the period of 9:00 pm to 7:00 am. Prohibiting those operations would have an adverse impact on foreign and interstate commerce. Grant assurances previously given by the State DOT and PF to the FAA when accepting federal funds, legally prevents that State DOT and PF from adopting mandatory curfews by runway end and aircraft category. Thus, the State DOT and PF did not recommend this measure for detailed analysis.

5.6.6 Enhance Nighttime Runway Use Program

Noise from operations at night contributes significantly to the overall aircraft noise exposure at AIA. This potential measure seeks to maximize the amount of over-water operation at night. Enhancing the preferential nighttime runway use may reduce the number of people impacted and minimize nighttime single events which is a focus of community complaints. The State DOT and PF recommended this measure for detailed analysis. Table 5.4 presents the results of the detailed analysis. Figure 5.1 depicts resulting DNL contours from this measure.

5.6.7 Revise Runway Use Program for Commuters

For efficiency of airfield operation, commuter aircraft do not follow the preferential noise abatement runway use program. Commuter aircraft depart to the east on Runway 6L approximately 60 percent of the time. These operations are a source of community complaints. However, keeping the commuter aircraft types separated from the air carrier jets provides greater capacity for the preferential runway use configuration, allowing air traffic controllers to maintain the preferential runway use for jets for a longer period of time. The State DOT and PF recommended this measure for detailed study, which is presented in Table 5.5. The State DOT and PF decided against implementation of this measure based on the analyses.

5.6.8 Lake Hood Float Plane Base Runway Use Program

Figures 5.6 and 5.7 show annual average and seasonally adjusted DNL contours due to Lake Hood Float Plane Base operations only. In both cases, the DNL 65 dB contour is largely restricted to the airport. Two small areas of residential development fall within in DNL 65 dB contour associated with the gravel strip (Runway 13-31). Since both of these areas are affected by sideline noise, changing the direction of landings and takeoffs would not appreciably reduce noise levels in these areas. In order to reduce noise levels in the DNL 60 to 65 dB area to the north and east of the Lake Hood Float Plane Base, it would be necessary to arrive from the west and depart to the west. When operations are conducted on reciprocal headings (head to head), a very large separation between arriving and departing aircraft is required. Accordingly, this operation would only be feasible during light traffic conditions. This mode of operation also requires wind conditions which permit operations in either direction. Since winds are calm only 18 percent of the year, it is not likely that both traffic and wind requirements for head-to-head operations would be met for a substantial portion of the year. Therefore, no appreciable changes in DNL would result from this measure. Accordingly, the State DOT and PF DOT and PF decided against the implementation of this measure.

Table 5.4 Enhance Nighttime Runway Use Program

Measure: Enhance Nighttime Runway Use Program Description: AIA Bulletin No. 98-04 designates departures on Runway 32 and arrivals on Runway 6R as the first preferred noise abatement runway configuration during both daytime and nighttime hours. This measure would re-designate the depart Runway 24L, arrive Runway 14 configuration as the preferred nighttime runway configuration.	
Net Change in Community Noise and Overflight	<p>There are two primary benefits to designating Arrive 14, Depart 24 as the preferred nighttime runway configuration. First, this measure would reduce departures on Runway 6R at night by directing these departures to the west, which reduces the number of people within the DNL 65 dB contours. Second, aircraft would be higher upon reaching the residential areas of Anchorage, which reduces single event noise exposure.</p> <p>Figure 5.1 shows reduction in the DNL contours to the east of the airport which reduces the population within the DNL 65 dB contour by 130 people. Figure 5.2 shows Runway 32 air carrier jet departure flight tracks overflying northeast Anchorage. Figure 5.3 shows that the flight tracks for Runway 24 departures, on the other hand, generally remain over the water while climbing toward their destinations. Residents near Delong Lake and Spenard may detect a change in the nature of the start-of-takeoff roll noise.</p>
Responsible Agency	<ul style="list-style-type: none"> ● AIA revises AIA Bulletin 98-04. ● Aircraft operators comply with recommended runway use program. ● FAA implements revised preferential runway use at night.
Airport and ATC Operational Considerations	<p>Nighttime traffic levels during this period are well below the Visual Flight Rules (VFR) runway capacity of the Arrive 14, Depart 24 configuration, and are expected to remain so through the year 2017. By the year 2017, activity levels may begin to exceed the Instrument Flight Rules (IFR) arrival capacity of this configuration (see Figures 5.4 and 5.5).</p> <p>Increased use of Runway 14 for arrivals could increase interaction with Elmendorf AFB traffic, and with GA traffic in the Point McKenzie area. Analysis of ARTS data indicates that volumes of Elmendorf activity during this period would not preclude operation of this configuration. Although ARTS data for GA activity in the Point McKenzie area are not readily available, the volume of GA activity during this period is typically low.</p>
Effect on Aircraft Operators	No significant effects. Aircraft arriving from the southeast might require additional flight time for Runway 14 arrivals, but aircraft departing to southeast destinations may experience slightly reduced flight times.
Effect on Quality of Air Service	None.
Capital Costs of Implementation	None.
Implementation Factors	Airlines have expressed concerns that wind conditions may limit the use of the depart 24, land 14 configuration during some periods. FAA has expressed concerns that this configuration may not provide adequate capacity during peak nighttime periods.
Legal Implications	A formal change of FAA procedures (adopting Arrive 14, Depart 24 as the primary nighttime runway use) would require documentation under the provisions of NEPA.

Conclusion	The nighttime preferential runway use configuration should be changed to depart Runway 24L, arrive Runway 14 to maximize over-water operation and minimize nighttime overflight of residential areas.
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Figure 5.2

Runway 32 ARTS Departure Tracks

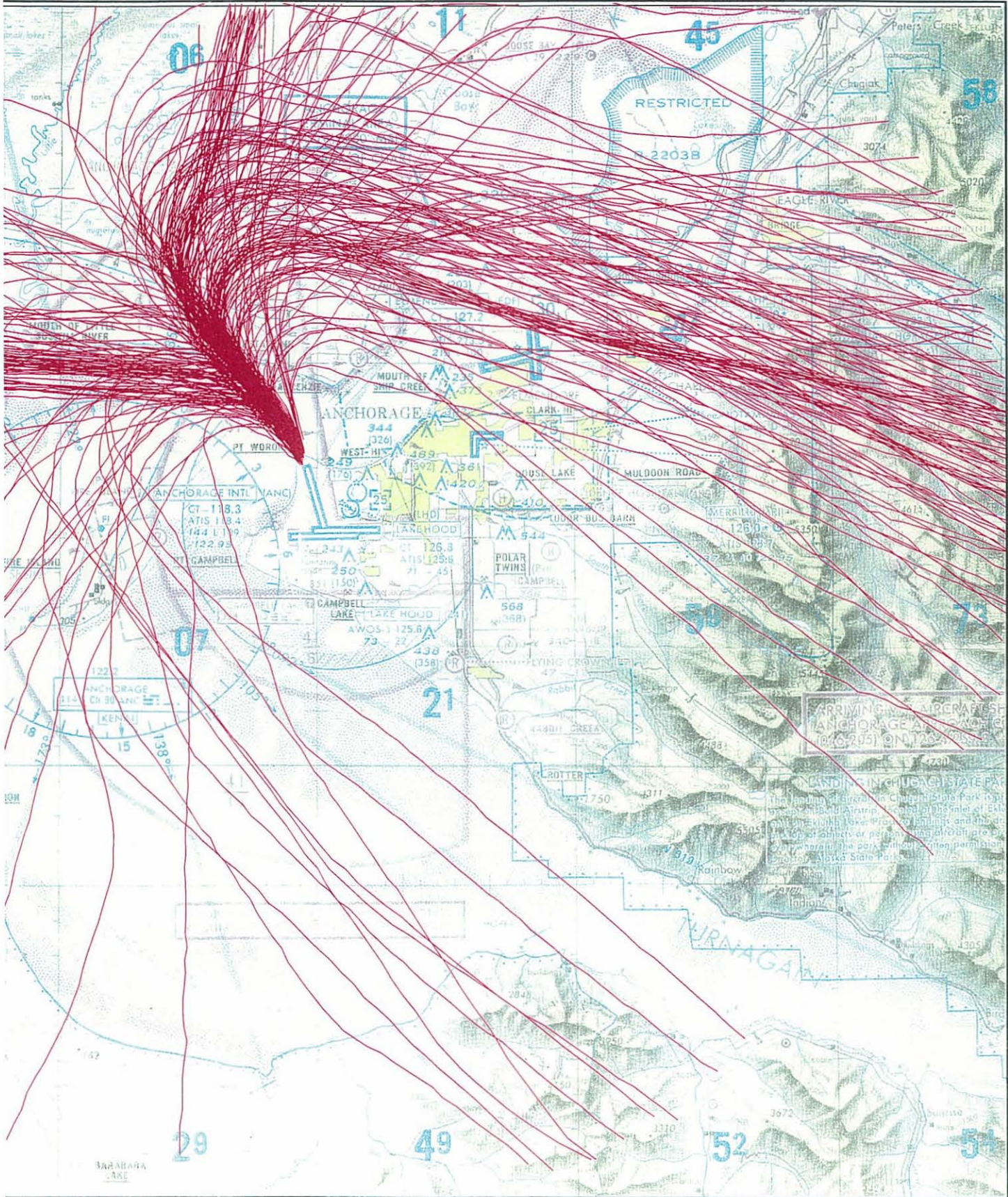




Figure 5.3

Runway 24L ARTS Departure Tracks

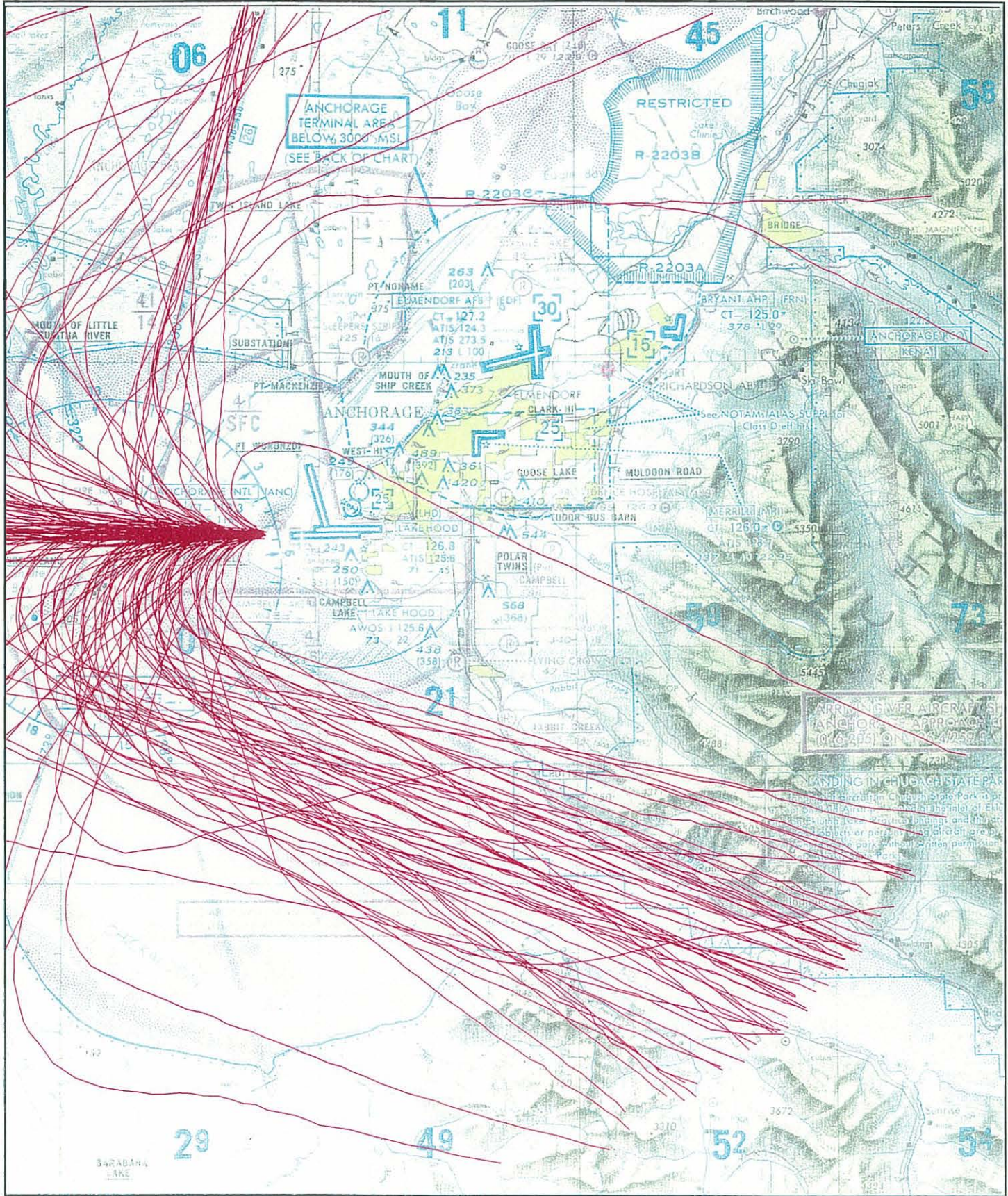
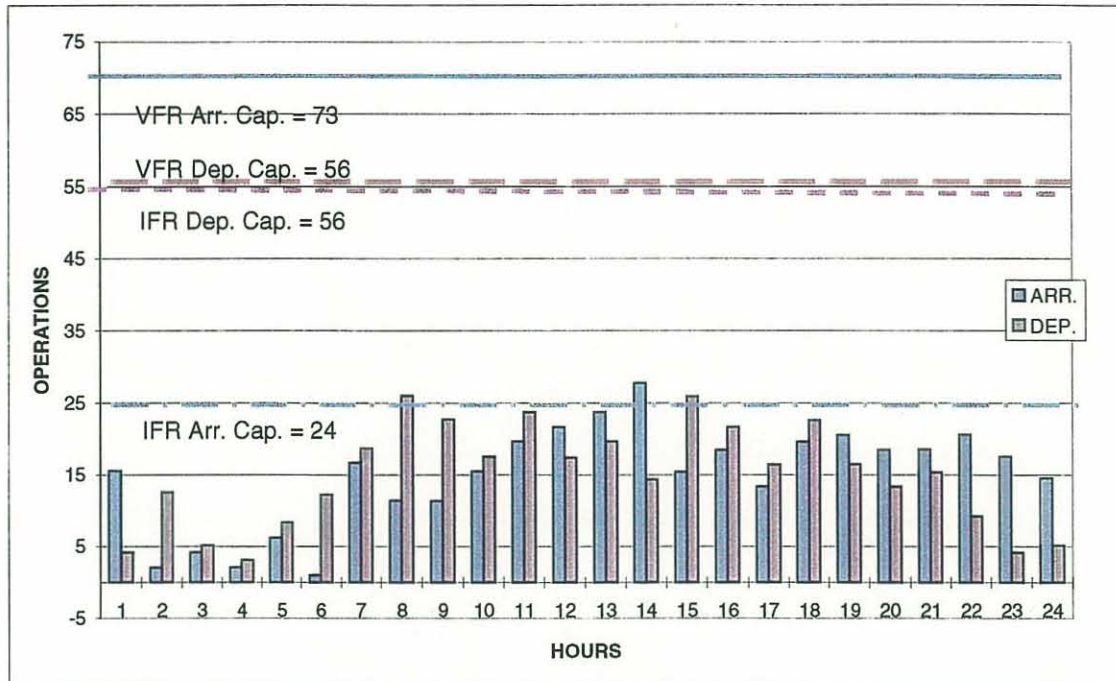


Figure 5.4 Noise Abatement Runway Configuration - Capacity Demand (1997)

**DEPART 32 ARRIVE 6R AND 6L
1997 DESIGN DAY**



**DEPART 24R AND 24L ARRIVE 14
1997 DESIGN DAY**

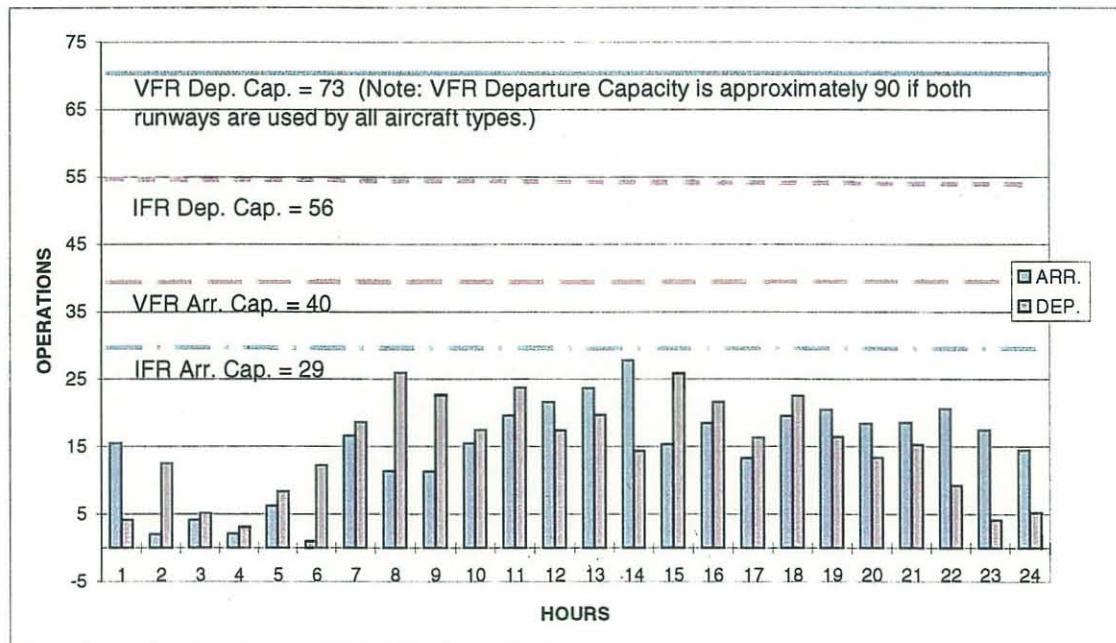
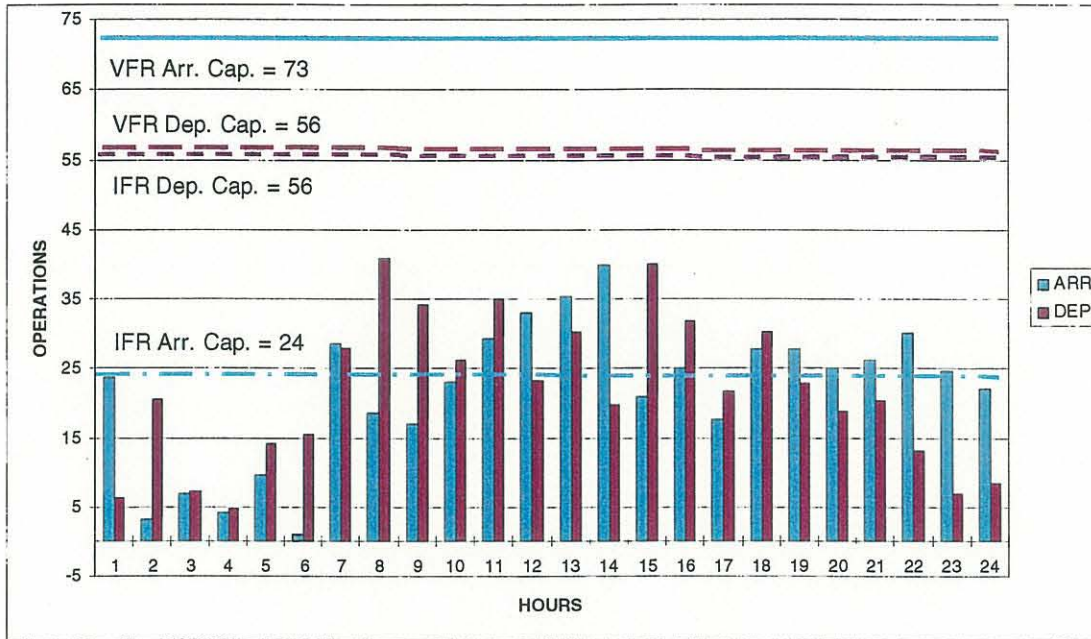


Figure 5.5 Noise Abatement Runway Configuration - Capacity Demand (2017)

DEPART 32 ARRIVE 6R AND 6L
2017 DESIGN DAY



DEPART 24R AND 24L ARRIVE 14
2017 DESIGN DAY

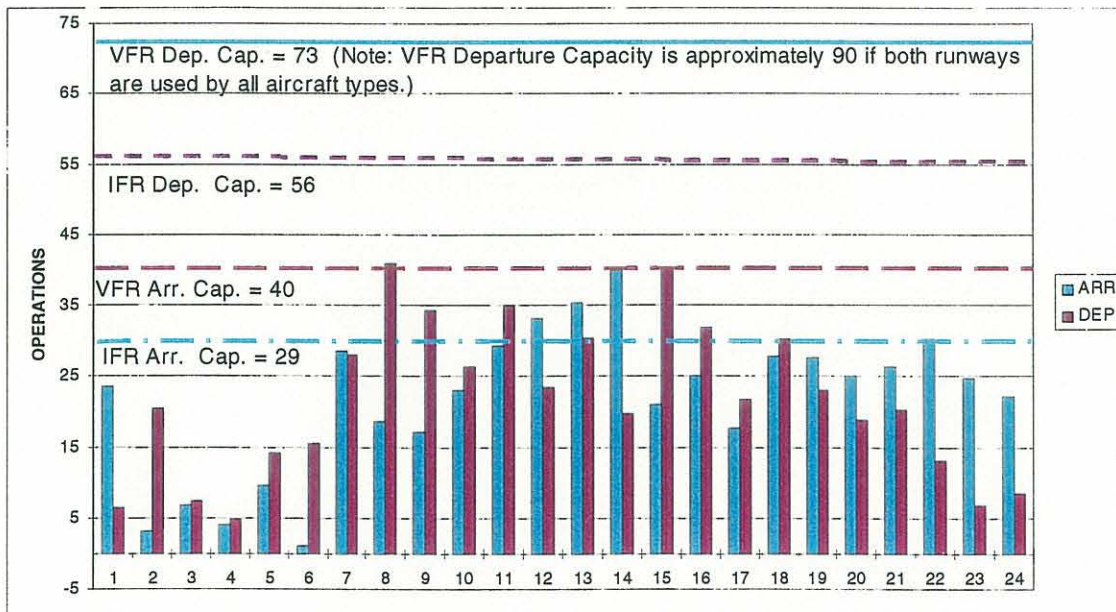


Table 5.5 Revise Runway Use Program for Commuters

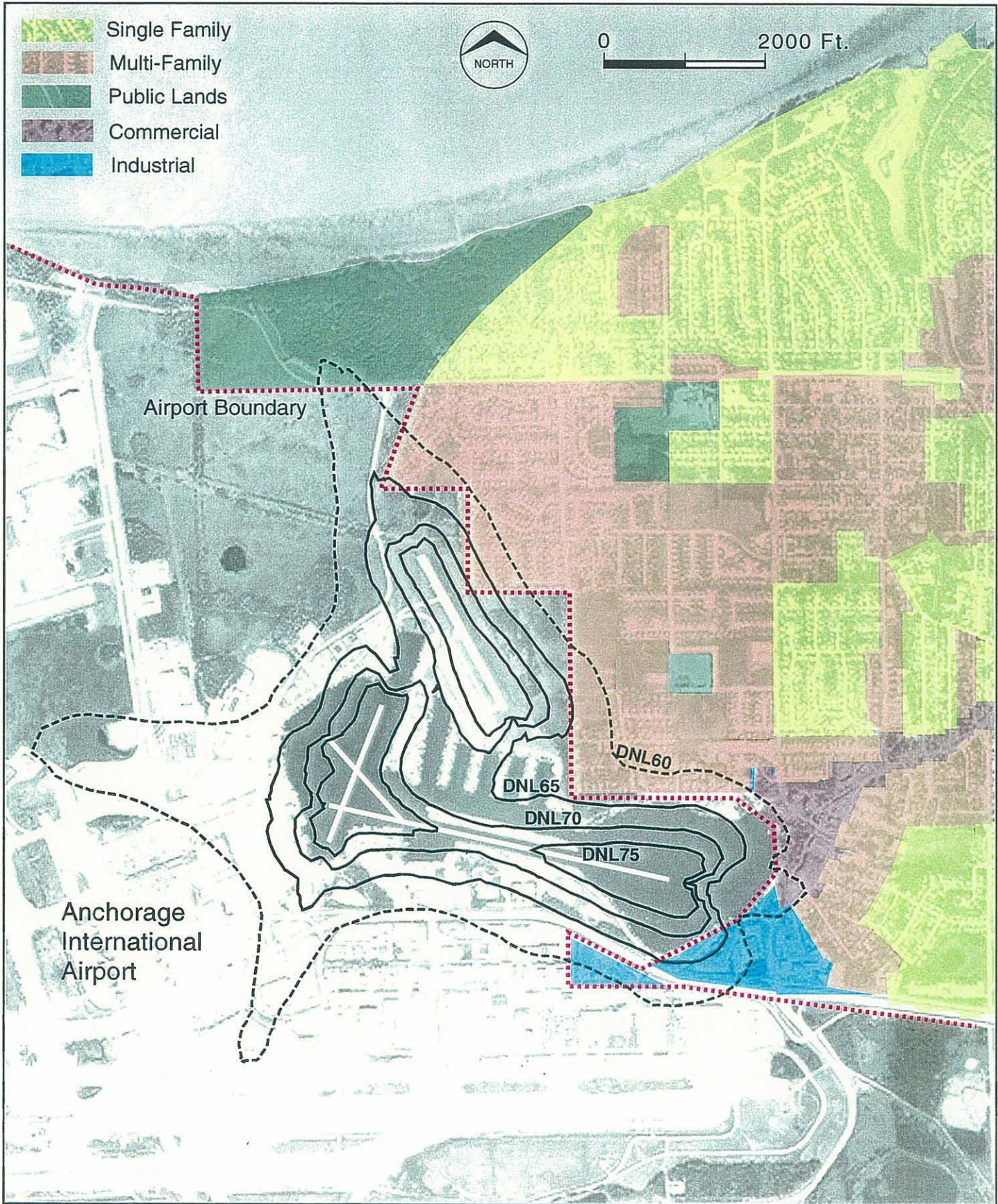
Measure: Revise Runway Use Program for Commuters Description: On an annual average basis, approximately 60% of the commuter and GA departures use Runway 6L. This measure suggests placing more of these operations on Runway 32 to reduce overflights of noise sensitive residential areas east of AIA.	
Net Change in Community Noise and Overflight	Although commuter and GA aircraft contribute minimally to the cumulative aircraft noise exposure depicted in the DNL contours, elimination of commuter and GA overflights to the east and south would reduce the number of aircraft noise events experienced by nearby residents.
Responsible Agency	<ul style="list-style-type: none"> ● AIA updates AIA Bulletin 98-04 and requests FAA ATC implementation. ● FAA Air Traffic Control revises Tower Order. ● Aircraft operators conform to requested runway use program.
Airport and ATC Operational Considerations	<p>Mixing different aircraft types on a single runway can significantly reduce runway capacity since aircraft operating at different speeds require additional separation for safety. Nevertheless, Figure 5.5 shows that total departure demand (including commuter and GA aircraft) is projected to remain below the VFR departure capacity of the Depart 32, Arrive 6 configuration through the year 2017. Although delays would increase with the addition of commuter and GA traffic, the relatively low level of demand relative to capacity indicates that delays would not be excessive at current levels of demand.</p> <p>As demand increases over time, controllers will likely direct commuter and GA aircraft departures to Runway 6L to reduce congestion and delay for longer periods. Figure 5.5 shows that departure demand will reach two thirds of capacity during much of the day by the year 2017. At this level of demand, departure delays would occur during peak periods.</p> <p>The addition of commuter and GA aircraft to departure queues could cause congestion which is not reflected in the runway capacity analysis. Since the taxiways providing access for Runway 32 departures provide limited room for queuing, increased demand by dissimilar aircraft types could result in taxiway blockage and additional delay during peak periods.</p> <p>The operation of smaller passenger aircraft and heavy aircraft poses an operational safety issue due to wake turbulence and jet blast.</p>
Effect on Aircraft Operators	Commuter, GA, and air carrier operators could experience some increased delay as a result of congestion on taxiways used for queuing aircraft for Runway 32 departures. At current levels of demand, these delays would not be excessive.
Effect on Quality of Air Service	No appreciable effect on air service is anticipated.
Capital Costs of Implementation	No capital costs are associated with this measure, although additional queuing areas might be required to support use of Runway 32 for commuter and GA as well as air carrier departures.
Implementation Factors	Air traffic controllers would retain the option of directing GA and commuter departures to Runway 6L as necessary to reduce congestion and delay. Conformance to the recommended voluntary runway use program would be expected to decrease if taxiway congestion becomes a significant factor.
Legal Implications	Formal changes in FAA procedures affecting aircraft operations below 3,000 feet AGL would require documentation under the provisions of NEPA.

Conclusion	Although this measure could be implemented, the noise benefits do not justify the increased runway use rigidity that could affect runway use decisions concerning larger, noisier aircraft.
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Figure 5.6

Lake Hood Float Plane Base 1997 Annual Average DNL Contours

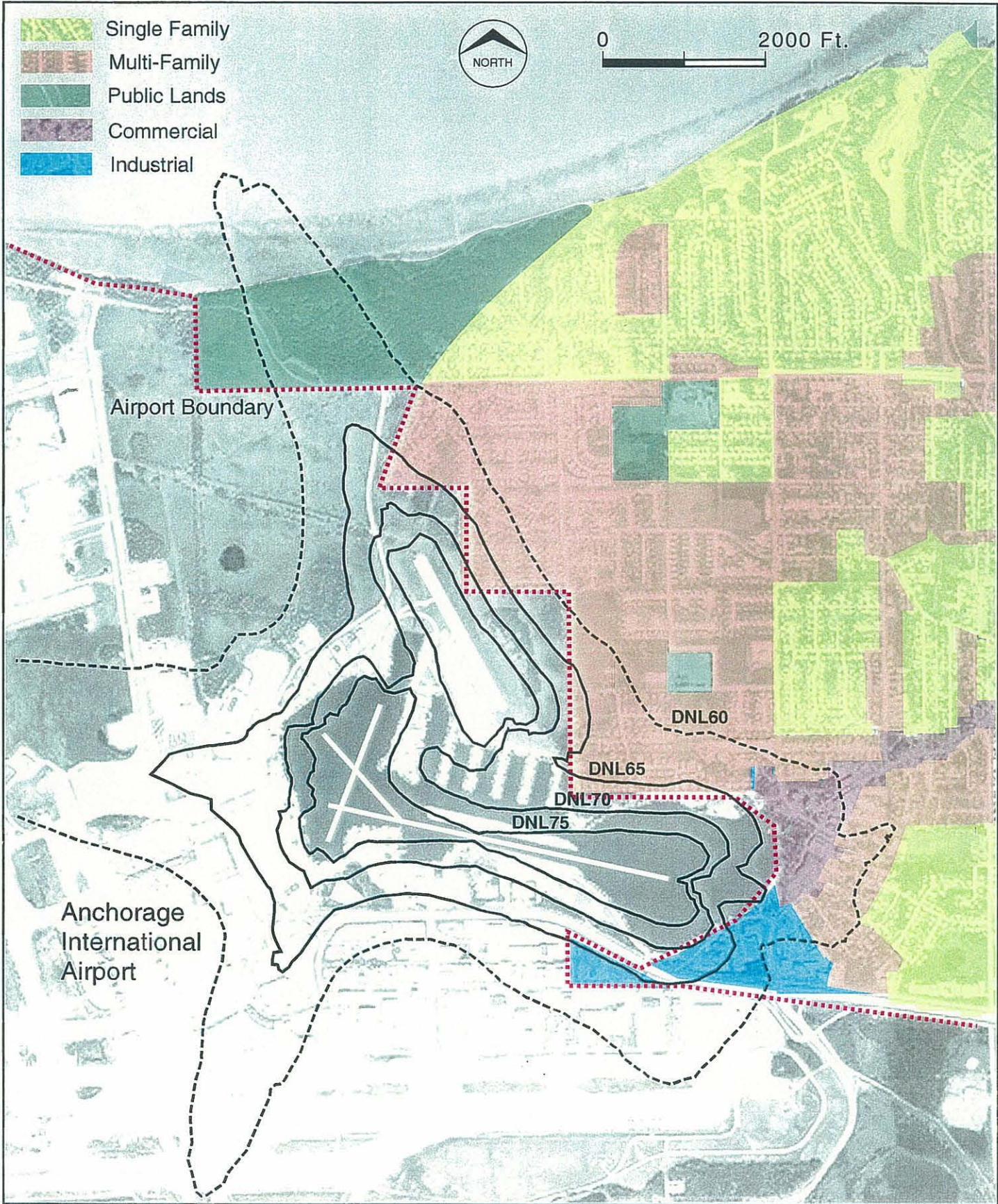




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Figure 5.7

Lake Hood Float Plane Base 1997 Seasonally Adjusted DNL Contours



5.7 Cockpit Procedure Modification Alternatives

The original AIA Part 150 Study NCP included one flight procedure element which recommended the use of AC 91-53 and NBAA NADPs. Six cockpit procedures alternatives were analyzed as a part of this update: (1) require noise abatement power reductions on all Runway 6 and Runway 14 takeoffs; (2) use higher altitude on approach until late on base leg or on final; (3) increase altitude of float planes to a minimum of 1,000 feet over the Turnagain Subdivision; (4) study the implementation of mandatory power reduction for departures to the South and East; (5) eliminate thrust reduction on Runway 32 and 24 departures, require it for Runways 14 and 6; and (6) combine NADP with early turn for Runway 6 departures. Alternatives 1, 4, and 5 above are very similar and are closely related to the flight procedure included in the original AIA Part 150 Study NCP.

5.7.1 Require Noise Abatement Power Reductions on All Runway 6 and Runway 14 Takeoffs

NADPs are designed to reduce aircraft noise impacts for residents living in the vicinity of the departure flight paths. Since the completion of the original AIA Part 150 Study, new NADPs have been developed by the FAA and ICAO for use by air carrier jet aircraft. The NBAA NADP recommended in the original AIA Part 150 Study remains unchanged since that time. This measure seeks to recommend the use of the appropriate updated NADP for incorporation into a revised AIA Bulletin. The decision to use an NADP rests solely with the pilot-in-command. Therefore, the State DOT and PF cannot *require* the use of NADPs, but can encourage their use at AIA. The State DOT and PF recommended that the noise benefits of adopting new NADPs be studied in detail. The analyses on this measure are presented in Table 5.6 and Figures 5.8 and 5.9.

5.7.2 Use Higher Altitude on Approach Until Late on Base Leg or on Final

Increasing the distance between a noise source (the aircraft) and the receiver (residents) is a basic noise control method. Application of this concept to aircraft on approach to AIA was one of the alternative measures. However, the greatest majority of aircraft approaches to AIA are already conducted over water. Keeping aircraft higher would produce no noise benefits while increasing pilot and controller workload. Therefore, this measure was not recommended for further detailed study.

5.7.3 Increase Altitude of Float Planes to a Minimum of 1,000 Feet Over the Turnagain Subdivision

FAR 91.119 requires aircraft to be at a minimum of 1,000 feet above ground level when flying over residential areas unless except when descending to land or ascending immediately after departure. AIA Bulletin 97-05, Lake Hood Operating Procedures, includes a reference to this federal requirement in Section VI, Noise Reduction Procedures. This existing measure will be continued in the updated NCP. No further analysis is required.

Table 5.6 Implement Consistent NADPs on Runway 6 and Runway 14

<p>Measure: Implement Consistent NADPs on Runways 6 and 14</p> <p>Description: Within certain limits, pilots can select departure profiles to minimize noise exposure. Variables include thrust settings (power), flap settings, airspeed and climb rate. In the United States, FAA AC 91-53A establishes the procedures for aircraft operators to establish noise abatement departure procedures. The AC defines two types of procedures; "close-in" procedures to reduce noise in noise sensitive areas located in close proximity to the departure end of a runway, and "distant" procedures to reduce noise in all other noise sensitive areas. Outside of the United States, ICAO also publishes two NADPs similar to, but slightly different than, the AC 91-53A procedures. The primary noise benefit of each of these profiles is due to reduced thrust settings. This measure recommends the implementation of clear and consistent NADPs for each runway.</p>																											
Net Change in Community Noise and Overflight	<p>Figure 5.8 and 5.9 show the Sound Exposure Level (SEL) contours for the base case (standard INM - full power) and four NADPs (reduced thrust) that were evaluated for Runway 6 and Runway 14 departures. The following is a summary of the population within the 85 dB SEL contour for a single Boeing 747-200 departure for each noise abatement procedure.</p> <table border="1"> <thead> <tr> <th colspan="2">Runway 6</th> <th colspan="2">Runway 14</th> </tr> <tr> <th>Procedure</th> <th>Population</th> <th>Procedure</th> <th>Population</th> </tr> </thead> <tbody> <tr> <td>AC 91-53A Close-in</td> <td>1,536</td> <td>AC 91-53A Close-in</td> <td>402</td> </tr> <tr> <td>AC 91-53A Distant</td> <td>2,013</td> <td>AC 91-53A Distant</td> <td>522</td> </tr> <tr> <td>ICAO A</td> <td>1,973</td> <td>ICAO A</td> <td>646</td> </tr> <tr> <td>ICAO B</td> <td>1,692</td> <td>ICAO B</td> <td>451</td> </tr> </tbody> </table>			Runway 6		Runway 14		Procedure	Population	Procedure	Population	AC 91-53A Close-in	1,536	AC 91-53A Close-in	402	AC 91-53A Distant	2,013	AC 91-53A Distant	522	ICAO A	1,973	ICAO A	646	ICAO B	1,692	ICAO B	451
	Runway 6		Runway 14																								
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ICAO B	1,692	ICAO B	451																								
<p>Most cargo carriers operating at AIA use the ICAO A procedure.</p>																											
Responsible Agency	<ul style="list-style-type: none"> • AIA updates AIA Bulletin 98-04 and requests operators to establish and use the recommended departure procedures. • Aircraft operators conform to requested departure procedure. 																										
Airport and ATC Operational Considerations	<p>The Air Transport Association (ATA) has raised concerns about penetration of the Class E airspace east of the Seward Highway and has requested that FAA turn air carrier jets prior to the Seward Highway. Adoption of the one or both of the "close-in" procedures would cause Runway 6R departures to be slightly lower than when using a standard takeoff procedure.</p>																										
Effect on Aircraft Operators	<p>Selection and use of the appropriate AC 91-53A NADP is strongly encouraged by ALPA. All procedures would be implemented by the operators, no significant issues anticipated.</p>																										
Effect on Quality of Air Service	<p>None.</p>																										
Capital Costs of Implementation	<p>None.</p>																										
Implementation Factors	<p>Procedures developed by each operator may vary substantially while being in conformance with AC 91-53A. Accordingly, performance will differ from the estimates of effectiveness shown above. Monitoring of actual conformance to established procedures would require extensive analysis of data acquired through flight track monitoring and noise measurements.</p>																										
Legal Implications	<p>No significant issues anticipated.</p>																										

Conclusion	<p>Of the four possible noise abatement departure procedures examined, the AC 91-53A "close-in" procedure results in the smallest impact on a single event basis. The impacts from the ICAO B procedure are similar to the AC 91-53A "close-in" impacts. U.S. carriers are familiar with the AC 91-53A and could be expected to fly it consistently. Foreign carriers may be more familiar with the ICAO B procedure and may, as a result, fly it more consistently than the U.S. AC 91-53A "close-in." Therefore, aircraft departing on Runways 6R/L and Runway 14 should fly either the AC 91-53A "close-in" procedure or the ICAO B procedure.</p>
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Figure 5.8

SEL Contours for Noise Abatement Departure Profiles on Runway 6R





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Figure 5.9

SEL Contours for Noise Abatement Departure Profiles on Runway 14





5.7.4 Study the Implementation of Mandatory Power Reduction for Departures to the South and East

This alternative measure is similar to the "Require Noise Abatement Power Reductions on all Runway 6 and Runway 14 Takeoffs," which is discussed above. Although the updated NCP will recommend the use of NADPs for Runway 6 and Runway 14 departures, their use will be at the discretion of the pilot-in-command at the time of departure as discussed in Section 5.7.1.

5.7.5 Eliminate Thrust Reduction on Runway 32 and 24 Departures, Require it for Runways 14 and 6

This alternative measure includes elements of the Runway 6 and Runway 14 NADP discussed above, but suggests that thrust reductions for Runway 32 and Runway 24 be eliminated. AIA's Bulletin 96-09 required operators to conform to "... ICAO Document, 8168 Volume I, Part V, Noise Abatement Procedures..." but did not specify which procedure, A or B, should be used nor did it specify which runway end should be used. Therefore, it implied that the ICAO NADPs should be used on Runways 32 and 24. Since the initial climb portion of Runway 32 and 24 departures occur over water, use of NADPs on these Runways provides no noise benefits. The latest AIA noise abatement bulletin, Bulletin 98-04, specifies the use of NADPs on Runways 6 and Runway 14 only.

5.7.6 Combine NADP with Early Turn for Runway 6 Departures

This potential measure combines a cockpit procedure with a noise abatement flight track and is an extension of the potential measure discussed in Section 5.8.10 below. Alaska Airlines suggested this measure during a discussion of the NADPs they use at AIA. Alaska Airlines indicated that concern about the GA flyway east of the Seward Highway may cause some airlines to abandon the use of NADPs when departing Runway 6R and 6L. Turning to the south prior to reaching the Seward Highway would eliminate this area of concern, allowing all airlines to fly the recommended NADPs. Based on Alaska Airlines' recommendation, the State DOT and PF brought this potential measure to the TAC who agreed that the measure warranted detailed study. Table 5.7 presents the results of the detailed analysis. Figures 5.10 and 5.11 depict the resulting SEL noise contours for B737-200 (typical passenger aircraft) and B747-200 (typical cargo aircraft).

Table 5.7 Combine NADP with Early Turn for Runway 6 Departures

Measure: Combine NADP with Early Turn for Runway 6 Departures Description: Combining an NADP with a turn west of the Seward Highway could increase airline use of NADPS and locate these operations over more compatible noise abatement corridor.																					
Net Change in Community Noise and Overflight	<p>Figures 5.10 and 5.11 show the SEL contours for the base case (standard INM - full power) with an early turn to the south and the early turn to the south using the NADP as flown by an Alaskan Airlines 737-200 and Japan Airlines 747-200, respectively.</p> <table border="1"> <thead> <tr> <th></th> <th style="text-align: center;">737-200</th> <th colspan="2" style="text-align: center;">747-200</th> </tr> <tr> <th></th> <th style="text-align: center;">Procedure</th> <th style="text-align: center;">Population</th> <th style="text-align: center;">Population</th> </tr> </thead> <tbody> <tr> <td>Early Turn w/o NADP</td> <td></td> <td style="text-align: center;">1,114</td> <td style="text-align: center;">1,026</td> </tr> <tr> <td>Early Turn w/ NADP</td> <td></td> <td style="text-align: center;">932</td> <td style="text-align: center;">997</td> </tr> <tr> <td>Change</td> <td></td> <td style="text-align: center;">-182</td> <td style="text-align: center;">-29</td> </tr> </tbody> </table>		737-200	747-200			Procedure	Population	Population	Early Turn w/o NADP		1,114	1,026	Early Turn w/ NADP		932	997	Change		-182	-29
	737-200	747-200																			
	Procedure	Population	Population																		
Early Turn w/o NADP		1,114	1,026																		
Early Turn w/ NADP		932	997																		
Change		-182	-29																		
Responsible Agency	<ul style="list-style-type: none"> ● AIA works with FAA to define new flight track and requests operators to establish and use the recommended departure procedures. ● FAA Air Traffic Control revises Tower Order and FAA Flight Standards revises and adopts ANC 2 SID. ● Aircraft operators conform to requested turn and departure procedure. 																				
Airport and ATC Operational Considerations	<p>The ATA has raised concerns about penetration of the Class E airspace east of the Seward Highway and has requested that FAA turn air carrier jets prior to the Seward Highway. Adoption of the one or both of the "close-in" procedures would cause Runway 6R departures to be slightly lower than when using a standard takeoff procedure. A turn prior to Seward Highway would eliminate these concerns. ATC has indicated that an early turn to the north would produce airspace conflicts and would not be supported. ATC supported implementation of the early turn to the south.</p>																				
Effect on Aircraft Operators	<p>Selection and use of the appropriate AC 91-53A NADP is strongly encouraged by ALPA. All procedures would be implemented by the operators, no significant issues anticipated. The early turn may slightly reduce distance flown for some routes.</p>																				
Effect on Quality of Air Service	<p>None.</p>																				
Capital Costs of Implementation	<p>None.</p>																				
Implementation Factors	<p>The Bayshore/Klatt Community Council has expressed concern that this measure could change current flight tracks resulting increased noise in some areas. Procedures developed by each operator may vary substantially while being in conformance with AC 91-53A or ICAO B. Accordingly, performance will differ from the estimates of effectiveness shown above. Flight track coordinates need to be developed for a variety of flight guidance systems. Monitoring of actual conformance to established procedures would require extensive analysis of data acquired through flight track monitoring and noise measurements.</p>																				
Legal Implications	<p>Formal changes in FAA procedures affecting aircraft operations below 3,000 feet AGL would require documentation under the provisions of NEPA.</p>																				

Conclusion	The combination of an NADP with an early turn to the south for Runway 6R departures could reduce the number of impacted people close to AIA, but could increase noise in some areas farther out from AIA. This measure is not recommended for implementation at this time, but could be reconsidered in the next AIA NCP update if more data are available through the use of the proposed noise and flight track monitoring system.
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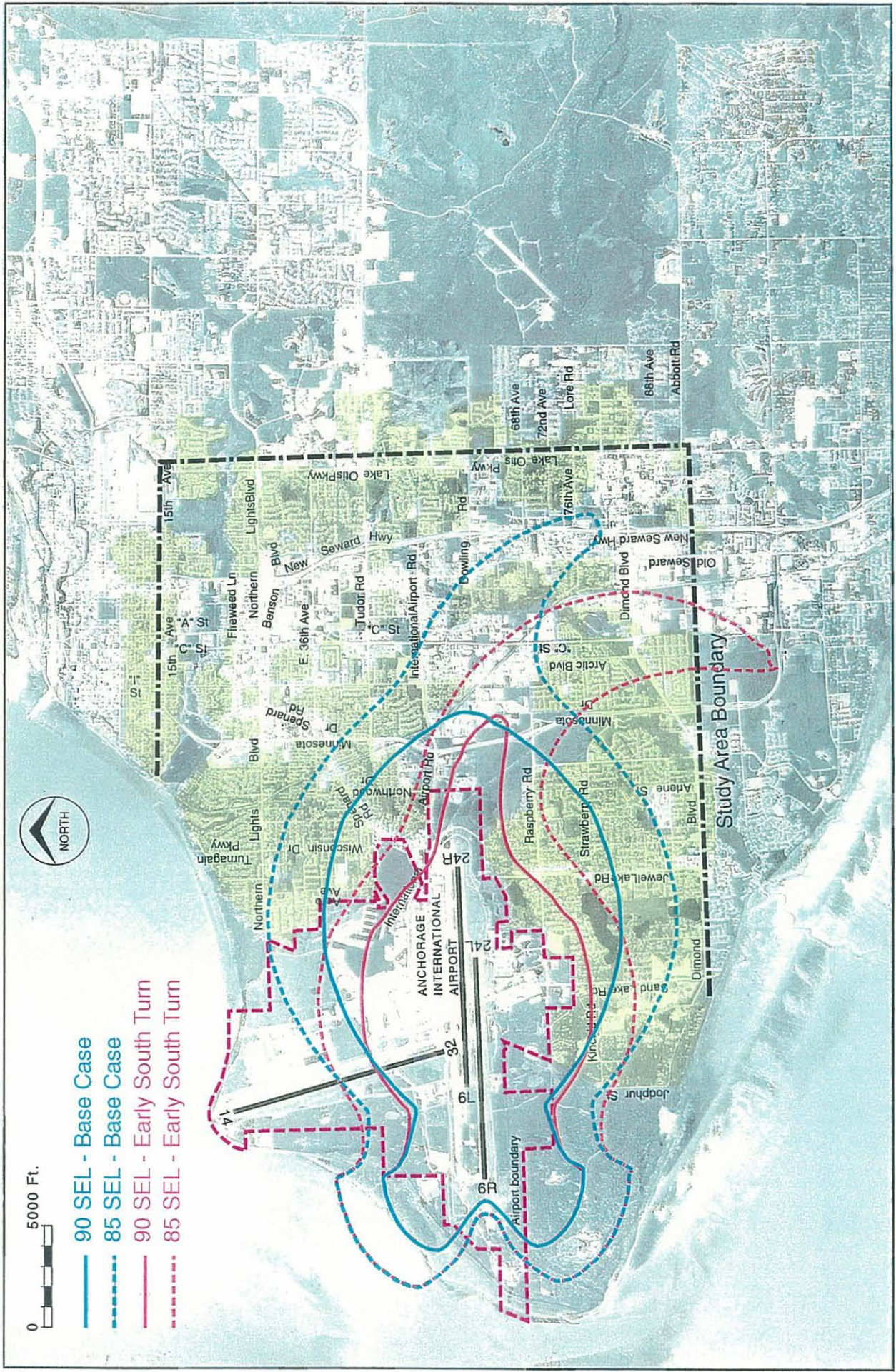


Anchorage International Airport

Figure 5.10

B737-200 SEL Contours for Combined NADP and Early South Turn for Runway 6R

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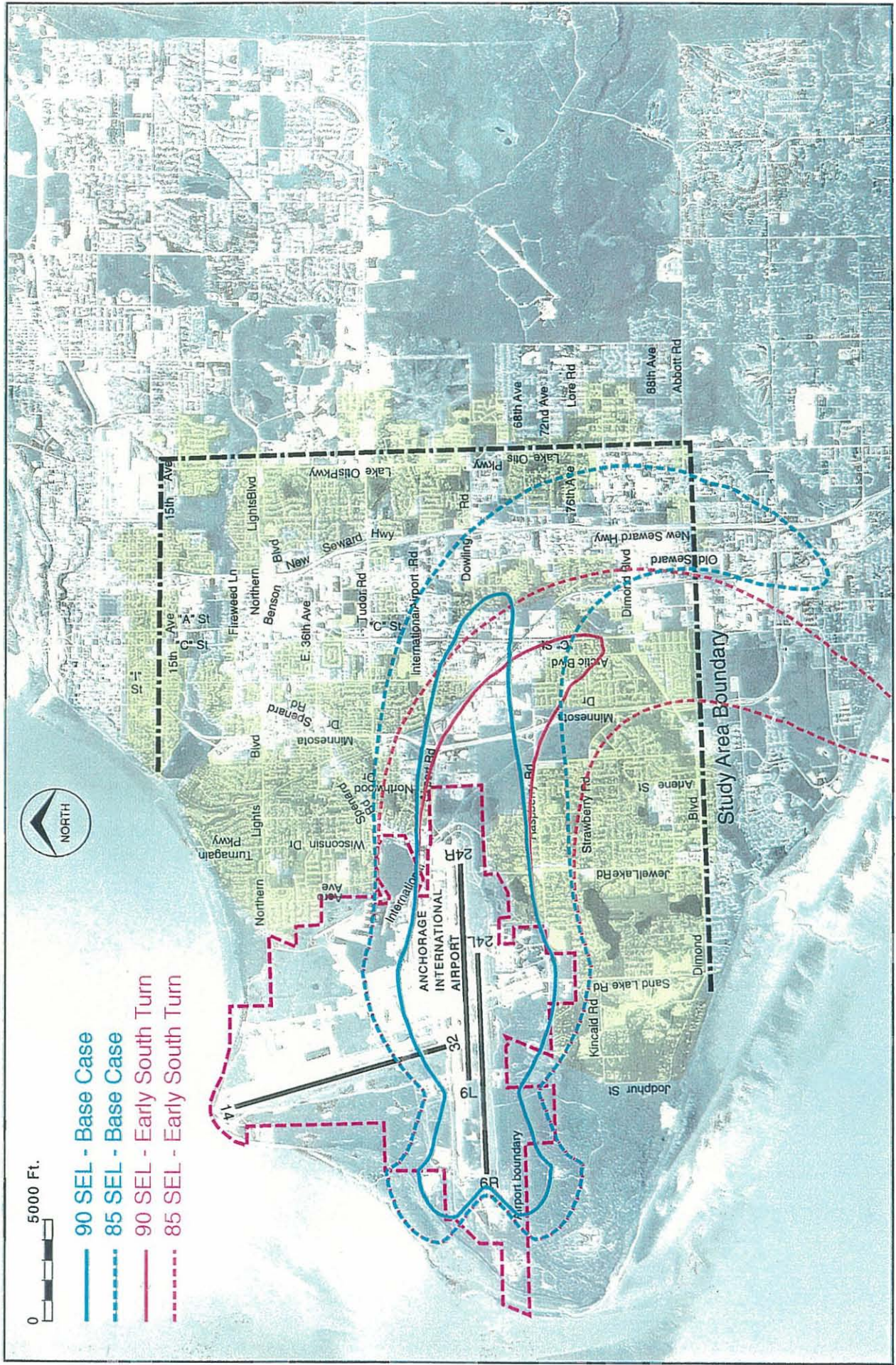
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- 90 SEL - Base Case
- 85 SEL - Base Case
- 90 SEL - Early South Turn
- 85 SEL - Early South Turn

Figure 5.11
B747-200 SEL Contours for Combined NADP
and Early South Turn for Runway 6R



5.7.7 Implement a "Keep 'em High" Program

This measure would encourage aircraft to remain at higher altitudes for as long as possible prior to landing and climbing out as quickly as possible following the recommended departure profile. The areas affected by aircraft noise in Anchorage which would potentially benefit from higher altitudes are those affected by aircraft flying the downwind leg of the pattern to land on Runway 6R. This program would not affect the established instrument approach to the Runway 6 pairs, but would affect the transition from the en-route traffic to the Class C airspace. Table 5.8 provides the analysis of this measure which the State DOT and PF recommended for detailed study.

5.8 Preferential Flight Track Alternatives

Preferential noise abatement flight track measures attempt to place flight tracks over areas where they will generate fewer impacts. In the AIA environs, the Cook Inlet provides several miles off of the ends of Runway 32 and Runways 24L and 24R for noise abatement flight tracks to be used over water. AIA provides a compatible land use area for flight tracks to and from the west at the Lake Hood Float Plane Base. Land use development patterns to the northwest, east and south of AIA limit options for the implementation of preferential flight tracks in those directions. The following 15 measures were suggested as potential preferential noise abatement flight tracks.

5.8.1 Move Downwind Leg for Runway 24L and Runway 24R Out Over the Water

The purpose of this measure is to reduce the noise generated during the downwind leg portion of aircraft arrivals to Runway 24L and Runway 24R. To the extent that air carrier jet landings only occur on Runway 24L and Runway 24R approximately 1 percent of the time and the measure would involve aircraft at several thousand feet, the State DOT and PF did not recommend this measure for further analysis.

5.8.2 Do Away with 50 Degree Right Turn at 400 Feet Above Ground Level for Runway 14 Takeoffs

Based on the FAA's Record of Decision in the Runway 14 ILS Environmental Impact Statement, aircraft departing Runway 14 turn right immediately after takeoff. The purpose of this procedure is to direct aircraft departing Runway 14 away from residential development south of AIA. This measure is similar to the "Require Aircraft to Fly Runway Heading for Runway 14 Takeoff" which is discussed below. Table 5.9 includes analysis of three Runway 14 flight tracks. This analyses shows this procedure would increase the number of dwelling units and people exposed to aircraft noise. Therefore, this measure is not recommended for adoption.

Table 5.8 Implement a "Keep 'em High" Program

<p>Measure: "Keep 'em High" Program</p> <p>Description: This measure would encourage aircraft to remain at higher altitudes for as long as possible prior to landing and climbing out as quickly as possible following the recommended departure profile. The areas affected by aircraft noise in Anchorage which would potentially benefit from higher altitudes are those affected by aircraft flying the downwind leg of the pattern to land on Runway 6R. This program would not affect the established instrument approach to the Runway 6 pairs, but would affect the transition from the en-route traffic to the Class C airspace.</p>	
Net Change in Community Noise and Overflight	Analysis of ARTS data indicates that AIA arrivals to Runway 6 from the East intercept the downwind leg of the traffic pattern at a point 5 nautical miles from the airport on average, although some aircraft are as close as 2.5 miles. ARTS data show the average altitude of aircraft at 6000' MSL as they cross the shoreline of Turnagain Arm. A significant reduction of noise to the affected area (5-10 dBA) would require that aircraft to be nearly twice as high, or approximately 11,000 feet MSL.
Responsible Agency	<ul style="list-style-type: none"> • AIA requests FAA ATC implementation. • FAA Air Traffic Control revises Tower Order. • Aircraft operators conform to requested arrival altitudes.
Airport and ATC Operational Considerations	Instrument approaches to Runway 6R or 6L, intercept the 3 degree glide-slope at 1600' MSL, approximately 9 NM from the approach end of Runway 6R. In order to maintain a maximum descent rate of 300 feet per nautical mile, the downwind leg would have to extend an additional 10 to 15 nautical miles which would result in an additional 3.7 to 5.5 minutes of airborne travel time. This additional travel time would apply to all aircraft. On an annual basis, Runway 6 is used for approximately 85% of arrivals. Increasing altitudes for the downwind leg to Runway 6 would affect minimum vectoring altitudes for other operations.
Effect on Aircraft Operators	Increased flight times would result in an average cost of \$63 to \$94 per landing. On an annual (1996) basis, total costs would amount to approximately \$6.9 to \$10.3 million.
Effect on Quality of Air Service	The additional costs per operation would not have a substantial effect on air service.
Capital Costs of Implementation	None.
Implementation Factors	The airlines are likely to object to this measure on the basis of cost.
Legal Implications	No significant issues anticipated.
Conclusion	Other measures provide similar noise benefits with less cost to operators and less impact on air traffic control procedures. Therefore, this measure is not recommended for adoption.

Table 5.9 Noise Abatement Departure Track for Runway 14

Measure: Noise Abatement Departure Track for Runway 14									
Description: Departures on Runway 14 fly generally over low-density residential areas to the south of AIA. Analysis of ARTS data indicates that air carrier jet aircraft departing Runway 14 fly a variety of departure headings ranging from southeast (straight out) to west (right turn). Although a large majority of the Runway 14 departures turn to the right, they follow a wide range of headings. Selection of a preferred departure heading may reduce noise exposure when Runway 14 is needed for departures.									
Net Change in Community Noise and Overflight	<p>As noted above, ARTS data indicate that a wide range of tracks, most involving a turn to the right, are used for Runway 14 departures. Figure 5.12 shows the 85 and 90 dB SEL contours associated with three different Runway 14 departure flight tracks. The following population counts of the 85 dB SEL contours show that as aircraft departing Runway 14 turn farther to the right, the population within the contours decreases.</p> <table border="1"> <thead> <tr> <th>Flight Path</th> <th>Population</th> </tr> </thead> <tbody> <tr> <td>Straight out</td> <td>696</td> </tr> <tr> <td>Turn right to fly over the gravel pits</td> <td>460</td> </tr> <tr> <td>Turn right to 190 degrees to avoid residential areas</td> <td>103</td> </tr> </tbody> </table>	Flight Path	Population	Straight out	696	Turn right to fly over the gravel pits	460	Turn right to 190 degrees to avoid residential areas	103
Flight Path	Population								
Straight out	696								
Turn right to fly over the gravel pits	460								
Turn right to 190 degrees to avoid residential areas	103								
Responsible Agency	<ul style="list-style-type: none"> ● AIA requests FAA ATC implementation. ● FAA Air Traffic Control revises Tower Order and/or KNIK 5 or ANC 2 SID. ● Aircraft operators conform to requested departure headings. 								
Airport and ATC Operational Considerations	Although assigning departures to a single track would increase delays if aircraft were expected to remain in-trail, it is likely that this procedure would not require aircraft to follow a single track. Accordingly, no significant ATC issues are anticipated.								
Effect on Aircraft Operators	Analysis of ARTS data indicates that departures on Runway 14 normally turn to the right after takeoff. The departure turns under consideration in this measure generally conform to the existing pattern of departure tracks. Accordingly, no increase in flight distances would occur. Assuming that all departures were assigned to Runway 14, use of a single departure track and the associated requirement to maintain "in-trail" separation would cause delays for Runway 14 departures during peak departure periods. In practice, aircraft would not necessarily follow the same track and little if any capacity penalty would occur. Heavy aircraft which are gaining altitude slowly may require additional distance to gain sufficient altitude to initiate turns and may not be able to turn significantly before reaching the shoreline.								
Effect on Quality of Air Service	Since Runway 14 departures represent 5% or less of the annual average runway use, any delay associated with selection of a single preferred departure track would not be significant on an annual average basis. No adverse impact on the quality of air service would be anticipated.								
Capital Costs of Implementation	None.								

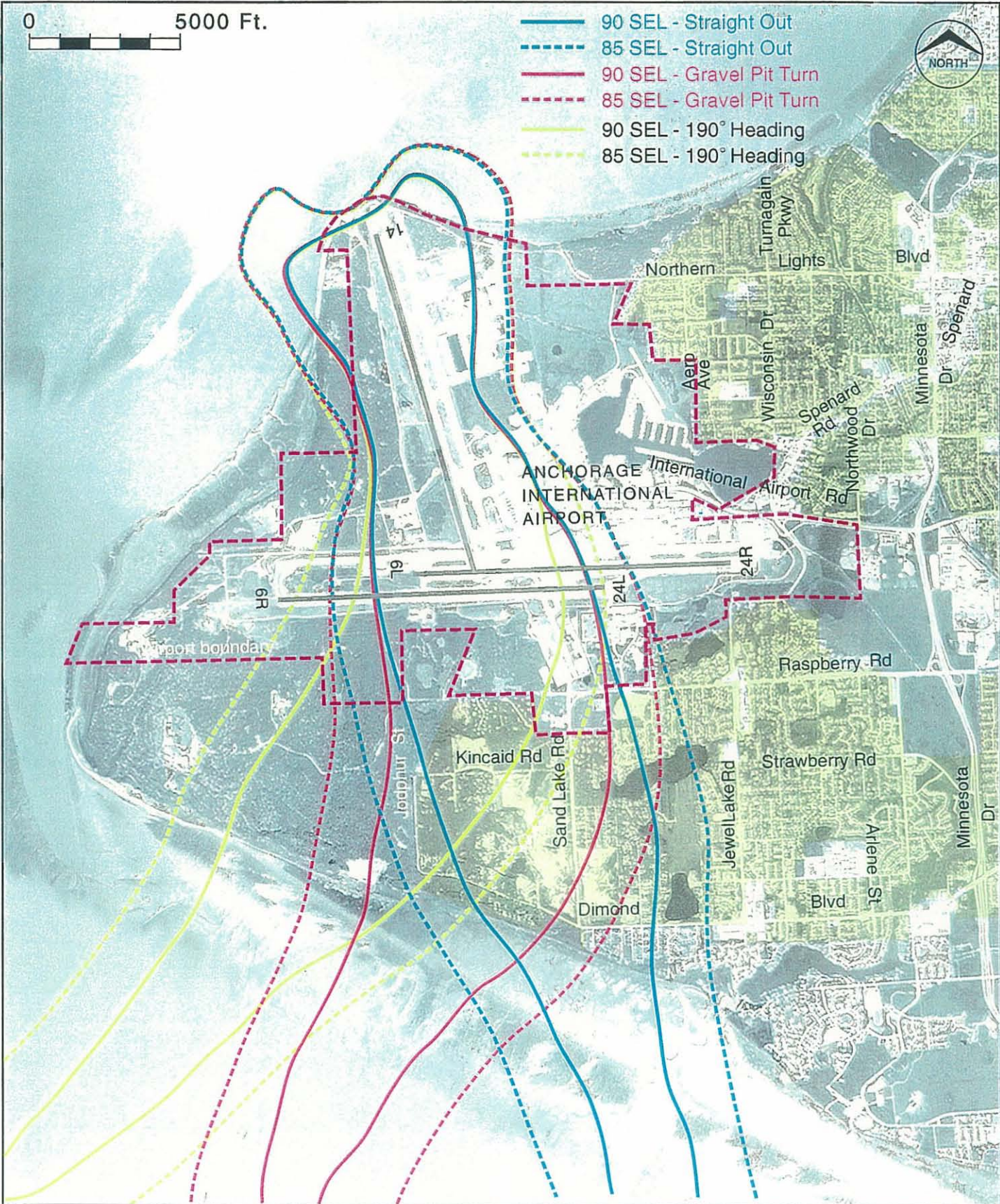
<p>Implementation Factors</p>	<p>The KNIK 5 SID or ANC 2 SID (more commonly used for Runway 14 departures) departure route descriptions for Runway 14 already direct aircraft to climb as rapidly as possible to 400 feet and then turn right to heading 190. Since 400 feet is the minimum altitude to initiate turns, no significant change in aircraft conformance to a desired flight track would result from procedural changes.</p> <p>Variations in turning point and rate of turn will result in a relatively wide dispersion of flight tracks. In addition, some aircraft may not be able to turn early enough to conform to desired track.</p>
<p>Legal Implications</p>	<p>The 190 degree heading was a mitigation measure in the Runway 14/32 EIS. Modification of these procedures would require a modification of the EIS. In addition, formal changes in FAA procedures affecting aircraft operations below 3,000 feet AGL would require documentation under the provisions of NEPA.</p>
<p>Conclusion</p>	<p>Aircraft departing Runway 14 affect fewer people by turning to the right after departure. Since the analysis of population affected indicates that any turn to the right would provide some benefits, establishment of a single corridor is not necessary to produce noise benefits. This procedure would not entail any delay penalties since departing aircraft would not be placed "in-trail" behind previous departures. Accordingly, aircraft departing Runway 14 should be encouraged adhere to existing FAA policy and turn to the right as early as practicable.</p>



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Figure 5.12

Runway 14 Alternative Noise Abatement Headings - SEL Contours



5.8.3 Require Aircraft to Fly Runway Heading for Runway 14 Takeoffs

This measure is similar to the "Do Away with the 50 degree Right Turn at 400 Feet Above Ground Level for Runway 14 Takeoffs" discussed in Section 5.8.2 above. As shown in Table 5.9, this measure would result in an increase in the number of dwelling units and people exposed to aircraft noise. Therefore, this measure is not recommended.

5.8.4 Require Aircraft to Fly Over the Gravel Pits After Runway 14 Takeoff

This measure is similar to the "Do Away with 50 Degree Right Turn at 400 Feet Above Ground Level for Runway 14 Takeoffs" and the "Require Aircraft to Fly Runway Heading for Runway 14 Takeoffs" measures discussed above, but differs in that it includes a slight right turn which places the flight track directly over the gravel pits south of AIA. The State DOT and PF recommended that this measure receive further study. Table 5.9 provides the detailed analysis of this measure and Figure 5.12 depicts the resulting SEL contours. As shown in Table 5.9, this measure would result in an increase in the number of dwelling units and people exposed to aircraft noise. Therefore, this measure is not recommended.

5.8.5 Eliminate KNIK 5 SID for Runway 6 Departures

The KNIK 5 Standard Instrument Departure (SID) procedure for Runways 6R and 6L includes a left turn to the north that places aircraft over heavily populated portions of Anchorage. The use of this measure had been discontinued during the nighttime. This measure proposed to eliminate the turn completely. To the extent, that the turn occurs a small percentage of the time and well outside of the DNL 65 dB contour, the State DOT and PF did not recommend this procedure for further study.

5.8.6 Turn Aircraft South on ANC 2 Heading at 2,000 Feet MSL or at a Specified Distance if Climb Gradient is Not Met

The ANC 2 SID has minimum climb gradients and minimum turning altitudes that are to be met by aircraft depart Runway 6R or 6L. This measure appears to be more closely related to aircraft safety than for noise abatement. Measures related to safety are outside of the purview of Part 150.

5.8.7 Study What Departure Routes to the South and East Will Over-Fly the Least Densely Populated Areas

This recommendation was carried out during the AIA Part 150 Update as evidenced by the discussion of the potential measures in this section. Sections 5.8.2, 5.8.3, and 5.8.4 address departure tracks to the south. Sections 5.8.5, 5.8.9, and 5.8.10 address departure tracks to the east.

5.8.8 Study the Implementation of Mandatory Climb Corridors for Departures to the South and East

This potential measure is similar to the other preferential flight track measures for areas south and east of AIA except for the use of the term "mandatory". Mandatory implies some level of enforcement and punitive measures for noncompliance. Federal law preempts the State DOT and PF from regulating aircraft in flight. Therefore, preferential noise abatement flight tracks must be implemented in cooperation with the FAA and aircraft operators. Compliance with these tracks should be pursued through monitoring, reporting, and follow up. Since the State DOT and PF cannot regulate aircraft in flight, this measure was not analyzed further.

5.8.9 Eliminate the Anchorage 2 SID from the "U.S. Terminal Procedures, Alaska Vol. 1 of 1"

Air carrier aircraft greater than 20,000 pounds following the ANC 2 SID when departing Runways 6L and 6R are required to turn right to a 190 degree heading after reaching 2,000 feet MSL or the ANC 9 DME/Big Lake VOR 152 degree radial. The purpose of this potential measure is to eliminate the turn and require aircraft to fly straight out on the Runway 6 heading after departure. Many air carrier aircraft cannot gain enough altitude to clear the mountainous terrain east of AIA. This measure may affect the safe operation of aircraft in the Anchorage Bowl and, accordingly, is not recommended by the State DOT and PF for detailed study.

Aircraft following the ANC 2 SID when departing to the south on Runway 14 are required to climb on runway heading as rapidly as practical to 400 feet, then to turn right heading 190 degrees. Elimination of the ANC 2 SID for Runway 14 departures would result in aircraft flying runway heading until directed to turn onto course by an air traffic controller. This procedure would result in increasing the number of people impacted as described in Section 5.8.4. Therefore, this measure is not recommended for detailed study by the State DOT and PF.

Since the flight tracks for the ANC 2 SIDs for Runway 32 and Runway 24 departures occur over water, there are no noise benefits to changing eliminating these procedures. Accordingly, the State DOT and PF did not recommend detailed study for this potential measure on Runways 32 and 24.

5.8.10 Require Aircraft Departing Runway 6 to Turn before Reaching the Seward Highway

The area between Minnesota Drive and the Seward Highway (north and south of the extended Runway 6R centerline) has large areas of compatible land uses that may provide the opportunity to develop preferential flight tracks to reduce the dwellings and people impacted. The State DOT and PF recommended this potential measure receive further study. Table 5.10 presents the detailed analysis. Figures 5.13 and 5.14 depict the SEL contours for a B737-200 and a B747-200 departing Runway 6. The analysis indicated that this measure did not reduce noise impacts, therefore this measure was not recommended.

Table 5.10 Turn Runway 6 Departures Prior to Seward Highway

<p>Measure: Turn Runway 6 Departures Prior to Seward Highway</p> <p>Description: This measure would encourage aircraft departing on Runways 6R and 6L to turn to either the north or south prior to reaching the Seward Highway. Analysis of ARTS data indicates that air carrier jet aircraft typically commence turns toward the south prior to Seward Highway, but that nearly all of these turns extend beyond Seward Highway. ARTS data also indicate that nearly all air carrier jet aircraft initiate turns to the north at or beyond Seward Highway.</p>	
<p>Net Change in Community Noise and Overflight</p>	<p>In general, the areas northeast, east, and southeast of AIA are heavily populated. However, the areas immediately east of the Airport, directly under the Runway 6R and Runway 6L extended centerlines are, to a great extent, characterized by industrial and other noise compatible land uses. Consequently, early turns to the north or south, off of the extended runway centerlines, increase the population exposed to aircraft noise. Figures 5.13 and 5.14 show the 85 and 90 dB SEL single event contours for a B747-200 associated with two different flight tracks to the north and to the south. The area to the east of AIA is characterized by a wide range of residential, commercial and industrial land uses, as well as several tracts of open land. Figures 5.13 and 5.14 show that the corridor along the extended centerline of Runway 6 has less residential development than the areas to the north or south of this corridor. Consequently, aircraft flying along the extended centerlines affect fewer people. The following counts of population within the 85 dB SEL contours for various turns demonstrate the higher noise impact of turns in either direction prior to the Seward Highway.</p> <ul style="list-style-type: none"> ● Turn to the north prior to Seward Hwy. = 1825; after Seward Hwy. = 1705. ● Turn to the south prior to Seward Hwy. = 1599; after Seward Hwy. = 1101.
<p>Responsible Agency</p>	<ul style="list-style-type: none"> ● AIA requests FAA ATC implementation. ● FAA Air Traffic Control revises Tower Order and/or KNIK 5 SID. ● Aircraft operators conform to requested flight tracks.
<p>Airport and ATC Operational Considerations</p>	<p>Encouraging early departure turns would have the effect of reducing the time required to release departures. Once aircraft turn off of runway heading, controllers can release the following departure. If aircraft do not turn, controllers must wait until aircraft are at least 2 miles away.</p> <p>The inner portion of the Anchorage Class C airspace generally conforms to the alignment of Seward Highway to the east of AIA. Accordingly, GA traffic in the Anchorage Bowl with destinations other than AIA or the Lake Hood Float Plane Base could transit north and south beyond the Seward Highway without being in communication with AIA Air Traffic Control. Airline operators have expressed concern about the interaction of AIA departure traffic with unrestricted GA activity. Departure turns to the north and south prior to the Seward Highway reduce these interactions.</p>
<p>Effect on Aircraft Operators</p>	<p>Aircraft operators would be able to reduce flight distances slightly by turning toward their north or south destinations earlier.</p>
<p>Effect on Quality of Air Service</p>	<p>No appreciable effect is anticipated.</p>
<p>Capital Costs of Implementation</p>	<p>None.</p>

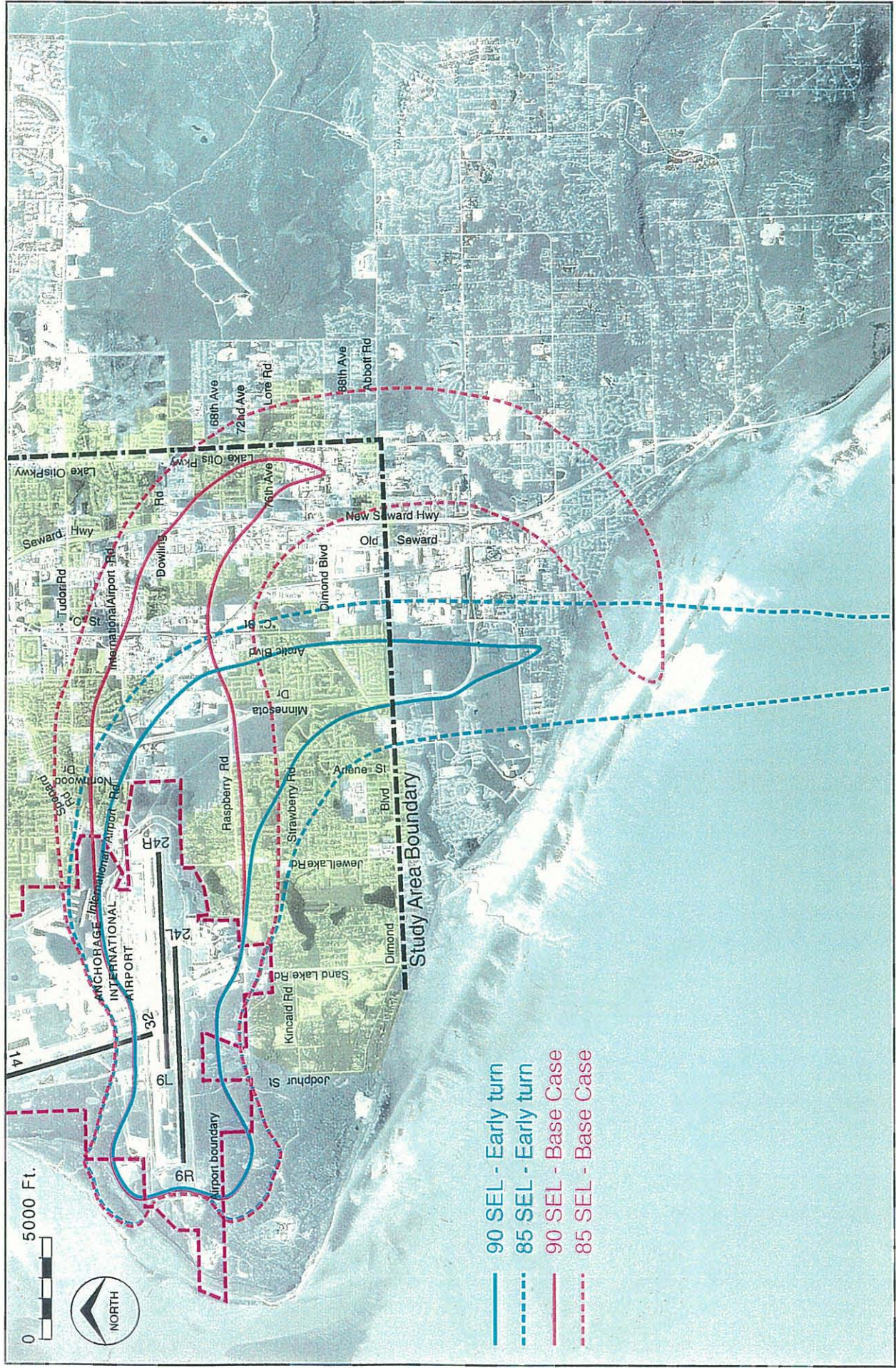
Implementation Factors	Heavy aircraft which are gaining altitude slowly may require additional distance to gain sufficient altitude to initiate turns and may not be able to comply with instructions to turn prior to the Seward Highway.
Legal Implications	Formal changes in FAA procedures (such as Tower Orders or SIDs) affecting aircraft operations below 3,000 feet AGL would require documentation under the provisions of NEPA.
Conclusion	While this measure may reduce aircraft interaction and simplify air traffic control procedures, early turns toward the north or south, off of the extended runway centerlines, would increase the population impacted by aircraft noise. This measure would also have the effect of shifting noise to other parts of the community. Accordingly, a formal procedure to encourage turns to the north or south prior to Seward Highway is not recommended as a noise abatement measure.



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Figure 5.14

Turn Runway 6R Departures South Prior to Seward Highway



- 90 SEL - Early turn
- 85 SEL - Early turn
- 90 SEL - Base Case
- 85 SEL - Base Case

5.8.11 Modify FMS Procedures to Minimize Overflight of Noise Sensitive Areas

Aircraft equipped with Flight Management Systems (FMS) are capable of flying very precise tracks over the ground. FMS procedures are used by some air carriers when departing AIA to the north on Runway 32. Aircraft on the FMS tracks fly over the northeastern corner of Anchorage. This potential measure would examine the possibility of reducing the noise of these overflights. During the initial discussions of this measure with FAA ATC personnel, it was concluded that this issue could be addressed by FAA outside of the AIA Part 150 Update process. The State DOT and PF, FAA, and air carriers will work cooperatively on this issue.

5.8.12 Use "Fanning" to Spread the Noise of Aircraft Departing Runway 14

As discussed above, aircraft departing Runway 14 turn right immediately after takeoff which concentrates aircraft noise in the areas west of the Runway 14 extended centerline. Although less densely populated than other areas of south Anchorage, people living in this area are exposed to high levels of aircraft noise during south departures. This potential measure suggests a "share the noise" approach to noise abatement flight tracks. Rather than follow a well defined flight path, this measure suggests that aircraft departing Runway 14 be turned in a variety of directions. If implemented, the fanned flight tracks would expose new areas to aircraft noise, an approach contrary to the AIA Part 150 Update goals. Therefore, the State DOT and PF did not recommend this measure for further study.

5.8.13 Turn Runway 14 Departures Right to a 240 Degree Heading

This potential measure would seek to turn aircraft further to the west after departing Runway 14. The objective of the procedure would be to put Runway 14 departures out over the Cook Inlet more quickly than the current turn to a 190 degree heading. The purpose of the turn would be to reduce noise for residents living south of AIA. FAA ATCT personnel expressed concern over potential airspace conflicts between aircraft departing Runway 14 and aircraft on the downwind leg for landing on Runway 14. In addition, most aircraft do not complete the turn to a 190 degree heading until after passing over the residential areas. Thus, this measure is not likely to provide noise benefits while increasing the potential for airspace conflicts. Accordingly, the State DOT and PF did not recommend this measure for further study.

5.8.14 Move Lake Hood Float Plane Base Arrivals over Fish Creek

Activity at the Lake Hood Float Plane Base is a source of community noise complaints, especially during the peak summer weekends. This potential measure would seek to place Lake Hood Float Plane Base arrivals over the Fish Creek. Airspace in the Anchorage Bowl is extremely congested. The Lake Hood Float Plane Base airspace is bounded by AIA's, Merrill Field's, and Elmendorf AFB's airspace. As a result, FAA Air Traffic Controllers and float plane pilots have limited operational flexibility near AIA. In addition, Fish Creek is narrow with homes on both banks. Based on the floatplane altitudes in this area, noise reductions due to this proposed procedure would be limited. Therefore, the State DOT and PF did not recommend this measure for further study.

5.8.15 Develop Commuter Noise Abatement Arrival and Departure Corridors to the Southeast

Commuter aircraft operations do not contribute significantly to the aircraft noise exposure at AIA. They do, however, operate opposite of the preferential runway use flow with operations occurring predominately over the area southeast of the Runway 24L landing threshold. These operations are a source of some community complaints which could be minimized by taking advantage of open space areas along the Minnesota Drive corridor. This measure was recommended for detailed study by the State DOT and PF. Table 5.11 presents the detailed analysis for this measure.

5.9 Airport Use Restriction Alternatives

Part 150 specifically requires the consideration of the following categories of use restrictions:

- restrictions based on Federal noise standards,
- capacity limits based on noisiness,
- landing fees based on noise or time, and
- curfews.

The public raised several issues related to this category of noise abatement options, including:

- restrictions on operations at sensitive time periods (e.g., weekends, evenings, nights);
- restrictions on operations of noisier aircraft;
- restrictions of touch and go operations at the Lake Hood Float Plane Base;
- reduced landing fees for compliance with noise abatement policies; and
- limits on overall airport activity.

5.9.1 Background to Consideration of Use Restrictions

Since the completion of the original AIA Part 150 Study, important new federal legislation and regulations have seriously affected the ability of airports to adopt use restrictions. Section 5.9.2 summarizes these new laws and regulations.

5.9.2 Major Federal Regulations Affecting Airport Use Restrictions

Airport Noise and Capacity Act of 1990

Due to growing concerns about restrictions on aircraft operations affecting the national aviation system, the U.S. Congress passed a pivotal piece of legislation in 1990: the "Airport Noise and Capacity Act of 1990" (the "Noise Act"). This regulation effectively established a national aviation noise policy, to be implemented through two FAA regulatory actions.

Table 5.11 Commuter Arrival and Departure Corridor to the Southeast

<p>Measure: Commuter Arrival and Departure Corridor to the Southeast</p> <p>Description: Commuter and GA aircraft may be able to follow corridors which would not be feasible for jet aircraft. Several areas to the southeast of AIA are not developed in residential or other noise sensitive uses. Concentration of flight activity in this corridor could reduce noise in noise sensitive areas. This corridor would be primarily used by commuters departing on Runway 6L. The primary benefit of this measure is that it reduces noise from aircraft that are not following the preferential runway for air traffic separation purposes. In addition, by keeping the commuter aircraft out of the air carrier jet departure flow, it allows FAA Air Traffic controllers to remain in the preferential runway use system for longer periods of time.</p>	
<p>Net Change in Community Noise and Overflight</p>	<p>Changing the location of commuter and GA operations would not alter the DNL contours used to establish land use compatibility. However, this measure has noise benefits by reducing the noise of individual commuter aircraft overflights and by allowing the FAA ATCT to remain in the preferential runway use configuration for longer periods of time, thereby minimizing the DNL contours. Figure 5.15 shows the single-event SEL contours associated with arrivals and departures following the centerline of a potential noise abatement corridor. Figure 5.16 shows that ARTS tracks for GA and commuter aircraft departures on Runway 6L are dispersed over a very wide area. Since this corridor would be flown by visual reference, conformance to this corridor by departures would vary because the pilots ability to see and follow visual corridors is restricted on departure and climb-out. Figure 5.17 shows that many GA and commuter aircraft currently follow this corridor on arrival. When traffic on Runway 24R permits, it may be possible to reduce overflights of residential areas by requesting commuter and GA aircraft to fly a base leg over Minnesota Drive when not following other traffic.</p>
<p>Responsible Agency</p>	<ul style="list-style-type: none"> ● AIA requests FAA ATC implementation. ● FAA Air Traffic Control revises Tower Order and FAA Flight Standards revises and adopts ANC 2 SID. ● Aircraft operators conform to requested flight tracks.
<p>Airport and ATC Operational Considerations</p>	<p>Assigning departures to a single track could increase delays because once aircraft diverge from runway heading, controllers can release the following departure. If all departures follow the same track, controllers must wait until aircraft are at least 2 miles away. If a departure queue exists, this requirement could add 60 seconds per departure. FAA ATC personnel supported the commuter departure corridor and expressed concern about the arrival corridor. Sequencing the commuter arrivals with other categories of aircraft types could increase controller workload and cause delays. Therefore, only the commuter departure corridor would have FAA ATC acceptance.</p>
<p>Effect on Aircraft Operators</p>	<p>Although the departure capacity of Runway 6L would be reduced from nearly 57 per hour to roughly 26 per hour, demand would generally remain at or below 50% of the reduced capacity throughout the day during normal operations. No significant effects on aircraft operators are expected.</p>
<p>Effect on Quality of Air Service</p>	<p>No appreciable effect on air service is anticipated.</p>
<p>Capital Costs of Implementation</p>	<p>None.</p>

<p>Implementation Factors</p>	<p>Conformance could be enhanced by establishment of a radio navigation turn point reference. Analysis of typical commuter departures indicates that turns should be initiated at the 7.5 ANC DME, essentially at the departure end of Runway 6L. Aircraft should be directed to initiate a turn to the right heading 150 to follow Minnesota Drive upon reaching 400 feet or the ANC 7.5 DME.</p>
<p>Legal Implications</p>	<p>Formal changes in FAA procedures affecting aircraft operations below 3,000 feet AGL would require documentation under the provisions of NEPA. Since many commuter aircraft already follow this corridor, this documentation may not need to be extensive.</p>
<p>Conclusion</p>	<p>FAA concerns preclude the establishment of an arrival corridor. Although establishment of a single departure corridor could increase congestion during peak periods, no significant delays are anticipated at current levels of demand. The benefits include reduced noise impacts for aircraft not following the preferential runway use system and greater adherence to the preferential runway use system by keeping the slower commuter aircraft separated from the higher performing jets. This measure is reasonably consistent with achieving the goal of reducing existing noncompatibility with land uses around AIA and, therefore, the commuter departure corridor is recommended.</p>

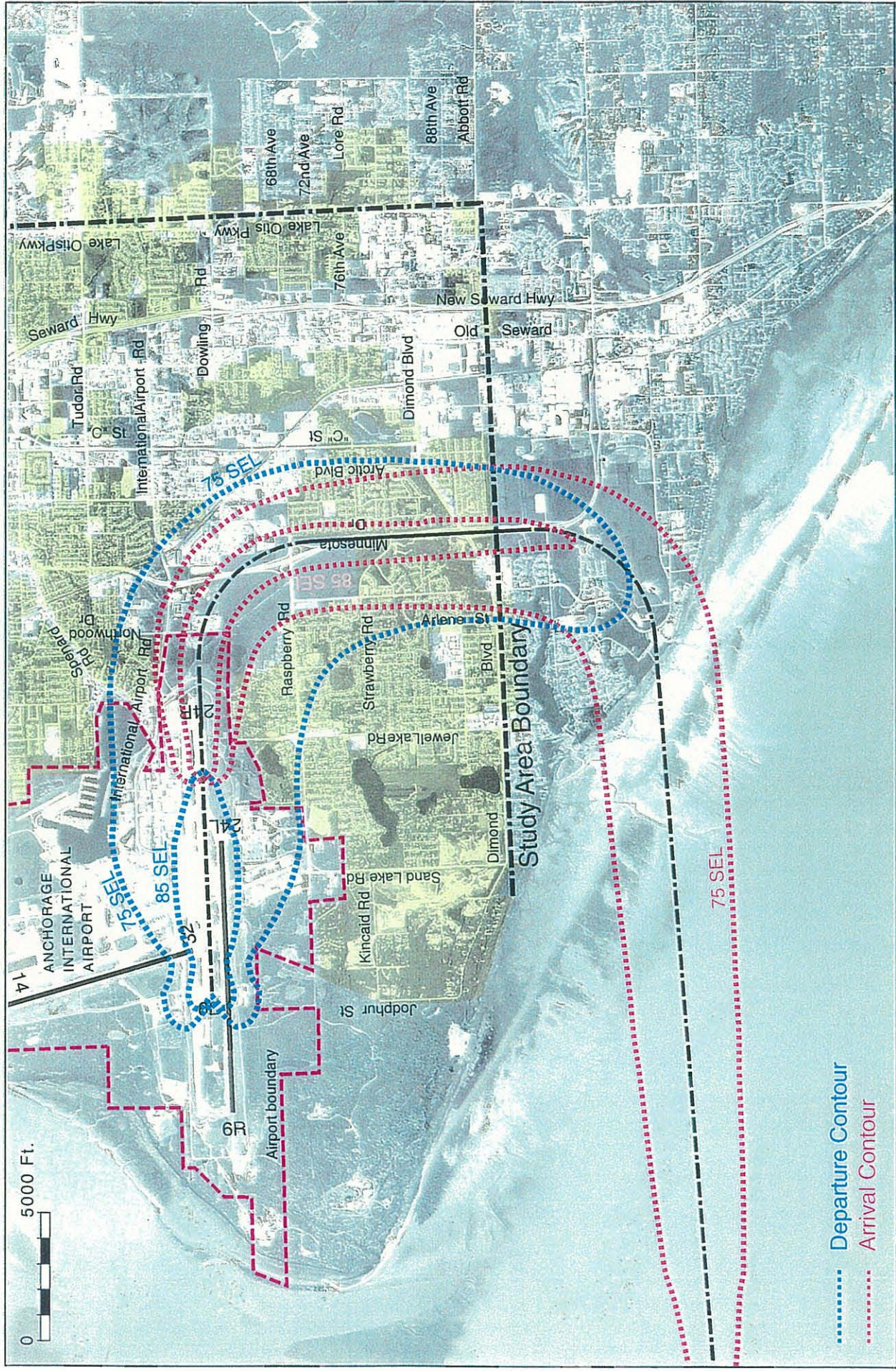


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Figure 5.15

Runway 6L Commuter Departure and Arrival SEL Contours

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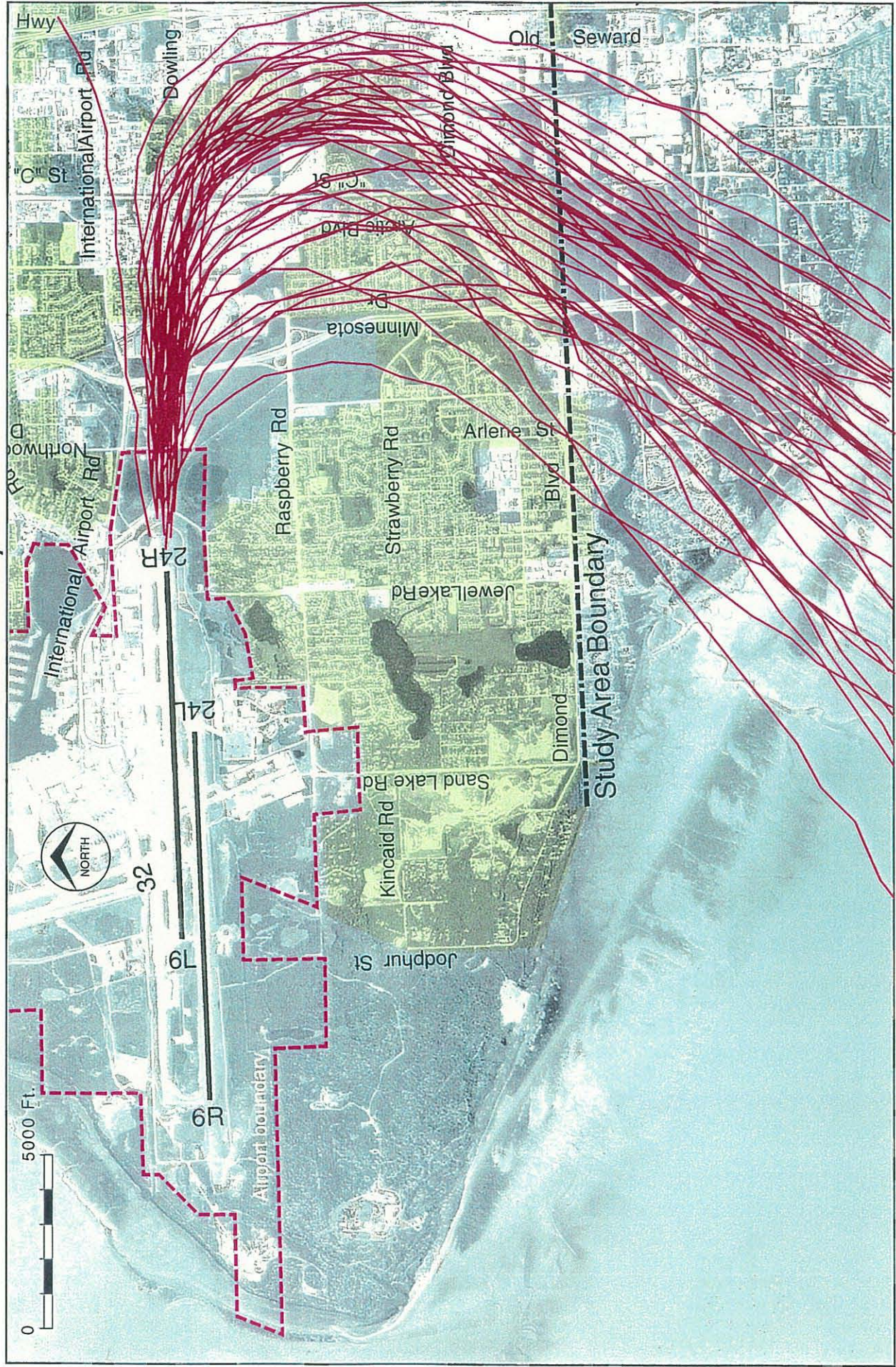


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Figure 5.16

ARTS Tracks for GA and Commuter Departures on Runway 6L

1/2/2022/2
HNTB



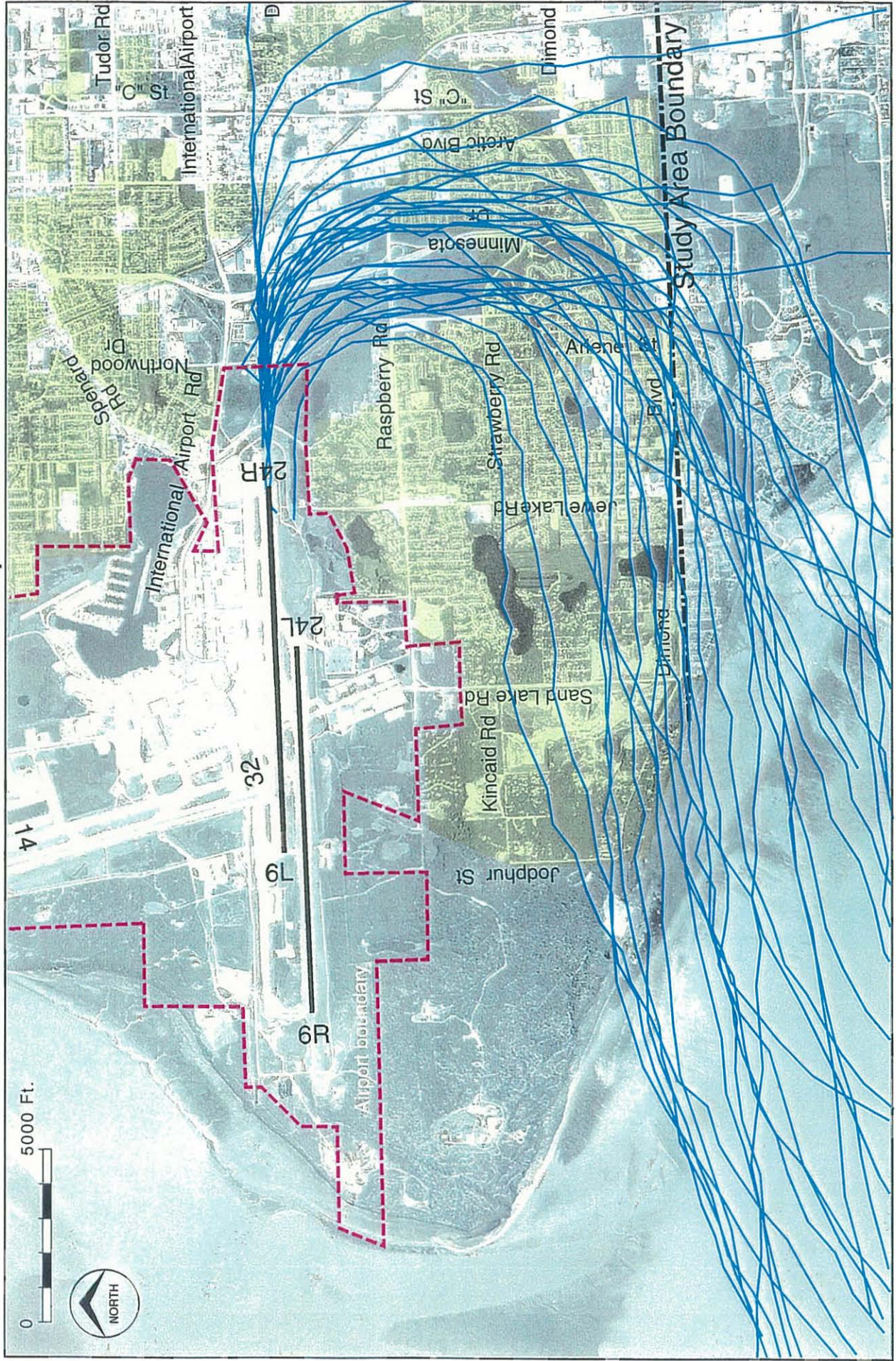


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Figure 5.17

ARTS Tracks for GA and Commuter Arrivals on Runway 24R

1/22/2021
HNTB



The first regulatory action called for a phase out of noisier aircraft, based on their noise classification status according to FAR Part 36. The FAA implemented this phase out through amendment to FAR Part 91. The second regulatory action directed the FAA to establish a national program to review and approve local airport use restrictions. FAA implemented this program through a new regulation, FAR Part 161.

The following paragraphs summarize FAR Part 36, FAR Part 91, and FAR Part 161, in terms of their implications for AIA.

FAR Part 36

The FAA has established limits on the allowable levels of aircraft noise emissions. These limits are presented in FAR Part 36, "Noise Standards, Aircraft Type and Airworthiness Certification." Part 36 sets noise standards that airplanes must meet in order for the FAA to issue "type certificates" and/or "airworthiness certificates." The permissible noise levels have become more stringent over time. Aircraft not certificated under Part 36 (aircraft receiving type/airworthiness certificates prior to the dates specified in Part 36 and for which any later tests have not demonstrated compliance) are termed "Stage 1" aircraft. Aircraft meeting the original noise limits are "Stage 2." Aircraft meeting the most recent, most stringent limits are "Stage 3." Approximately 64 percent of current jet operations at AIA are in Stage 3 aircraft.

FAR Part 91

FAR Part 91 sets "phase-out" schedules for aircraft operations in the U.S. based on Part 36 certification stages. These schedules only apply to aircraft with maximum gross takeoff weights over 75,000 pounds that are operated to the Lower 48. Aircraft that are operated exclusively within Alaska or between Alaska and international destinations are not subject to the phase-out. Fortunately, most of the commercial air carrier aircraft at AIA are operated to the Lower 48 and, therefore, are subject to the phase-out. Alaska Airlines was the first passenger carrier in the United States to achieve a 100 percent Stage-3 fleet - more than two years ahead of the 31 December 1999 date set by Part 91. The fleets of all of the other carriers who operate at AIA and serve the Lower 48 are ahead of the phase-out schedule.

Part 91 was first issued in the early 1980's. This regulation stated that on and after January 1, 1985, no person may operate to or from an airport in the United States in a subsonic airplane over 75,000 pounds unless it has been shown to comply with Stage 2 or Stage 3 requirements under Part 36.

The FAA amendments to Part 91 dated September 25, 1991 established a similar phase-out schedule for Stage 2 operations over 75,000 pounds, with a deadline of December 31, 1999. As stated above, however, aircraft that operate exclusively within Alaska are not covered by this amendment.

FAR Part 161

As required by the Noise Act, FAR Part 161, "Notice and Approval of Airport Noise and Access Restrictions, establishes a program for reviewing airport noise and access restrictions on the use of Stage 2 and Stage 3 aircraft.

The Noise Act defined noise and access restrictions in a very comprehensive manner, as:

... restrictions (including but not limited to provisions of the ordinances and leases) affecting access or noise that affect the operations of Stage 2 or Stage 3 aircraft, such as limits on the noise generated on either a single-event or cumulative basis; a limit, direct or indirect, on the total number of Stage 2 or Stage 3 aircraft operations; a noise budget or noise allocation program that includes a Stage 2 or Stage 3 aircraft; a restriction imposing limits on hours of operations; a program of airport use charges that has the direct or indirect effect of controlling airport noise; and any other limit on Stage 2 or Stage 3 aircraft that has the effect of controlling airport noise. This definition does not include peak-period pricing programs where the objective is to align the number of aircraft operations with airport capacity.⁵

The Noise Act and Part 161 establish very different requirements for restrictions affecting Stage 2 and Stage 3 aircraft. Airports may adopt a restriction that affects only Stage 2 operations without obtaining FAA approval. However, the airport proprietor must perform certain FAA-approved analyses, publicize the proposal, and provide opportunity for public comment. In the case of Stage 3 restrictions, airports must obtain FAA approval, in addition to completing analysis, publicity, and comment processes.⁶

Airport use restrictions that were formally proposed or implemented prior to the passage of the Noise Act in 1990 were grandfathered.

Through its actions and statements since the passage of the Noise Act and Part 161, the FAA has clearly indicated that it would vigorously oppose new airport use restrictions. In response to proposed restrictions in Los Angeles, New York, and Minneapolis - St. Paul, the FAA threatened to revoke the airports' abilities to receive federal grants or to collect passenger facility charges. In each case, the airports either withdrew the proposals, made them voluntary, or simply adopted the Part 91 phase-out schedule.

Part 161 Studies to restrict Stage 2 aircraft were completed for San Jose International Airport and San Francisco International Airport. In the case of San Jose, the costs of the restriction significantly outweighed the benefits. At San Francisco, the restriction expanded a

⁵ 14 C.F.R. § 161.5.

⁶ No FAA approval is required for *agreements* between airport proprietors and aircraft operators restricting either Stage 2 or 3 operations, as long as the restrictions only apply to the operators that have signed the agreements.

grandfathered restriction on Stage 2 aircraft to the "evening" hours (7 pm to 10 pm). The resulting impact on Stage 2 operators was small and the benefits were greater than the costs. Neither study received FAA approval.

The FAA has also indicated that it would apply very stringent standards for the analyses required by Part 161, which will require very expensive and time-consuming studies. It will be extremely difficult for any airport to obtain required FAA approvals for establishment of new airport use restrictions that affect either Stage 2 or 3 operations.

With the preceding information as background, the following sections discuss the range of categories of use restrictions identified in the AIA Part 150 Update and by public interest.

5.9.3 Restrictions on Operations at Sensitive Time Periods

Based on citizen input, this AIA Part 150 Update considered four time restriction scenarios:

- limit Kulis runups to daytime hours,
- prohibit overflight of residential communities from 10 pm to 7 am,
- prohibit Runway 6 heavy-jet departures between 9 pm and 7 am, and
- prohibit operations between 10 pm and 7 am.

Limit Kulis Runups to Daytime Hours

Aircraft engine runups are conducted on the ramp at Kulis Air National Guard Base during all times of the day. Nighttime engine runups have been a source of community complaints. This potential measure would prohibit nighttime engine runups on the ramp. Some engine runs are related to an impending flight. Limiting these runs would compromise the mission of the Base. Because Kulis is a military facility, the State DOT and PF has limited ability to regulate Kulis activities. Control of maintenance runups will be addressed under the ground noise study measure discussed in Section 3.3.13. Therefore, the State DOT and PF did not recommend the limiting of Kulis runups to daytime hours measure for further study.

Prohibit Overflight of Residential Communities from 10 pm to 7 am

AIA's preferential runway use system limits overflight of residential communities to the greatest extent possible. At night, operations are directed over water except when winds or weather conditions require the use of other runways. Further limitation of the overflight of residential communities would amount to a nighttime curfew which is counter to the federal grant assurances agreed to by the State DOT and PF. The State DOT and PF did not recommend this measure for further study.

Prohibit Runway 6 Heavy-Jet Departures between 9 pm and 7 am

As with the measure above, prohibition of the operation of a particular aircraft type is discriminatory and would violate the State DOT and PF's federal grant assurances. The State DOT and PF did not recommend this measure for further study.

Prohibit Operations between 10 pm and 7 am

A mandatory curfew would violate the State DOT and PF's federal grant assurances. The State DOT and PF did not recommend this measure for further study.

5.9.4 Restrictions on Operations of Noisier Aircraft

Several potential measures that focused on minimizing noise from some of the noisier aircraft at AIA are discussed below.

Require Noise Reduction Kits (Hushkits) on Older Engines

Some of the older Stage 2 aircraft can be made quieter by placing "hushkits" on their engines. Hushkits are designed to bring Stage 2 aircraft into compliance with Stage 3 Standards. This potential measure would require operators of Stage 2 aircraft to purchase and install hushkits on their Stage 2 aircraft. This potential measure is problematic for several reasons. First, the FAA, not the State DOT and PF, has responsibility for establishing and enforcing aircraft noise regulations. Second, intrastate operations are specifically excluded from the Stage 2 phase out by federal law. Changing the law to include intrastate operators would require an act of congress. Third, the national phase out of Stage 2 aircraft is reducing the numbers of Stage 2 operations at AIA. Fourth, by requiring aircraft operators to bear the cost of acquiring and installing hushkits just to operate at AIA, the measure may affect foreign commerce by increasing air fare and shipping costs. Finally, such a measure might be deemed discriminatory if it were applied to a small group of carriers. As an alternative to this measure, the State DOT and PF should carefully monitor the fleets of airlines operating at AIA for their Stage 2 and Stage 3 percentages. After the Year 2000, the contribution of Stage 2 aircraft to the total noise exposure at AIA should be assessed by the State DOT and PF. Any Stage 2 aircraft restriction should be made in consideration of their overall impact on the noise environment. Although this measure was not recommended by the State DOT and PF for detailed study, the State DOT and PF should continue to monitor the percentage of Stage 2 operations at AIA and calculate their impact on the noise environment.

Prohibit Stage 2 Aircraft from Using the Airport

As with the potential measure discussed above, the State DOT and PF should assess the effects of the national Stage 2 phase out on AIA's noise exposure after the Year 2000 prior to considering a prohibition on Stage 2 aircraft operations at AIA. Although this measure was not recommended by the State DOT and PF for detailed study, the State DOT and PF should continue to monitor the percentage of Stage 2 operations at AIA and calculate their impact on the noise environment.

Study the Number of Stage 2 Departures between 10 pm and 7 am

Stage 2 departures at AIA are evenly distributed in the daytime and nighttime periods. In light of the national Stage 2 phase out and the nighttime preferential runway use program that directs aircraft over water when wind and weather permits, the State DOT and PF did not recommend that this measure receive detailed study.

Study Whether any Stage 1 Aircraft are Departing between 10 pm and 7 am

All of the air carrier aircraft operating at AIA are Stage 2 or Stage 3 certified. Some business jets operating at AIA may be Stage 1 aircraft, however, their contribution to the overall aircraft noise environment is small. Restricting these aircraft at night might be considered discriminatory. Therefore, the State DOT and PF did not recommend this measure for detailed study.

Study Banning Stage 1 Aircraft Departures from 10 pm to 7 am

As discussed above, the operations by Stage 1 aircraft are limited to a few business jets. Restricting these aircraft at night might be considered discriminatory and would have little affect on the noise exposure which is dominated by air carrier jet aircraft. Therefore, the State DOT and PF did not recommend this measure for detailed study.

Provide a Reduction in Landing Fees for Carriers Who Comply with the Noise Abatement Bulletin

This potential measure seeks to provide an incentive, through reduced landing fees, for airlines to achieve greater compliance with AIA Bulletin 98-04. Aircraft operator compliance with AIA Bulletin 98-04 is required by the State DOT and PF's lease and operating agreements. The State DOT and PF does not support a program that results in reducing airport revenues for complying with required airport rules. As an alternative, the State DOT and PF would support awards and public recognition for operators that achieve a high level of compliance with AIA Bulletin 98-04.

Place a Cap on the Number of Stage 2 Aircraft Departures from AIA

Due to the national Stage 2 phase out, Stage 2 aircraft operations have been declining at AIA. Establishing a cap on their operations does not appear to be necessary at this time. The State DOT and PF should monitor Stage 2 operations to determine the need, if any, for a cap on Stage 2 after the Year 2000. Stage 2 phase out is complete. The State DOT and PF did not recommend this measure for detailed study.

Gradually Eliminate Stage 2 Aircraft

The national Stage 2 phase out has resulted in a gradual reduction Stage 2 aircraft operations at AIA. Additional reductions in Stage 2 will occur as the Stage 2 phase out in the Lower 48 reaches completion on 31 December 1999. As described above, the need to provide additional reductions in Stage 2 aircraft operations will depend greatly on how many Stage 2 operations

remain at AIA after the Year 2000. The State DOT and PF should monitor Stage 2 operations and their contribution to the overall noise environment to determine the need for additional Stage 2 reductions. The State DOT and PF did not recommend this measure for detailed study.

5.9.5 Limits on Overall Airport Activity

Several limits on airport activity were suggested as described below.

Restrict Length of Time Engines May Be Runup or Run at Idle on Cargo Ramp

Runup noise has been a source of increasing community complaints. Restrictions of any type need to be based on a factual assessment of runup noise exposure. The State DOT and PF recommends that a detailed ground noise assessment be conducted to assess the scope of the runup noise problem and to recommend detailed mitigation measures. This measure is addressed in Section 3.3.13.

Limit Cargo Holds so Cargo Jets Can Depart North All the Time

Aircraft weight has been cited as a primary factor in the use of Runway 6R over Runway 32. This measure was suggested to eliminate the need to depart on Runway 6R due to weight. Since the time this measure was suggested, Runway 32 was extended making it the longest departure runway at AIA. As a result, use of Runway 32 has increased, while the use of Runway 6R has decreased. In addition, through the grant assurances provided to the FAA by the State DOT and PF, AIA must remain available for use for all aircraft operations including those aircraft that are carrying full loads. The FAA is likely to judge the restricting aircraft loads to be discriminatory. In addition, the smaller the load per aircraft operation, the greater the number of operations that would be needed to carry the same amount of cargo. The increase in operations would increase noise exposure. In addition, the State DOT and PF has no regulatory authority over aircraft payloads. The State DOT and PF did not recommend this measure for detailed study.

Limit the Size and Horsepower Rating of Aircraft Using the Lake Hood Float Plane Base

Some of the noise complaints regarding operations at the Lake Hood Float Plane Base focus on the larger, more powerful float plane aircraft. This potential measure seeks to reduce the noise from these operations. There are several potential problems with this measure. First, the measure may be deemed discriminatory by the FAA. Second, operators of the large float planes are likely to strenuously oppose this measure and could take legal action against the State DOT and PF. Third, aircraft size is not always indicative of the noise level it generates. Limiting aircraft by size might result in eliminating quieter aircraft. Finally, larger aircraft carry more people and goods per operation than smaller aircraft. Smaller aircraft would need to fly more operations to carry the same payload as larger aircraft. Based on these issues, the State DOT and PF did not recommend this measure for detailed study.

Replace Single-Bladed Propellers with Shorter Treble Propellers

The supersonic tip speeds of some aircraft propellers contribute significantly to the overall aircraft noise levels. This potential measure seeks to reduce this noise by replacing single-bladed propellers with treble-bladed props. Although this measure may have the potential to reduce float plane noise, the State DOT and PF cannot mandate aircraft equipment replacement for noise purposes. As an alternative, the State DOT and PF should continue to encourage the use of quiet flying techniques and the use of quieter aircraft at the Lake Hood Float Plane Base.

Restrict Lake Hood Float Plane Base Touch and Goes

As depicted in Figures 5.6 and 5.7 above and discussed in Section 5.6.8, the homes within the DNL 65 dB contours due to aircraft operations at the Lake Hood Float Plane Base are sideline to the gravel strip. The ARTS data showed that touch and goes at the Lake Hood Float Plane Base follow the typical arrival and departure corridors. Therefore, any change in noise levels associated with restrictions on touch and go traffic would need to be associated with a decrease in total operations rather than with changes in the pattern of noise exposure. FAA ATCT records indicate local operations represent 11 percent of the total operations at the Lake Hood Float Plane Base. Assuming all of the local operation are touch and goes, the reduction in the DNL contours due to the total elimination of Lake Hood Float Plane Base touch and go operations would be less than 1 decibel. Since this measure would not appreciably reduce aircraft noise exposure levels, the State DOT and PF decided against implementing this measure.

5.10 Airport Layout Modification Alternatives

The recent extension of Runway 32, which reduced Runway 6R departures, is an example of how modifying the airport layout can reduce the number of dwelling units and people within incompatible aircraft noise levels. Additional airfield layout modifications that were considered in the AIA Part 150 Update are discussed below.

5.10.1 Extend Runway 14 to the North to Get Runway 14 Departures Higher over the Tanaina Hills

Departures on Runway 14 are a source of noise complaints and contribute to impacted people and dwelling units. By moving the departure end of Runway 14 further to the north, aircraft departing to the south would lift off further to the north and gain additional altitude before reaching the residential areas south of AIA. To make a noticeable difference in the sound level heard on the ground, aircraft would need to be approximately twice as high over south Anchorage than they are now. To gain this much altitude, the runway extension would need to extend into the Cook Inlet. Due to the bluffs at Point Worzonoff and the Tony Knowles Coastal Bike trail, it would be prohibitively expensive and environmentally difficult to extend Runway 14 to the north. The State DOT and PF did not recommend this measure for detailed study.

5.10.2 Extend Runway 24R to the West to Decrease East Departures

Reducing departures to the east and south remains a primary noise reduction objective of the State DOT and PF. However, departing to the west is limited in part by runway length and runway gradient. Extending Runway 24R to the west might increase the amount of time aircraft are able to depart to the west. The State DOT and PF recommended this measure for detailed study as discussed in Table 5.12 below.

5.10.3 Add a North-South Parallel Runway to Facilitate West Departures

In a land Runway 6, depart Runway 32 configuration, there is adequate arrival capacity to meet the current demands. However, in a land Runway 14, depart Runway 24 configuration, there is only a single runway for arrivals which reduces airport capacity. This potential measure would result in construction of a parallel north-south runway to maintain arrival capacity in a land south depart west configuration. The ability to use the land south, depart west configuration would reduce aircraft noise east and south of AIA. The State DOT and PF recommended this measure for further study which is described in Table 5.13 below.

Table 5.12 Reduce East Departures by Extending Runway 24L 1,600 ft. To the West

<p>Measure: Reduce East Departures by Extending Runway 24L 1600 ft. to the West</p> <p>Description: At present, some aircraft, especially heavy, long-haul aircraft select Runway 6R for departure due to a combination of factors including wind direction and runway gradient. During an extensive monitoring effort conducted by the FAA ATCT and AIA, it was observed that 24% of the aircraft requesting Runway 6R in lieu of the designated runway accepted tailwinds to use Runway 6R because of the advantage of its length and gradient. If sufficient length is provided for Runway 24L takeoffs, it may be possible to reduce use of Runway 6R. In this concept, Runway 24L would be extended 1,600 feet to the west and declared distances would be used to prevent use of additional runway length for takeoffs to the east, similar to the use of declared distances in the recent extension of Runway 32. This extension would enhance the use of the Arrive Runway 14, Depart Runway 24 configuration as a second preferential runway configuration.</p>	
<p>Net Change in Community Noise and Overflight</p>	<p>With a gradient of .4%, the effective length of Runway 6R-24L is 10,461 feet for operations to the west, and 11,333 feet for operations to the east. Extending Runway 24 L 1,600 feet to the west would make it the longest runway at AIA. With the gradient effect, Runway 24L would have an effective length of 12,061 feet, which is 728 feet longer than the effective length of Runway 6R. The additional effective length would make 24L the preferred runway even with tailwinds of up to 3.6 knots. Accordingly, Runway 6R would be preferred only when the Runway 24L tailwind components exceed 3.6 knots. Providing additional length for Runway 24L departures would enable heavy aircraft to conform to the AIA's preferential runway program to a greater degree. In addition, the additional length would decrease east departures at night above the levels achieved in the "Enhanced Nighttime Runway Use Program". Figure 5.18 shows the resultant DNL contours which reduce the population within the DNL 65 dB contour by 230 people.</p>
<p>Responsible Agency</p>	<ul style="list-style-type: none"> ● AIA approves measure and necessary capital improvement program. ● FAA provides potential funding support and environmental approval.
<p>Airport and ATC Operational Considerations</p>	<p>If the additional runway length results in strong demand for Runway 24L departures during operation of the primary preferred Arrive Runway 6, Depart Runway 32 configuration, sequencing departures between arrivals would require extensive delays for departures. Such delays could also create queuing problems.</p>
<p>Effect on Aircraft Operators</p>	<p>If additional runway length were not required to increase payload or stage length, the capital costs of runway development would increase user costs without compensating benefits.</p>
<p>Effect on Quality of Air Service</p>	<p>The additional runway length would enable more operations to avoid overflights to the east of the airport without adversely affecting air service.</p>
<p>Capital Costs of Implementation</p>	<p>The estimated cost of extending Runway 24L 1,600 feet to the west is \$6.2 million.</p>

<p>Implementation Factors</p>	<p>According to current airline operating agreements, users of AIA must concur in major capital improvement projects such as the development of a new or extended runway. The AIA Airline Affairs Committee has indicated in the past that they would not support this project. In addition, airlines have been opposed to this measure to date due to their concerns about increased west departures in light of reported wind sheer occurrences off of the west end of Runway 24.</p>
<p>Legal Implications</p>	<p>Environmental documentation under the provisions of NEPA would be required.</p>
<p>Conclusion</p>	<p>This measure could reduce departures to the east and increase departures to the west. Although there are potential noise benefits, the cost of the project, and FAA, ATC, and airline concerns regarding increased use of the Arrive 14, Depart 24 configuration limit the feasibility of this measure at this time.</p>



Anchorage
International
Airport

Figure 5.18
Reduce East Departures by Extending Runway 24L
by 1,600 ft. to the West

12/22/2014
HNTB

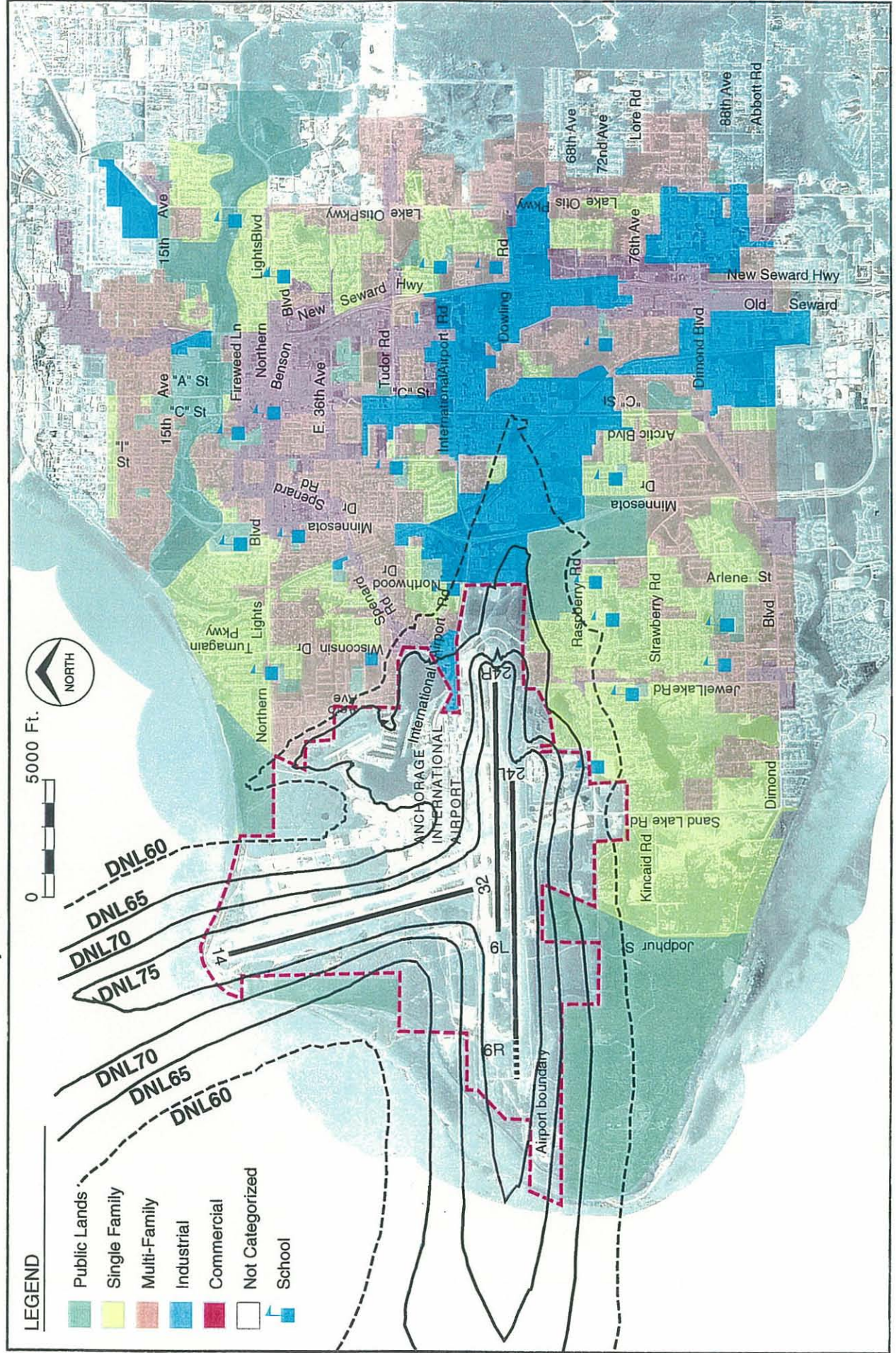


Table 5.13 New Runway 14R-32L

<p>Measure: New Runway 14R - 32L</p> <p>Description: The current Airport Master Plan includes the construction of a parallel north-south runway to be located approximately 800 feet to the west of the existing Runway 14-32. This improvement is recommended as a long term capacity enhancement. Since Runway 14-32 is a critical component of both preferential runway use configurations (Depart 32/Arrive 6R & 6L, and Arrive 14/Depart 24R & 24L), the new runway could have noise abatement benefits. The following summary describes the potential benefits of this airport improvement as a noise abatement measure.</p>	
<p>Net Change in Community Noise and Overflight</p>	<p>Figures 5.4 and 5.5 show that under VFR conditions, additional runway capacity will not be needed to accommodate the preferred noise abatement runway configurations over the next 20 years. During IFR conditions, the additional runway capacity would reduce delays associated with these configurations, permitting more hours of use. IFR and marginal VFR conditions occur approximately 6 % of the year. Since IFR conditions typically occur during periods in which wind conditions would permit use of the preferred configurations, the additional runway capacity could increase use of the preferred configurations during all IFR conditions when demand exceeds the capacity of these configurations. Annually, use of the preferential runway configurations could be increased by approximately 1% in 1997 and by 4% in 2017.</p>
<p>Responsible Agency</p>	<ul style="list-style-type: none"> ● AIA approves measure and necessary capital improvement program. ● FAA provides potential funding support and environmental approval.
<p>Airport and ATC Operational Considerations</p>	<p>Increased use of Runway 14 for arrivals, or Runway 32 for departures could increase interaction with Elmendorf AFB arrivals. Because the extended centerlines of Runway 14-32 at AIA intersects the extended centerline of Runway 5-23 at Elmendorf AFB, aircraft are sequenced into the area to maintain a 3 NM horizontal and/or 1000 feet vertical separation. The following analyses assume only horizontal separation. These analyses also assume normal operational levels at Elmendorf AFB. During "Cope Thunder" exercises operational levels and consequent interactions increase substantially.</p>

	<ul style="list-style-type: none"> ● Runway 14 Arrivals. Although ARTS data indicate that an average of 2 or 3 Elmendorf IFR arrivals may occur during peak AIA arrival periods, review of historic activity levels indicates that as many as 6 Elmendorf IFR arrivals could occur during these periods. Assuming 6 Elmendorf IFR arrivals evenly distributed in an hour, up to 6 arrivals could be sequenced between Elmendorf arrivals, or up to 36 per hour. Although Elmendorf arrival interactions could constrain Runway 14 arrivals to a greater degree than VFR arrival capacity, anticipated arrival demand could be accommodated at current activity levels. Over the long term, interaction with Elmendorf IFR arrivals might constrain Runway 14 arrivals. ● Runway 32 Departures. Because departing aircraft will not appear as targets on a radar screen until approximately 1 to 2 NM from the runway end, the separation requirements to clear intersections are planned before departure clearance is delivered. Assuming only horizontal separation, a gap of approximately 3 minutes between successive Elmendorf arrivals would be required to release Runway 32 departures. ARTS data indicate that Elmendorf arrival activity might permit up to 45 Runway 32 departures during peak AIA departure periods. Although Elmendorf arrival activity would limit Runway 32 IFR and VFR departure capacity, AIA departure demand levels could be accommodated for most hours throughout the forecast period. This is currently the preferred runway use configuration.
Effect on Aircraft Operators	If additional runway capacity were not required to reduce delay, the capital costs of runway development would increase user costs without significant benefit.
Effect on Quality of Air Service	If substantial capital costs were not offset by commensurate benefits from delay reduction, increased user costs could affect airline service decisions. Such decisions could include increasing airfares or deployment of aircraft to cities with higher profit margins.
Capital Costs of Implementation	Development of a new runway and associated airfield improvements is costly. Order of magnitude cost estimates for a 10,000 foot runway might be roughly \$100 million.
Implementation Factors	According to current airline operating agreements, users of AIA must concur in major capital improvement projects such as the development of a new or extended runway. The Airline Affairs Committee is not expected to approve the construction of a new runway unless it provides a significant benefit.
Legal Implications	Environmental documentation under the provisions of NEPA would be required.
Conclusion	As a long term capacity improvement, the runway would have noise benefits. As a noise abatement measure, the benefits of this measure are small compared to the costs. Accordingly, the construction of Runway 14R-32L is not recommended as a noise abatement measure.

6. SCREENING AND ANALYSIS OF POTENTIAL LAND USE MEASURES

This land use section serves two purposes. The first purpose is to identify non-compatible land use within the existing and projected noise contours as documented in the NEM element of this update. The second purpose of this section is to identify land use compatibility issues to be addressed in updating the NCP element.

The unabated noise contours developed for the years 1997 and 2002, as described in Chapter 7 of the NEM document, will be used for land use planning purposes. These contours are based on the assumption that no new noise abatement measures are implemented beyond AIA Bulletin 98-04. Since new noise abatement measures would generally reduce the size of these contours over noise sensitive land uses, this scenario represents a conservative approach for compatibility planning.

After reviewing existing and planned land use, this chapter discusses land use compatibility criteria and identifies existing and potential non-compatible land use. The chapter then reviews the status of previously recommended land management strategies as well as potential new strategies that have the potential to enhance land use compatibility in the AIA environs.

6.1 Existing and Future Land Uses Near AIA

AIA and the land area encompassed by the airport's aircraft noise contours are located within the MOA. The following discussion of land use focuses on the area within and immediately surrounding the aircraft noise contours described in Chapter 7 of the NEM. Land use and zoning used in this analysis are based primarily on preliminary (1995) Geographic Information System (GIS) data provided by the MOA.

6.1.1 Existing Land Use

Figure 6.1 shows that AIA is located on the Point Campbell peninsula at the western limits of the MOA. Since this analysis is concerned with the compatibility of land use with aircraft noise, the following discussion highlights areas in the primary approach and departure corridors within the airport study area. Approach and departure corridors generally extend from the Airport's runways, and are oriented roughly north-south and east-west. Figure 6.2 shows existing (1997) DNL contours illustrating land use in the study area.

North. Arrivals on Runway 14, departures on Runway 32, and GA activity to the north of the Lake Hood Float Plane Base generally overfly recreational areas (Earthquake Park) and Knik Arm. Residential development in the Turnagain area is located immediately to the east of this corridor. This residential area experiences overflights associated with GA activity at the Lake Hood Float Plane Base.

East. Arrivals on Runways 24L and 24R and departures on Runways 6L and 6R (the ANC 2 and KNIK 5 departure patterns) overfly a complex pattern of residential and industrial/commercial development, vacant land, and wetlands.

South. Arrivals on Runway 32 and departures on Runway 14 overfly Kincaid Park, an extensive gravel pit, and an emerging area of relatively low density residential development directly south of AIA.

West. Arrivals on Runways 6L and 6R and departures on Runways 24L and 24R generally overfly Turnagain Arm and public lands. These public lands include the Municipal Sewage Treatment Plant, the Municipal Detoxification Center, and Federal Communications Commission facilities.

6.1.2 Future Land Use

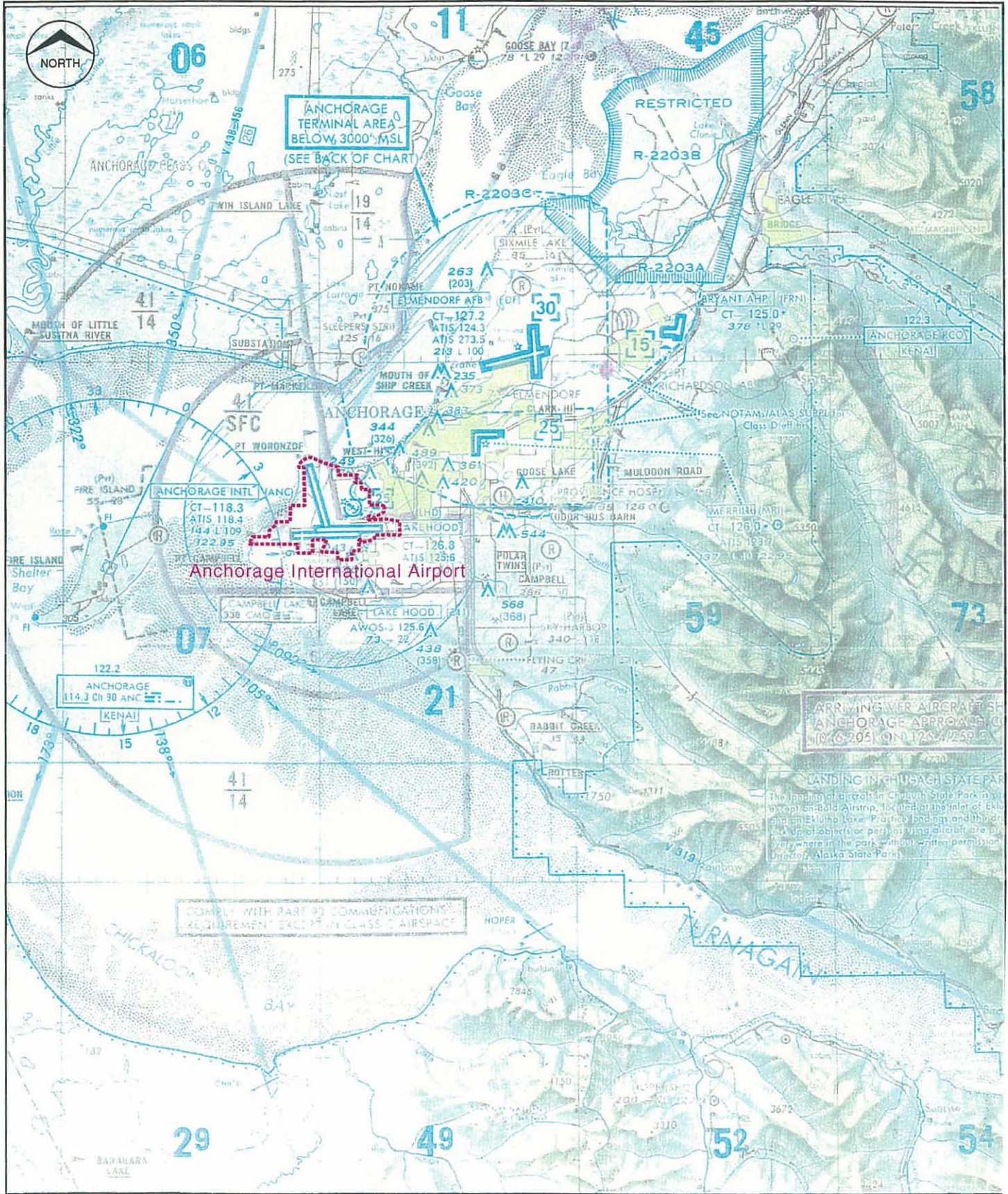
Figure 6.3 shows existing (1995) generalized land use within the year 2002 DNL contours. For a number of reasons, major changes in land use patterns are not normally expected in an established urban setting. The most likely change from existing land use will result from the development of vacant land. While redevelopment of existing uses can occur, it is an expensive and disruptive process which requires a substantial commitment of either public or private capital. In addition, the existing infrastructure plays a very significant role in determining the development potential of vacant properties. Finally, new development is generally compatible with existing development, further restricting the range of potential uses of vacant land.

Figure 6.4 shows the year 2107 noise contours with the existing zoning pattern to illustrate long-term land use compatibility issues. Zoning information provided by the MOA was used as an indicator of future land use in the airport environs. In general, zoning reflects the existing land use patterns described above. Accordingly, the future land use pattern is likely to be similar to existing land use patterns. In essence, this analysis shows the effect of continued development of vacant land in accordance with existing zoning.

While zoning is a useful indicator of permitted development, it does not necessarily reflect the development potential of the underlying properties. For example, zoning does not address site constraints such as natural features or ownership patterns. With respect to noise sensitive development, it should be noted that the MOA's zoning ordinance permits mobile home and camper park development as a conditional use in light industrial districts, while houses of worship can be permitted in some commercial zoning districts. Further, zoning is not permanent. Property owners may petition for re-zoning to permit increased densities and/or different types of development at any time. The zoning ordinance is discussed in more detail in the next section.

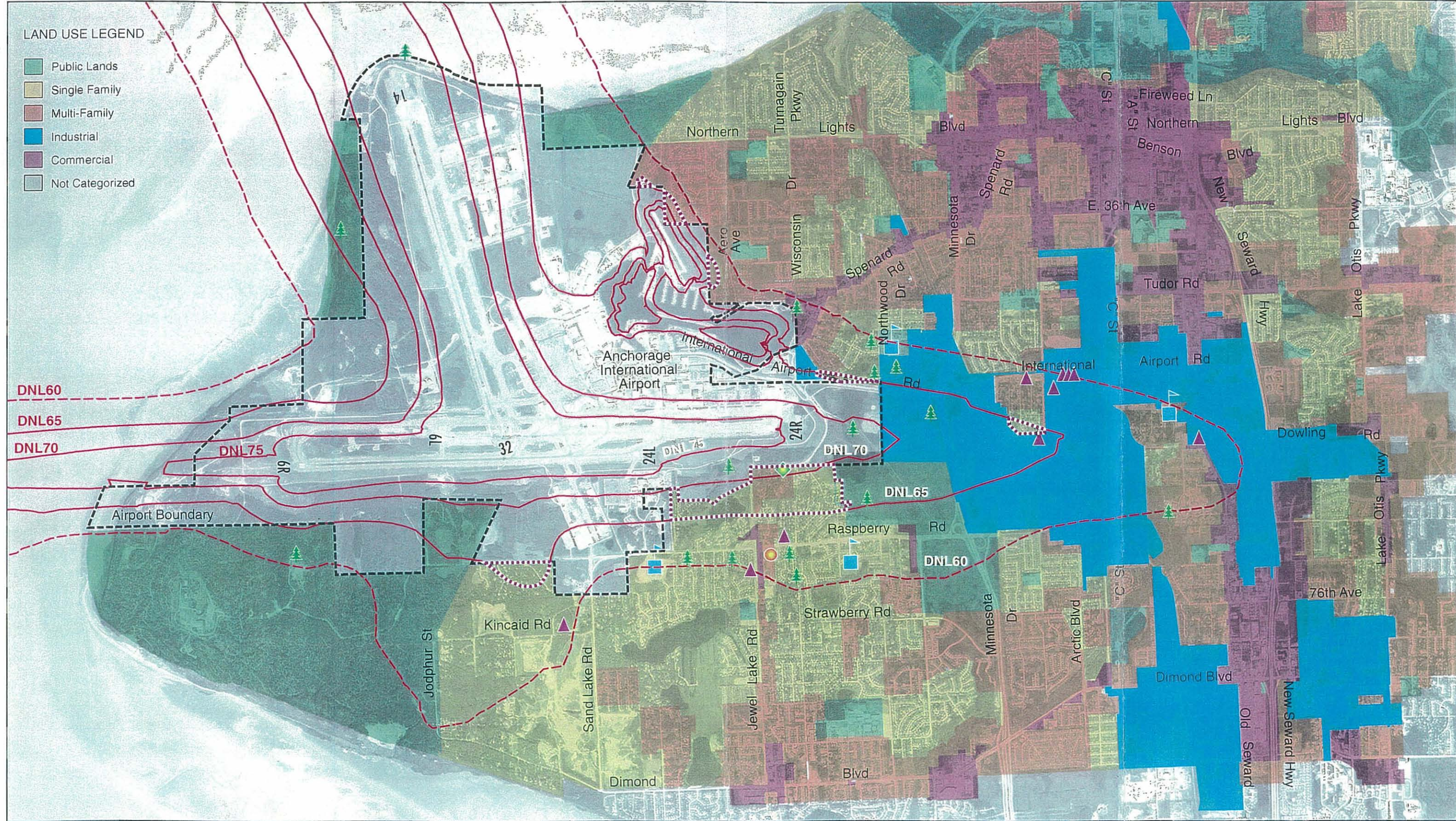


Figure 6.1
Location Map



LAND USE LEGEND

- Public Lands
- Single Family
- Multi-Family
- Industrial
- Commercial
- Not Categorized



- Schools
- Churches
- Parks
- Daycare
- Pre-school

- DNL Contours
- Noncompatible Residential Land Use

Existing (1997) DNL Contours and Existing Land Use with Non-compatible Land Use

Figure 6.2

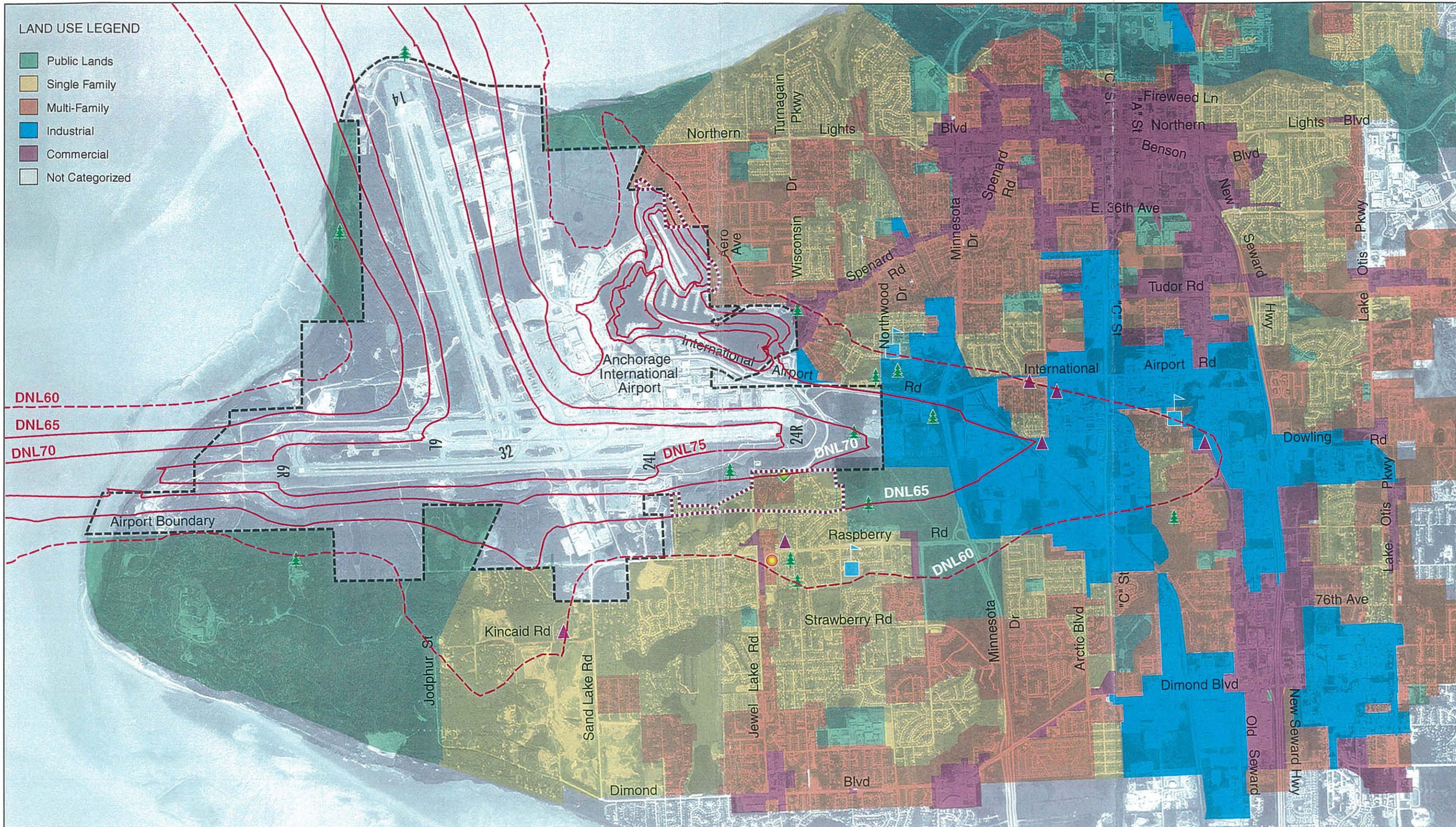
Anchorage International Airport F.A.R. Part 150 Update

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LAND USE LEGEND

- Public Lands
- Single Family
- Multi-Family
- Industrial
- Commercial
- Not Categorized



- Schools
- Churches
- Parks
- Daycare
- Pre-school

- DNL Contours
- Noncompatible Residential Land Use

Future (2002) DNL Contours and Existing Land Use with Non-compatible Land Use
Figure 6.3

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6.2 Land Use Measures for Consideration in Revised NCP

Land use regulations provide the primary means of preventing new non-compatible development. The MOA establishes community development goals and policies through the Anchorage Bowl Comprehensive Development Plan. This plan guides land use and development decisions made through the MOA's zoning ordinance, subdivision regulations, building code, and capital improvement program.

In recent years, the U. S. Supreme Court has issued decisions on a number of land use cases bearing on the local government's use of the "police power" to regulate land. In essence, the police power enables government to regulate the use of land and to place conditions on the development of land. The police power must be used to accomplish valid public purposes and follow due legal process, but it does not require compensation to the land owner. In addition to the police power, government can acquire or take property for valid public purposes provided that the land owner is given "just compensation" for any property taken. Since early in the 20th Century, it has been recognized that the use of police power which goes too far in regulating the use of property will be considered a "taking" subject to the requirements for compensation. These recent land use cases deal with the "taking issue" in examining the limits of police power. Table 6.1 provides a brief synopsis of these recent cases and their impact on land use regulation.

In addition to the specific regulatory issues summarized in Table 6.1, some attorneys specializing in land use regulation note that these cases relate to individual permit applications, not broad exercises in land use policy. This distinction may be important for two reasons.

First, in broadly defining land use policies, such as through the adoption of a comprehensive plan or a zoning ordinance, the governing body is acting in a "quasi legislative" manner. In acting as a legislative body, local government decisions are "presumed to be valid." In granting individual re-zoning applications or development permits, the governing body is acting in a "quasi judicial" manner. In this case, local government decisions must be supported by evidence demonstrating that the proposed action meets the standards set forth in the zoning ordinance or comprehensive plan.

Second, in making comprehensive land use decisions, the local government is clearly treating all similarly situated properties in a similar way. In making individual permit decisions, this presumption of equal treatment may not apply.

For both of these reasons, incorporation of aircraft noise compatibility policies in the comprehensive plan and zoning ordinance should be encouraged. Such actions are most likely to withstand any challenge, and by establishing a comprehensive framework, will tend to support the use of other noise compatibility planning techniques. Also, these actions can provide significant benefits in terms of disclosing noise impact areas to residents and developers.

Table 6.1 Recent U.S. Supreme Court Land Use Decisions

Case	Synopsis	Impact on Land Use Regulation
First English Evangelical Lutheran Church v. County of Los Angeles (1987)	A church-owned campground was destroyed by flooding. The County passed a temporary ordinance prohibiting development within a designated flood control area containing the campground.	Regulations which deprive property owners of all uses of property, even temporarily, are takings which require compensation.
Lucas v. South Carolina Coastal Council (1987)	Coastal protection ordinance limited development of two lots in an established coastal subdivision to specified recreational structures because the lots were within a dune protection area.	Regulations which deprive property owners of all "economically beneficial uses" or which compel a property owner to suffer "physical invasion" of property are takings which require compensation.
Nolan v. California Coastal Commission (1987)	As a permit condition allowing a beachfront property owner to construct a larger residence, the Commission required an access easement across the beach. This condition was applied pursuant to a coastal zone regulation intended to preserve the view of the beach and reduce congestion.	"Essential Nexus Test" Conditions applied through regulation must achieve the public purpose of the regulation.
Dolan v. City of Tigard (1994)	As a condition allowing expansion of an electric and plumbing supply business, the City required dedication of a 15-foot drainage easement and an 8-foot pathway easement.	"Rough Proportionality Test" The extent and nature of a development condition must be reasonably related to the degree of impact permitted by application of the condition.
<p>Source: Exactions, Impact Fees and Dedications, Shaping Land Use Development and Funding Infrastructure in the Dolan Era, Robert H. Freilich and David W. Buskeh, Editors, State and Local Government Law Section, American Bar Association, 1995.</p>		

6.2.1 The Comprehensive Plan

A comprehensive plan establishes the framework for land use regulation. Typically, comprehensive plans address a 20-year planning horizon. In Alaska, as in most states, this document is a policy guideline rather than a regulation. The comprehensive plan can play several roles in noise compatibility planning. Since the plan sets general policies for the jurisdiction, policies relating to noise compatibility can be adopted through the plan. Comprehensive plans also identify environmental constraints to development which could include aviation noise. The plan affects land use compatibility most directly by establishing generalized land use and development intensity guidelines. Additionally, most land use planning techniques are more likely to be successful when included in a comprehensive land use regulation framework.

Since the Anchorage Bowl Comprehensive Development Plan adopted in 1982 is currently being revised, a detailed description of its major elements is premature. The timing of this revision is fortunate, since recommendations made through this revised NCP may be incorporated into the updated comprehensive plan.

6.2.2 Zoning

Short of acquisition, zoning provides the most direct means of regulating non-compatible development in the airport environs. Since many land uses are not adversely affected by aircraft noise levels, an obvious land use compatibility technique is to zone areas exposed to significant levels of aircraft noise for land uses such as industrial and commercial development which are less affected by noise. Such compatible use zoning is subject to the practical constraints on changes in future land use discussed previously. In addition, the zoning ordinance provides a means of attaching conditions to development which might make the permitted uses less sensitive to aircraft noise.

Zoning regulates land use by permitting specific uses and prohibiting others. Zoning also regulates the area height and bulk of development by establishing set back requirements, height limits, or floor area ratio limitations. (The floor area ratio, or FAR, is the ratio of building area to lot area.) In some cases, uses may be permitted as a conditional use, meaning that the use may be permitted if specified conditions are met. Other uses are sometimes permitted as special exceptions at the discretion of the designated administrative body. In addition, uses may be permitted through a variance in case of hardship. Hardship does not relate to the financial or other conditions of the property owner. Technically, a hardship is a condition relating to the property rather than to the needs or desires of the property owners. For example, a hardship may exist if the configuration of an irregularly shaped lot precludes development in accordance with a given zoning district's set back requirements.

The MOA Zoning Regulations are incorporated in Chapters 21.35 through 21.55 of the Anchorage Municipal Code. Zoning regulations are administered by the MOA Planning and Zoning Commission with staff support provided by the Department of Community Planning and Development. Requests for zoning variances and appeals of zoning actions are submitted

to the Zoning Board of Examiners and Appeals. Appeals on conditional use permits are submitted to the Municipal Assembly in its role as the Board of Adjustment.

The MOA zoning ordinance provides for 32 zoning districts. Conventional zoning districts specify permitted land uses and development densities or intensities. The Flood Hazard District included in the MOA zoning ordinance is an "overlay" zone that establishes development conditions on the uses permitted in the underlying conventional districts. Table 6.2 lists the zoning districts found in the study area and summarizes how these districts regulate development of noise sensitive uses such as residences, schools, and places of worship. This summary shows that noise sensitive uses can be developed as either permitted or conditional uses in all but one of the zoning districts found in the study area. This feature of the MOA's zoning regulations is a form of "pyramid zoning" in which uses permitted in less intensive districts are permitted automatically, or "by right," in more intensive zoning districts. For instance, residential development is permitted in some commercial districts as shown in Table 6.2. Although commercial and industrial zoning districts would generally be characterized as compatible with aircraft noise, this feature of the MOA's zoning regulations limits the effectiveness of conventional zoning as a noise compatibility planning technique.

6.2.3 Subdivision Regulations

Subdivision regulations establish rational development patterns, specify design standards for public improvements, and ensure adequate public services for new development. In meeting these goals, subdivision regulations may require dedication of property for development of public facilities such as roads. In much of the United States, subdivision regulations are used to require new development to maintain established community level of service standards for education and recreation by requiring dedication of school and/or park sites. Since small subdivisions may not warrant development of public facilities to serve it alone, subdivision regulations may permit monetary contributions in lieu of dedication for the portion of public facilities necessitated by the individual subdivision. Subdivision regulations may also require dedication of easements for roads, utilities, or other public purposes.

Subdivision regulations have traditionally played several roles in noise compatibility planning. Subdivision regulations may require dedication of avigation or noise easements which specifically authorize aircraft overflights. Avigation easements also serve as a notification of noise levels to prospective buyers. Subdivision regulations may also require official notification or disclosure of aircraft noise levels as part of the property deed. It should be noted that the notification or disclosure associated with either easement dedication or disclosure statement typically occur at closing, after the buyer has decided to purchase the property in question.

Table 6.2 Noise Sensitive Uses Permitted by Zoning District within the Study Area

Zoning District	Noise Sensitive Uses			
	RS	ED	R	HC
R-1/R1-A Single Family Residential	P	P	P	P ¹ C ²
R-2A/R-2D/R-2M Two Family Residential	P C ³	P	P	P ¹ C ²
R-3/R-4 Multi-family Residential	P C ^{4,7}	P	P	P ¹ C ^{2,7}
R-5 Rural Residential	P ⁸ C ⁴	P	P	P
R-O Residential Office	P	P	P	P
B-1A Local Neighborhood Business	P		P	P ¹
B-3 General & Strip Commercial	P	P ⁵	P	P ¹
I-1 Light Industrial	C ⁶		P	
I-2 Heavy Industrial				
PLI Public Lands & Institutions		P	P	P
Notes: ¹ Family Residence Care ² Nursing and Convalescent Homes ³ Mobile home parks allowed in R-2M zone on sites of at least 2 acres ⁴ Mobile home parks permitted on site of at least 2 acres ⁵ Vocational or Trade Schools ⁶ Mobile home park on 10 acres or more ⁷ Camper park ⁸ One mobile home per lot		Noise Sensitive Uses: RS=Residential, ED=Educational, R=Religious, HC=Health Care, P=Permitted Use (permitted "by right" in the zoning district) C=Conditional Use (requires a conditional use permit)		
Source: HNTB analysis of Chapters 21.35 through 21.55 of the Anchorage Municipal Code.				

Finally, subdivision regulations may require the developer to provide specified sound attenuation or noise insulation. The MOA Subdivision Regulations are incorporated in Title 21 of the Municipal Code, Chapters 21.75 through 21.85. The regulations are administered by the MOA Planning Board with staff support provided by the Department of Community Planning and Development and the Building Safety Division of the Department of Public Works. At

present, the regulations do not require dedication of avigation easements, disclosure of noise levels, or sound insulation for new construction.

6.2.4 Building Code

Building codes establish standards for construction with a primary emphasis on safety. In addition, building codes frequently incorporate required deicing features to increase energy efficiency. Many local building codes are based on national or regional standard codes modified as necessary to suit local conditions. The MOA Building Code is based on the Uniform Building Code with specific local amendments.

Building codes can be used to promote noise compatibility by requiring sound attenuation construction features. This requirement is similar to the practice of requiring energy efficient construction features. In fact, many of the construction features used to increase energy efficiency, such as high R-value insulation and elimination of air infiltration, also reduce interior noise levels. Double pane windows are also beneficial for both energy savings and noise reduction, although most thermal window designs have too small an air space to attenuate noise. Likewise, use of insulated doors is advantageous for energy savings, but the type of door and seal used may not be as advantageous in attenuating noise. Other noise reduction techniques such as vent baffles do not enhance energy efficiency. One aspect of noise reduction design--the need to keep windows sealed in all seasons--may have an adverse affect on energy consumption by requiring forced air ventilation at all times.

6.2.5 Capital Improvement Program

Capital improvement programs outline expenditures for public facilities and infrastructure improvements, typically over a five- or six-year period. Capital improvements relate to noise compatibility primarily in providing the infrastructure to support development. Such development could be either noise sensitive or not, depending upon the comprehensive plan and zoning. Accordingly, capital improvements such as water and sewer extensions or transportation improvements are of greatest concern if they provide service to vacant residential property within the Airport noise contours.

6.3 Land Use Measures for Consideration in Revised NCP

The degree of annoyance which people experience from aircraft noise varies depending on their activities at any given time. People are usually less disturbed by aircraft noise when they are shopping, working, or driving than when they are at home. Transient hotel and motel residents seldom express as much concern with aircraft noise as do permanent residents of the area. The concept of "land use compatibility" has arisen from this systematic variation in community reaction to noise. This section describes Federal land use compatibility guidelines, recommends compatibility criteria for AIA and its surroundings, and identifies non-compatible land uses.

6.3.1 Federal Guidelines

Studies by governmental agencies and private researchers, in particular those by the Department of Housing and Urban Development (HUD), the FAA, and other Federal agencies, have established noise compatibility guidelines for different land uses. In 1980, the Federal Interagency Committee on Urban Noise (FICUN) published a report, Guidelines for Considering Noise in Land Use Planning and Control, which contained detailed land use compatibility guidelines for various DNLs. The FAA adopted a revised and simplified version of these guidelines when it promulgated FAR Part 150.

The FAA and FICUN guidelines indicate that mobile home parks and outdoor music shells and amphitheaters are incompatible with noise above DNL 65 dB. While schools and residential uses other than mobile homes also are generally incompatible with noise above DNL 65 dB, the guidelines note that where local communities determine that these must be allowed, sound attenuation measures should be incorporated into building codes and be considered in individual development approvals. In such cases, avigation or noise easements might also be recommended as a condition of development approval.

Nature exhibits and zoos are considered to be incompatible with noise above DNL 70 dB. Several other uses, including hospitals, nursing homes, churches, auditoriums, and concert halls may be compatible with noise up to DNL 75 dB if adequate noise level reduction (NLR) is incorporated in construction. Recreational uses other than outdoor music shells or amphitheaters, resorts, and camps are considered compatible at levels up to DNL 75 dB.

6.3.2 FAA Recommended Guidelines for DNL 65 dB and Above

FAR Part 150 states that determinations of noise compatibility and regulation of land use are local responsibilities. Federal guidelines are provided to assist local communities in making land use compatibility determinations. Part 150 states that such guidelines may be modified to fit local conditions. The guidelines presented in Part 150 represent a simplified version of the guidance prepared by the FICUN in 1980. Table 6.3 shows the land use compatibility guidelines published in FAR Part 150 which will be used in this study for evaluating land uses in areas at or above DNL 65 dB.

6.3.3 FICUN Recommended Guidelines for Aircraft Noise Exposure Levels Below DNL 65 dB

The FICUN report offers some planning considerations for noise levels below DNL 65 dB in addition to providing more detailed guidance on land use compatibility within the broader categories used in Part 150. The original AIA Part 150 Study used the more detailed FICUN compatibility guidelines in its analyses and recommendations.

Table 6.3 FAR Part 150 Noise / Land Use Compatibility Guidelines

Source: FAR Part 150

Yearly Day-Night Average Sound Level, DNL, in Decibels						
(Key and notes on following page)						
Land Use	<65	65-70	70-75	75-80	80-85	>85
Residential Use						
Residential other than mobile						
homes and transient lodgings	Y	N(1)	N(1)	N	N	N
Mobile home park	Y	N	N	N	N	N
Transient lodgings	Y	N(1)	N(1)	N(1)	N	N
Public Use						
Schools	Y	N(1)	N(1)	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Governmental services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(3)	Y(4)	N
Commercial Use						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail--building materials, hardware and farm equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Retail trade--general	Y	Y	25	30	N	N
Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Communication	Y	Y	25	30	N	N
Manufacturing and Production						
Manufacturing general	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock farming and breeding	Y	Y(6)	Y(7)	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
Recreational						
Outdoor sports arenas and spectator sports	Y	Y(5)	Y(5)	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts and camps	Y	Y	Y	N	N	N
Golf courses, stables, and water recreation	Y	Y	25	30	N	N

Key to Table 6.3

SLCUM	Standard Land Use Coding Manual.
Y(Yes)	Land use and related structures compatible without restrictions.
N(No)	Land use and related structures are not compatible and should be prohibited.
NLR	Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.
25, 30, or 35	Land use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 dB must be incorporated into design and construction of structure.

Notes for Table 6.3

The designations contained in this table do not constitute a Federal determination that any use of land covered by the program is acceptable or unacceptable under Federal, State, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.

- (1) Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as 5, 10, or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.
- (2) Measures to achieve NLR of 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
- (3) Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
- (4) Measures to achieve NLR of 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
- (5) Land use compatible provided special sound reinforcement systems are installed.
- (6) Residential buildings require an NLR of 25.
- (7) Residential buildings require an NLR of 30.
- (8) Residential buildings not permitted.

A brief summary of the applicable FICUN compatibility guidelines used in the development of the original AIA Part 150 Study follows:

- All new residential development should be prohibited within the DNL 65 dB contour.
- All existing residences within the DNL 65 dB contour should be considered to be non-compatible unless soundproofed to DNL 45 dB maximum interior noise levels. In addition, all existing residences within the DNL 65 dB contour should be considered to be non-compatible unless an avigation easement and non-suit covenant for noise exists for each residence.
- All residences in the DNL 55-65 dB noise contours should be considered to be "marginally compatible" and should be soundproofed to DNL 45 dB maximum interior noise levels, and an avigation easement and non-suit covenant for noise should be obtained for each residence.
- Mobile homes should be prohibited within the DNL 55 dB, and higher, contour since it is not practical to ensure compatibility with homes that can be relocated.
- References to NLR requirements should be eliminated (in favor of specified maximum interior noise levels).
- New schools, churches, hospitals, nursing homes, auditoriums, and music halls should be prohibited within the DNL 65 dB contour and should be permitted within the DNL 55 dB contour only if soundproofed to DNL 45 dB maximum interior noise levels, and an avigation easement and non-suit covenant for noise is obtained for each facility.
- Outdoor music shells, amphitheatres, and other performing arts facilities should be prohibited within the DNL 55 dB noise contour.

Much of the additional detail provided in the FICUN report addresses noise levels which are higher than would be encountered off-airport at AIA, land uses which are not found in the vicinity of AIA, and distinctions within land use categories which do not substantially affect compatibility.

6.4 Recommended Land Use Guidelines for the AIA Part 150 Update

Land use compatibility criteria recommended for the AIA Part 150 Update are based on the FAR Part 150 guidelines described in Table 6.3, with some modifications to account for local conditions, and the more detailed guidelines provided in the FICUN report for land use compatibility below DNL 65 dB. This section of the study discusses land use compatibility in areas that exceed DNL 65 dB as well as areas below 65 DNL dB.

6.4.1 Consideration of Aircraft Noise Exposure Levels Above DNL 65 dB

Land use compatibility guidelines for selected categories are discussed below.

Residences (other than transient lodgings and mobile homes). In the DNL 75+ dB zone, all residential development should be considered non-compatible. In the DNL 65-70 dB and DNL 70-75 dB zones, new residential development should be considered non-compatible and should be permitted only where the in-filling of existing residential neighborhoods is the only reasonable use. For in-fill development or substantial redevelopment in the DNL 65-75 dB noise zones, insulation should be required to achieve an interior level of DNL 45 dB, as recommended by the U.S. Environmental Protection Agency. In addition to acoustical treatment of structures, potential new residents should be made aware of the noise environment through real estate disclosure or other means.

Mobile Homes and Camper Parks. The construction of mobile homes and campers does not provide the same level of noise attenuation provided by conventional residential construction. Further, incorporation of additional sound insulation is not practicable for existing mobile homes. Increasing the sound attenuation characteristics of new mobile homes or campers might be possible, but there is no indication that the mobile home manufacturing industry is likely to do so. Accordingly, new mobile home or camper park development should be considered to be non-compatible within the DNL 65 dB contours.

Transient Lodgings. Construction of hotels and motels generally results in interior sound attenuation higher than that of single family homes. The nature of their use justifies minimal restrictions, provided that an indoor noise level of no more than DNL 45 dB is attained. It is recommended that hotels be permitted in all noise zones provided that an interior noise level of DNL 45dB is achieved.

Schools. The special sensitivity of classroom teaching to periodic aircraft noise events justifies that the interior noise levels standards be more stringent than that applied to residences. It is recommended that schools not be considered compatible in the DNL 65-70 dB noise zone unless an interior noise level of DNL 40 dB is achieved. Schools would be considered non-compatible in all higher noise zones. These criteria would be applied to both public and private schools.

Hospitals. Hospitals are usually well-constructed, air conditioned, and kept closed, resulting in high levels of interior noise attenuation. Provided that interior noise levels of DNL 45 dB are attained, hospitals are considered to be compatible with levels up to DNL 75 dB. Hospitals should be considered non-compatible in noise zones above DNL 75 dB.

Nursing Homes. Nursing homes are basically residential in character and should be addressed in the same way as multi-family homes. It is recommended that they be considered non-compatible in noise zones above DNL 70 dB, and permitted in DNL 65-70 dB only if an interior noise level of DNL 45 dB is achieved.

Child Care Centers. Since classroom instruction is not as important a part of the function of a child care center as it is the function of a school, it is recommended that criteria for child care centers be less stringent than those for schools. It is recommended that these facilities be considered compatible in areas up to a level of DNL 75 dB if an interior noise level of DNL 45 dB is achieved. Child care centers are considered non-compatible in levels of DNL 75 dB and greater.

Churches. Given the small amount of time per week that a church is used for quiet activities, and given that the proportion of time spent by an individual in a church is also small, the justification for adopting more stringent compatibility standards is less strong than for schools. It is recommended that these facilities be considered compatible in areas up to a level of DNL 75 dB if an interior noise level of DNL 45 dB is achieved. Churches are considered non-compatible in levels of DNL 75 dB and greater.

For schools, child care centers, or other types of facilities that are part of a church complex, the criteria for these secondary types of facilities would be applied. In addition to structures specifically dedicated to church use, numerous small churches are often established in portions of commercial buildings. These "storefront churches" are frequently located in commercial areas which are otherwise compatible with aircraft noise levels. Due to their location and sometimes transient nature, it is recommended that storefront churches be treated as other uses in commercial districts.

Commercial, Industrial, and Recreational Uses. Most uses in these categories are not as noise sensitive as the uses described previously. It is recommended that the Federal guidelines described in Table 6.3 be applied.

6.4.2 Consideration of Aircraft Noise Exposure Levels Below DNL 65 dB

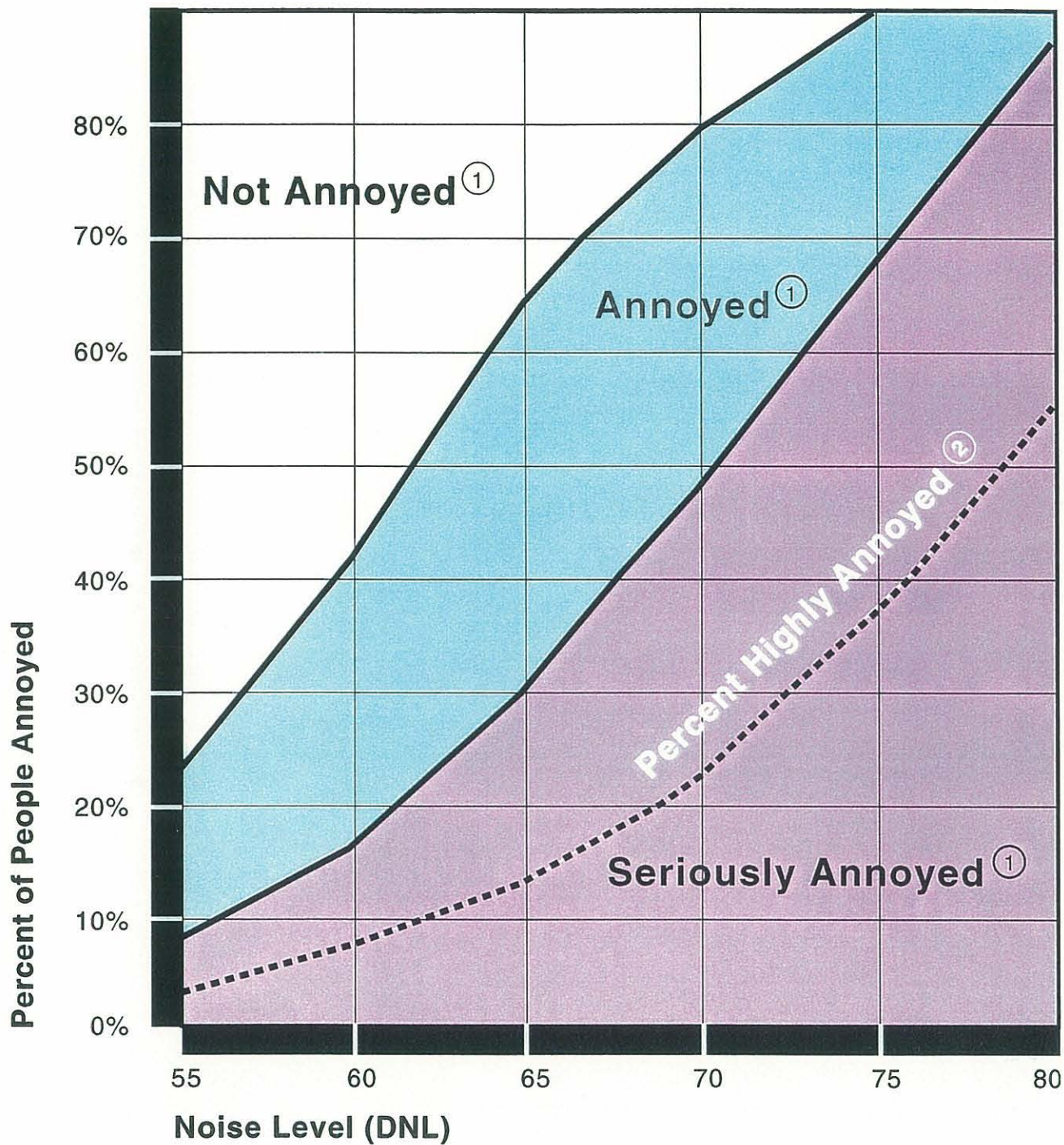
According to Federal guidelines, all land uses are considered to be compatible with noise levels below DNL 65 dB. A recent review of noise compatibility criteria conducted by the Federal Interagency Committee on Noise (FICON) concluded that DNL 65 dB should be retained as the standard for "significant" noise impact. The FICON also recognized that community noise concerns do not stop abruptly at the DNL 65 dB contour line. Rather, as the "Schultz Curve" in Figure 6.5 demonstrates, the percentage of people highly annoyed by noise gradually declines as noise levels decrease through DNL 65 dB.

Recently, the FAA sponsored a Study Group on Compatible Land Use to "address the need for an effective policy and programs to achieve compatible land use controls within the noise impacted areas around the nation's airports." This study group consisted of representatives from the FAA, the aviation industry, and airport community interests. In the Final Report of the Study Group on Compatible Land Use to the FAA Research, Engineering and Development (RE&D) Committee, February 1995, the group recommended "that the FAA continue to support locally initiated compatible land use planning beyond the DNL 65 dB contour, when appropriate." The conclusion was based on the recognition that individual sensitivities to noise vary, that community noise concerns exist beyond the DNL 65 dB contour, and that both



Figure 6.5

Community Annoyance as a Function of DNL



Sources:

- ① Percentage of Residents Annoyed. Richard, E.J. and J.B. Ollerhead; reproduced in "Aviation Noise Effects", FAA Office of Environment and Energy, March 1985.
- ② Schultz T. J. "Synthesis of Social Surveys on Noise Annoyance", Journal of Acoustical Society of America, 1978.

airports and communities would benefit from decreased residential development in noise impacted areas beyond the DNL 65 dB contour.

The original AIA Part 150 Study addressed land use within the DNL 60 dB contour. This earlier study recommended sound insulation for new residential development within the DNL 60 dB contour to assure interior noise levels of DNL 45 dB or less. In addition, the earlier study recommended acquisition of aviation easements and/or non-suit covenants for noise sensitive development within the DNL 60 dB contours. In essence, these recommendations established a policy of permitting new residential development in the DNL 60 to 65 dB contour interval, provided acceptable interior noise levels could be assured, and that potential new residents were made aware of the noise environment prior to moving into the affected areas. This increased protection recognized that community concerns extend beyond the DNL 65 dB contour and that changes in aircraft activity levels could expand the DNL 65 dB contour. These recommendations should be continued with two additions. As noted earlier, mobile homes and campers do not provide the same level of sound attenuation as conventional residential construction. Accordingly, new mobile home and camper park development should not be permitted within the DNL 60 dB contour. In addition, due to the special sensitivity of classroom teaching to periodic aircraft noise events, schools should not be permitted within the DNL 60 dB contour unless an interior level of DNL 40 dB is achieved.

6.5 Non-compatible and Noise Sensitive Land Uses

The following discussion addresses both non-compatible and noise sensitive land uses. In this document, the term "non-compatible" refers to residential and educational uses located within the DNL 65 dB or greater contours. The term "noise sensitive" refers to residential and educational uses located in the DNL 60 to 65 dB contour, as well as religious, health care, and park/historical sites located within the DNL 60 dB or greater contours. It should be noted that, just as the DNL 65 dB contour does not define the limits of potential noise concern, the DNL 60 dB contour will not include all persons concerned about aircraft noise.

Preliminary land use and zoning data provided by the MOA and AIA as well as non-abated noise contours were used to identify existing, future, and potential non-compatible and noise sensitive land use in accordance with the land use compatibility criteria discussed above. The analysis of existing non-compatible and noise sensitive land uses are based on 1995 land use data and the aircraft noise contours representing 1997 operations in Figure 6.2. The analysis of future non-compatible and noise sensitive land uses are also based on existing land use, but uses the noise contours representing 2002 operations in Figure 6.3. The analysis of potential non-compatible and noise sensitive land uses are based on existing land use augmented by zoning information and the noise contours representing 2017 operations in Figure 6.4.

6.5.1 Existing (1997) Non-Compatible and Noise Sensitive Land Uses

Figure 6.6 shows existing non-compatible and noise sensitive land uses and Community Council boundaries.

The only non-compatible land use in the DNL 65 dB and greater contours is residential development. Non-compatible residential development is located in the Sand Lake Community Council area, in the Turnagain Community Council area near the gravel strip at Lake Hood Float Plane Base, and in the Spenard Community Council area along the north side of International Airport Road.

Noise sensitive residential development occurs within the DNL 60 dB contour. Noise sensitive residential areas within the DNL 60 dB contour are located within the Sand Lake, Spenard, Turnagain Community Councils, as well as the Taku/Campbell Community Council. Within the Sand Lake Community Council, there are developed residential areas both north and south of Raspberry Road between Minnesota Drive and Sand Lake Road. There is an additional area west of Sand Lake Road that is rapidly developing in residential subdivisions. The developed residential areas of Spenard include an area between International Airport Road and Spenard Road west of Minnesota Drive and an area north of International Airport Road and east of Minnesota Drive. Noise-sensitive developed residential areas within the Turnagain Community Council includes areas along the Community Council/Airport boundary. Noise sensitive residential development within the Taku/Campbell Community Council is located south of International Airport Road near Arctic Boulevard and along Old Seward Highway, north and south of Dowling Road.

Table 6.4 summarizes non-compatible land use within the DNL 65 dB and greater contour. The original AIA Part 150 Study identified a total (1986) population of 1,108 within the DNL 65 dB and greater contour. Recounting the population totals within the 1986 contours using 1990 census data yields a total population of 1,020 within the DNL 65 dB and greater contours. This minor difference is probably due to differences in estimating techniques. Table 6.4 shows a total population of 1,520 within the 1997 DNL 65 dB and greater contours, an increase of roughly 49 percent compared to the recalculated 1986 population totals. This increase in population can be attributed primarily to increased residential development south of AIA, as well as some changes in the shape of the noise contours based upon increased operations.

Table 6.5 summarizes noise sensitive land use within the DNL 60 dB and greater contour for the year 1997. Noise sensitive uses include schools, places of worship, health care facilities, parks, and sites on or eligible for inclusion in the National Register of Historic Places. No schools are located within the DNL 65 dB and greater noise contours, although four schools are located within the DNL 60-65 dB contour. A variety of churches, health care facilities, and parks are located throughout the noise contours. As noted in Section 6.4, these uses are generally considered compatible within the noise contours based on typical interior noise level reductions, the amount of time spent in these areas, and the activities occurring at each site.



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Figure 6.6

Existing (1997) Non-Compatible and Noise Sensitive Land Uses and Community Council Boundaries

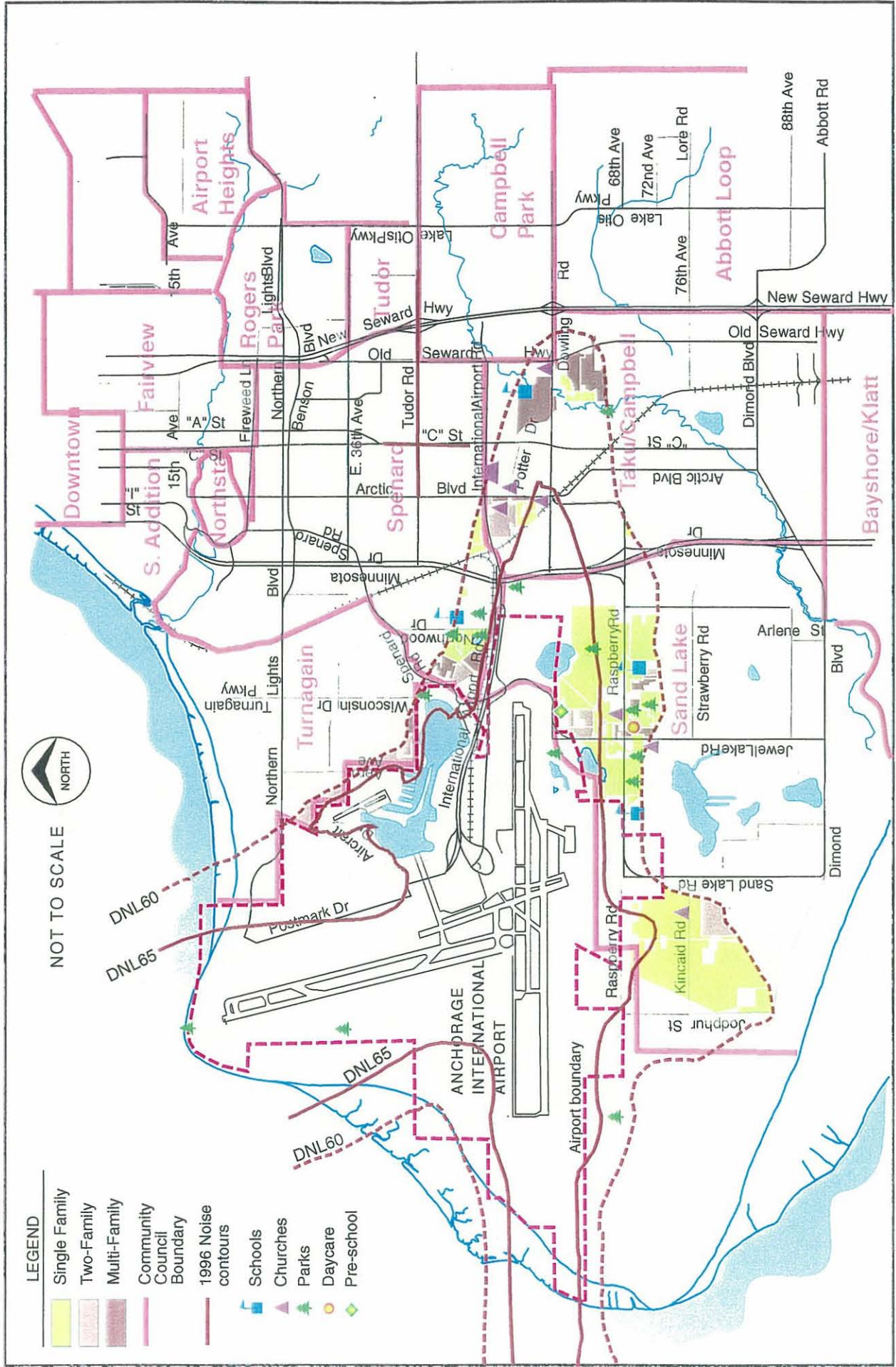


Table 6.4 Non-Compatible Land Uses in 1997 Noise Contours of DNL 65 dB and Above
 Source: HNTB analysis of MOA Preliminary GIS (1995) Data base

DNL	Residential Dwellings			Residential Population	Other Non-Compatible Land Uses			
	SF/2F	MF	MH		ED	R	HC	P/H
75+	0	0	0	0	0	0	0	0
70-75	70	6	4	190	--	--	--	--
65-70	521	48	11	1,299	--	--	--	--
60-65	--	--	--	--	--	--	--	--
Total	591	54	15	1,489	0	0	0	0

Notes: SF/2F=Single/2 family, MF=Multi-family, MH=Mobile Home, ED=Educational, R=Religious, HC=Health Care, /PH=Park/Historic

Residential and Educational Uses within the DNL 60-65 dB contour are considered noise sensitive and are listed in Table 6.5. Educational, religious, health care, and park/historical sites located in DNL contours less than 75 dB are considered noise sensitive and are included in Table 6.5.

Table 6.5 Noise Sensitive Land Uses in 1997 Noise Contours of DNL 60 dB and Above
 Source: HNTB analysis of MOA Preliminary GIS (1995) Data base

DNL	Residential Dwellings			Residential Population	Other Noise Sensitive Land Uses			
	SF/2F	MF	MH		ED	R	HC	P/H
75+	--	--	--	--	--	--	--	--
70-75	--	--	--	--	0	0	1	0
65-70	--	--	--	--	0	2	5	8
60-65	2634	314	55	6,757	4	7	13	28
Total	2634	314	55	6,757	4	9	19	36

Notes: SF/2F=Single/2 family, MF=Multi-family, MH=Mobile Home, ED=Educational, R=Religious, HC=Health Care, /PH=Park/Historic

Residential and Educational Uses within the DNL 65 dB contour and higher are considered non-compatible and are listed in Table 6.4. Educational, religious, health care, and park/historical sites located in DNL contours of 75+ dB are considered non-compatible and are included in Table 6.4.

6.5.2 Future (2002) Non-Compatible and Noise Sensitive Land Uses

Figure 6.7 shows future non-compatible land use assuming that no additional noise sensitive land use is developed within the year 2002 contours. The only change assumed for the future case is the slight reduction in contour size resulting from a quieter fleet mix as older, noisier aircraft are retired. This reduction may be offset if operations increase more than anticipated over the forecast period. Accordingly, the pattern of non-compatible land use is virtually identical to the existing pattern described above. Table 6.6 shows the effect of noise reduction on non-compatible land uses within the DNL 65 dB and greater contours and Table 6.7 illustrates the effect on noise sensitive uses within the DNL 60 dB and greater contours. Table 6.6 does not include existing vacant land that could potentially be developed with a non-compatible land use. The section that follows assesses the impact of continued development of vacant land in accordance with existing zoning.

6.5.3 Potential Non-Compatible and Noise Sensitive Land Uses

Figure 6.8 shows potential non-compatible land use. This analysis differs from the previous two analyses in that all vacant land is assumed to be developed in accordance with current zoning. Since the size and shape of the noise contours for the year 2017 are similar to the existing (1997) noise contours, the 1997 contours have been selected to represent the long-term noise environment at AIA. The 1997 contours are larger than the year 2002 contours due to a higher percentage of Stage 2 (noisier) aircraft in the airlines' fleets. Tables 6.8 and 6.9 show the potential effects of continued development within the 2017 noise contours at AIA.

Assuming full development of all vacant land in accordance with existing zoning and the current ratio of residents per dwelling unit, the total population within the 2017 DNL 60 dB and greater contours is estimated at 11,273 compared to a population of 8,246 in the 1997 DNL 60 dB and greater contours. Therefore, continued development within the DNL 60 dB and greater contours could increase population by approximately 40 percent. Analysis of the MOA's preliminary GIS data base indicates that 36 parcels, each averaging approximately 3 acres in size, account for over 75 percent of this development potential. Nearly half of this potential development is located in the DNL 60 to 65 dB contour interval. This potential growth would occur primarily in the Sand Lake Community Council area to the south of AIA, and in the Taku / Campbell Community Council area to the east.



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Figure 6.7

Future (2002) Non-Compatible and Noise Sensitive Land Uses

1/22/2002 L2
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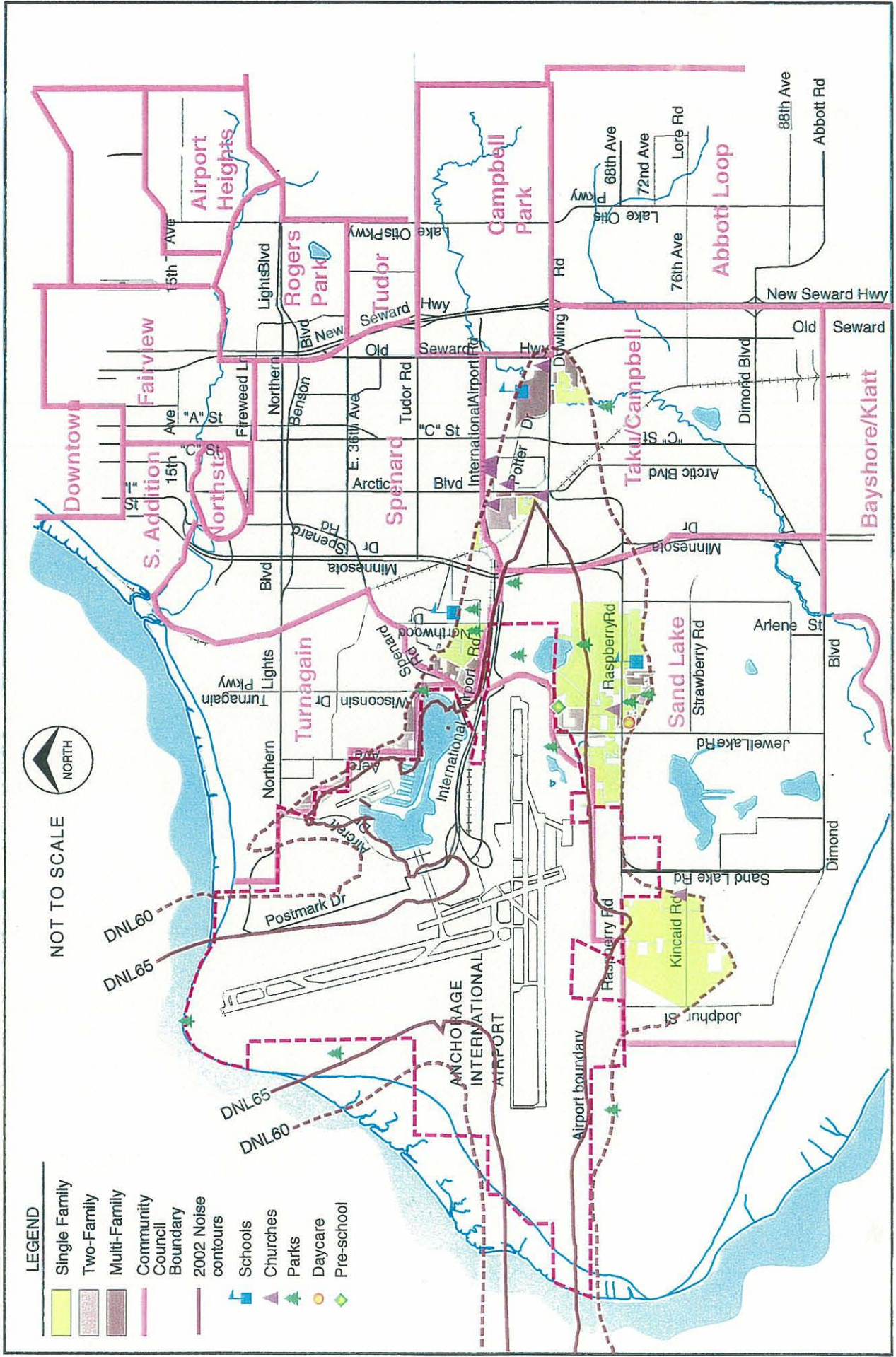


Table 6.6 Non-Compatible Land Uses in 2002 Noise Contours of DNL 65 dB and Above
Source: HNTB analysis of MOA Preliminary GIS (1995) Data base

DNL	Residential			Residential Population	Other Non-Compatible Land Uses			
	SF/2F	MF	MH		ED	R	HC	P/H
75+	0	0	0	0	0	0	0	0
70-75	54	3	3	140	--	--	--	--
65-70	398	29	10	1,090	--	--	--	--
60-65	--	--	--	--	--	--	--	--
Total	462	32	13	1,222	0	0	0	0

Notes: SF/2F=Single/2 family, MF=Multi-family, MH=Mobile Home ED=Educational, R=Religious, HC=Health Care, /PH=Park/Historic

Residential and Educational Uses within the DNL 60-65 dB contour are considered noise sensitive and are listed in Table 6.7. Educational, religious, health care, and park/historical sites located in DNL contours less than 75 dB are considered noise sensitive and are included in Table 6.7.

Table 6.7 Noise Sensitive Land Uses in 2002 Noise Contours of DNL 60 dB and Above
Source: HNTB analysis of MOA Preliminary GIS (1995) Data base

DNL	Residential			Residential Population	Other Non-Compatible Land Uses			
	SF/2F	MF	MH		ED	R	HC	P/H
75+	--	--	--	--	--	--	--	--
70-75	--	--	--	--	0	0	0	0
65-70	--	--	--	--	0	2	6	7
60-65	2,333	283	53	5,872	3	7	11	26
Total	2,333	283	53	5,872	3	9	17	33

Notes: SF/2F=Single/2 family, MF=Multi-family, MH=Mobile Home, ED=Educational, R=Religious, HC=Health Care, /PH=Park/Historic

Residential and Educational Uses within the DNL 65 dB contour and higher are considered non-compatible and are listed in Table 6.6. Educational, religious, health care, and park/historical sites located in DNL contours of 75+ dB are considered non-compatible and are included in Table 6.6.

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Figure 6.8

Potential (2017) Non-Compatible and Noise Sensitive Land Uses

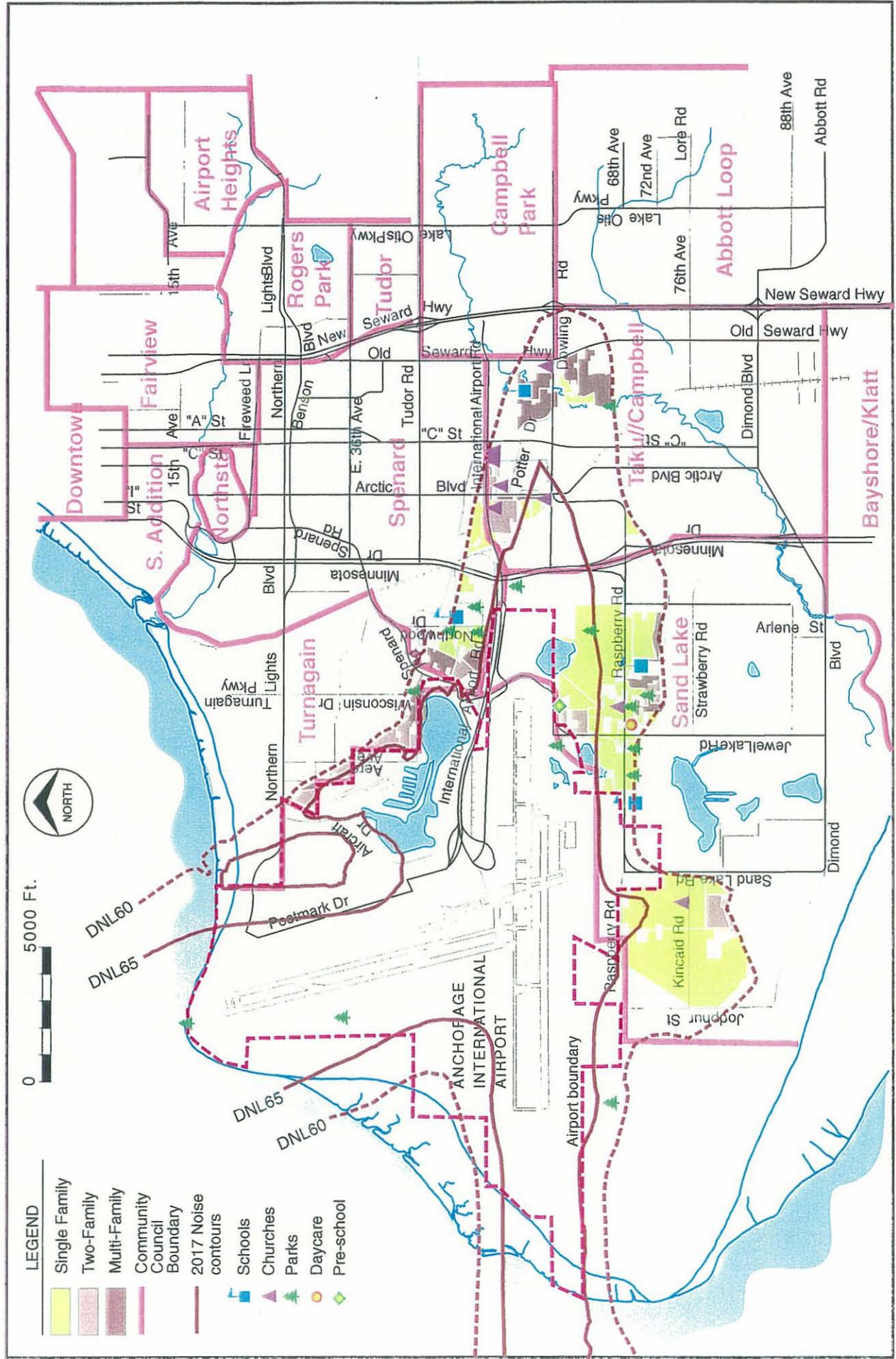


Table 6.8 Potential Non-Compatible Land Uses in 2017 Noise Contours of DNL 65 dB and Above

Source: HNTB analysis of MOA Preliminary GIS (1995) Data base

DNL	Residential			Residential Population	Other Non-Compatible Land Uses			
	SF/2F	MF	MH		ED	R	HC	P/H
75+	0	0	0	0	0	0	0	0
70-75	119	8	5	314	--	--	--	--
65-70	741	92	13	1,961	--	--	--	--
60-65	--	--	--	--	--	--	--	--
Total	860	100	18	2,275	0	0	0	0

Notes: SF/2F=Single/2 family, MF=Multi-family, MH=Mobile Home, ED=Educational, R=Religious, HC=Health Care, /PH=Park/Historic

Residential and Educational Uses within the DNL 60-65 dB contour are considered noise sensitive and are listed in Table 6.9. Educational, religious, health care, and park/historical sites located in DNL contours less than 75 dB are considered noise sensitive and are included in Table 6.9.

Table 6.9 Potential Noise Sensitive Land Uses in 2017 Noise Contours of DNL 60 dB and Above

Source: HNTB analysis of MOA Preliminary GIS (1995) Data base

DNL	Residential			Residential Population	Other Non-Compatible Land Uses			
	SF/2F	MF	MH		ED	R	HC	P/H
75+	--	--	--	--	--	--	--	--
70-75	--	--	--	--	0	0	1	0
65-70	--	--	--	--	0	2	5	8
60-65	3,325	690	60	8,998	4	7	13	28
Total	3,325	690	60	8,998	4	9	19	36

Notes: SF/2F=Single/2 family, MF=Multi-family, MH=Mobile Home, ED=Educational, R=Religious, HC=Health Care, /PH=Park/Historic

Residential and Educational Uses within the DNL 65 dB contour and higher are considered non-compatible and are listed in Table 6.8. Educational, religious, health care, and park/historical sites located in DNL contours of 75+ dB are considered non-compatible and are included in Table 6.8.

Table 6.10 highlights the potential for increased residential development within the AIA noise contours considering existing zoning and the current ratio of residents per dwelling unit. Implementation of preventative measures could reduce the potential for non-compatible land use development and, thereby, reduce the potential for a residential population increase in the future.

Table 6.10 Comparison of Existing 1997 and Potential 2017 Residential Population

Source: HNTB analysis of MOA Preliminary GIS (1995) Data base

DNL	Existing 1997 Residential Population	Potential 2017 Residential Population	Potential Increase
75+	0	0	0
70-75	190	314	124
65-70	1,299	1,961	662
60-65	6,757	8,998	2,241
Total	8,246	11,273	3,027

6.6 Land Use Recommendations

During the original AIA Part 150 Study, numerous land use planning issues were identified. The original AIA Part 150 Study considered issues such as airport noise impacts, airport expansion, and protection of natural and human environments. The original AIA Part 150 Study analyzed 21 land use management strategy recommendations for implementation. Ten of the strategies were recommended for implementation, and an eleventh was added by the FAA. In building on the earlier study, this update assumes that implementation of the previously recommended techniques will continue with the exception of the aviation easement measure and the two measures referring to sound barriers. These measures form the basis for continued development of the land use compatibility program for AIA. After summarizing the implementation status of previously recommended measures, this section re-examines measures which were not previously recommended, and identifies additional measures in order to enhance the effectiveness of the previously recommended program.

Implementation of approved Part 150 land use measures is eligible for Federal funding. However, funding for these measures is limited and subject to the following criteria. For measures that consider acquisition, the FAA typically encourages residential acquisition within the DNL 75 dB contour and supports it within the DNL 70 dB contour. Additionally, the FAA typically considers remedial measures within the DNL 65 dB contour. This NCP evaluates proposed land use measures in accordance with these guidelines.

6.6.1 Existing Land Use Program

In 1988, the FAA issued a Record of Approval for the NCP contained in the original AIA Part 150 Study. The FAA's review and approval of the program included all 10 land use recommendations. While the FAA approved all of the recommended land use management techniques, only Sound Barrier Walls and Berms were expected to be funded by the FAA AIP grant program. Table 6.11 briefly describes each of the measures. Table 6.12 summarizes the implementation status of the land use measures recommended in the original AIA Part 150 Study.

The MOA and AIA entered into a Land Exchange Agreement on December 2, 1994, pursuant to the transfer of airport property to the MOA. This agreement identified actions to be undertaken by the MOA in implementing the land use management measures approved in the original AIA Part 150 Study NCP as follows.

"The Municipality of Anchorage will work with the Anchorage International Airport to avoid conflicts with the land use recommendations from the airport's 1987 Part 150 Noise Compatibility Program and any future amendments so that future incompatible land uses can be avoided. The Municipality of Anchorage acknowledges the airport's goal of preventing incompatible land uses that will hinder airport operations. Accordingly, until the formal adoption of Part 150 land use recommendations, the Municipality of Anchorage will consider the Part 150 recommendations and future amendments when making land use decisions. By December 3, 1995, the Municipality of Anchorage will propose adoption of the Part 150 Program land use recommendations. This provision runs with the land and binds future owners."

6.6.2 Re-evaluation of Land Use Measures not Recommended in the Original AIA Part 150 Study

In addition to the land use measures recommended for implementation in the original AIA Part 150 Study, 11 other measures were considered and not recommended. In some cases, the reasons for not recommending these measures remain valid. In other case, changes in local conditions, recent aviation industry developments, and the experience gained in implementation of the adopted program warrants reconsideration of the previous recommendations.

The following factors were addressed in reconsideration of land use measures not recommended in the original AIA Part 150 Study NCP as well as for new measures:

Area to which measure would be applied. This factor defines the DNL contour intervals within which the measure would be applied and/or the types of land uses within the applicable contour intervals which would be addressed. Preliminary discussions with the

Table 6.11 Land Use Measures Recommended in the Original AIA Part 150 Study

Source: 1987 AIA FAR Part 150 Study

Existing Measure	Summary
Compatible Use Zoning	Establishment of a firm policy against re-zoning or authorizing conditional uses for any new development of residences of any type within the future DNL 60 dB contour.
Mobile Home Restrictions	Establishment of a firm policy against re-zoning or authorizing conditional uses for any new development of mobile home structures and camper parks within the 1986 or future DNL 60 dB contour.
Soundproofing	Establishment of a noise plan requiring new residences in the 1986 or future DNL 60 dB contour to be equipped with a forced air circulation system to permit operation year round with the capability to completely exchange the air in the home twice each day and supply a 20 percent change of fresh air every hour.
Easements	Requirement for a standard aviation easement for all residential subdivisions in the 1986 and future DNL 60 dB contour as part of the subdivision platting review process.
Noise Levels on Plats	Requirement for noise levels to be noted on plats of all new subdivisions or land uses involving residential structures with the 1986 and future DNL 60 dB contours as part of the subdivision platting review process.
Comprehensive Planning	Amendment of the Anchorage Bowl Comprehensive Plan to incorporate the compatible land use recommendations of the Airport Master Plan and the original AIA Part 150 Study NCP.
Planning Commission Review	Adoption of the noise compatibility planning criteria as outlined and the guidelines for land use compatibility review provided within the original AIA Part 150 Study for use in all planning activities pertaining to areas within the Airport's present and future DNL 60 dB contours.
Public Land Development Criteria	Adoption of a policy pertaining to the use of public land within the DNL 60 dB contours.
Preferential Runway Use Program - Lake Hood Float Plane Base	Upon completion of the new Lake Hood Float Plane Base waterway 14/32, request the implementation of a waterway use program for Lake Hood Float Plane Base waterway 14/32, designating departures on waterway 32 as preferred for calm wind (less than 4 knots) conditions. The program should further address preferential use of westerly arrivals on the east/west waterlane for floatplane operations in order to enhance operating capacity on the water.
Noise Barrier Walls and Berms	Adoption of a standard design for a noise barrier wall and berm to be constructed between the proposed expansion of the Lake Hood Float Plane Base and neighborhoods to the northeast.
Sound Buffer	Incorporation of a recreational facility into the sound buffer area recommended as a follow-on option to noise barrier walls and berms.

Table 6.12 Implementation Status of Land Use Measures Recommended in the Original AIA Part 150 Study
 Source: HNTB analysis

Land Use Management Techniques	Implementation Status	Implementation Agency
Compatible Use Zoning	Ordinance amendment passed by Planning and Zoning Commission; Assembly postponed until completion of the AIA Part 150 Update	MOA ²
Mobile Home Restrictions	Ordinance amendment passed by Planning and Zoning Commission; Assembly postponed until completion of the AIA Part 150 Update	MOA ²
Bldg. Code for Soundproofing	Discussions with MOA are underway	MOA ²
Easements for Subdivision	Not implemented due to MOA legal staff concerns	MOA ²
Comprehensive Planning	Comprehensive Plan currently being updated. AIA is working with MOA to incorporate consideration of airport noise levels and compatible land use guidelines	MOA ²
Planning Commission Review	Discussions with MOA are continuing	MOA ²
Noise Levels on Plats	Implemented on a case-by-case basis	MOA ²
Lake Hood Float Plane Base Preferential Runway Use ¹	Not implemented due to cancellation of Lake Hood Float Plane Base expansion project.	MOA ²
Sound Barrier Walls and Berms ¹	Not implemented due to cancellation of Lake Hood Float Plane Base expansion project	AIA
Sound Buffers ¹	Not implemented due to cancellation of Lake Hood Float Plane Base expansion project	AIA
Public Land Development Criteria	Will be addressed in Comprehension Plan Update currently underway	MOA ²
<p>¹ These measures were tied to an expansion of the Lake Hood Float Plane Base. This expansion project never occurred, the barriers were not constructed, and no preferential runway use program was established. A new sound barrier measure is evaluated in Section 6.6.3.</p> <p>² The AIA will provide support to the MOA in drafting required ordinances.</p>		

MOA indicate that land use management techniques should be applied to the existing (1997) DNL contours. Since long-term (2017) DNL contours indicate that the noise reductions anticipated in the next five years will be offset by continued growth in aviation (see Section 6.5.3), potential remedial measures will also be considered for owner-occupied residences within the existing DNL contours.

Responsible agency. This factor identifies the public agency responsible for implementing the proposed measure. The MOA has implementation responsibility for all regulatory and policy techniques for land use controls. For corrective and remedial techniques, the airport sponsor (State DOT and PF) is the responsible agency. The FAA may participate in funding remedial measures which are part of an approved NCP.

Compatibility benefits. This factor describes the potential benefits of the measure. Potential benefits could be of a direct nature (restricting additional residential development in areas impacted by airport noise), indirect (permitting informed decisions by potential buyers), or remedial (provide acceptable interior noise levels).

Political acceptability. This factor describes the interests which may be adversely affected by the potential measure. Such interests could include existing land owners concerned about potential impacts on property values, neighbors concerned about the potential character change of the neighborhood, or developers opposed to limitations or conditions that might be placed on the development of land.

Implementation. This factor summarizes the administrative and other actions necessary to implement the measure, and identifies any legal factors to be considered.

Costs. This factor identifies public and private sector costs associated with implementing the measure and potential eligibility for Federal funds.

Conclusion. This factor discusses why it was not adopted in 1987 and summarizes the reasons for recommending or not recommending measures for addition at this time.

Land use measures considered in this AIA Part 150 Update are summarized in Tables 6.13 through 6.23.

Table 6.13 Reconsidered Measure - Large Lot Zoning

Source: HNTB Analysis

Measure: Large Lot Zoning	
Description: Use conventional zoning to reduce residential development potential in noise contours. This technique includes rezoning areas to require larger lot sizes to minimize the density of residential development.	
Area to which measure would be applied	Vacant property in existing 1997 DNL 60 dB and greater contours shown in Figure 6.2.
Responsible Agency	MOA
Compatibility Benefits	Would reduce the increased population exposed to aircraft noise due to new residential development within the noise contours.
Implementation	<ul style="list-style-type: none"> • AIA adopts measure in AIA Part 150 Update NCP. • MOA re-zones property in noise contours to lower densities and maintains existing low density zoning in such areas.
Political Acceptability	<ul style="list-style-type: none"> • Property owners directly affected by the measure may oppose re-zoning which limits or reduces development potential. • Surrounding residents may support decreased densities. • Surrounding development patterns may restrict the application of this technique.
Costs	<ul style="list-style-type: none"> • MOA administration. • Reduction of development potential for existing landowners.
Conclusion	This potential measure was not recommended in 1987 because it was not considered to be effective in the given situation, and because other measures were thought to provide the same benefits. This measure may have the unintended effect of increasing the level of community concern because residents of low density development often have higher expectations for quiet, and also experience lower ambient noise levels from other sources. Further, if this measure restricts new development more severely than surrounding areas, it may be considered to be a "taking" requiring compensation. This issue is particularly troublesome if the property owner had a reasonable expectation of greater development at the time of purchase. Accordingly, this measure is not recommended.

Table 6.14 Reconsidered Measure - Noise Overlay Zoning

Source: HNTB Analysis

Measure: Noise Overlay Zoning	
Description: Establish overlay zone based on noise contours to add conditions to underlying conventional zoning districts. This technique would overlay zones based on aircraft noise levels to prescribe special requirements and restrictions on noise-sensitive land uses in these zones.	
Area to which measure would be applied	All property within existing 1997 DNL 60 dB and greater contours shown in Figure 6.2.
Responsible Agency	AIA drafts for adoption by MOA Assembly
Compatibility Benefits	<ul style="list-style-type: none"> • Provides guidance during consideration of re-zoning petitions. • Prevents noise sensitive conditional uses in designated noise contours. • This strategy could be used as a mechanism for implementing other measures such as compatible use zoning, building code provisions, and subdivision regulations. • Publication of zoning designation as part of property zoning district would help to inform potential buyers of noise conditions.
Implementation	<ul style="list-style-type: none"> • AIA adopts measure in AIA Part 150 Update NCP. • AIA drafts ordinance in consultation with MOA. • MOA schedules ordinance with Planning & Zoning and Assembly. • Assembly adopts overlay zoning ordinance.
Political Acceptability	<ul style="list-style-type: none"> • Property owners directly affected by the measure may oppose re-zoning which limits flexibility of development through re-zoning or by conditional use permit. • Concerns may arise due to potential restrictions on significant changes in land use. The degree of concern should be less intense as restrictions would be limited to noise sensitive uses. Other permitted uses would be allowed with specified conditions. • No change in the character of the existing development.
Costs	<ul style="list-style-type: none"> • AIA for development and MOA for processing of ordinance. Some costs may be eligible for 93.75% federal funding if part of an approved Part 150 NCP, although actual levels may be less depending upon availability of funds. • Costs of development conditions (i.e., residential insulation). • Reduction of development options.
Conclusion	This potential measure was not recommended in 1987 because it was determined that the same results could be accomplished through less complex methods. Overlay zoning has the potential to supplement a number of existing measures. Further, a comprehensive overlay district which treats similarly noise impacted properties in a comparable fashion is likely to withstand challenge, and by establishing a comprehensive framework, will tend to support the use of other noise compatibility planning techniques. Accordingly, this measure is recommended.

Table 6.15 Reconsidered Measure - Avigation Easements For Building Permits

Source: HNTB Analysis

<p>Measure: Avigation Easements for Building Permits Description: Non-suit easements for new noise sensitive development through building permitting. This technique would require the grant of avigation easements and non-suit covenants to the airport operator as a condition of building permits for specified noise-sensitive land uses in noise impacted areas.</p>	
Area to which measure would be applied	Undeveloped and substantially redeveloped parcels in the existing 1997 DNL 60 dB and greater contours shown in Figure 6.2.
Responsible Agency	MOA
Compatibility Benefits	<ul style="list-style-type: none"> • Provides protection for airport sponsor from litigation due to airport operation. • Notifies potential home builders of noise environment before building, and alerts buyer that buildings must be built to higher standards. • Complements previously adopted avigation measure by in-filling development.
Implementation	<ul style="list-style-type: none"> • AIA adopts measure in AIA Part 150 Update NCP. • MOA adopts ordinance establishing requirement, and develops procedures to ensure building permits for new construction and substantial reconstruction in designated noise zones require an easement.
Political Acceptability	<ul style="list-style-type: none"> • Developers and/or property owners may oppose the measure due to the potential for reducing marketability. • Adopted similar measure in 1987 for subdivision plats that has never been successfully implemented.
Costs	<ul style="list-style-type: none"> • MOA administration. • Property owners relinquish right to sue. • Possible impact on market value of properties involved although experience with appraisal of avigation easements at other airports indicates that this effect is slight.
Conclusion	<p>This potential measure was not recommended in 1987 because it did not appear to be permitted under State-enabling legislation and because there were other acceptable substitute techniques available. This measure is administratively complex, requiring close coordination between differing departments. Further, if this measure restricts new development more severely than surrounding areas, it may be considered to be a "taking" requiring compensation. The previously adopted land use measure requiring a standard avigation easement clearly treats all residential properties within the DNL 60 dB and greater contours similarly; however, this measure impacts only noise sensitive development and equal treatment may not apply. Accordingly, this measure is not recommended.</p>

Table 6.16 Reconsidered Measure - Fair Disclosure Policy

Source: HNTB Analysis

Measure: Fair Disclosure Policy Description: Incorporation of aircraft noise information in sales documents for residential development. This technique would require the disclosure of aircraft noise level information during residential sales transactions through a real estate disclosure form. This technique is similar to truth-in-sales laws relating to any type of purchase.	
Area to which measure would be applied	Existing residential properties within the existing 1997 DNL 60 dB and greater contours shown in Figure 6. 2.
Responsible Agency	Alaska Legislature and/or Real Estate Commission (REC)
Compatibility Benefits	<ul style="list-style-type: none"> • Potential buyers are allowed an informed decision regarding airport-related impacts; however, disclosure of noise levels typically occurs at or near closing, after the potential buyer has committed substantial time and effort to the purchase. • There are approximately 3,700 existing residences within the existing 1997 DNL 60 dB and greater noise contours. Potential home buyers would be alerted to aircraft noise levels upon consideration of purchasing an existing residence.
Implementation	<ul style="list-style-type: none"> • AIA adopts measure in AIA Part 150 Update NCP. • AIA works with Legislature to secure legislation and/or with REC to revise disclosure form.
Political Acceptability	<ul style="list-style-type: none"> • Developers may oppose measure due to potential negative effect on marketing residential developments.
Costs	<ul style="list-style-type: none"> • Administrative costs associated with changing Statute and disclosure form. • It is likely that decreasing the number of potential buyers by eliminating those considering noise to be a significant issue would have some impact on property value, although experience with appraisal of aviation easements at other airports indicates that this effect is slight.
Conclusion	This potential measure was not recommended in 1987 because it would have required new legislation. Alaska had no residential real estate disclosure law at that time. The existing real estate disclosure law was passed in the early 1990s. This measure would clarify airport noise as one of the issues that must be addressed on the real estate disclosure form. This measure is recommended.

Table 6.17 Reconsidered Measure - Capital Improvements Programming

Source: HNTB Analysis

Measure: Capital Improvements Programming	
Description: Avoid investments in public facilities which would facilitate noise sensitive development. This technique involves the use of the CIP to withhold public investment in order to deter non-compatible uses or to program such investments in order to foster noise-compatible uses.	
Area to which measure would be applied	Undeveloped areas in the existing 1997 DNL 60 dB and greater contours shown in Figure 6.2.
Responsible Agency	MOA
Compatibility Benefits	Limitations on new non-compatible development in currently undeveloped areas. Analysis of residential development potential in the existing 1997 DNL 60 dB contour indicates that roughly 70% of the new residential development potential would occur on parcels averaging less than 3 acres, while the remaining 30% would occur on parcels of 1 acre or less. The relatively small size of these parcels and the presence of surrounding development indicates that the potential for this measure is limited.
Implementation	<ul style="list-style-type: none"> • AIA adopts measure in AIA Part 150 Update NCP. • MOA revises the CIP to provide infrastructure expected to encourage compatible development while avoiding the extension of urban services and transportation to areas expected to develop in residential or other noise sensitive uses.
Political Acceptability	<ul style="list-style-type: none"> • Residential property owners and/or developers may oppose the measure due to reduced development potential. • Neighboring residents may oppose infrastructure intended to encourage non-compatible development if it would change the character of the neighborhood. • Surrounding residents may support decreased development potential resulting from lack of new infrastructure.
Costs	<ul style="list-style-type: none"> • MOA administration. • Reduced market value of properties involved due to reduced development potential.
Conclusion	This potential measure was not recommended in 1987; it was found to be an unnecessary and redundant measure because all capital improvement items must be in conformance with the comprehensive plan. There is no evidence that changed conditions require reconsideration of this recommendation. Analysis of new residential development potential indicates that the benefits of this measure would be minimal. In addition, public improvements which encourage compatible development would also encourage non-compatible development. Accordingly, this measure is not recommended.

Table 6.18 Reconsidered Measure - Public Acquisition

Source: HNTB Analysis

Measure: Public Acquisition	
Description: Acquire noise impacted properties. This technique would purchase fee simple interest in real property by the airport proprietor in order to control its use for the purposes of achieving noise compatibility. Acquired property could be cleared or converted to compatible uses.	
Area to which measure would be applied	Since proposed changes in FAA policies would make new development ineligible for remedial noise compatibility funding, only existing residences within 1997 DNL 70 dB and greater are included.
Responsible Agency	AIA
Compatibility Benefits	Eliminates non-compatible land use within selected area. Approximately 80 existing dwellings with an estimated population of 190 may fall within the year 1997 DNL 70 dB and greater contours.
Implementation	<ul style="list-style-type: none"> • AIA adopts measure in AIA Part 150 Update NCP. • AIA identifies eligible areas in consultation with MOA.
Political Acceptability	<ul style="list-style-type: none"> • Potentially eligible areas are generally located within larger residential areas. The most feasible reuse of these areas would likely be airport expansion. Neighboring residents may oppose clearing or redevelopment of residential properties which could change the neighborhood. • Voluntary programs would result in a patchwork of vacant properties within established neighborhoods. • Mandatory (eminent domain) programs would likely relocate residents who do not desire to move.
Costs	<ul style="list-style-type: none"> • AIA cost of property acquisition and administrative costs of program administration. AIA costs may be eligible for 93.75% FAA funding if part of an approved Part 150 NCP, although actual levels may be less, depending upon availability of funds. • Reduction of MOA property tax base.
Conclusion	This potential measure was not recommended in 1987 because it was not considered to be commensurate with the relatively low level of residential land use impacts. There is no evidence that changed conditions require reconsideration of this recommendation. The limited number of residences within the 1997 DNL 70 dB and greater contours and the resultant impacts on surrounding residential areas indicate that this measure would involve substantial negative impacts for limited noise compatibility benefits. These areas will be addressed through the soundproofing program. Accordingly, this measure is not recommended.

Table 6.19 Reconsidered Measure - Guaranteed Purchase

Source: HNTB Analysis

<p>Measure: Guaranteed Purchase Description: Ensure fair market value to homeowners in noise impacted areas. This technique involves establishment of a program that guarantees noise-impacted homeowners that the airport proprietor will purchase eligible homes at fair market value when and if the owners are unable to sell their homes.</p>	
<p>Area to which measure would be applied</p>	<p>Since proposed changes in FAA policies would make new development ineligible for remedial noise compatibility funding, only existing residences within 1997 DNL 65 dB and greater contours are assumed to be included.</p>
<p>Responsible Agency</p>	<p>AIA</p>
<p>Compatibility Benefits</p>	<ul style="list-style-type: none"> • Provides opportunities for more noise sensitive residents to relocate while maintaining the stability of established neighborhoods. Assuming that all single- and multi-family residences within the 1997 DNL 65 dB and greater contours are eligible, approximately 591 single-family residences, 54 multi-family residences with an estimated population of over 1,500 could be included. • Sound insulation and aviation easements are typically applied to acquired properties.
<p>Implementation</p>	<ul style="list-style-type: none"> • AIA adopts measure in AIA Part 150 Update NCP. • AIA identifies eligible areas in consultation with MOA and establishes eligibility requirements.
<p>Political Acceptability</p>	<p>If other factors contribute to the inability to sell properties, the availability of this measure could lead to rapid residential turnover, causing neighborhood instability.</p>
<p>Costs</p>	<ul style="list-style-type: none"> • AIA costs of initial acquisition would be largely offset by resale. • At Minneapolis, insulation costs amount to roughly \$17,000 per dwelling unit, management costs might bring the total to \$21,000 per residence. If all potentially eligible properties participated, total costs would be roughly \$13.5 million. AIA costs may be eligible for 93.75% FAA funding if part of an approved Part 150 NCP, although actual levels may be less, depending upon availability of funds. • AIA program administration costs. • Temporary reduction in MOA property taxes while properties are in state ownership.

Conclusion	This potential measure was not recommended in 1987 because it was not considered to be commensurate with the relatively low level of residential land use impacts and the strong fluctuations in the Anchorage real estate market making it difficult to determine the reasons for lack of sale. This measure involves extensive efforts in managing the transfer of property. Since concerns about the ability of the program to achieve the goal of maintaining neighborhood stability remain, this measure is not recommended.
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Table 6.20 Reconsidered Measure - Noise Easement Acquisition

Source: HNTB Analysis

Measure: Noise Easement Acquisition Description: Purchase aviation easements from noise impacted property owners. This technique involves the purchase of noise easements by the airport operator, usually over developed properties.	
Area to which measure would be applied	Since proposed changes in FAA policies would make new development ineligible for remedial noise compatibility funding, only existing residences within 1997 DNL 65 dB and greater contours are assumed to be included.
Responsible Agency	AIA
Compatibility Benefits	<ul style="list-style-type: none"> • Provides protection for airport sponsor from litigation due to airport operation. Assuming that all single and two family residences within the 1997 DNL 65 dB and greater contours are eligible, approximately 591 residences with an estimated population of 1,365 could be included. • Notifies potential new buyers of noise environment. • Current FAA policy on valuation of aviation easement is based on the effect of the <u>easement</u> on property value, not the effect of noise. Accordingly, this measure would not compensate for noise impact, but for the increased difficulty of marketing property encumbered by the easement itself.
Implementation	<ul style="list-style-type: none"> • AIA adopts measure in AIA Part 150 Update NCP. • AIA identifies eligible areas and establishes eligibility requirements.
Political Acceptability	Low valuation of the easement limits the attractiveness of this technique for property owners.
Costs	<p>Limited FAA experience at other airports indicates that easements might be assessed at \$500 to \$1000 per residence. If all potentially eligible properties participated, total costs would be roughly \$362,000 to \$724,000. AIA costs for the actual easements may be eligible for 93.75% FAA funding if part of an approved Part 150 NCP, although actual levels may be less, depending upon availability of funds.</p> <ul style="list-style-type: none"> • AIA would be responsible for the appraisal and acquisition costs of easement. • AIA program administration costs.
Conclusion	This potential measure was not recommended in 1987 because it was not considered to be commensurate with the relatively low level of residential land use impacts. The low valuation of easement limits the attractiveness of this measure and the potential for significant community noise benefit. Accordingly, this measure is not recommended.

Table 6.21 Reconsidered Measure - Development Rights

Source: HNTB Analysis

Measure: Development Rights Description: Acquire right to develop noise sensitive uses, leaving property owner with the ability to use the property for other uses. This technique involves the purchase of an interest in the privately-owned land which permits the airport proprietor to prohibit any and all uses of the land which could be adversely impacted by aircraft noise.	
Area to which measure would be applied	Since proposed changes in FAA policies would make new development ineligible for remedial noise compatibility funding, only vacant residential property within the 1997 DNL 65 dB and greater contours would be eligible.
Responsible Agency	AIA
Compatibility Benefits	Acquisition of residential development rights for vacant residentially zoned properties within the year 1997 DNL 65 dB and greater contours could prevent the development of roughly 154 new residences with an estimated population of 354.
Implementation	<ul style="list-style-type: none"> • AIA adopts measure in AIA Part 150 Update NCP. • AIA identifies eligible areas and establishes eligibility requirements.
Political Acceptability	<ul style="list-style-type: none"> • Since the program would be voluntary and property owners would receive fair market value for development rights, little opposition would be anticipated. • Should the program result in development of non-residential uses in residential areas, some residents could oppose the measure.
Costs	<ul style="list-style-type: none"> • Cost of development rights for residential property would essentially equal the total acquisition costs, including appraisal costs. • AIA program administration costs.
Conclusion	This potential measure was not recommended in 1987 because it was not considered to be commensurate with the relatively low level of residential land use impacts. In the absence of other profitable uses for potentially residential property, the cost of purchasing residential development would equal the full price of the property. Examination of vacant residential properties within the 1997 DNL 65 dB and greater contours indicates limited potential for development in other uses. Prevention of residential development of non-residential properties could be accomplished more efficiently through other measures including public acquisition, conventional zoning, and overlay zoning. Eligibility of this program for FAA funding is questionable, and this measure would provide limited noise benefits. Accordingly, this measure is not recommended.

Table 6.22 Reconsidered Measure - Land Banking

Source: HNTB Analysis

Measure: Land Banking	
Description: Public acquisition of noise impacted property for future public use. This technique involves the fee-simple purchase of privately-owned, vacant land by a local public agency to prevent non-compatible land use development and to hold such property for later public use not necessarily related to aviation.	
Area to which measure would be applied	The measure could be applied to vacant residential properties in the existing 1997 DNL 65 dB and greater contours.
Responsible Agency	AIA and/or MOA
Compatibility Benefits	Acquisition of up to 37 acres of vacant residentially zoned property within the year 1997 DNL 65 dB and greater contours could prevent the development of roughly 154 new residences with an estimated population of 354. Acquisition of up to 114 acres of vacant residentially zoned property in the 1997 DNL 60 to 65 dB contour could prevent development of an additional 760 new residences with an estimated population of 1748.
Implementation	<ul style="list-style-type: none"> • AIA adopts measure in AIA Part 150 Update NCP. • AIA identifies acquisition areas in consultation with MOA. • AIA or MOA acquire land with FAA noise mitigation funds.
Political Acceptability	<ul style="list-style-type: none"> • Since the program would be voluntary and property owners would receive fair market value for development rights, little opposition would be anticipated from affected property owners. • Since potential public uses of acquired property must conform to the comprehensive plan and zoning ordinance as well as to land use compatibility guidelines the public sector may not want to purchase lands with limited use.
Costs	<ul style="list-style-type: none"> • AIA or MOA would use federal noise mitigation funds for property acquisition. Some administrative costs of program administration may be eligible for federal funding. Costs may be eligible for 93.75% FAA funding if part of an approved Part 150 NCP, although actual levels may be less, depending upon availability of funds. FAA participation would likely be limited to areas within the DNL 65 dB and greater contours. Since acquisition costs are greater than other measures typically employed at these noise levels, FAA participation may be further reduced on the basis of cost/benefit considerations. The program's cost/benefit ratio could be enhanced if Federal funds are leveraged with MOA and/or AIA investments. • Reduction of MOA property tax base.
Conclusion	This potential measure was not recommended in 1987 because it was not considered to be commensurate with the relatively low level of residential land use impacts. If noise compatible public facilities are needed in the airport environs, this technique could provide mutual benefits to the Airport and MOA. Accordingly, this measure is recommended.

Table 6.23 Reconsidered Measure - Soundproofing Program

Source: HNTB Analysis

<p>Measure: Soundproofing Program Description: Sound insulation of existing private homes and other noise sensitive uses such as churches and schools. This technique involves the airport operator funding of soundproofing of existing private homes and public uses such as schools. Avigation easements are typically obtained in return for property owner participation.</p>	
<p>Area to which measure would be applied</p>	<p>Since proposed changes in FAA policies would make new development ineligible for remedial noise compatibility funding, only existing residences within the 1997 DNL 65 dB and greater contours are assumed to be included.</p>
<p>Implementing Agency</p>	<p>AIA</p>
<p>Compatibility Benefits</p>	<ul style="list-style-type: none"> • Acceptable interior noise levels, insulation typically recommended to obtain interior levels of DNL 45 dB or less. • Avigation easement obtained through program would provide protection for airport sponsor from litigation due to airport operation. Assuming that all single- and multi-family residences within the 1997 DNL 65 dB and greater contours are eligible, approximately 645 residences with an estimated population of nearly 1,500 could be included. • Notifies potential new buyers of noise environment.
<p>Implementation</p>	<ul style="list-style-type: none"> • AIA adopts measure in AIA Part 150 Update NCP. • Pilot program normally required to establish appropriate construction techniques and eligibility of structures for soundproofing. • Construction programs are usually phased over many years.
<p>Political Acceptability</p>	<p>No opposition expected from affected property owners or other interests.</p>
<p>Costs</p>	<ul style="list-style-type: none"> • At Minneapolis, insulation program costs amount to roughly \$17,000 per dwelling unit. Inclusion of the administrative costs associated with an insulation program could raise the program costs to \$21,000 per unit. If all potentially eligible properties participated, total costs would be roughly \$13.5 million, assuming similar costs per unit. AIA costs may be eligible for 93.75% FAA funding if part of an approved Part 150 NCP, although actual levels may be less, depending upon availability of funds. • AIA cost of soundproofing construction. • AIA administration and program administration costs.

Conclusion	This potential measure was not recommended in 1987 because it was not considered to be commensurate with the relatively low level of residential land use impacts. Long-term noise contours indicate that existing noise impacted residences are likely to remain within the noise contours. This program benefits both residents and AIA and imposes no burdens on neighboring residences or the MOA. Accordingly, this measure is recommended.
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6.6.3 Potential New Land Use Measure

As noted on Table 6.7, the original AIA Part 150 Study recommended sound barriers and buffers as part of the proposed expansion of the Lake Hood Float Plane Base. This expansion was never implemented. During the current AIA Part 150 Update, it was determined that the use of sound barriers should be re-examined. A brief description of the new measure follows in Table 6.24.

Table 6.24 Reconsidered Measure - Sound Buffers/Barriers

Source: HNTB Analysis

Measure: Sound Buffers/Barriers Description: Combined use of sound barrier walls and/or berms and open space to reduce noise from aircraft-related noise for the communities surrounding AIA. This technique may be appropriate to consider in various areas affected by ground noise.	
Area to which measure would be applied	Areas at airport border adjacent to residential development, especially along the southern perimeter of AIA.
Responsible Agency	AIA
Compatibility Benefits	Reduced noise levels from ground operations for close-in residents. Specific benefits cannot be determined without design and acoustical analysis.
Implementation	<ul style="list-style-type: none"> • AIA adopts measure in AIA Part 150 Update NCP. • AIA conducts ground noise study to determine levels and potential buffer/barrier locations. • Barrier design, detailed acoustical analysis required to determine feasibility and benefits
Political Acceptability	Potential concern for visual impacts.
Costs	<ul style="list-style-type: none"> • Ground noise study estimated to cost \$180,000. Study costs may be eligible for 93.75% FAA funding. • Construction costs. • Potential property acquisition. • Specific cost estimates will require design data. AIA costs may be eligible for 93.75% FAA funding if part of an approved Part 150 NCP, although actual levels may be less depending upon availability of funds. FAA participation would likely be contingent on the potential effectiveness of the barriers and /or buffers in reducing community noise concerns. FAA did participate financially in the development of a landscaped noise berm serving as a public access "greenway" at Fort Lauderdale-Hollywood International Airport. • The potential for FAA funding participation might be enhanced if Federal funds are leveraged with MOA and/or AIA investments.
Conclusion	Since community concerns about ground noise are now evident in areas not addressed in the 1987 recommendations, this measure is recommended.

6.7 Land Use Recommendations

Table 6.25 summarizes the recommended land use program. This program consists of both existing and new measures described in the previous two sections. FAA approval will be required for recommended new measures. It should be noted that, as in the past, implementation of recommended land use controls will depend upon decisions made by the MOA regarding the practicality and legality of specific measures. Implementation of other measures will depend upon the availability of Federal funding under the FAA AIP.

Table 6.25 Summary of Recommended Land Use Measures

Source: HNTB

Measure	Noise Compatibility Benefits	FAA Action Required
Compatible Use Zoning	Would prohibit new residential development in non-residential zoning districts within the 1997 DNL 60 dB and greater contours.	Existing measure modified to apply to existing rather than future DNL 60 dB and greater contours. No new FAA approval required.
Mobile Home and Camper Park Restrictions	Would preclude development of especially noise sensitive residential uses in the 1997 DNL 60 dB and greater contours.	Existing measure modified to apply to existing rather than future DNL 60 dB and greater contours. No new FAA approval required.
Soundproofing Requirement for New Development	Would ensure that new residential development within the 1997 DNL 60 dB and greater contours provides acceptable interior noise levels.	Existing measure modified to apply to existing rather than future DNL 60 dB and greater contours. Measure also modified to allow flexibility on how to achieve an acceptable interior noise level. FAA approval required.
Noise Levels on Plats	Would provide notice to future property owners in new residential subdivisions within 1997 DNL 60 dB and greater contours.	Existing measure modified to apply to existing rather than future DNL 60 dB and greater contours. No new FAA approval required.
Comprehensive Planning	Would provide policy guidance for all types of future development within 1997 DNL 60 dB and greater contours as well as increased awareness of noise environment for the real estate and development communities and members of the public.	Existing measure, no new FAA approval required.

Table 6.25 Summary of Recommended Land Use Measures (cont.)

Source: HNTB

Measure	Noise Compatibility Benefits	FAA Action Required
Planning Commission Review	Would provide policy guidance for consideration of all types of proposed development within the 1997 DNL 60 dB and greater contours.	Existing measure modified to apply to existing rather than future DNL 60 dB and greater contours. No new FAA approval required.
Public Land Development Criteria	Would provide policy guidance for development of public uses within the 1997 DNL 60 dB and greater contours.	Existing measure modified to apply to existing rather than future DNL 60 dB and greater contours. No new FAA approval required.
Noise Overlay Zone	Would enhance implementation of other measures such as conventional zoning, limitations on conditional use permits, and subdivision regulations. Would also enhance ability of potential property purchasers to make informed decision.	New measure, FAA approval required.
Fair Disclosure Policy	Would enhance ability of potential property purchasers to make informed decision. As many as 2,000 potential new residents in the 1997 DNL 60 dB could benefit.	New measure, FAA approval required.
Land Banking	Could enhance the ability of AIA and/or MOA to establish compatible public uses on vacant properties within 1997 DNL 65 dB contour.	New measure, FAA approval required. Approval of any Federal funding would be contingent upon demonstrated benefits of specific proposals.
Soundproofing for Existing Development	Would establish noise insulation program to ensure acceptable interior noise levels for existing residences within the 1997 DNL 65 dB and greater contours. As many as 645 dwellings could be eligible.	New measure, FAA approval required. Approval of any Federal funding would be contingent upon demonstrated benefits of specific proposals.
Sound Buffers/Barriers	Could provide noise level reduction for residential areas immediately adjacent to AIA.	New measure, FAA approval required. Approval of any Federal funding would be contingent upon demonstrated benefits of specific proposals.

7. PUBLIC INVOLVEMENT

The State DOT and PF conducted this entire AIA Part 150 Update with extensive consultation with members of the public, including airport users, fixed base operators, pilots, potentially affected residents of the airport environs, and local, state, and federal officials. The public involvement process exceeded Part 150 requirements.

The State DOT and PF and its consultants used five principal mechanisms in pursuing these external consultations:

- the TAC meetings, including written background material and public presentations;
- a final TAC briefing, with a public hearing opportunity;
- public workshops covering all elements of the study;
- a public information campaign that included newspaper inserts, direct mailings, and coverage in the local media; and
- consultation throughout the study process with the MOA which has jurisdiction over land use in the airport environs, and the FAA which has jurisdiction over aircraft in flight.

The NEM documentation included a summary of the public involvement processes conducted during that phase of the study. The NCP public involvement built on that earlier consultation. The relevant NEM documentation (Chapter 8 of that volume) is incorporated here by reference.

7.1 Technical Advisory Committee Process

The State DOT and PF established the TAC to provide input into the conduct of this study and AIA's recommendations. Appendix B lists the invited TAC membership. All meetings of the TAC were: held in an open meeting format with an opportunity for public comment, advertised in the Anchorage Daily News, and discussed in mailings to concerned citizens and Community Councils. The TAC met ten times during the AIA Part 150 Update. The meeting dates and topics are provided in Table 7.1 below.

Copies of the sign-in sheets, meeting minutes, and advertisements of the first nine TAC meetings as well as comment sheets and letters received from the public during the study are included as appendices to the NEM document and are incorporated by reference. Materials associated with the final TAC meeting and public hearing are included in Appendix C.

Table 7.1 TAC Meeting Dates and Topics During the AIA Part 150 Update

Date	NCP Update Topic
May 4, 1995	Study kickoff meeting. Review of the: AIA Part 150 Update process, TAC role and responsibilities, noise measurement program, and study issues. Opportunity for public comment.
September 20, 1995	Discussion aircraft noise terminology and review of summer measurement results. Opportunity for public comment.
March 20, 1996	TAC meeting plus workshop. Summer/winter noise measurements, draft Noise Exposure Maps, land uses affected by noise, ways to measure noise, options to address noise issues, how the airport operates, and individual noise problems. Opportunity for public comment.
June 6, 1996	Criteria for adopting noise abatement measures, relative impacts of different operating modes and suggestions for noise abatement measures. Opportunity for public comment.
September 25, 1996	FAA presentation on Anchorage Bowl Airspace, pilot presentations on aircraft operational issues, TAC discussion and refinement of noise abatement measures.
November 19, 1996	Potential land use planning measures were discussed. Opportunity for public comment.
April 10, 1997	Discussion of the operational analysis for the preferred noise abatement alternatives. Operational measures recommended for implementation were discussed. Operational measures not recommended for implementation were also discussed. Opportunity for public comment.
January 22, 1998	Update on the status of the study and GA noise issues. Opportunity for public comment.
May 27, 1998	A discussion of the analysis of the Runway 6R departure early turn/NADP operational measure and noise exposure maps. Opportunity for public comment.
February 9, 1999	Final meeting. Presentation of the recommended NCP. Public workshop. Public Hearing.

7.2 Final State DOT and PF Briefing and Public Hearing

On February 9, 1999, the State DOT and PF staff and HMMH presented the draft revised NCP to the public at a combination final TAC meeting, public workshop, and public hearing, which afforded full opportunity for public comment. Copies of the AIA NEM and the draft revised NCP were available for public review prior to that meeting. A copy of all comments received, both at the meeting and over the course of the review process, and the State DOT and PF's response to those comments are included in Appendix C.

7.3 Other Public Consultation

In addition to the items discussed above, AIA staff conducted AIA Part 150 Update-related briefings to interested Community Councils throughout the course of the update process including the Spenard, Turnagain, Sand Lake, and Taku Campbell Community Councils. AIA staff also made presentations to the MOA Planning and Zoning Committee and Assembly during the study.

APPENDIX A: FAA Record of Approval on Original AIA Part 150 Study Noise
Compatibility Program





U.S. Department
of Transportation
**Federal Aviation
Administration**

Alaskan Region

701 C Street, Box 14
Anchorage, Alaska
99513

NOV 18 1988

Mr. Doyle C. Ruff, Manager
Anchorage International Airport
P.O. Box 190204
Anchorage, Alaska 99519-0204

RECEIVED
NOV 22 1988
Anch. Int'l Airport

Dear Mr. Ruff:

Anchorage International Airport
Approval FAR Part 150, Noise Compatibility Plan

We have evaluated the noise compatibility program for the Anchorage International Airport (ANC) contained in the Anchorage International Airport Federal Aviation Regulations (FAR) Part 150 Aircraft Noise Compatibility Study and related documents (includes addendum 1 dated February 12, 1988) submitted to this office under the provisions of Section 104(a) of the Aviation Safety and Noise Abatement Act of 1979. The recommended noise compatibility program proposed by the State of Alaska is identified by action element on pages 8-25 through 8-27 in the Noise Compatibility Program volume of the study. I am pleased to inform you the Administrator has approved all proposed action elements in the noise compatibility program except, aviation noise abatement measures 3, 4 and 5. Measure 3 (limitation of the number of aircraft in the Lake Hood traffic patterns by holding incoming traffic at Pt. Mackenzie) relates to flight procedures under provisions of 104(b) for which no action is required at this time, since it does not identify a demonstrative noise benefit, and can only be predicated on completion of an FAR Part 93 airspace review requested by you. Measure 4 (displacement of the east end threshold of the east/west waterlane) relates to flight procedures under provisions of 104(b) for which no action is required at this time, since Measure 4 is predicated on Measure 3 and does not indicate any demonstrative noise benefit. Measure 5 (restriction of touch-and-go training operations at the Lake Hood complex) is disapproved from an FAR Part 150 viewpoint due to lack of identified, specific noise benefits above the 65 Ldn contour. Our specific action for each noise compatibility program element is set forth in the enclosed Record of Approval. The effective date of this approval is October 11, 1988.

Each airport noise compatibility program developed in accordance with FAR Part 150 is a local program, not a federal program. We do not substitute our judgment for that of the airport proprietor with respect to which measures should be recommended for action. Our approval or disapproval of FAR Part 150 program recommendations is measured according to the standards expressed in FAR Part 150 and the Aviation Safety and Noise Abatement Act of 1979 and is limited to the following determinations:

- a. The noise compatibility program was developed in accordance with the provisions and procedures of FAR Part 150.

b. Program measures are reasonably consistent with achieving the goals of reducing existing noncompatible land uses around the airport and preventing the introduction of additional noncompatible land uses.

c. Program measures would not create an undue burden on interstate or foreign commerce, unjustly discriminate against types or classes of aeronautical uses, violate the terms of airport grant agreements, or intrude into areas preempted by the federal government.

d. Program measures relating to the use of flight procedures can be implemented within the period covered by the program without derogating safety, adversely affecting the efficient use and management of the navigable airspace and air traffic control systems, or adversely affecting other powers and responsibilities of the Administrator prescribed by law.

Specific limitations with respect to our approval of an airport noise compatibility program are delineated in FAR Part 150, Section 150.5. Approval is not a determination concerning the acceptability of land uses under federal, state, or local law. Approval does not by itself constitute an FAA implementing action. A request for federal action or approval to implement specific noise compatibility measures may be required, and our decision on the request may require an environmental assessment of the proposed action. Approval does not constitute a commitment by the Federal Aviation Administration (FAA) to financially assist in the implementation of the program, nor a determination that all measures covered by the program are eligible for grant-in-aid funding from the FAA under the Airport and Airway Improvement Act of 1982. Where federal funding is sought, requests for project grants must be submitted to this office.

The FAA will publish a notice in the Federal Register announcing approval of this noise compatibility program. You are not required to give local official notice, although you may do so if you wish.

Completion and approval of your noise compatibility program is a major accomplishment, one which the state should be proud of. The program is a blueprint presenting the means for the state to achieve its goal of reducing or eliminating noncompatible land uses around the airport. As with all plans, we encourage the state to periodically review and update the program as necessary to reflect changes in the airport or its environment.

Again, congratulations on your approved FAR Part 150 noise compatibility program! We look forward to working with you on implementation of the program.

Sincerely,



Russel S. Matkaway
Manager, Airports Division



U.S. Department
of Transportation
Federal Aviation
Administration

Memorandum

Subject: ACTION: Recommendation for Approval of the
Anchorage International Airport Noise
Compatibility Program

Date: SEP 9 1988

From: Manager, Airports Division, AAL-600

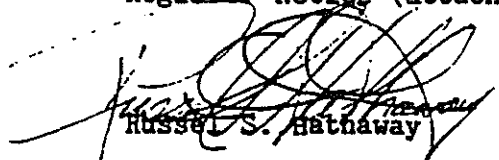
Reply to
Attn of:

To: Administrator, AOA-1

On April 14, 1988, a notice was published in the Federal Register announcing that Federal Aviation Administration (FAA) is reviewing a proposed noise compatibility program submitted for Anchorage International Airport (ANC) under Section 104(a) of the Aviation Safety and Noise Abatement Act of 1979 ("the Act"). This program was submitted subsequent to a determination by the FAA that associated noise exposure maps submitted under Section 103(a) of the Act for Anchorage International Airport were in compliance with applicable requirements effective January 22, 1987. Coincident with the April 14, 1988 notice, we began the formal 180-day review period for ANC's proposed noise compatibility program under the provisions of Section 104(a) of the Act. That program must be approved or disapproved as provided for in Section 104(b) of the Act. The last date for such approval or disapproval is October 11, 1988.

We have reviewed and evaluated the proposed noise compatibility program and have concluded that it is consistent with the intent of the Act and that it meets the standards set forth in FAR Part 150 for such programs. The requirements of Part 150 were itemized in a checklist (attachment 1) which was used to ensure that all required items were present in the proposed program. Our recommendations on each of these proposed actions are described in the Record of Approval (attachment 2). Each proposed action is described in detail in the Anchorage International Airport Part 150: Airport Noise Compatibility Program Report (attachment 3). The checklist, record of approval and documentation submitted by ANC were reviewed by Airports, Air Traffic, and Flight Standards Divisions and by the Regional Counsel. No substantive comments have been received from other participants in the study nor from other interested parties. Each proposed action in ANC's proposed noise compatibility program was then reviewed and evaluated on the basis of effectiveness and potential conflict with Federal policies and prerogatives. These include safe and efficient use of the nation's airspace and undue burden on interstate commerce.

Based on the evaluation procedure described above, we recommend the approval of the program elements (listed in the Record of Approval). Please have appropriate headquarters personnel review the draft Federal Register Notice (attachment 4


Russell S. Hathaway
3 Attachments

Concur	Nonconcur		Date
<u>X</u>	_____	<u>Paul L. Galis</u> for: Associate Administrator for Airports,	<u>9/21/88</u>
<u>X</u>	_____	<u>Benjamin Dennis Jr.</u> Associate Administrator for Policy and International Aviation, API-1, <i>Actg.</i>	<u>9-26-88</u>
<u>✓</u>	_____	<u>Gregory S. Walde</u> Chief Counsel, AGC-1	<u>10/6/88</u>
Approved	Disapproved		
<u>X</u>	_____	<u>Alan Keaton</u> Administrator, AOA-1	<u>10/11/88</u>

Record of Approval
Anchorage International Airport
Noise Compatibility Program
August 31, 1988

Introduction:

The State of Alaska, Department of Transportation and Public Facilities (DOT/PF), Anchorage International Airport, sponsored an update of their Airport Master Plan and the development of a Noise Compatibility Planning study. Federal participation through the AIP program was limited to development of the noise compatibility program. Both planning efforts were accomplished concurrently. However, the noise exposure maps (NEM's) were developed and submitted prior to completion of the noise compatibility program.

The Anchorage International Airport noise exposure maps were determined to be in compliance with applicable requirements on January 22, 1987. The noise exposure map identified a total 1986 population of 1,018 or 676 level-weighted population (LWP) inside the Ldn 65 contour, the 1991 and 2006 total and LWP populations forecasts equal 1,170/771 and 290/181 within the unabated 65 Ldn contour respectively. The rate of change in fleet mix from stage II to stage III aircraft is the driving factor resulting in the reduced impact levels forecasted. The basis for the slight population increase in 1991 is primarily attributed to a very minor change in fleet mix and a normal population growth within existing residential areas. The major 2006 reduction is attributed to complete integration of stage III aircraft into the system.

Noise abatement alternatives assessed in the noise compatibility plan (NCP) were broken into two categories: (a) aviation noise alternatives, and (b) land use management alternatives. The sponsor, community, and FAA's roles are identified in table 8F, page 8-31, under the alternatives by each action necessary for implementation. Based on the technical evaluation and comments received through the review process, a 16-point Noise Compatibility Program has been recommended (pages 8, 27, 28, 29) by the State of Alaska, DOT/PF, Anchorage International Airport (ANC). The items listed in this record of approval constitute the NCP for ANC and can be found on the referenced pages of the Anchorage International Airport Noise Compatibility Program report. This document recommends approval of the 13 new alternative actions and 2 no actions, as well as disapproval of one recommendation.

The recommendations below summarize as closely as possible the airport operator's recommendations in the noise compatibility program and are cross-referenced to the program.

Program Elements (Aviation):

1. Maximize nighttime preferential runway use of runway 32, supplemented by preferential use of runway 24L. (Pages 8-25)

APPROVED: This alternative is basically a refinement, altered to permit or allow nighttime departures into the arrival stream when traffic and weather permits, of the existing preferential runway use program. The alternative reduces noise impacts to the east of ANC. This program is initiated by the sponsor and implemented by ATCT. The analysis indicates a significant decrease in 1991 population impacts within the 60 Ldn contour from 9947 to 3735 (pages 6-18). This alternative can be implemented readily with only minor costs.

2. Adopt and incorporate AC 91-53 and NBAA's close-in departure procedures by amending the Anchorage nine SID and canceling the Knik three SID. (Pages 8-25)

APPROVED: This alternative incorporates accepted departure thrust outbacks annotated in AC 91-53 and NBAA's guideline procedures into the Anchorage nine SID as well as the cancellation of the Knik three SID. The Knik three SID addresses runway 6 departures and allows a left or north turn over the heart of Anchorage. Cancellation of the SID will necessitate a 270 degree turn to the right for north departures from runway 6. Under this alternative there would be a 1991 population of 3,620 persons within the 60 Ldn contour, less than 30 people would reside within the 65 Ldn contour, and no people would be exposed to noise above 70 Ldn (pages 6-21). Implementation costs are limited to administrative efforts and user operational costs.

3. Traffic Separation. (Pages 8-25)

No action required at this time. This measure relates to flight procedures under provisions of 104(b). This proposed action will control the size of the Lake Hood strip and seaplane base traffic patterns by limiting the number of aircraft in the pattern. As a result, this proposal can reduce the community noise impacts. However, no demonstrative noise benefit has been identified or shown to occur. In addition, Lake Hood traffic is but one component of the encompassing FAR Part 93 airspace. Traffic separation procedures for Lake Hood/Spennard are predicated on completion of a Part 93 airspace review and a request by the sponsor that FAA conduct such a review. Implementation costs for the most part will be limited to FAA administrative costs associated with an airspace study.

4. Displace threshold at east end of east/west waterlane. (Pages 8-25)

No action required at this time. This measure relates to flight procedures outlined under provisions of 104(b) and, specifically,

implementation of traffic separation procedures, item 3 above. This alternative provides for the displacement of the east threshold of the east/west waterlane approximately 1,000 feet to the west. In theory this operational change will keep landing aircraft higher, thereby increasing the distance between the noise source and the receiver. The concept is reasonably sound; however, when traffic permits all of the commercial operators and half of the based aircraft (all Lake Hood and the western half of the fingers) now land as this alternatives would require. Only aircraft based in Lake Spenard and the eastern half of the fingers would be affected. In order to have any effectiveness, the maximum size of the traffic pattern must be controlled; thereby eliminating aircraft east of Lake Spenard between 50 and 65 Ldn. However, the extent of effectiveness in terms of noise benefit has not been demonstrated.

5. Restrict touch-and-go training operations at the Lake Hood complex. (Pages 8-25)

Disapproved. This item is disapproved from a Part 150 viewpoint due to the lack of identified, specific noise benefits above the 65 Ldn contour.

Program Elements (Land Use Management):

Although we recommend and approve the following land use management technique we are unsure of ultimate implementation since the Municipality of Anchorage (MOA) has the only implementation capability. The MOA was represented on the technical committee; however, they did not participate in the process and, therefore, provided little direct input. As a result of FAA's request for official MOA comments the Department of Community Planning responded on November 24, 1987, with clarifications and questions. The Mayor's office is also now on record as of December 29, 1987, generally concurring with the recommendations on land use management articulated in the NCP (Addendum 1). As of yet, however, the Airport Master Plan and Part 150 Noise Study have not been adopted by the Anchorage Planning and Zoning Commission and the Municipal Assembly.

Dialogue between the sponsor and the MOA has been reestablished. and the hope is that a coordinated and tailored implementation process will result. The NCP now contains MOA acknowledgement and conceptual agreement with the recommendations contained therein. We believe the inability to keep the MOA continuously involved in the planning process is a short coming of this plan. No federal funding is involved in the land use management recommendations.

6. Compatible Use Zoning: (Pages 8-14, 8-26)

APPROVED: This alternative recommends that the MOA establish a firm policy against rezoning or authorizing conditional uses for any new development of residences of any type, when such land lies within the present or future Ldn 60 contour of Anchorage International

Airport. This recommendation represents good noise planning and as such is not measurable. Implementation costs are limited to MOA administrative costs.

7. Mobile Home and Camper Park Restrictions: (Pages 8-14, 8-26)

APPROVED: This alternative recommends that the MOA establish a firm policy against rezoning or authorizing conditional uses for any new development of mobile home structures and camper parks within the present and future Ldn 60 contour. As with item 6 above action and cost is limited to the MOA.

8. Soundproofing: (Pages 8-15, 8-26)

APPROVED: This alternative recommends that the MOA establish a noise plan that would require new multi or single family residences in the airport's present and future Ldn 60 contours to be equipped with a forced air circulation system with a "continuous on" switch to permit operation your round and capability of a complete air exchange in the home twice each hour and a 20 percent change of fresh air every hour. Although this alternative would clearly reduce noise impacts within the Ldn 60 contour interval, we believe that the alternative will be difficult to achieve. All action and implementation cost is limited to the MOA.

9. Easements: (Pages 8-15, 8-26)

APPROVED: This alternative recommends that the MOA establish and adopt as part of their subdivision platting review process, a standard aviation noise easement for all residential subdivisions in the airport's present and future Ldn 60 contour. All action and implementation cost is limited to the MOA.

10. Noise Levels on Plats: (Pages 8-16, 8-26)

APPROVED: This alternative recommends that the MOA establish and adopt as part of their subdivision platting review process, a standard requirement for noise levels to be noted on plats of all new residential subdivisions or land uses involving residential structures within the airport's present and future Ldn 60 contours. The primary purpose of this alternative is to advise and inform potential home buyers of the appropriate years noise levels. All action and implementation cost will be borne locally without federal funding.

11. Comprehensive Planning: (Pages 8-16)

APPROVED: This alternative recommends that the MOA officially adopt the Updated Airport Master Plan and Part 150 Noise Compatibility Program for the Anchorage International Airport and amend the Anchorage Bowl Comprehensive Plan accordingly. Again all action and implementation cost will be borne locally without federal funding.

12. Planning Commission Review: (Pages 8-16, 8-26)

APPROVED: The Planning Commission should adopt the noise compatibility planning criteria as outlined and the guidelines for land use compatibility review provided in table 8D for use in all planning activities pertaining to areas within the airport's present and future Ldn 60 contours.

13. Public Land Development Criteria: (Pages 8-23, 8-26)

APPROVED: The Municipality of Anchorage (MOA) should adopt a policy pertaining to the use of public land adjacent to Anchorage International Airport as outlined in the plan.

Anchorage International Airport's Six Year Capital Improvement Program identifies projects necessary for the development of the Lake Hood segment and the first preapplication for federal funding has been submitted.

Upon completion of planned and recommended redevelopment of the Lake Hood floatplane basin and relocation and reconstruction of the Lake Hood runway, conditions of noise exposure would change enough to stimulate additional noise abatement actions. The following implementing actions would trigger additional noise mitigation in airport and land use management program elements.

14. Preferential Runway Use Program-Lake Hood: (Pages 8-27)

APPROVED: Upon completion of the new Lake Hood waterway 14/32, the airport sponsor should request the implementation of a waterway use program designating departures on waterway 32 as preferred for calm wind (less than 4 knots) conditions. The program should further address preferential use of westerly arrivals on the east/west waterlane for floatplane operations in order to enhance operating capacity on the water surfaces. Implementation would require a sponsor request of the ANC ATCT. Implementation costs would be limited to sponsor and agency administration associated information, communication and publication.

15. Noise Barrier Walls and Berms: (Pages 8-17, 8-27)

APPROVED: The sponsor and the MOA should jointly adopt a standard design for a noise barrier wall and berm to be constructed between the revised Lake Hood floatplane facility and neighborhoods to the northeast. The airport should incorporate such construction into the floatplane development project. Project development cost is expected to be borne by the AIP grant program. Total estimated cost equals \$1,764,000 or \$212/lf. An option would be a 14-foot high berm with a 6-foot high fence estimated to cost approximately 25% less. Mitigation resulting from this item would be limited to surface generated noise.

16. Sound Buffer: (Pages 8-23, 8-27)

APPROVED: This item is a MOA follow on option to item 15 above. The MOA should determine the recreation facility to be incorporated into the sound buffer area and provide a general plan of the developed buffer area to the airport so that any required grading and vegetation be incorporated into berm construction. Program costs would be borne by the MOA.

The approvals listed herein include approvals of actions that the airport recommends be taken by the Federal Aviation Administration. It should be noted that these approvals indicate only that the actions would, if implemented, be consistent with the purposes of Part 150. These approvals do not constitute decisions to implement the actions. Later decisions concerning possible implementation of these actions may be subject to applicable environmental or other procedures or requirements.

APPENDIX B: TAC Membership



**FAKI 100 WUISE SIUDI UFDIAE
TECHNICAL ADVISORY COMMITTEE**

April 9, 1998

NAME

COMMUNITY COUNCIL REPS

PETER BRADSHAW
FRANK WINCE
BART MCRORIE
WILL WALKER
DICK TRAINI
LAURIE KOZISEK
GARY HOFF
ANDY HALL
DIANE ETTER
ERIC MUSSER

SANDLAKE COMMUNITY COUNCIL
TURNAGAIN COMMUNITY COUNCIL
TAKU-CAMPBELL COMMUNITY COUNCIL
SPENARD COMMUNITY COUNCIL
CAMPBELL PARK COMMUNITY COUNCIL
BAYSHORE-KLATT COMMUNITY COUNCIL
OLD SEWARD/OCEANVIEW COMMUNITY COUNCIL
ABBOTT LOOP COMMUNITY COUNCIL
TUDOR COMUNITY COUNCIL
ROGERS PARK COMMUNITY COUNCIL

COMMUNITY GROUPS

BOB BAILEY
GREG WOLF

ANCHORAGE CHAMBER OF COMMERCE
ANCHORAGE ECONOMIC DEVELOPMENT CORP

LAKE HOOD AVIATION GROUPS

JOHN PRATT
TOM WARDLEIGH/JENNY HYATT
ROBERT SUTHERLIN
DAVE KLOSTERMAN
TOM NOBLE

AK SEAPLANE PILOTS ASSOCIATION
AK AVIATION SAFETY FOUNDATION
AK AIRMEN'S ASSOCIATION
AK BUSH CARRIERS
KETCHUM AIR SERVICE

INTERNATIONAL AIRPORT

GROUPS

BUTCH HALFORD
JIM ANTISDEL
BETTE ROSS
NEIL BENNETT
TERRY SMITH
WILLIAM S. WOOLEN JR
CHUCK JOHNSON
W. FRED PETERS
MARK CROSSMAN
SVEN HOLM
TOM GUMMER
ED LEWIS

ALASKA AIR CARRIERS ASSOCIATION
AIRLINE PILOTS ASSOCIATION
ANCHORAGE AIR CARGO ASSOCIATION
AIR TRANSPORTATION ASSOCIATION
ALASKA AIRLINES
ALASKA HELICOPTERS
ERA HELICOPTERS
FEDERAL EXPRESS
IASCO
NORTHWEST AIRLINES INC
UPS
UNITED AIRLINES FLT. OPS SF0-FO

AGENCIES

PATTI SULLIVAN
WILLIAM CHORD
CLARENCE GOWARD
BEV SINNOTT
JERRY WEAVER
EARL KORNTA
CAPT. TIM PETRISHEN

FAA - AIRPORTS DIVISION
FAA - AIR TRAFFIC CONTROL TOWER
FAA - AIR TRAFFIC DIVISION
NATL. AIR TRAFFIC CONTROLLERS ASSOCIATION
MUNICIPALITY OF ANCHORAGE
MOA/MERRILL FIELD
ELMENDORF AIR FORCE BASE
KULIS AIR NATIONAL GUARD

MAJOR JOHN JACOBS

PRINCIPAL CONSULTING STAFF

STEVE ALVERSON
KIM HUGHES

HARRIS MILLER MILLER & HANSON
HNFB

REPRESENTING

CONTACT ADDRESS

4139 RASPBERRY ROAD
2414 DOUGLAS DRIVE
7011 CHAD STREET
4206 NORTHWOOD DRIVE
2020 DIMOND DRIVE
12220 SKYWAY DRIVE
820 HARBOR CIRCLE
7139 STELLA PLACE
1550 CRESCENT DRIVE
1707 EAST 27TH AVENUE

PO BOX 91598
550 WEST 7TH AVE SUITE 1130

1557 SUNRISE DRIVE
4340 POSTMARK DRIVE
2901 WILL RODGERS PLACE
4501 AIRCRAFT DRIVE
PO BOX 190588

929 EAST 81st #108
5308 SHORECREST DRIVE
4750 W INT'L AIRPORT RD
8939 S SEPULVEDA BLVD SUITE 408
9761 ARLENE DRIVE
5410 W DIMOND #4
6160 CARL BRADY DRIVE
6050 ROCKWELL AVENUE
PO BOX 190949
SEA-TAC INT'L AIRPORT FLT OPERATIONS
6200 LOCKHEED AVE
SAN FRANCISCO INTL. AIRPORT

222 WEST 7TH AVE BOX #14
5200 W INT'L AIRPORT ROAD
222 WEST 7TH AVE BOX #14
PO BOX 190541
PO BOX 196650
2515 A STREET
611 AOG/DOUU
5800 G ST. #102
5005 RASPBERRY ROAD

ANCHORAGE AK 99513
ANCHORAGE AK 99502
ANCHORAGE AK 99513
ANCHORAGE AK 99519
ANCHORAGE AK 99519-6650
ANCHORAGE AK 99503
ELMENDORF AFB AK 99506
ANCHORAGE AK 99502-1998

945 UNIVERSITY AVE SUITE 101
99 CANAL CENTER PLAZA

SACRAMENTO CA 95825
ALEXANDRIA VA 22314-1538

CITY/STATE

ANCHORAGE AK 99502
ANCHORAGE AK 99517-1158
ANCHORAGE AK 99518
ANCHORAGE AK 99517
ANCHORAGE AK 99507
ANCHORAGE AK 99515
ANCHORAGE AK 99507
ANCHORAGE AK 99508
ANCHORAGE AK 99508-4016

ANCHORAGE AK 99509
ANCHORAGE AK 99501

ANCHORAGE AK 99508
ANCHORAGE AK 99502
ANCHORAGE AK 99517
ANCHORAGE AK 99502
ANCHORAGE AK 99519

ANCHORAGE AK 99518
ANCHORAGE AK 99515-1031
ANCHORAGE AK 99502
LOS ANGELES CA 90045
ANCHORAGE AK 99515
ANCHORAGE AK 99515-1025
ANCHORAGE AK 99502
ANCHORAGE AK 99502-1031
ANCHORAGE AK 99519-0949
SEATTLE WA 98158
ANCHORAGE AK 99502
SAN FRANCISCO CA 94128

ANCHORAGE AK 99513
ANCHORAGE AK 99502
ANCHORAGE AK 99513
ANCHORAGE AK 99519
ANCHORAGE AK 99519-6650
ANCHORAGE AK 99503
ELMENDORF AFB AK 99506
ANCHORAGE AK 99502-1998

SACRAMENTO CA 95825
ALEXANDRIA VA 22314-1538



APPENDIX C: Final Meeting Summary, Public Comments, and Response to Comments

The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every entry should be supported by a valid receipt or invoice. This not only helps in tracking expenses but also ensures compliance with tax regulations.

In the second section, the author provides a detailed breakdown of the company's revenue streams. This includes sales from various product lines and services. The analysis shows that while one product line is currently the primary source of income, diversification into new markets is essential for long-term growth.

The third section addresses the company's financial health and liquidity. It highlights the need for a robust cash flow management strategy to ensure that all operational needs are met. The author suggests implementing regular financial reviews to identify potential areas of concern before they become critical.

Finally, the document concludes with a series of recommendations for the management team. These include strengthening internal controls, improving communication with stakeholders, and exploring new investment opportunities. The author expresses confidence in the company's ability to overcome current challenges and achieve its strategic goals.

Sign-in Sheet



FINAL TAC MEETING AND PUBLIC WORKSHOP
PART 150 NOISE STUDY

February 9, 1999

Please provide your
name and phone number
you to [unclear]

Name (Please Print)	Address	Phone #
Richard Burton	Box 221272 Anch AK 99522	583-0029
② Harold Lane Ursel Vergason	905 W. S 3rd 99518	562 4441
K. Wallace	1351 W. 73rd Cir 99518	849-6363
TOM MOORE	3350 ORBIT DR	245-4224
BILL MADSEN	2845 W. 42nd Pt.	248-5063
BARBARA MEEKINS	440 E 36th #2D 99518	269-0681
ALEX YOUNG	6401 BLACKBERRY 99502	243-2855
Barbara Johnson	222 W. 7th Anchorage	271-5459
Toby Steinberger	4139 Raspber PI Anc 99502	243-4024
Marilyn Darden	3228 W. 61st Anch-99502	677-7617
Diana Foreman	6960 Chad Ave 99518	344-0058
Lew Parker	7000 CHAD AVE 99518	344-3187
Janice Bowers	4701 Kershner Ave 99517	245-0775
Emme Good	4770 W 84th Ave 99502	562-2257
Cecil Bailey Jr	6880 Cheryl St, Anch 99518	344-1890

②

Jim
OX

PART 150 NOISE STUDY
FINAL TAC MEETING AND PUBLIC WORKSHOP

February 9, 1999

Please mail to
Post Office
Box 11605
Anchorage, Alaska 99511

Name (Please Print)	Address	Phone #
TAM POWELL	P.O. BOX 111605 A/A 99511	345-8447
GEORGE W. ANTIS	VISITOR	
Denis D. French	6841 Joseph st	344-5398
Will Walker	4206 Northwood 99517	243-6993
Eric Wohlforth	7831 Ingram 99503	
RICHARD WISE	6952 FAIRWEATHER DRIVE 99518	
Cynthia Tomlinson for Mary Ellen Campbell	4120 Horizon Ave 99517	243-7135
Jay Stange	3100 Northwood Dr #2 99517	245-3272
William Polley	4620 Hunter Dr. # 99502	243-8643
Christopher Habicht	4441 Delong Dr 99502	243-6050
Ann	Bx 000284 99520	
Boris Lookkoff	Lepgh Asher Assoc	(650) 571-7722
Pete Simonsen	P.O. Box 870070 Wasilla 99687	279-3323
Dad Stone	12400 Reed Lane 99502	243-2550
Kevin Loyola	7000 Sorenson Cir 99502	248 1982

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FINAL TAC MEETING AND PUBLIC WORKSHOP
PART 150 NOISE STUDY

February 9, 1999

Please provide return address to give you to give you

Name (Please Print)	Address	Phone #
BONNIE PHILLIPS	7019 Crawford Ave Anchorage 99507	
Laurie Kozisek	1220 Skyway Dr. Anchorage 99515	349-8677/343-8145
David Stelling	2500 Brook Hill Circle, Anchorage 99506	348-0311
Stan Kosmicki	2200 Thiel Cir Anchorage 99502	248-2338
Walter Bethilyon	6521 Thurman Dr. Anchorage 99502	563-7207
Tracy Bethilyon	6521 Thurman Dr Anchorage 99502	563 7207
JEAN TAM	MAIL: P.O. BOX 240363 ANCHORAGE 99524 6250 CRANBERRY	248-3363
Tom & Donna Van Flein	P.O. BOX 162359 Anchorage 99510	272-9228
Wm. R. Shore	2210 Shore Dr Anchorage 99575	349-3112
Cliff Eames, ACE	519 W. 8th #201 Anchorage 99501	274-3647
Dave Hobart	3110 Westwood Anchorage AK	274-9165
Tim Weaver Jr	Community Planning MOA	343 4260
Ashley Cleason	421 Bridle Cir Anchorage 99517	248-0442
JOHN SANDERS	ARLIER CONSULTANTS 16360 MONTSEY BLVD SUITE 270 MURKINVILLE AK 99507	408-775-5776
Doree Effer	1550 Crescent Anchorage 99508	562-4872

yes

(2)

PART 150 NOISE STUDY
FINAL TAC MEETING AND PUBLIC WORKSHOP

February 9, 1999

If you would
like to give
testimony at 9pm

Name (Please Print)	Address	Phone #
Nat Cohen	Po Box 92709 99509	5761-2455
WILLIAM CHORD	FAA ANC AECT	271-2700
CHARLES GWARD	FAA Regional Office	271-5883
Michael Kean	AEDC	2583700
Patti Sullivan	FAA Airports Division	271-5454
THOMAS D. ARMSTRONG	6430E 7th Ave. Anch. 99504	337-5981
Mary Feltz	PO Box 244315 Anch, AK 99504	562-4655
ROBERT N. LEWIS	P.O. Box 203256 Anch 99520	274-2357
Steve Alwesson	HUMM 945 University Ave. 95825 Sacramento CA	916-568-1116
Sheila J. Heiker	2541 W 62nd Ave 99502	243-7435
AL Bunter	8043 QUEEN VICTORIA	349-1980
VAB Leino	6901 KATHISA ANCH, AK 99502	248-8866
DICK PENNINGTON	3739 W. 44th Ave, Anch, AK 99507	279-1300
Jo Ann Gayne Jones	3821 W. 67th Ave 99502-2014	243-3824
Alexander Jones	3821 W. 67th Ave 99502-2014	—

PART 150 NOISE STUDY
FINAL TAC MEETING AND PUBLIC WORKSHOP

February 9, 1999

Name (Please Print)	Address	Phone #
Peter Gamache	6320 Tay Circle 99502	243-6320
Monie Akers	3031 BERNETT AVE 99517	243-4802
John Pratt	EXPLORE QUARTS ASSOC	274-2990
Gail Galleher	901 W. 54 th 99518	503 3718
I.G. Konopu	221 2344 Latoche	276-6711
Steve Frena	6050 Rockwell	249-3661
Ben Sinnott	ANC Tower	—
Bill Griffith	2811 Merrill Field Rd	264-7408
ROBERT PETERSEN	810 Botanical Arts Ctr 99515	344-8267
TERESA DEITZ	3321 W. 70 th 99502	248-2500
Laurie Suthmeier	FAA - Airports Div.	271-3665
BRIAN MASON	2800 Airport Blvd	248-0957
DAME GARGIUGATA	5400 W. JIMMARD #CS	243-4575

Please mark in
you would like
to give
feedback

[Handwritten signature]

PART 150 NOISE STUDY
FINAL TAC MEETING AND PUBLIC WORKSHOP

February 9, 1999

Please provide names, addresses, and phone numbers to the TAC meeting.

Name (Please Print)	Address	Phone #
Brent Schlosstein	6401 CHEVIGMY ST 99502	243-0693
Sam Miller	2223 Tulik Dr Anch 99517	245-1363
Joe + Kathy Spicola	6906 Terry Pl Anch AK 99502	243-1356
Sully Barkholder	2903 Uodhpur 99502	243-2839
Karen Burton	2706 W 30th 99517	-
Nancy Cornwell	live on Wiley bus + Anch PO Box 203558 99520	560-4676
Kathy Kingston	5407 DURBRANDT 99518	563-6877
Frankie Parker	5407 DURBRANDT 99518	563-6877

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9

Meeting Minutes



**ANCHORAGE INTERNATIONAL AIRPORT
PART 150 NOISE STUDY UPDATE**

**TECHNICAL ADVISORY COMMITTEE MEETING
NOISE ABATEMENT MEASURES**

WestCoast International Inn
February 9, 1999
7:10 p.m.

I. WELCOME AND INTRODUCTIONS

Maryellen Tuttell introduced herself. She is the Noise Program Manager at Anchorage International. She welcomed the participants. She explained that the study was started four years ago, and members of the Technical Advisory Committee (TAC) have worked hard. She noted that they had reviewed information presented on noise metrics and noise measurements collected, and had provided input on over 40 noise abatement and land use measures to be analyzed as part of this study. Based on the analysis and input from the TAC, the Airport has come up with recommendations for the Noise Compatibility Program. The Airport also undertook a public involvement campaign to provide information on the recommendations to the greater community and especially people located close to the Airport. She noted that the large number of new people at this meeting was a sign that the public information campaign was successful. Ms. Tuttell reviewed the agenda for the meeting. She explained that after the presentation to the TAC and TAC comments, there would be a break for an informal public workshop, and then public testimony would be taken. She noted that during the public workshop people were welcome to give their comments to the court reporter if they did not want to do it during the public testimony portion.

Ms. Tuttell introduced the TAC members. She noted that Mr. Peter Bradshaw, the TAC representative for the Sand Lake Community Council, was tied into the meeting over the telephone.

Maryellen Tuttell introduced other Anchorage International staff in attendance.

II. STATUS OF ANC PART 150 STUDY UPDATE

Steve Alverson and Bill Willkie presented the Part 150 Study Update. Mr. Alverson reviewed the status of the Anchorage International Airport Part 150 Noise Study Update. He stated the primary focus was to review the Draft Noise Compatibility Program for the Technical Advisory Committee members. The Noise Exposure Map (NEM) produced as part of the Study Update has been submitted to the FAA who accepted it on January 27, 1999. This means the NEM is formally adopted and can be incorporated into the Noise Compatibility Program. The Draft Noise Compatibility Program was distributed for public review in January.

Mr. Alverson explained that the HMMH team conducted noise measurements 24 hours a day at approximately a dozen sites, once in the summer and once in the winter. They have looked at over 10,000 flight tracks. There were 60 noise control measures evaluated, 48 of which were noise abatement or operational measures related to the aircraft operations at the Airport, and 22 were land use measures. Mr. Alverson stated that he and Mr. Willkie will cover the noise abatement measures, land use measures, and continuing program measures recommended for inclusion in the Noise Compatibility Program. He stated that one of the most difficult problems with Part 150 studies is that they are concluded and then the follow-on work for implementation does not get accomplished. He emphasized that implementation will be the most important task, and that the Airport and the Noise Program Manager will need to work with the FAA and MOA toward implementation of the program.

1 of 13

R & R COURT REPORTERS

810 N STREET
277-0572

1007 WEST THIRD AVENUE
272-7515

FAX 274-8982
ANCHORAGE, ALASKA 99501

Mr. Alverson noted that there were four noise abatement measures that showed promise for reducing aircraft noise:

1. Minimize Runway 6 departures at night
2. Increase depart 24, land 14 at night
3. Conduct detailed noise abatement departure profile study
4. Implement consistent thrust cutback for Runway 6 and Runway 14 departures

Mr. Alverson pointed out that wind and weather play an important factor in the Airport and Air Traffic Control Tower's ability to implement 1 and 2.

Mr. Alverson stated that prior to this study the Airport had a noise abatement departure profile measure in place, the International Civil Aviation Organization Noise Abatement Departure Procedure, but it was very vague. The study recommends implementing a close-in noise abatement departure procedure as defined by an FAA regulation, as well as a close-in procedure for the international aircraft that operate in Anchorage as well. Over time the study recommends working with each carrier to see how they fly their noise abatement departure profiles, to find the best procedures to minimize noise on departure out of the airport.

The study also looked at noise abatement flight tracks. As aircraft depart to the east, would there be a way to turn those aircraft prior to reaching the Seward Highway? East of the Seward Highway is the general aviation flyway. Mr. Alverson pointed out that the Part 150 study is about reducing noise, not about safety. However, measures proposed for noise reasons must also be safe. If a turn is implemented to the south prior to the Seward Highway, along with a noise abatement departure procedure, there would be a noise reduction. Before procedures are implemented, it needs to go through an environmental review, it needs to be tested by the FAA to make sure that it meets all the safety standards, and then it could be put into place. Mr. Alverson felt the specific noise impacts of the particular procedure should be looked at.

In response to a question from Mr. Pratt regarding turns to the north, Mr. Alverson stated that the FAA has indicated that due to air traffic control and air space reasons, the FAA does not want to do the turn to the north the committee had been looking at. Taking those aircraft that turn to the north and sending them to the south was not looked at.

In addition to looking at the turns on Runway 6L and 6R to the south, they also recommended implementing a noise abatement departure track for commuter aircraft departing Runway 6L. They looked at having them fly over a corridor in the vicinity of Minnesota where there is commercial and open space. They also looked at putting this procedure in for commuter arrivals on this runway, but due to FAA Air Traffic Control concerns, it was not recommended.

Bill Willkie discussed the land use measures mentioned in the study. The purpose of land use measures is to deal with the noise that remains after implementing noise abatement measures. One of the things the Airport is trying to do is prevent future problems from occurring. The Study has come up with 12 recommended measures, seven of which were also recommended in the previous Noise Compatibility Program. The land use measures include compatible use zoning, mobile home restrictions, building code revisions, and placing noise levels on plats, comprehensive planning, planning commission review, public land development criteria, a noise overlay zone, fair disclosure policy, land banking, soundproofing existing buildings (estimated at \$15 million if all potentially eligible homes were included), conducting a detailed ground noise study, and looking at establishing sound buffers/barriers.

Mr. Alverson discussed continuing program measures, which are the steps that are taken to make sure that the recommended operational and land use measures are implemented. These include a noise advisory committee that meets with the Airport on a regular basis, a noise and operations monitoring system, and continuation of the complaint collection process. He stated that regulations and agreements are needed to make the various measures effective. The Noise Program Manager (Maryellen Tuttell) is also important. She plays an important role in getting information from the community, working with the air traffic controllers and pilots to minimize noise impacts. Currently the State does have a web page for the Airport that contains a limited amount of noise information. He felt that the web page could serve as a way to find out about airport operations and could be linked to the airport noise monitoring system. Another suggestion was use of airfield signs. Other continuing program measures include public information programs, distribution of pilot inserts, and NEM and NCP review and revision.

III. COMMENTS FROM TAC MEMBERS

PETER BRADSHAW: Steve has just provided a very large amount of information. I have actually really read only a portion of the noise compatibility program literature, and so I think at this point in time, I'd like to reserve comments until I've heard some of the public's testimony. I'd like to understand what the public has to say about the many measures which are being recommended here. And I actually have already received some feedback from some of the people who live in my area.

There is one comment that I would like to make, and that is, going back to the original Part 150 study, I see that originally there was I believe something like 16 recommendations, of which I think 15 were approved by the FAA. Over the intervening years, only two of those 15 measures were implemented, and I hope that this time around we can do a little bit better than that. At any rate, I'd like to allow the next committee member to make comments. Thank you.

DIANE ETTER: Tudor Community Council is located off of Tudor Road between Seward Highway and Lake Otis, and so I have led my Community Council to believe that the early turn was going to be greatly beneficial to us, because I had been led to believe that the early turn was going to apply to departures to the north as well as to the south. And tonight is the first time that I have heard that it will in fact not apply to north departures. I can absolutely without a doubt say that this is going to make the Community Council very unhappy, because they were very pleased that they were now going to be not in the direct flight path of planes that were flying to the north. Believe it or not, we do get them loud enough to rattle the windows even clear out in midtown. We had an extended dialogue on this, because we met just very recently, and most of the members had already read the newspaper supplement, so we had a good dialogue at a well attended meeting.

The nighttime departures I had also led them to believe at past updates that there were definite hours attached to them, and that they were sort of written in stone. And now we came to find out after reading the newspaper flyer that there's nothing in the way of hours at all, and that they aren't in fact absolute. They're, you know, as the conditions permit. And so the Community Council was unhappy with that. In fact one member said that when she called recently to complain about a nighttime flight, that they didn't give her any indication at all that there were any guidelines at night, and that there was nothing -- you know, they were just very sorry that it was that noisy, and she wasn't even told that there were guidelines for nighttime flights. So this came as a surprise to them. So they would like to see definite hours attached to that. I understood that it was something like 10:00 p.m. until 7:00 a.m., but that's not in the newspaper insert at all, and I haven't heard anything about that in at least a year. So I would like to see something definite, and a more absolute procedure to go with that rather than just if the conditions permit.

The other item that came up at our Community Council meeting was the general process of increasing business at the airport. We had just read a little snippet in the newspaper that the Federal Transportation

Department is proposing an increase in international aviation at our airport, and that we would like to become a cargo hub. This was followed after our Community Council meeting by a great big huge article I think in last weekend's paper about how we're going to become the best cargo hub, you know, in the northern hemisphere. And so the Community Council that I'm associated with is very, very concerned about the continual attempt to increase air traffic at Anchorage International Airport, and unless there are some much more responsive noise control implementations than what I've heard tonight, there will certainly not be support from Tudor Community Council. We would consider lobbying our assembly people for a noise control ordinance similar to other large cities have so that there couldn't be any flights at night if we don't hear something a little bit better than this. I spent three years on this noise study, and I really hoped that there would be more definite results.

STEVE ALVERSON: The early turn to the north, in looking at that issue, not only does it present problems from an air traffic control standpoint, it also -- turning the aircraft early brings them over a more densely populated portion of town, so rather than reducing noise, it becomes a noise increaser as well, so that particular procedure didn't make sense on those two counts.

In terms of the hours being written in stone, with the noise abatement procedures and the preferential runway uses all predicated on wind and weather conditions allowing them to occur, as well as air traffic volumes allowing these procedures to be used, and unless there's a more formal type of procedure in place in terms of the Airport agrees that it's going to shut itself down if conditions do not allow use of these procedures, there's not a possibility of doing that. Of course, having an airport that's open for international traffic and cargo and passengers suddenly closing down when either volume or winds create a problem, becomes a problem for the national air traffic system, so the FAA would oppose that.

Also in terms of those types of limitations, which actually gets into the next one, nighttime limitation, the Part 150 study discusses the Aircraft Noise and Capacity Act of 1990, which was passed and reduced Airports' abilities greatly to put into place these types of restrictions. Many of the curfews that are in place in say Southern California airports, or San Francisco, are curfews that were put in place before the 1990 act. They all have been grandfathered into place. Since that time, the FAA has basically discouraged those types of restrictions being put in place and requires extensive studies, actually a Part 161 study, to be conducted to show that there's in fact a cost benefit to putting those restrictions in place, and limiting air traffic during those hours. They're very difficult to conduct, they're very expensive and time consuming.

And the reason the FAA did that was at that point in time they also enacted a phase-out of the noisier Stage 2 aircraft. And what's interesting here in this state is that the State Legislature asked for an exemption to that, so the Stage 2 phase-out applies only to aircraft operations that occur to the Lower 48. So for Alaska Airlines, for example, that operates between here and the Lower 48, they must meet that phase-out. In fact, they're an all Stage 3 airline right now. For another carrier, such as Reeve or Northern Air Cargo where they're an intrastate carrier, they're not required to meet that particular requirement to meet the phase-out. As Maryellen's pointing out, that's a fairly small percentage of flights. Anchorage, as we've reported over the last three years, has really benefited from the national phase out, because of the amount of operations that do go down to the Lower 48. We also discuss in our study as well that it would be prudent for the Airport to monitor the fleet mix at the Airport, and to see after the year 2000 occurs what percentage of Stage 2 aircraft are left at that point in time, and then start making decisions whether further restrictions are needed.

FRANK WINCE: Well, if you all have a map there, you'll notice that the Turnagain area is part of the Airport. In fact the noise contours kind of infringe on it. The idea I get from a lot of different studies, comments and meetings and everything else, not specifically stated, but there is a feeling among quite a

few of those people that let's do away with the Airport. It's there. Otherwise, there's a lot of people that have gotten used to the noise, except for once in a while. And that once in a while seems to happen during certain weather conditions. Those people who live close to the Airport, if you have noticed last summer, one of those planes take off, you know, and they go behind a cloud, you can't hear them. It comes out, and you can hear them. If you all noticed, during the last week or so in sub zero weather and not a cloud in the sky, you stand out here, and you watch an airplane taking off, and you can't hear them at all. And that's some of the things that we can't do a whole bunch about. And that's all I've got to say right now.

LAURIE KOZISEK: I represent Bayshore/Klatt Community Council. I'm Laurie Kozisek, and I have voiced some concerns on several occasions that having the early south turn is impacting a new set of people that never thought that they would be living underneath a flight path. So by moving the turn from turning south at Seward Highway to turning south at Minnesota, you are impacting all the people in the Taku/Campbell area and the Bayshore/Klatt area. Klatt School, for instance, operates in the springtime with all the windows open, because the heating system doesn't work any other way, and you can imagine how then a high decibel event happening every so often could be disruptive as the teachers are trying to conduct classes.

And I'm also concerned that earlier on there was a study to see if the early south turn is a good idea or not, and it was rejected as an idea because it was found to be much noisier. Then they said, well, what if we have an earlier south turn with noise abatement procedures. Then it looks like an attractive option. And I don't think that's a good idea to compare the turn with the noise abatement procedures as compared to the current with the noise procedures. I think it's sort of slanting to make the data look good. I'm concerned with the planes that normally use the early -- or use the south turn at this point are planes that have to use an eastern departure because they're too heavy to use any other departure, or the weather's bad and they can't use the other departures, and so therefore they're much less likely to use the noise abatement procedures anyway.

STEVE ALVERSON: Laurie raised a number of good points. Let me see if I can get to each of them. One of them was we had earlier looked at an early turn without a noise abatement departure procedure, and it appeared not to be favorable to implement, and then we looked at it with the noise abatement departure procedure, and it looked more favorable, and that is correct. Without the air carriers reducing power on departure, and making that turn, the contours extend out further distance and drag the noise impact, if you will, down further. By putting the noise abatement departure procedure in place, each individual event is quieter than it would be normally departing out there, and it provides noise reductions.

There are a number of flight tracks out in that area already, and so in terms of the difference between noise levels at say the Klatt School, for example, it would be really hard to tell without doing a test, what the change in noise levels would be, and it would be something that if the FAA were to test this procedure, you'd want to, say, have noise measurements done at the same time. Take some measurements before, take some measurements after, and see what the difference might be. I really believe that is a linked issue, if you will, that if the noise abatement departure profiles can't be implemented, and the aircraft can't turn before Seward Highway, then it wouldn't necessarily make sense to turn those aircraft early, and dragging that noise impact down further. They're both tied together. And we wouldn't have recommended that unless there was a noise benefit to it.

LAURIE KOZISEK: Well, you haven't addressed the most important issue, which is when you compared the impact before and after the idea of implementing this new early return. You were saying, okay, on this old flight path there will be 1,000 affected, on the new flight path, there will be 900 people affected. We have saved 100 people, but what you have actually done is irritated 900 people. You haven't saved 100, you've added 900 more that are irritated with what you've got, and those are people who specifically

did not want to live underneath concentrated flight patterns. It sounds like you're going to make it much more concentrated.

STEVE ALVERSON: Yeah, I think it is true that the flight path would be more concentrated. The question is, what will the difference be in terms of having the flights that are currently extending to the west turning over that area but then using the noise abatement departure profile. Again, from a modeling standpoint, it appears as though there would be a benefit to that area, and again our suggestion would be to test it, see how it works, make some measurements and during that point in time when it's tested, the community could also be aware of it and file any reactions that they might have to it at that point in time.

JOHN PRATT: I do support the concept of the noise advisory committee, and I'll provide some written response.

WILL WALKER: I've already made written comments.

MARYELLEN TUTTELL: I do want to mention that as Steve mentioned, there are some questions about what would the final impacts be of the noise abatement departure and early turn, and what we would need to do is work with the FAA and work with the airlines, and see if we can work something out that we then test and see if there is a benefit, or whether it really doesn't work. And so we would have to do a NEPA process on that before we would implement that. And we just want to make clear that we are aware of the concerns, and it will not be implemented if it doesn't result in a significant decrease in the noise impact.

And I also want to make clear, because I think this was a misconception that came up at an earlier point on this measure is that we're not saying we want people to depart to the east more. We will continue to direct people to the north and to the west, and it will be a very -- it will be only when the weather conditions or other conditions require us to depart to the east that they would use that east departure.

MICHAEL KEAN: Yes, my name is Michael Kean. I'm the Transportation Director with the Anchorage Economic Development Corporation, which means that, you know, we want more business in the Anchorage area. In fact the Anchorage Economic Development Corporation exists to encourage growth and diversity in the Anchorage area so that we're not all dependent upon the oil money from the North Slope up there.

But I'd like to also take a moment to commend the committee on the work they've done over the past four or five years on the noise abatement compatibility program. I think it's an excellent one, and the Anchorage Economic Development Corporation is behind that and the recommendations that are being made to lessen that noise. Over the years, I've been in the air transportation 35 and a half years, and I worked with the noise abatement committee down at the San Francisco International Airport for a number of years, and I really do mean it when I say that I really commend this noise abatement committee here for having done the work that they've done. Thank you.

PATTI SULLIVAN: I'm Patti Sullivan, and I work for the FAA in Airports Division. And I just want to say a couple things. I would agree that there's been a lot of good work done in this committee, and in this group. Sometimes it seems like these measures are kind of small, but I think we all have to continue to work together if we're going to make any improvement. I think the key to success of this whole program is that all the parties that have the ability to implement the different measures that have been proposed continue to do what they can within their area of responsibility.

The Airport has responsibility for implementation of their runway use program, and working with the air carriers and implementation of the noise abatement departure procedures, they have some responsibility

for the sound installation program, the ground noise study, and for other noise abatement measures -- and for further analysis and study.

The FAA has responsibilities for working with the carriers and the airport, also to implement the ground noise studies, and the noise abatement departure procedures, and to do the environmental or the air space analysis that's necessary to implement those, and to further document whether or not these measures will provide substantial noise benefits. The FAA is also committed to working with the Airport and the Municipality towards implementation of the noise mitigation measures in the form of sound insulation, the noise monitoring program, and the land use measures. FAA also is responsible for the approval of the Noise Compatibility Program, and approval of those measures in the study does make those measures eligible for grant funding under the Airport Improvement Program. There's no guarantee of that funding, but we would strongly support the Airport in any way we can in implementation of those measures and use of the available funding.

And the Municipality also shares some responsibility for the land use control measures since they are the land use control authority. So it's really key, and I think it's well presented in the Noise Compatibility Program, that for the minimizing the introduction of new incompatible land use, the Municipality really plays a key role there.

And I want to say that I would concur with John Pratt and Peter Bradshaw that I think one of the very important things that we all need to do and stay focused on is the continued program measures. The noise advisory committee I think would provide a very good forum for us all to stay on track and I guess keep each other honest, and ensure that we are doing our part to implement these measures. I think they're very important, and I think that that's been sort of -- I think that's a shortfall in previous studies that we really need to keep the eye on the ball and keep moving forward and progressing implementation. So that's all I have to say. Thank you.

JERRY WEAVER: Thank you. I'm Jerry Weaver from the Municipality Planning Department. I want to commend the Airport on the consultants that they've used in this. Steve and Bill are excellent resources and they have done a commendable job.

The Municipality supports the program. We do have a couple of concern in a couple different areas that we're going to follow through with some written comments about responsibility and costs. Other than that, we support what's being proposed.

IV. **PUBLIC WORKSHOP**

V. **FORMAL PUBLIC TESTIMONY**

VICTORIA LEINON: I live over in the Tanaina Hills Subdivision which is in the yellow on the map of high noise areas. My only question to this whole noise study is I think it's rather ironic that we have all these council leaders giving testimony and giving input, and it doesn't see like their input is that worth anything. Just from the three out of the four council members who actually said something, there's no information -- or I should say, they didn't get anything out of this whole entire study. So that's my only concern right now as far as this meeting.

As far as the noise at my house, my husband is a pilot, so we kind of live with it, because we know that this happens. However, it -- the noise at night is probably the major concern, unless you sleep in the day, of course, but we sleep at night, so I'm just -- I guess the biggest part of the study that I'm really concerned is the night noise, and how we can in some way change the noise level right now.

ERNIE HALL: My name is Ernie Hall, I am a former Chairman of the Board for the Anchorage Economic Development Corporation, and I will do my best to read this within the three-minute allotment. Basically it's the position of the Anchorage Economic Development Corporation regarding the Anchorage International Airport Noise Study.

The Anchorage Economic Development Corporation, AEDC, has identified the Anchorage International Airport, AIA, as one of the most important economic engines of the metropolitan area of Anchorage. With over 11,000 employees and 319 million in payroll, the AIA accounts for almost one job in ten in Anchorage. In 1999, 34 air carriers have landing rights at AIA. The Airport currently serves over 5 million passengers annually, over half are Alaskans, with 25 percent domestic visitors, and 15 percent international travelers. Based on current trends, 6 million passengers are expected by the year 2005. The Anchorage International Airport is a top U.S. cargo airport based on landed weight of all cargo aircraft. Over 95 percent of the cargo between the U.S. and Asia stops in Anchorage. The expanded cargo transfer capability ruling approved the U.S. Department of Transportation has enhanced the ability of cargo carriers to transfer cargo in Anchorage. This makes AIA even more attractive for the cargo hub operations and inter-airline cargo transfers.

Operational conditions. The AIA advantages which attract over 500 flights per week, are based on location and operational flexibility. The accidents of geography provide the location advantage. AIA lies within nine hours of 95 percent of the industrial world, thus it forms a convenient and fuel efficient intersection between major markets. The other major advantages are a profile of 24 hours, seven days a week availability, and excellent operational control.

I will pass and go into the very end, and that we also believe that the noise conflicts can be prevented with the things that are outlined in the proposals and the buffering and landscaping can also play a great deal in abating the noise levels around the airport here.

I do have a complete written presentation here that I will leave to be presented to the record.

KAREN BUTTON: Thanks. My name is Karen Button, and I was born and raised in Anchorage. I've lived in the Spenard/Turnagain area for most of my life, and I was just -- I bent the ear of Jenny for most of the break complaining about what I've seen as not very wise planning. I mean, I think that economic growth is fine, but -- it's necessary, but it doesn't have to be economic growth at the expense of everything else. I mean, we have a choice as a community I feel to plan wisely and to develop our resources wisely, and I don't feel like that that's being done in this case. It's my feeling that Anchorage is not an appropriate place to be such a cargo hub. You know, you have a fairly small bowl where we are dealing with pretty high noise levels.

I noticed on the map I live very far away from the 65 decibel noise contour, and yet my windows rattle at night. I live downtown and there are days where my office windows rattle due to jet traffic.

So I would like for -- in this study, I'm appreciative that there is this noise study that's going on, but I would like to have this noise -- I'm not sure if this is an advisory group or what exactly, but I'm a little bit disturbed by the fact that there's a master plan going on, I don't know if air pollution is being looked at or not, if water quality is being looked at, sprawl and development, I mean, traffic to and from the Airport. These are all issues associated with the Airport in addition to the noise, and I think that they should be all looked at in conjunction with one another, not compartmentalized. And I do think that we as a community have a choice about whether or not we want to see growth to the point where it chases residents out of Anchorage. Thanks.

SALLY BURKHOLDER: I am Sally Burkholder, and I'm a person who never thought there was going to -- they were going to live under a flight path. The area where I live is labeled DNL 60. Tonight it may be less than 60, the wind's not out of the south. A couple weeks ago it was probably well over 70. The averages and the way they measure noise are not really indicative of the full problem. When you have three or four days of jets going over your house, even if the next month there's not one that goes over, you've still lost a lot of sleep in three or four days. And the only picture to ever fall off my walls in 30 years that I've lived in Alaska was not due to an earthquake. It's when a jet went over.

On the positive side, I will say there's been some improvement in the last four years. There's a lot less jets taking off on runway 14 when there's no need to. But under certain wind conditions they do need to go that way, and I do thank whoever's in charge of cutting down the unnecessary flights.

There's some facts that we all know. The City wants a lot more homes so they have a better tax base. The Airport wants expansion. People want more jobs. We're all here in Anchorage I guess sharing in the success of a large airport. And if we're going to share in that success, we probably ought to share in the noise. And I suggested four years ago at the beginning of this process that instead of picking out one flight path off each runway, or one or two that were preferred, that perhaps we ought to share the noise. One month you go off at a certain heading, the next month you change it by 10 degrees, the next month 10 more degrees, and you share the noise. Right now, every jet that takes off on 1-4 gets to 400 feet, and they make a 50 degree turn to the right. Puts them right over my house. There's no reason they can't make a 40 degree turn, a 30 degree turn, no turn at all, turn to the left a little bit. If we're all going to share in the profits of this Airport and the City, we might as well all share in the noise.

And I'd just like to close by saying that when you said new flight path, you're just taking one person's problems and giving it to another. And I would also like to warn you that I think the next problem in the future we may be sitting here in a couple years worrying about is the air pollution from the jets. And that may be a lot worse problem than noise.

MERLE AKERS: My name is Merle Akers, I'm a Turnagain homeowner. I also am a Part 135 pilot. I also own my own airplane at Lake Hood.

I'm going to start right out. One of the things I heard tonight, and I've heard it before, is that we can't do anything because of the FAA regulations. One of the things I want to -- one of the problems we have in this Bowl is that we created an airport at Anchorage International with Runway 14/32, and then they've extended the runway. There are serious safety problems with that runway. They've been there, they're talked about monthly at the meeting Bill Chord holds at his tower. The airline people know it there. And yet we continue to build the Airport irregardless of the safety problems. FAA says they cannot, will not change the procedures to make it safe.

You have the same problem with your noise here. One of the things on this study is that I noticed the Lake Hood traffic -- we have Lake Hood traffic going out Wisconsin. There is no mark, dbf, whatever you call your line running out through there, to show that flight path. Now, apparently that's because that's on -- these lines are based on an average. But what wakes you up is 2:30 in the morning with the air taxi going right down Wisconsin at 300 feet taking people to Lake Creek to go fishing. That's what bothers people.

Now, the other thing that I want to -- and I don't know where this noise -- how this noise is going to -- this this noise study works. But it seems like to me what we're doing with the noise study, we build the facility and then we study how much noise we've got. It seems like to me we've got that backwards. We should be doing the projection of the noise before we build the facility. I thank you.

MARK MADDEN: My name is Mark Madden, and I am an associate professor of aviation management and pilot training out at the University of Alaska-Anchorage. And with that said, I'm sure you already have some preconceived ideas of what my approach to this subject's going to be, but hopefully I can give you a little bit of a different perspective on what we're all talking about tonight.

First of all, my compliments to all involved for doing this type of study. It's important that there is communication. It's very important that we all listen.

A couple of things to keep in mind. When we choose where we decide to live, we always have to have a compromise. If we live far away from a large metropolitan area, we get away from the noise. We also get away from the amenities. We also get away from the convenience that a large city offers.

With that in mind, please keep in mind that the aviation industry may very well be the first industry in this state that is self-sustaining and not natural resource based. That's a significant consideration, especially when you think about what's happening in the Legislature right now as it relates to the State budget.

Another thing to keep in mind is from a perspective standpoint, there was a statement made at the beginning of this presentation that the Part 150 noise study does not take safety into consideration. My advice and recommendation to everyone here is to keep in mind that safety is very much a part of the final analysis. I don't think anyone here would feel very good about knowing that a potential accident could have been avoided had there been more reasonable noise abatement procedures. Keep in mind that when you reduce power on take off, you reduce your margin of safety. When you do an early turn out, you reduce your margin of safety. Thank you.

JAY STANGE: Good evening. My name is Jay Stange, that's S-t-a-n-g-e, and I am here tonight primarily because I've been working over the last several months with a group of people who were writing the comprehensive plan for Anchorage. It's part of a citizen task force. We talked about transportation, meaning air quality, land use, traffic. We talked about the Airport a little bit, but apparently we didn't get too far, because not much of our discussion about the Airport made it into the final document, which is why I'm here tonight.

I wanted to offer the comment that I think that we're approaching this process backwards. Right now the Airport is asking the City to consider changing zoning so that impacts from noise won't be as severe. I think that what really needs to happen in our community is we need as -- as Anchorage citizens, we need to decide what is the acceptable level of noise, and what is the acceptable level of airport growth? Unfortunately, we haven't had a chance to do that.

There's a comp plan going on right now, it's a plan for the next 20 years of Anchorage. The City has usually ignored the plan, as you've seen when they build the new box stores in midtown where they change the zoning and disregard the comp plan. That happens quite frequently, so it doesn't exactly have a lot of teeth. But it's been interesting to watch that process, because the State of Alaska and the Municipality of Anchorage kind of point fingers at each other, saying, well, it's not our responsibility to bring the concept of defining the Airport size to the public. The State of Alaska owns the land, the City of Anchorage has the land use planning, and there's a little disagreement right now about who should be doing what. But I think that, you know, if the citizens of Anchorage decide to reconcile this problem, the best way to do it is to start with limiting the Airport. One suggestion is to move it over to Fort Richardson and Elmendorf when those bases are decommissioned.

Another quick point before I go, we're not a cargo hub here in Anchorage, and respectfully, Mr. Madden, this is natural resource dependent. It's actually a refueling stop, the Airport here in Anchorage. It's not a

cargo hub, although there is some cargo that's stopped and sorted here. Mostly it's just people stopping and getting some gas on their way to Asia or on their way from Asia.

So thanks very much, and I hope that everybody out there who cares gets more involved in this process. And it was a big mistake to make the public testimony at the end tonight. I think half the people in the audience went home.

WALTER BETTILYON: Good evening. My name is Walter Bettilyon, I'm the director of operations over at Security Aviation. And with that in mind, I'm real happy with the growth of the Airport. A large number of jobs depend on it. I think that it can handle even more growth than what it's got with some proper planning. However, as a private homeowner that owns a couple of pieces of property within the DNL 60 line, I have a couple comments to make.

Presently night departures utilize Runway 32, and moving night departures to Runway 24 will move the source of the departure noise a half-mile closer to the highest density of homes within the DNL 60 contour. That's the line that is closest and adjacent to the Airport. Homes located along Jewel Lake Road, Raspberry, Connor Drive, et cetera, will suffer a significant increase in noise. The owners of those properties have already been identified as having been -- being located in a significantly noise impacted area. Changing night departures to Runway 24 would do nothing to alleviate the impact on homes presently located within the DNL 60 perimeter. The change to Runway 24 may slightly reduce the noise level for Muldoon and Eagle River, but only by additionally penalizing those within the DNL 60 contour.

It also appears that the computer model that plotted the DNL 65 line may not have taken into account the elevation, barrier vegetation or lack thereof, and the directional orientation of the various homes, in addition to a number of other variable factors. I know from my own experience that I can hear noise levels greater than at a home that's located right next to me that is on the opposite side of the DNL 65 contour. And that's as a result of the orientation of my house, and the fact that it's on a higher elevation, along with a large number of other homes that are also on a higher elevation. Those homes pick up the noise quite a bit more than some of the homes closer to the Airport. If this is what everybody's going to base things on, I'd really like to see some more information on how the line was plotted. I think a lot of it -- or not necessarily a lot of it, but a good portion of it may have been somewhat arbitrary based on some random samplings.

Also, has the noise at Elmendorf and Merrill Field been factored into this study? We talk about trying to alleviate some of the noise that people complain about in the downtown area. I'm a little concerned that some of the general aviation operations off of Merrill Field along with the military operations off of Elmendorf may be actually the largest contributors to noise in those areas, and not actually the noise of the aircraft coming off of Anchorage International. And I've reviewed some of the information. I haven't really seen an assessment or analysis that broke down specific flight paths versus military aircraft and the airline aircraft.

And that's pretty much all I've got to say, but I'd really like to recommend that everybody take an active part in this. The Airport is really a jewel of Alaska. I mean, it's one of -- like a number of people have said, one of the self-sustaining resources that we've got that doesn't actually involve cutting down forests, digging up our land, et cetera:

KATHY GLEASON: Thank you, members of the advisory committee. I would also like to express my displeasure of how this was formatted. A public hearing started at 9:00 p.m. on a work night is ridiculous for a public agency to do, and I think that was really poor planning. Obviously you lost at least half of your audience. I, for one, would have loved to hear -- have a question and answer session after your presentation and committee comments. I'm so curious what all the people who turned out tonight had to

say about all of this, and now only a handful of us will testify, and some will submit written comments, and we'll never know what they said in the context of maybe what I would base my comments on.

My yard was one of the monitoring sites at 4211 Bridle Circle in Turnagain. When the readings were taken, what year was that? '96 or '97?

STEVE ALVERSON: '95.

KATHY GLEASON: '95. Wow, time flies. That was four years ago. I have experienced much, much more noise at my home now than in 1995, and I'm afraid these contour lines do not adequately reflect what has happened in the interim while this Study has drug on and on. To hear that it's been taking place for four years really shocked me. I knew I'd been coming here for a long time, but I didn't realize it had been that long. And at that time I had no ground noise at my home. None. Now I have it almost 24 hours a day. And to hear that this noise study does not even address that, and another noise study will have to look at that, now long will that take? Another four years? In the meantime we've got a serious noise problem that is not being addressed in a realistic manner. I'm sorry, I'm going to continue. There's no recourse for my home on this contour map at 60 DNL, because I won't qualify for FAA funding to soundproof my home. Even the homes that will qualify, if they want to have their windows open at night in the summertime, it won't do them a bit of good, because noise is being shifted, and emphasis is take-offs to the north, that's shifting more noise to the Turnagain area, so that's not being addressed. There's just so much lacking in this. When I bought my home in 1982, we looked at the 20-year master plan. Believe me, there was no mention of major cargo development, no noise contours showing I would have a noisy home. So there's no recourse for those of us who are long-time homeowners in Turnagain.

With all due respect to Frank, I like you a lot, Frank, and I hope you know that. He has not represented our Community Council well. He hasn't even been to council meetings in several months. Our Council has not discussed this, so you are not getting true representation of what Turnagain residents have to say about airport noise.

Lastly, I think that the Airport -- the abatement measures should much more address land use development and the management of it within the Airport boundaries rather than trying to manipulate land use ordinances outside of the boundaries. They need to go through a local public process so that we can -- if there's a major lease proposed, it can go before Platting, it can go before P&Z. They need to get a conditional use permit in transitionally zoned land according to Title 21, but the Airport says, oh, we don't have to do that. We don't have to do that. Well, it's time they do it. And I think this committee ought to make that as a recommendation in this process. Thank you.

ED CULLINANE: When we moved here into Anchorage in 1992 and built our house on Sportsman's Point area, I thought, my, what a nice, quiet subdivision, at the end of a cul-de-sac. Yes, I knew there was an Airport here, but the noise levels have increased probably I think because of the number of houses that were built around us subsequent to that. Well, that's our fault. That's no problem.

But I think that we could all benefit from having our government leaders follow through with the institution of what has already been approved, and that is the Stage 3 noise levels as well as the Stage 2 noise levels that aircraft must adhere to in the year 2003. And if we could just have those noise levels adhered to by the aircraft operators and owners, I think that that would go a long way to alleviating a lot of the noise problems we have. Thank you.

JOANNE GOING: My name is Joanne Going, and I've lived in the airport area since 1985, and in 1992 purchased my current home from the retiring head of FAA, Frank Cunningham. And at that point, we

discussed the air noise from the runways, of which I have a very nice view from my house. I'm at Four Corners. And I just have two concerns that I didn't hear addressed.

I like the Airport, I like the view, and I like the growth of the economy there. But it appears that the DNL 60/65 line that was the computer model did not take into effect the hillside and the slope there around Four Corners. I don't think my dishes should rattle, and they always don't rattle, but I don't think they really should rattle at all. And for some reason they have been doing that periodically.

And I also have a concern about the ground noise if you switch from 24R, the ground noise sometimes can be overbearing. And I question the logic to use this at night, that it seems like it would impact -- I mean, if I hear it, I can just imagine those that live around the area that's impacted in the yellow area, that it would just be more difficult. Or, you know, it would make it a real dark yellow or something, a different color, because it would be difficult, and those are already impacted in that area.

Those are my only two concerns. Thank you.

SHEILA HIKER: Hi, my name is Sheila Hiker, and I moved into my house this year, and this is my first meeting here. And I was really surprised to find out that the DNL 60, they're going to try to change the land plat so it says that we have all this noise. And I think that if -- I also found out that my house doesn't qualify for soundproofing. And I don't think that that's fair that I have to go and warn people if I try to sell my house, well, this is in the Airport zone, and it makes too much noise, but it doesn't make so much noise that they will fix it. And that just -- there's something really wrong with that, and I totally disagree with that.

VI. **ADJOURNMENT**

Meeting adjourned at 9:40 p.m.



Response to Written Comments



January 25, 1999

Maryellen Tuttle
Noise Program Manager
AIA
P. O. Box 196960
Anchorage, Alaska 99519-6960

The Noise Compatibility Program (NCP) mail-out on
January 5, 1999 seems to be accurately foundationed on
Noise Exposure Maps (NEM) mailed out in December 9, 1998. } C-001

Please see letters to Maryellen Tuttle dated January
21, 1999 and January 22, 1999. The letters raise } C-002
questions about Noise Exposure Maps (NEM).



Will Walker
Spenard Airport Watch

21
January ~~22~~, 1999

Maryellen Tuttle
Noise Program Manager
AIA
P. O. Box 196960
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I.

The AIA FAR PART 150 UPDATE NOISE EXPOSURE MAP that was mailed out on December 9, 1998 receives the following Spenard urban area comments.

The Modeled Departure and Arrival Figures 5.1, 5.2, 5.3, 5.4 and 5.5 appear to minimize AIA scheduled noises over urban area.

The Figures 5.6, 5.7 and 5.8 seem to focus on maintaining and/or increasing the too many unlimited, unpredictable and unscheduled prop motivated aircraft operation at the lake and flights over urban area when parents, children and others are in Spenard urban area indoors and/or outdoors. GA aircraft flight models and GA aircraft flight realities are very often very different. The Figures 5.9 and 5.10 helicopter flight models may be good or bad depending on the number of flights and when-where they occur.

C-003

II.

The AIA FAR PART 150 UPDATE COMPARISON OF EXISTING (1997) and FORECAST (2002) NOISE CONTOUR FIGURE 6.3 seems to be a step in the right direction to reduce jet noise over Spenard area (~~west~~ and north of the lake).

C-004

Will Walker

Will Walker
Spenard CC Airport Watch

January 22, 1999

Maryellen Tuttle
Noise Program Manager
AIA
P. O. Box 196960
Anchorage, Alaska 99519-6960

The following comments are foundationed on the last 3 paragraphs of the attached page 4 taken from Draft Noise Exposure Map 1998.

1) Paragraphs 1 and 2 indicate that touch and go flights are always close to the lake. That is not true because GA pilots extend their down-winds as far as Minnesota Drive or to some points in between, then do a 180° turn and then their finals. All of the above is done by GA for pilot safety, urban danger, noise over urban area and noise at the lake which reaches urban area. (They also extend their down-winds far out when their flights are not touch and goes. The GA pilots seem to think there cannot be too many of any kind at the wrong place at the wrong times.)

C-005

2) Paragraphs 1 and 2 continued.

Given: The annual DNL average of 10,000 touch and go operations = 1dB (soft number).

C-006

I wonder: Do GA pilots conclude from the Given the following? 1 touch and go flight over urban area = .0001 of a regular decibel (hard number). If they do, they are wrong.

2) Paragraphs 3, of page 4 attached. The Pilot Awareness program is foundationed on A) "individual contacts with" GA pilots, B) "Working with the Airmen's Association," and C) "increasing awareness through the use of fact sheets", posted and/or mailed.

Responses to Above

A) Individual contacts with GA pilots requires the identity of the pilot flying over in the cockpit. Any residential person who talks to the pilot would have to go to the lake and walk around it and try to find him. Item A above is too difficult for urban residents to do.

C-007

B) Working with GA Airmen's Association is also too difficult because their objectives seem to be the following. Maximize the use of the resource. Maximize the abuse of urban area, etc. too many times at the wrong times (summers).

Letter to Maryellen Tuttle
January 22, 1999
Page 2

C) Putting together fact sheets takes up too much time for family and others at the wrong times. See an example of jet fact sheets put together by an individual (attachment 2). Putting together prop rap fact sheets is more difficult and too difficult and takes up too much time during summer indoor and outdoor times in urban area. Evidently GA hates flying over vacant land or water and loves doing the prop-rap-beat on family and urban area.

C-001

Will Walker

Will Walker
Spennard Airport Watch

III. GENERAL AVIATION - LAKE HOOD

AP/Adm/mt 1

1. Lake Hood Runway Use Program

Steve Alverson stated that HMMH was asked to investigate possible programs to help reduce the noise impact associated with the Lake Hood/Lake Spenard seaplane base. He presented contour maps illustrating the noise contours based on Lake Hood operations. HMMH developed a normal DNL contour (annual average operations) and a seasonally adjusted contour to reflect the reality that Lake Hood/Lake Spenard operations are very seasonal. Although the seasonal contours are more reflective of the noise impacts associated with this area, the annual average DNLs are required to be used in the Part 150 study. Benefits associated with proposed mitigation measures are based on the annual averages.

Steve Alverson pointed out that the noise associated with the DNL contours around Lake Hood is sideline noise associated with aircraft operations on the lakes. Sideline noise is the same regardless of which direction the aircraft are departing or landing, which makes it difficult to shift the operations either one direction or another to reduce noise impacts. In addition, the air space around Anchorage International Airport and the Lake Hood/Lake Spenard floatplane base is very crowded. Any consideration of changes in Lake Hood/Lake Spenard departures or arrivals have to take into consideration air traffic from Elmendorf Air Force Base, Merrill Field, and Anchorage International Airport. Based on HMMH's analysis, a runway use program for Lake Hood/Lake Spenard is not recommended.

2. Restrictions on Lake Hood Touch and Go Operations:

The second item they looked at was to restrict touch and go operations at Lake Hood/Lake Spenard. Steve Alverson again noted that most of noise associated with Lake Hood/Lake Spenard operations are related to sideline noise, and therefore the noise level is the same regardless of direction of flow. Touch and go operation follow the typical arrival and departure paths into and out of the Lake Hood/Lake Spenard area. The greatest noise impacts from touch and goes are very close in to the floatplane base. Making the touch and goes go to some other facility was evaluated, but there is not another facility within a reasonable distance. Touch and goes represent about 11 percent of the operations, and even eliminating all touch and goes would only reduce the annual average DNL by less than 1 dB. Therefore this measure is not recommended as part of the Part 150 study.

Will Walker questioned whether eliminating all touch and goes would make a significant difference. He felt that reducing up to 10,000 operations over people's houses may not change the DNL but it does makes a difference.

3) Steve Alverson stated that there are pilot awareness programs that can be conducted both in terms of individual contacts with floatplane pilots and working with the Alaska Airmen's Association; increasing awareness through the use of fact sheets or posters or special mass mailings. There is also a complaint hot line which Maryellen Tuttell handles. Maryellen stated that the information she needs is time of day, and where the complainant is. Will Walker questioned whether there was anything that really could be done with the individual pilots. Maryellen and Steve Alverson noted that it is more difficult to ensure compliance with individual pilots, but efforts can be made.

Atkinson 2

Rec'd Nov. 19, 1996

Hand delivered to

TAC #

4211 Bridle Circle
Anchorage, Alaska 99517

November 21, 1996

Ms. Peggy McNeese
Development Director
Anchorage International Airport
State of Alaska DOT/PF
P.O. Box 196960
Anchorage, Alaska 99519-6960

RE: ANCHORAGE INTERNATIONAL AIRPORT JET NOISE LOG

Dear Ms. ~~McNeese~~ *Peggy*:

Attached is the information I logged regarding Anchorage International Airport (AIA) following our phone conversation on August 1, 1996. If you'll recall, after I expressed to you that my neighborhood was experiencing jet noise at an unprecedented level — in frequency, loudness and vibrating rumble — you suggested that I keep a log for a two-week period, noting when I heard loud jet noise at my home (4211 Bridle Circle).

Many apologies for not getting this formally submitted to you until now. While I diligently started the attached log the evening after we talked over the phone on Aug. 1, 1996, and continued until August 17, 1996, I wanted to write a cover letter to clarify or expound on the attached information before turning it in.

Items to Note With Regard to the Attached Noise Log:

- The dates and times noted when jet noise occurred is NOT INCLUSIVE of the total amount of jet noise experienced in this neighborhood between August 1 and August 17, 1996, and is not meant to be a total representation in any way.
- Jet noise that occurred at 4211 Bridle Circle between August 1 and August 17, 1996, but was not logged, is due to a number of practical reasons:
 - I did not log jet noise every time I heard it; I only logged jet noise I considered highly annoying/disturbing in terms of length, noise level and vibrating rumble.
 - I was not home at the time the noise occurred;
 - I was asleep at the time the noise occurred;
 - It was not convenient for me to log the noise (did not have paper and/or writing utensil at hand when I heard jet noise, was on the phone, was doing laundry, etc.)
 - Frankly, after the first few days, I got tired of documenting jet noise every time I heard it and became randomly selective of when I wrote a date and time down.

- There may be times logged that are not completely accurate because of the following reasons:
 - Not all of our clocks in every room of the house or my watches are set to exactly the same time. However, at most, the time would be five minutes off. (If there are differences between when the jet noise actually occurred and the logged times, more likely the difference is only one to two minutes.)
 - I experienced a certain amount of disorientation during those times when I was woken up by jet noise and/or gunshot noise and may have logged an inaccurate time, but at the most, the difference would only be by a matter of minutes.

- Although there were differences in the characteristics of the jet noise noted in this log, the noise most typically had the following traits:
 - The first part of the jet noise had an intense high-pitched scream/roar that lasted approximately 20 to 25 seconds. It was followed by up to approximately 40 seconds of a lower, prolonged thunder/rumble.

Thank you for the opportunity to submit this log. While I do not expect you or other AIA staff to look up every noted time and date and corollate which airline company and what kind of jet generated this noise, this should be more than enough data for you to conclude in a general way if the fully-loaded heavy cargo jets using the newly completed extension of the North-South runway are the cause of this unprecedented jet noise in west Turnagain. Whatever the conclusion, AIA needs to address the existence of jet noise in an area that has historically (at least since the last 14 1/2 years I have lived at 4211 Bridle Circle) not been impacted by jet noise.

Please call me if you have any questions (248-0442).

Sincerely,



Cathy Gleason

ANCHORAGE INTERNATIONAL AIRPORT JET TAKEOFF NOISE LOG

by **Cathy L. Gleason** (Request for log documentation by Peggy McNees August 1, 1996)

All recordings were made at 4211 Bridle Circle in the Turnagain Neighborhood

DATE	TIME	ADDITIONAL INFO.	DATE	TIME	ADDITIONAL INFO.
Aug. 1	8:13 p.m.	inside/windows closed	Aug. 2	8:45 a.m.	outside
	10:00 p.m.	in bedroom/window open		9:00 a.m.	outside
	10:58 p.m.	in bedroom/window open		9:15 a.m.	outside
Aug. 2	12:01 a.m.	in bedroom/window open		9:30 a.m.	outside
	12:34 a.m.	in bedroom/window open		9:45 a.m.	inside/windows open
	12:50 a.m.	in bedroom/window open		12:55 p.m.	inside/windows open
	12:58 a.m.	in bedroom/window open		1:00 p.m.	outside
	1:02 a.m.	in bedroom/window open		1:05 p.m.	outside
	1:04 a.m.	in bedroom/window open		1:10 p.m.	outside
	1:09 a.m.	in bedroom/window open		1:30 p.m.	inside/windows open
	1:11 a.m.	in bedroom/window open		1:32 p.m.	inside/windows open
	1:16 a.m.	in bedroom/window open		1:35 p.m.	inside/windows open
	1:22 a.m.	in bedroom/window open		2:10 p.m.	inside/windows open
	7:10 a.m.	in bedroom/window open		2:30 p.m.	inside/windows open
	7:21 a.m.	in bedroom/window open		3:20 p.m.	inside/windows open
	7:25 a.m.	in bedroom/window open		3:21 p.m.	inside/windows open
	7:29 a.m.	in bedroom/window open		3:32 p.m.	inside/windows open
	7:36 a.m.	in bedroom/window open		4:00 p.m.	inside/windows open
	7:39 a.m.	in bedroom/window open		7:18 p.m.	outside
	7:46 a.m.	in bedroom/window open		7:23 p.m.	outside
	7:48 a.m.	in bedroom/window open		7:23 p.m.	outside
	7:56 a.m.	in bedroom/window open		9:05 p.m.	inside/windows open
	7:58 a.m.	in bedroom/window open		11:38 p.m.	in bedroom/windows closed
	8:01 a.m.	in bedroom/window open	Aug. 3	12:21 a.m.	in bedroom/windows closed
	8:02 a.m.	in bedroom/window open		12:26 a.m.	in bedroom/windows closed
	8:06 a.m.	in bedroom/window open		12:30 a.m.	in bedroom/windows closed
	8:08 a.m.	in bedroom/window open		12:36 a.m.	in bedroom/windows closed
	8:10 a.m.	in bedroom/window open		12:50 a.m.	in bedroom/windows closed
	8:15 a.m.	in bedroom/window open		12:54 a.m.	in bedroom/windows closed
	8:18 a.m.	in bedroom/window open		1:05 a.m.	in bedroom/windows closed
	8:21 a.m.	in bedroom/window open		1:10 a.m.	in bedroom/windows closed
	8:24 a.m.	in bedroom/window open		1:24 a.m.	in bedroom/windows closed
	8:30 a.m.	outside		1:26 a.m.	in bedroom/windows closed
	8:33 a.m.	outside		1:41 a.m.	in bedroom/windows closed
	8:36 a.m.	outside		4:50 a.m.	in bedroom/windows closed
	8:38 a.m.	outside			NOISE WOKE ME UP

DATE	TIME	ADDITIONAL INFO.
Aug. 3	4:52 a.m.	in bedroom/windows closed
	5:00 a.m.	in bedroom/windows closed
	5:56 a.m.	in bedroom/windows closed
	8:51 a.m.	in bedroom/window open
	9:16 a.m.	in bedroom/window open
	9:25 a.m.	in bedroom/window open
	9:32 a.m.	in bedroom/window open
	9:37 a.m.	in bedroom/window open
	2:52 p.m.	inside/windows open
	2:59 p.m.	inside/windows open
Aug. 4	12:16 a.m.	in bedroom/windows closed
	12:26 a.m.	in bedroom/windows closed
	1:07 a.m.	in bedroom/windows closed
	1:41 a.m.	in bedroom/windows closed
	1:45 a.m.	in bedroom/windows closed
	1:54 a.m.	in bedroom/windows closed
	2:01 a.m.	in bedroom/windows closed
	2:04 a.m.	in bedroom/windows closed
	2:10 a.m.	in bedroom/windows closed
	2:12 a.m.	in bedroom/windows closed
	2:16 a.m.	in bedroom/windows closed
	2:44 a.m.	in bedroom/windows closed
	2:52 a.m.	in bedroom/windows closed
	3:04 a.m.	in bedroom/windows closed
	3:31 a.m.	in bedroom/windows closed
	3:39 a.m.	in bedroom/windows closed
	3:43 a.m.	in bedroom/windows closed
	8:52 a.m.	in bedroom/windows closed
	8:56 a.m.	in bedroom/windows closed
	9:03 a.m.	in bedroom/windows closed
	9:13 a.m.	in bedroom/window open
	9:24 a.m.	in bedroom/window open
9:35 a.m.	in bedroom/window open	
9:37 a.m.	in bedroom/window open	
9:40 a.m.	in bedroom/window open	
9:42 a.m.	in bedroom/window open	

DATE	TIME	ADDITIONAL INFO.
Aug. 4	9:43 a.m.	in bedroom/window open
	9:46 a.m.	in bedroom/window open
	9:49 a.m.	in bedroom/window open
	9:59 a.m.	in bedroom/window open
	10:05 a.m.	in bedroom/window open
	2:27 p.m.	inside/windows open
	2:30 p.m.	inside/windows open
	2:51 p.m.	inside/windows open
	3:02 p.m.	inside/windows open
	3:07 p.m.	inside/windows open
	3:30 p.m.	inside/windows open
	3:42 p.m.	inside/windows open
	3:44 p.m.	inside/windows open
	3:45 p.m.	inside/windows open
	5:46 p.m.	inside/windows closed
	7:19 p.m.	inside/windows closed
	7:35 p.m.	inside/windows closed
	8:28 p.m.	inside/windows closed
	8:32 p.m.	inside/windows closed
	8:34 p.m.	inside/windows closed
	8:37 p.m.	inside/windows closed
	9:02 p.m.	inside/windows closed
	9:22 p.m.	inside/windows closed
	9:58 p.m.	inside/windows closed
	10:01 p.m.	inside/windows closed
	10:03 p.m.	inside/windows closed
10:16 p.m.	inside/windows closed	
10:20 p.m.	inside/windows closed	
10:24 p.m.	inside/windows closed	
10:44 p.m.	inside/windows closed	
11:06 p.m.	inside/windows closed	
11:17 p.m.	inside/windows closed	
Aug. 5	12:25 a.m.	in bedroom/windows closed
	12:49 a.m.	in bedroom/windows closed
	12:54 a.m.	in bedroom/windows closed
	1:02 a.m.	in bedroom/windows closed

DATE	TIME	ADDITIONAL INFO.	DATE	TIME	ADDITIONAL INFO.	
Aug. 5	1:04 a.m.	in bedroom/windows closed	Aug. 7	3:02 a.m.	in bedroom/window open	
	9:11 a.m.	in bedroom/windows closed		6:09 a.m.	in bedroom/window open	
	9:19 a.m.	in bedroom/windows closed			NOISE WOKE ME UP	
	9:21 a.m.	in bedroom/windows closed		6:11 a.m.	in bedroom/window open	
	9:27 a.m.	in bedroom/windows closed		6:35 a.m.	in bedroom/window open	
	9:31 a.m.	in bedroom/windows closed		6:46 a.m.	in bedroom/window open	
	9:34 a.m.	in bedroom/windows closed		12:52 p.m.	inside/windows open	
	10:22 a.m.	inside/windows open		3:06 p.m.	inside/windows open	
	10:45 a.m.	inside/windows open		11:19 p.m.	in bedroom/window open	
	11:57 a.m.	inside/windows open		11:27 p.m.	in bedroom/window open	
	1:18 p.m.	inside/windows open	11:42 p.m.	in bedroom/window open		
	1:21 p.m.	inside/windows open	Aug. 8	12:13 a.m.	in bedroom/window open	
	7:13 p.m.	inside/windows closed		12:37 a.m.	in bedroom/window open	
	10:28 p.m.	inside/windows closed		6:46 a.m.	in bedroom/window open	
	Aug. 6	6:14 a.m.		in bedroom/windows closed	7:47 a.m.	in bedroom/window open
		6:27 a.m.		in bedroom/windows closed	8:07 a.m.	in bedroom/window open
		6:29 a.m.		in bedroom/windows closed	10:54 a.m.	in bedroom/window open
6:41 a.m.		in bedroom/windows closed		11:08 a.m.	in bedroom/window open	
6:43 a.m.		in bedroom/windows closed		11:11 a.m.	in bedroom/window open	
8:48 a.m.		in bedroom/windows closed		9:25 p.m.	inside/windows closed	
8:52 a.m.		in bedroom/windows closed		11:55 p.m.	in bedroom/window open	
8:55 a.m.		in bedroom/windows closed	Aug. 9	12:03 a.m.	in bedroom/window open	
12:48 p.m.		outside		4:01 a.m.	in bedroom/window open	
1:11 p.m.		outside		5:38 a.m.	in bedroom/window open	
1:18 p.m.		outside		5:45 a.m.	in bedroom/window open	
1:40 p.m.		outside		7:00 a.m.	in bedroom/windows closed	
2:00 p.m.		outside			GUNSHOT NOISE	
2:55 p.m.		inside/windows open			WOKE ME UP	
3:13 p.m.		inside/windows open		7:14 a.m.	in bedroom/windows closed	
3:26 p.m.		inside/windows open		8:49 a.m.	in bedroom/window open	
3:37 p.m.		inside/windows open		10:42 a.m.	in bedroom/window open	
4:15 p.m.	inside/windows open	11:48 a.m.	in bedroom/window open			
9:22 p.m.	inside/windows closed	1:23 p.m.	in bedroom/window open			
9:24 p.m.	inside/windows closed	6:40 p.m.	inside/windows closed			
10:22 p.m.	inside/windows closed	7:53 p.m.	inside/windows closed			
Aug. 7	1:10 a.m.	in bedroom/window open	8:32 p.m.	inside/windows closed		

DATE	TIME	ADDITIONAL INFO.	DATE	TIME	ADDITIONAL INFO.
Aug. 9	8:50 p.m.	inside/windows closed	Aug. 12	6:46 a.m.	in bedroom/windows closed
	11:41 p.m.	in bedroom/windows closed		6:52 a.m.	in bedroom/windows closed
Aug. 10	3:11 a.m.	in bedroom/windows closed		6:57 a.m.	in bedroom/windows closed
	4:24 a.m.	in bedroom/windows closed		7:07 a.m.	in bedroom/windows closed
	5:06 a.m.	in bedroom/windows closed		7:13 a.m.	in bedroom/windows closed
	5:25 a.m.	in bedroom/windows closed		7:26 a.m.	in bedroom/windows closed
	5:32 a.m.	in bedroom/windows closed		2:46 p.m.	in bedroom/window open
	5:38 a.m.	in bedroom/windows closed		2:56 p.m.	in bedroom/window open
	5:41 a.m.	in bedroom/windows closed		3:01 p.m.	in bedroom/window open
	6:06 a.m.	in bedroom/windows closed		9:21 p.m.	in bedroom/window open
	9:40 a.m.	in bedroom/windows closed		10:15 p.m.	in bedroom/windows closed
	1:08 p.m.	inside/windows open		11:16 p.m.	in bedroom/windows closed
	1:33 p.m.	inside/windows open	Aug. 13	12:31 a.m.	in bedroom/windows closed
	1:59 p.m.	inside/windows open		1:37 a.m.	in bedroom/windows closed
	2:01 p.m.	inside/windows open		1:40 a.m.	in bedroom/windows closed
	2:55 p.m.	inside/windows open		1:47 a.m.	in bedroom/windows closed
	3:13 p.m.	in bedroom/windows closed		1:53 a.m.	in bedroom/windows closed
	3:28 p.m.	in bedroom/windows closed		1:58 a.m.	in bedroom/windows closed
	3:49 p.m.	in bedroom/windows closed		2:13 a.m.	in bedroom/windows closed
	3:59 p.m.	in bedroom/windows closed		2:17 a.m.	in bedroom/windows closed
	4:19 p.m.	in bedroom/windows closed		2:48 a.m.	in bedroom/windows closed
	4:24 p.m.	in bedroom/windows closed		2:51 a.m.	in bedroom/windows closed
	4:43 p.m.	in bedroom/windows closed		5:13 a.m.	in bedroom/windows closed
	4:48 p.m.	in bedroom/windows closed		9:59 a.m.	in bedroom/windows closed
	5:10 p.m.	in bedroom/windows closed		10:04 a.m.	in bedroom/windows closed
	5:52 p.m.	in bedroom/windows closed		1:42 p.m.	in bedroom/window open
	5:55 p.m.	in bedroom/windows closed		1:28 p.m.	outside
	9:24 p.m.	inside/windows closed		1:57 p.m.	outside
	9:37 p.m.	inside/windows closed		11:52 p.m.	in bedroom/window open
Aug. 12	12:20 a.m.	in bedroom/windows closed	Aug. 14	12:13 a.m.	in bedroom/window open
	12:53 a.m.	in bedroom/windows closed		12:39 a.m.	in bedroom/window open
	6:14 a.m.	in bedroom/windows closed		12:41 a.m.	in bedroom/window open
		NOISE WOKE ME UP		12:58 a.m.	in bedroom/window open
	6:24 a.m.	in bedroom/windows closed		1:15 a.m.	in bedroom/window open
	6:40 a.m.	in bedroom/windows closed		1:26 a.m.	in bedroom/window open
	6:43 a.m.	in bedroom/windows closed		1:28 a.m.	in bedroom/window open

DATE	TIME	ADDITIONAL INFO.	DATE	TIME	ADDITIONAL INFO.
Aug. 14	1:32 a.m.	in bedroom/window open	Aug. 16	4:56 a.m.	in bedroom/windows closed
	1:36 a.m.	in bedroom/window open		7:16 a.m.	in bedroom/windows closed
	1:41 a.m.	in bedroom/window open			GUNSHOT NOISE
	1:44 a.m.	in bedroom/window open			WOKE ME UP
	2:03 a.m.	in bedroom/window open		4:57 p.m.	in bedroom/window open
	2:07 a.m.	in bedroom/window open	Aug. 17	12:06 a.m.	in bedroom/windows closed
	2:08 a.m.	in bedroom/window open		12:18 a.m.	in bedroom/windows closed
	2:14 a.m.	in bedroom/window open		12:20 a.m.	in bedroom/windows closed
	2:49 a.m.	in bedroom/windows closed			
	2:52 a.m.	in bedroom/window open			END OF LOG
	2:55 p.m.	inside/windows open			
	10:44 p.m.	in bedroom/window open			
	10:46 p.m.	in bedroom/window open			
	10:48 p.m.	in bedroom/window open			
	10:59 p.m.	in bedroom/window open			
	11:06 p.m.	in bedroom/window open			
	11:09 p.m.	in bedroom/window open			
	11:12 p.m.	in bedroom/window open			
	11:49 p.m.	in bedroom/window open			
Aug. 15	2:58 a.m.	in bedroom/window open			
	6:05 a.m.	in bedroom/window open			
		NOISE WOKE ME UP			
	6:07 a.m.	in bedroom/window open			
	6:10 a.m.	in bedroom/window open			
	6:13 a.m.	in bedroom/window open			
	8:46 a.m.	in bedroom/window open			
	8:55 a.m.	in bedroom/window open			
	8:58 a.m.	in bedroom/window open			
	9:06 a.m.	in bedroom/window open			
	11:06 p.m.	in bedroom/windows closed			
	11:52 p.m.	in bedroom/windows closed			
Aug. 16	12:04 a.m.	in bedroom/windows closed			
	12:19 a.m.	in bedroom/windows closed			
	12:23 a.m.	in bedroom/windows closed			
	12:26 a.m.	in bedroom/windows closed			
	12:38 a.m.	in bedroom/windows closed			

February 2, 1999

AIA Noise Program Manager
State of Alaska DOT & PF
P.O. Box 196960
Anchorage, Alaska 99519-6960

Dear Noise Program Manager:

I have the following comments regarding the Draft Noise Compatibility Program:

1. Lack of Public Notice - The newspaper insert regarding the Noise Compatibility Study Update stated that copies would be available for review at City Hall at the public counter on the second floor. However, I didn't know that meant that the Planning Department had only ONE copy that a person had to review while standing at the counter. Given the length and complexity of the Study, members of the public should have been able to take a copy home to read at their leisure. The failure to have copies available prior to the February 9 hearing renders the public progress meaningless.

C-008

2. The Noise Measurements Are Outdated - According to the Noise Exposure Map documents, the noise measurements were taken in 1995. Projections are made for the future, based on a couple of assumptions: while activity would continue to increase, it will be roughly offset by the decrease in the Phase 2 aircraft. There is no evidence in the Study to support such an assumption. Rather than making assumptions, wouldn't it make more sense to wait until the Stage 2 aircraft are phased out in the Lower 48 at the end of 1999 and then do the noise measurements? If not, the 1995 measurements will always overstate the noise levels. Additionally, the assumption of increasing activity into the future has proven to be false: according to the Anchorage Economic Development Corporation, transit cargo at AIA fell 3.8 percent for the first half of fiscal 1999. This is part of a worldwide downturn in the air passenger and cargo industries, according to a February 1, 1999 article in the Alaska Journal of Commerce.

C-009

3. Land Use Measures For Areas Below 65 Db Are Unnecessary - According to the Study, "all land uses are considered to be compatible with noise levels below 65 dB." However, the Study justifies a number of land use proposals beyond the DNL 65 dB contour on the basis that some of these people may still complain about airport noise. These measures have obvious political overtones; for example, the Fair Disclosure Policy is considered necessary because without disclosure, "these new residents may become opponents of the Airport." The Study concedes that this proposal "would have some impact on property values." Thus, this proposal would be considered a "success" if a homeowner living within the 60 dB contour could not sell his house and

C-010

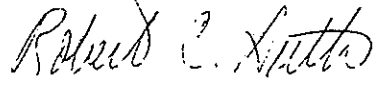
had to abandon it; at least no more "opponents of the Airport" would be living there. These proposals are designed to stifle the free speech rights of the residents, constitute a taking without due process, and are unnecessary within the compatible 60 dB contour. } C-010

4. The Study Has Ignored Obvious Noise Reduction Measures - The Study rejects all proposals to limit the effect of the noisy Stage 2 aircraft. It proposes only that DOT assess the contribution of Stage 2 aircraft to the total noise exposure at AIA after the year 2000. As discussed above, this is an argument for conducting a new Noise Exposure Map, as the 1995 figures are outdated based on the phasing out of the Stage 2 aircraft. } C-011

The Study also rejects any proposals to curtail general aviation air traffic even though it is the basis of many a citizen complaint; additionally, several of the noise measurement sites indicated significant noise exposure as a result of general aviation. } C-012

Finally, even though the Study concluded that sound barrier walls could provide noise reduction, it decided that a detailed study of aircraft ground noise problems was needed. } C-013

In short, the Study is inaccurate, incomplete, illegal, and politically motivated. } C-014

Regards,

Robert C. Auth
2621 Melvin Ave.
Anchorage, Alaska 99517



Anchorage Economic Development Corporation
The Center of Opportunity

MEMORANDUM

Date: February 5, 1999

Position of the Anchorage Economic Development Corporation

Regarding: Anchorage International Airport Noise Study

1. Introduction

The Anchorage Economic Development Corporation (AEDC) has identified the Anchorage International Airport (AIA) as one of the most important economic engines of the metropolitan area of Anchorage. With over 11,000 employees and \$319 million in payroll, the AIA accounts for almost one job in 10 in Anchorage. In 1997, 34 air carriers have landing rights at AIA. The airport currently serves over five million passengers annually, over half are Alaskans, with 25% domestic visitors, and 15% international travelers. Based on current trends, six million passengers are expected by the year 2005. The Anchorage International Airport is the top U.S. cargo airport based on landed weight of all-cargo aircraft. Over 95% of the cargo between the U.S. and Asia stops in Anchorage. The expanded cargo transfer capability ruling approved by the U.S. Department of Transportation has enhanced the ability of cargo carriers to transfer cargo in Anchorage. This makes AIA even more attractive for cargo hub operations and inter-airline cargo transfers.

2. Operational Considerations

The AIA advantages, which attract over 500 flights per week, are based on location and operational flexibility. The accidents of geography provide the location advantage. AIA lies within nine hours of 95% of the industrialized world. Thus, it forms a convenient and fuel-efficient intersection between major markets.

The other major advantage is the operational profile of 24 hours seven days a week availability and excellent operational control. AIA has a very low frequency of shut downs or serious delays for weather problems. If this operational profile changes, airlines, which use AIA, will divert to other airports to avoid uncertainty or restrictions. Currently, air carriers can leave Narita or Seoul or LA without concern about their ability to land in Anchorage, regardless of head wind or tail wind changes in flight time. They do not become concerned about whether or not there will be a "slot time" open when their

C-015

airplane is ready to land or leave. This significant advantage provides an incentive for air carriers to consider cargo manipulation operations in Anchorage. They can take time for cargo transfers here without regard for restrictions on their time resident in the airport.

3. Noise Conflicts can be prevented

The area within the 60-decibel level is zoned for residential use surrounding the AIA. In many of these areas, residential construction continues to add neighbors to an area known to be within the +60decibel noise profile under certain airport use patterns. Preventing further residential development within these noise corridors can reduce the neighborhood conflict potential.

If the AIA is not provided with buffer areas for industrial or business use that supports growth, the full potential of the AIA as an economic engine will be curtailed. Growth of its nature will incur greater traffic and movement of cargo transport from industrial parks into and out of the AIA air corridors. Rather than await forced actions such as eminent domain taking or demising of property at a later date, this can be limited by re-zoning the areas surrounding the AIA as I-2 zones.


4. Buffer lands and landscaping can abate noise levels

The intensity of operation at the AIA has increased over the last ten years. Properties, which were not noticeably affected by aircraft noise, have more notice taken of such activity. It is important to define the distinction between commercial traffic and recreational/personal traffic (Lake Hood small craft).

Sound barriers and burms separating the newly zoned industrial areas from residential neighborhoods can significantly improve the noise profile adjacent to the AIA. Also, transportation corridors separating commercial/industrial traffic from neighborhood street traffic should be defined as part of the planning process.

All of these considerations can be implemented within the context of the Anchorage Comprehensive Plan for Land Use. The AIA is one of the important economic engines of Anchorage. It supports high quality jobs for over 11,000 citizens and contributes a strain of stability to the economy. Growth and optimal operation must not be curtailed. To do so will reduce the competitive advantage of this airport.

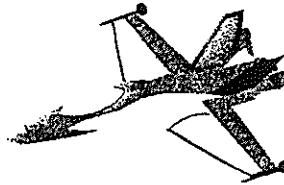
Sincerely,



Ernie Hall
Chairman AEDC Airport Marketing Committee

C-015

Tami & Rodney Powell
P.O. Box 111605
Anchorage, AK 99511
345-8447



February 9, 1999

BEAR VALLEY: South/East Anchorage

Airport Noise Study:

- Why aren't we part of the "effected area" (On the Map) ? } C-016
- We have Jets all day and all night still. (Why can't they fly } C-017
further South ?)
- Why are you sacrificing the Quiet of South Anchorage } C-018
residential areas ?
- If taking off to the West, this means reverberation for all } C-019
Anchorage residents for the rest of our lives.
- When taking off West bound, it sounds like there over our }
heads. (Bear Valley, please come out to listen)

Anchorage International Airport

ANC PART 150 NOISE STUDY UPDATE
TECHNICAL ADVISORY COMMITTEEFEBRUARY 9, 1999
May 27, 1998

Do you have comments regarding the Part 150 Noise Study Update? If so, please note your comments on this form. The form can be left here or you may mail it back to the Airport at the address listed below. Thank you.

Name:

Neal Kutchins

Address:

1356 Kirsten Circle

City, State, Zip Code:

Anchorage, AK 99578

My understanding is that when planes use the East/West Runways taking off going East they will be turning at Minnesota instead of over the New Seward Highway - This will be right over a large residential area.

My concern is that this area will eventually have the "high noise" comment put on its platting maps.

I have not received any notification of change in take-off patterns that would affect my homeland I feel I should have.

Mail to: Anchorage International Airport, Noise Program

P.O. Box 196960, Anchorage, AK 99519-6960

FAX to 243-0663

C-02

Anchorage International Airport

**ANC PART 150 NOISE STUDY UPDATE
TECHNICAL ADVISORY COMMITTEE**

February 9, 1999
~~May 27, 1998~~

Do you have comments regarding the Part 150 Noise Study Update? If so, please note your comments on this form. The form can be left here or you may mail it back to the Airport at the address listed below. Thank you.

Name: CLIFFORD SCHWANDT
Address: 3605 CHALLENGER CIR
City, State, Zip Code: ANCH. AK 99517

DEAR COMMITTEE MEMBERS,
I WOULD LIKE TO SEE THE SMALL
PLANES TAKING OFF FROM LAKE
HOOD + THE GRAVEL STRIP TO ^{THE} NORTH,
TO SUSTAIN FROM TURNING OVER C-021
THE TURNAGAIN HOUSING AREA
{TURNING TO THE EAST} UNTILL
THEY REACH THE INLET, ~~AND~~
IF THEY MUST DO GO AROUNDS
TO LIMIT HOW MANY TIMES AND C-022
TAKE DIFFERENT PATHS {EVERY TIME} NOT OVER MY HOUSE

Mail to: Anchorage International Airport, Noise Program
P.O. Box 196960, Anchorage, AK 99519-6960



THE DAVID GREEN GROUP

February 9, 1999

Ms. Maryellen Tuttel

AICPI Noise Program Manager

POB 196960

Anchorage, AK 99501

Re: AIA Noise Compatibility Program

Dear Ms. Tuttel:

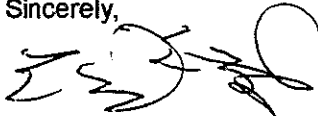
I'm writing on behalf of the David Green Group, JV dba Duty Free Alaska in support of the position taken by the Anchorage Economic Development Corporation regarding the AIA Noise Compatibility Study.

We would underscore and support the importance of the points raised by Mr. Ernie Hall, Chair of the AEDC Marketing Committee, in his memorandum of February 5, 1999.

Maintaining the competitive operational position of the Anchorage International Airport while at the same time creating a reasonable buffer zone to residential development seems a sensible solution. As Mr. Hall points out, it's important to remember that AIA remains a powerful and viable economic engine in our community. Protecting it, via sensible design and development, seems to be an effective solution. Limiting the growth of the airline cargo and passenger industry via onerous restrictions isn't in the economic interest of Anchorage or it's citizens. It's our belief that unnecessary operating or financial restrictions placed on any air carrier, passenger or cargo, will serve as a powerful disincentive to further their future plans here.

We trust your committee will carefully consider the importance and economic impact of it's decision and grant the reasonable solutions proposed in AEDC's letter.

Sincerely,



Richard E. Benedetti
Managing Partner

cc: Mr. M. Kean & Mr. E. Hall, AEDC

C-023

February 9, 1999

Maryellen Tuttell
Noise Program Manager
Anchorage Int'l Airport
P.O. Box 196690
Anchorage, AK 99519-6960

Dear Maryellen:

I am writing in strong opposition to the recommendation included in the Part 150 Noise Compatibility Study Update regarding real estate disclosure for the sale of property within the 60 DNL. Please ensure that my comments are received and known by FAA and by the Sand Lake area representative for tonight's meeting. Unfortunately, I will be unable to appear in person at your meeting due to a required work-related, evening meeting.

C-024

First, to provide some background... I have attended a number of public meetings hosted by the Airport over the past 2-3 years to become more informed about the Airport's Part 150 Study. At one of these meetings I stood up during audience participation and voiced my objection to the real estate disclosure recommendation. The feedback I received at that time was practically nil and I am disappointed that the real estate disclosure recommendation is still alive. In short, I believe the real estate disclosure recommendation is biased, unreasonable, punitive, subjective, discriminatory, and an illegitimate element of the Noise Compatibility Program.

C-025

Before providing specific reasons for my objection to the real estate disclosure recommendation, I would like to commend the Airport for a well-run, informative public process and for proposing many positive, constructive noise mitigation measures. In fact, except for the real estate disclosure recommendation, I support all the other measures being proposed.

C-026

Now, for the reasons why I strongly object to the real estate disclosure recommendation:

1. This measure is extremely self-serving to the Airport. I believe its sole intent is to minimize the threat of lawsuits like Tanaina Hills, even if it means devaluing existing properties. Why does the Airport want to "help" future, prospective homebuyers and at the same time "hurt" existing homeowners?

C-027

2. I have yet to be provided any details about what the real estate disclosure involves and how it would be implemented. All I have ever seen in the Airport's literature is a "bullet point" or a very subtle point buried in a parenthetical remark. It seems the Airport has purposely been short on specifics and downplayed the negative impact this measure would have on existing property owners.

C-028

3. This measure is punitive and negative to existing homeowners who one day will want to sell their homes. Any prospective buyer is going to know that the property they're interested in purchasing is close to the Airport—which actually is a plus in many respects. If a prospective buyer is concerned about the potential noise impact let the buyer talk to the seller 1:1 and let the buyer do his/her homework and contact the Airport on their own initiative to find out about noise impacts. C-029
4. As a future seller of a home on the fringe of the 60 DNL zone (6855 Caravelle, directly east of Kincaid Elementary) I am very concerned about the "black mark" that would be placed on my home if the real estate disclosure is put into effect. Clearly, some prospective buyers would be immediately scared off by such a formal disclosure—their first impression at seeing the intricate noise contour maps and any other written disclosures (i.e., "buyer beware" information) would naturally lead to an immediate negative reaction by prospective buyers. Whether a prospective buyer would take the time to understand and accept the disclosure for what it attempts to communicate is uncertain. One can be assured, however, that it will take longer to sell a home located within the 60 DNL zone and market values will be negatively affected as a result of the proposed real estate disclosure. C-030
5. The real estate disclosure recommendation for property owners within the DNL 60 is unjustly discriminatory. What about the noise levels caused by Lake Hood or Merrill Field or Elmendorf? How can the FAA sanction a real estate disclosure for only one segment of Anchorage and not the others? C-031
6. The Airport's Consultant (HNTB) made the point very strongly at a past meeting that individuals have different reactions to noise—some are not the least bit bothered, some are driven crazy, some are only occasionally bothered, etc. Given that the DNL contours reflect a modeling, an averaging, a generalized interpretation of potential human reaction to noise levels, how can the Airport present a "fair" real estate disclosure of noise impacts that are by their nature subjectively interpreted? C-032
7. At one of the past public meetings, someone on the Airport's Technical Advisory Committee compared the real estate disclosure re: noise contours to flood zone disclosures. This is an invalid comparison. Noise impact is clearly more subjective than a flood zone designation. The threat posed by a home located in a flood zone is real, it's tangible, and it's part of the permanent topography. A noise zone changes over time, is not an immediate threat to property, and does not pose an objective, equal threat to all property owners in the area. C-033
8. The real estate disclosure recommendation plainly does not fit with the other Land Use measures proposed by the Airport which attempt to modify zoning and plats affecting NEW development *not existing* development. How can the real estate disclosure be classified as a Land Use measure when, by the Airport's own definition, a Land Use measure is either "preventative" or "remedial" in nature? What is "preventative" or "remedial" about the real estate disclosure recommendation? C-034

9. The real estate disclosure is an oddball recommendation and is inconsistent with the Airport's stated goal of "reducing existing non-compatible land uses and preventing or reducing the probability of the establishment of additional non-compatible land uses." [NOTE: I live on the fringe of 60 DNL zone, in an existing *compatible* land use area, yet my home would be black-marked by the real estate disclosure recommendation. How is this helping to achieve the overall land use goal?] } C-035

10. The real estate disclosure recommendation apparently was raised during the last Part 150 Study a decade or so ago. It never went anywhere. What caused it to die then and why is it back in the forefront now? } C-036

I STRONGLY URGE THE FEDERAL AVIATION ADMINISTRATION (FAA) TO DELETE THE REAL ESTATE DISCLOSURE PROVISION FROM THE PART 150 STUDY UPDATE AND TO APPROVE THE REMAINDER OF THE RECOMMENDATIONS. } C-037

Thank you for your consideration. If you should need to contact me for any reason my work number is 343-4282 and my home number is 243-0996.

Sincerely,



Daniel A. Moore
Daniel A. Moore

cc: Patti Sullivan, FAA
Peter Bradshaw, Sand Lake CC representative

Anchorage International Airport

**ANC PART 150 NOISE STUDY UPDATE
TECHNICAL ADVISORY COMMITTEE**

2/9/99
~~May 27, 1998~~

Do you have comments regarding the Part 150 Noise Study Update? If so, please note your comments on this form. The form can be left here or you may mail it back to the Airport at the address listed below. Thank you.

Name: GAIL GALLEHER
Address: 901 WEST 54th
City, State, Zip Code: Anchorage AK 99518 563-3718

I fully support the efforts of the International Airport and their partners in reducing the departures of "heavies" off runway 6L+6R and the subsequent noise and vibration. C-038

I also support the recommendation of a noise monitoring system and noise advisory committee. C-039

Mail to: Anchorage International Airport, Noise Program
P.O. Box 196960, Anchorage, AK 99519-6960

Anchorage International Airport

ANC PART 150 NOISE STUDY UPDATE
TECHNICAL ADVISORY COMMITTEE

May 27, 1998

2-9-98

Do you have comments regarding the Part 150 Noise Study Update? If so, please note your comments on this form. The form can be left here or you may mail it back to the Airport at the address listed below. Thank you.

Name: WILL MADSEN
Address: 2845 W. 42nd PLACE
City, State, Zip Code: ANCHORAGE, AK 99517

MY RELIEF IS THAT THE FAA IS FORCING THIS DOWN
OUR THROATS, SWEETENED WITH A FEW MILLION DOLLARS
IN ORDER TO EXPAND THEIR POWER + # OF SUBORDINATES } C-040

NOISE ABATEMENT STUDIES + "REMEDIES" ARE A WASTE OF
TIME + TAXPAYERS MONEY. THE AIRPORT IS THERE + PLANES } C-041

MAKE NOISE. DON'T LIKE IT? DON'T LIVE NEXT TO
IT. ^{LET THE MARKET PLACE DECIDE IF IT'S BAD PEOPLE WON LIVE THERE} THE ONLY NOTICABLE IMPACT OF ALL THIS } C-042
WILL BE FORCED ZONING CHANGES AND PROPERTY

DEVALUATION WITH OUT COMPENSATION. THE LOCAL
COMMITTEE PEOPLE I'M SURE CARE + WORKED HARD } C-043
BUT WE KNOW IT WAS JUST AN "EXERCISE"

Mail to: Anchorage International Airport, Noise Program

P.O. Box 196960, Anchorage, AK 99519-6960

Anchorage International Airport

**ANC PART 150 NOISE STUDY UPDATE
TECHNICAL ADVISORY COMMITTEE**

~~February 9, 1999~~
~~May 27, 1998~~

Do you have comments regarding the Part 150 Noise Study Update? If so, please note your comments on this form. The form can be left here or you may mail it back to the Airport at the address listed below. Thank you.

Name: DON SLONE

Address: 6400 REED LANE

City, State, Zip Code: ANCHORAGE, AK 99502

WE ARE LOCATED WITHIN THE AREA DESIGNATED "NON COMPATIBLE
RESIDENTIAL LAND USE." WE CONCERNED THAT PUSH TO INCREASE
AIRPORT COMMERCIAL OPERATIONS FOR ECONOMIC GAINS WILL NEGATIVELY
IMPACT THE QUALITY OF LIFE. } C-0

1) THE "EARLY SOUTH TURN" WILL IMPACT NEW PEOPLE. PRIOR
TO IMPLEMENTING, NOISE REDUCING TAKE OFF MEASURES
SHOULD BE IMPLEMENTED FOR CURRENT DEPARTURE PATTERNS } C-0

2) CONSIDER RESTRICTING (OR RELOCATING TO ANOTHER PART
OF THE AIRPORT) THE AREA FOR USE OF ENGINE RUN-UP
OPERATIONS. THESE HAVE GREAT NOISE IMPACT. } C-0

3) "FAIR NOTICE" DESIGNATIONS ON FLATS ARE LIKE SCARLET LETTERS.

Mail to: Anchorage International Airport, Noise Program

(OVER)



P.O. Box 196960, Anchorage, AK 99519-6960

3) (CONTINUED)

GREAT CARE & STUDY SHOULD BE APPLIED PRIOR TO ANY DECISION TO REQUIRE SUCH NOTICE ON PARTS.

MITIGATION MEASURES SHOULD BE DEVELOPED & MADE AVAILABLE TO THOSE PARCELS IMPACTED.

C-047

4) THE ADOPTION OF THESE PLANS SHOULD BE TIED TO BINDING COMMITMENTS BY STATE, AIA, & MOA TO APPLY FOR & IMPLEMENT THE MITIGATION MEASURES AVAILABLE, SUCH AS THE SOUND INSULATION MEASURES & CONTINUED MONITORING.

C-048

* INCLUDING MORE REFINED & ACCURATE MEASUREMENTS WHEN ESTABLISHING CONTOURS & DESIGNATING AREAS.

Anchorage International Airport

**ANC PART 150 NOISE STUDY UPDATE
TECHNICAL ADVISORY COMMITTEE**

~~FEBRUARY 1999~~
May 27, 1998.

Do you have comments regarding the Part 150 Noise Study Update? If so, please note your comments on this form. The form can be left here or you may mail it back to the Airport at the address listed below. Thank you.

Name: Clyde T. Kaushiro
Address: 6331 Airguard Rd
City, State, Zip Code: Anchorage AK 99502

I am interested in the use of free barriers to reduce noise levels on areas near the runways. Can trees be planted in the open areas (marshes) around the airport? Since many trees won't grow in marshy areas, can these areas be raised so that some white spruce, birches and other trees may grow. There is a spot near the end of Airguard road which was left bare when the waterline was installed in that area. No trees were replanted. If there were some trees planted at the end of the construction, there would be

Mail to: Anchorage International Airport, Noise Program

P.O. Box 196960, Anchorage, AK 99519-6960

some significant growth by now you can see
the tail of aircraft near our residence. I believe the
aesthetics and noise reduction would be significantly
improved by trees being planted in the winter time
installation site.

Noise Program Manager
Anchorage International Airport
P. O. Box 196960
Anchorage, AK 99519-6960

Anchorage International Airport

ANC PART 150 NOISE STUDY UPDATE
TECHNICAL ADVISORY COMMITTEE

FEBRUARY 9, 1999
~~May 27, 1998~~

Do you have comments regarding the Part 150 Noise Study Update? If so, please note your comments on this form. The form can be left here or you may mail it back to the Airport at the address listed below. Thank you.

Name: Joe - Kathy Sprado

Address: 6906 FERRY

City, State, Zip Code: Anch AK 502

We live on Raspberry and Terry,

the noise level is so loud it shakes our home
to the point of rattling windows, we can't hear
the radio or T.V.

It not so bad during the day hours but
when you're sleeping, to be awoken by
plane taking off

We have lived in this home since 1986 and
each year seem to get ~~more~~ more and more
air traffic in the area.

Please send me info. about ^{regarding} ~~something~~ our home

Mail to: Anchorage International Airport, Noise Program

P.O. Box 196960, Anchorage, AK 99519-6960

C-05

Anchorage International Airport

**ANC PART 150 NOISE STUDY UPDATE
TECHNICAL ADVISORY COMMITTEE**

FEBRUARY 9, 1999
~~May 27, 1998~~

Do you have comments regarding the Part 150 Noise Study Update? If so, please note your comments on this form. The form can be left here or you may mail it back to the Airport at the address listed below. Thank you.

Name: Joe VanTreck
Address: 5000 SPORTSMAN DRIVE
City, State, Zip Code: ANCHORAGE, AK 99502

THE AIRPORT IS AN IMPORTANT ECONOMIC ASSET IN
OUR COMMUNITY. WHILE EVERYTHING THAT REASONABLY
COULD BE DONE TO MINIMIZE NOISE THAT DISRUPTS
PEOPLES LIVES, NOTHING SHOULD BE DONE TO OVER
BURDEN THE AIRPORT. ANYTHING THAT REDUCES
OR DESTROYS THE AIRPORT'S VALUE TO AIRCARRIERS
ARE COUNTER PRODUCTIVE AND MUST BE AVOIDED
EVERY TIME WE HEAR A JET POWERUP - SHOULD
REMININD US OF THE RINGS OF A CASH REGISTER -
TOTALING UP THE DAYS RECEIPTS!

C-051

Mail to: Anchorage International Airport, Noise Program

P.O. Box 196960, Anchorage, AK 99519-6960

Anchorage International Airport

**ANC PART 150 NOISE STUDY UPDATE
TECHNICAL ADVISORY COMMITTEE**

FEBRUARY 9, 1999
~~MAY 27, 1998~~

Do you have comments regarding the Part 150 Noise Study Update? If so, please note your comments on this form. The form can be left here or you may mail it back to the Airport at the address listed below. Thank you.

Name: PAMELA KONINIG

Address: 6400 CRANBERRY

City, State, Zip Code: ANCHORAGE, Alaska 99502

1. Have restrictions been placed on airline engine types allowed to land @ AIA per original FAA guidelines? Are phase-outs being monitored? } C-052

2. Have measures been considered for fining overloaded air freight carriers leaving AIA? } C-053

3. Was decibel level study conducted when both N/S & E/W runway were fully operational? summer of 1990, E/W runway was under construction. } C-054

4. What abatement measures for residences are being considered & what is the time frame for implementation retrofitting existing residences? } over →

Mail to: Anchorage International Airport, Noise Program

P.O. Box 196960, Anchorage, AK 99519-6960

5.) PROVIDE SPECIFICS ON PLAT NOTES I.E, ARGON GAS WINDOWS, INSULATION COMPATABLE WITH SCIENTIFIC STUDIES, NOT THE WHIM OF PLANNING

C-056

6.) BUILDING CODES DO NOT DEAL WITH NOISE ISSUES, ^{and} FIRE/LIFE SAFETY ISSUES. DON'T COUNT ON THOSE CODES REGULATING THOSE CODES!! HOME BUILDERS ARE NOT IN FAVOR OF SPENDING ANY EXTRA \$\$ TO BUILD THE SAME HOME THEY CAN BUILD IN SOME OTHER LOCATION FOR LESS.

C-057

THE BUILDING DEPARTMENT WOULD HAVE A HARD TIME IN ENFORCEMENT, EITHER POLITICALLY OR LEGALLY.

Noise Program Manager
Anchorage International Airport
P. O. Box 196960
Anchorage, AK 99519-6960

7) THIS ^{MEASURE} ~~STUDY~~ WAS TO BE IMPLEMENTED 10 YEARS AGO, ARE FEDERAL FUNDS IN DANGER $\frac{1}{2}$ IF SO... WHY ARE YOU PRINTING COLOR MAPS FOR PILOTS, WITHOUT DURING SOME HARD-CORE IMPLEMENTATION OF THE GUIDELINES??

C-058

Anchorage International Airport

**ANC PART 150 NOISE STUDY UPDATE
TECHNICAL ADVISORY COMMITTEE**

FEBRUARY 9, 1999
~~May 27, 1998~~

Do you have comments regarding the Part 150 Noise Study Update? If so, please note your comments on this form. The form can be left here or you may mail it back to the Airport at the address listed below. Thank you.

Name: Kevin Layton
Address: 7000 Serenity Cir
City, State, Zip Code: Anchorage AK 99502.

I am subject to noise primarily from
Runway 14 during south wind. The
most objectionable planes are 747
cargo planes. I think ~~the~~ thrust cutback noise abatement
should be mandatory for these departures, as } C-05
it is physically painful in some cases. If the
Airport Development people are going to encourage
more cargo traffic, I believe that the
stage 2 ~~noise~~ aircraft noise exemption for } C-060
Alaska should be revoked. More traffic but
quieter aircraft.

Mail to: Anchorage International Airport, Noise Program

P.O. Box 196960, Anchorage, AK 99519-6960

Subject: Airport Noise

Date: Wed, 10 Feb 1999 19:33:31 -0900

From: "L. K." <kozi@alaska.net>

To: maryellen_tuttell@dot.state.ak.us

Thank you for the opportunity to voice the concerns of my community council at the latest TAC meeting. I did not know I would be asked to speak, so I did not touch on all of the points brought up by the members at the last Bayshore/Klatt Community Council meeting. Herein is a more complete discussion.

The efforts of the Anchorage International Airport to study of airport generated noise, and recommend ways to lessen the effects of airport noise on the surrounding community are commendable, but there is one recommendation that may have a strong negative impact on the south Anchorage residents of Sand Lake, Taku/Campbell, and Bayshore/Klatt Community Councils.

The recommendation in question is called the "Early Departure South with Noise Abatement Procedures".

Under current conditions, jets using an eastbound departure follow International Airport Road, then turn south just past the New Seward Highway. Under the new proposal, jets would turn south much sooner and at a lower altitude, roughly following Minnesota south. They would also be asked to use voluntary Noise Abatement Procedures, altering their thrust settings to decrease engine volume. According to this scenario, there would be a net decrease in the number of people impacted by aircraft noise. But the proposal is based on several major false assumptions.

1. The study predicts that 900 people will be under the loudest part of the new flight path, but 1000 other people, living under the loudest part of the old flight path, will no longer be affected, resulting in a net savings of 100 people. However, this is comparing apples and oranges. 1000 people who willingly moved in under a known flight path cannot be compared directly with 900 people who deliberately chose a quieter neighborhood. Schools built with noise muffling measures cannot be compared directly with schools that have no defense against aircraft noise.

2. The study assumes a net decrease in noise impact if all the jets will move to the new flight path. The 15% of departures that use this route do so for two main reasons: the cross winds on a particular day are too strong to safely use the north departure, or the jets are so heavily laden with cargo that the east departure offers the only runway long enough. In both cases, the pilot may choose, for safety reasons, not to use the proposed tight turn, in favor of the older, more leisurely, turn. If the flight paths of the various jets are spread out over the entire old and new corridor, then all the people below will be affected, resulting in a net increased impact.

3. The study assumes all pilots will use the Noise Abatement Procedures. In reality, not all the jet pilots will choose to use the voluntary Noise Abatement Procedures. Again, the strong constraints of adverse weather or heavy cargo that forced the pilot to choose the east departure would also make the Noise Abatement Procedure less practical to follow. An earlier study by the Airport on the impacts of an early departure south without Noise Abatement Procedures predicted a much greater noise impact than is currently occurring, due to the lower altitude of the turn. It is only when the early turn with Noise Abatement Procedures is compared with the current path without the Noise Abatement Procedures that the proposal becomes "favorable".

4. The study has downplayed the impact of the noise. Hundreds of people in

C-063

homes, schools, parks and businesses would be subjected to noise equivalent in intensity to that of a vacuum cleaner at close range.

5. The recommendation goes contrary to the philosophy of the rest of the Noise Compatibility Program, by deliberately seeking out new people to impact.

There has not been a satisfactory response from the airport officials to our voiced concerns. We were told that no proposed actions would be taken until an environmental assessment had been made. Yet the final report states that the "Early Departure South with Noise Abatement Procedures" will be implemented later this year, as soon as the Noise Compatibility Program is approved. The latest response is that the route will be tested out on an undisclosed date, and if no one complains, it will be implemented.

Laurie Kozisek,
Airport Noise Technical Advisory Committee member representing
Bayshore/Klatt Community Council.



C-063

February 16, 1999

Mary Ellen Tutell
State of Alaska
Department of Transportation & Public Facilities
P.O. Box 196960
Anchorage, Alaska 99519

Dear Ms. Tutell:

I submit the following comments in regard to the Anchorage Airport Noise Study. I live near Conners Lake just south of the extended center line of runways 6 Right and 6 Left. That is in the zone of noncompliance according to the map handed out at the public meeting this past week.

#1. I suggest you change the title of your study to "Airport Sound", instead of noise. The first definition listed in my Webster's New World Dictionary for the word noise states that it is 1. (b) "any loud, discordant, or disagreeable sound or sounds". Since I do not consider modern aircraft sounds I hear to be disagreeable, the definition is not correct for all people. In the distant past we had old Boeing 707 aircraft engines that did generate true noise, but the modern engines do not.

C-064

In addition, I have seen tourist (mostly British) set up lawn chairs in the Conners Lake Park as close to the end of Runway 6 Right & Left as possible to observe and to hear the sweet sound the Northern Air Cargo DC-6 engines make. You can buy high quality recordings of the sound classic "round" aircraft engines make to play for your home entertainment. I do not think these commercial items are called noise.

#2. One technical aspect of the study that may need to be looked at is the relationship between an aircraft sound intensity (decibel) level and the duration of the sound. I have noticed that sustained (yet lower decibel) aircraft sound I hear further from the airport is somewhat disconcerting while the very short lived higher intensity sound I experience right next to the airport is not. I find the lower intensity, longer duration engine sounds I have heard from the "hillside" and out near Big Lake somewhat disagreeable when I am outdoors in the summer. That is why I suggested one of the community council "anti-airport" women actually move closer to the airport for relief (she did not accept the merit of my suggestion).

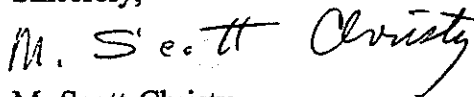
C-065

#3. The idea of adding better sound insulating windows to homes in the non compliant areas adjacent to the airport seems to have real merit. Our house guests always report being awakened by Boeing 747 takeoffs to the east off Runway 6 Right. Maybe with better windows they wouldn't rattle and wake up our guests. } C-066

#4. I might suggest you consider requesting Boeing 737s, Twin Otters, and "hot" turbine powered computer aircraft to delay their turn out to the south until they reach Minnesota Avenue when taking off Runway 6 Right or Left. At present these aircraft require so little runway time that they are airborne mid way east along Runway 6 Right or Left that they then turn right over the housing just south of the airport at a low elevation and at a high power setting. If they continued their climb out and did not turn until over Minnesota they would have a lower sound impact on fewer people. } C-067

Overall Anchorage International Airport is an excellent neighbor and a great economic asset of the community. Improving technology is improving the quality of aircraft engine sound. Alaska is blessed with an abundance of totally OUT-OF-WAY places, such as Nightmute, or Sleetmute, where people unable to adjust to the sounds of a larger community could find the peace they so desire. If we made Anchorage as quiet as they would like we would have the similar economic opportunities and could rename it "Anc-mute".

Sincerely,



M. Scott Christy
P.O. Box 240552
Anchorage, AK 99524

P.S. As you might guess, I am a pilot and owner of a Maule M-6. I fly only for fun.

Anchorage International Airport

**ANC PART 150 NOISE STUDY UPDATE
TECHNICAL ADVISORY COMMITTEE**

~~May 27, 1998~~
FEBRUARY 9, 1999

Do you have comments regarding the Part 150 Noise Study Update? If so, please note your comments on this form. The form can be left here or you may mail it back to the Airport at the address listed below. Thank you.

Name: Thomas D. ARMSTRONG
Address: 6430 E 9TH Ave.
City, State, Zip Code: ANC, AK 99504-1722

I AM OPPOSED TO ANY MONEY BEING PAID
TO SOUND PROOF ANY HOUSES. WHEN ARE YOU
PEOPLE GOING TO ACCEPT THE FACT THAT
A.I.A. WAS DESIGNED & BUILT IN THE EARLY 1950S.
AND IT SHOULD BE GRANDFATHERED.

C-068

WE THE PEOPLE SHOULD NOT HAVE TO PAY
FOR SOUND PROOFING FOR ANY HOMES, UNLESS
THE PEOPLE WERE THERE PRIOR TO 1952.

C-069

SOME OF YOU SHOULD ACCEPT THE FACT THE
AIRPORT WAS IN THE STICK WHEN IT WAS BUILT.
THEN THE PEOPLE MOVED CLOSE TO THE AIRPORTS.

C-070

Mail to: Anchorage International Airport, Noise Program *Thomas D. Armstrong*

P.O. Box 196960, Anchorage, AK 99519-6960

Subject: Airport Noise Study Comments

Date: Tue, 16 Feb 1999 08:05:46 -0900

From: Dave Adams <dadam@amc-engineers.com>

To: "MARYELLEN_TUTTELL@DOT.STATE.AK.US" <MARYELLEN_TUTTELL@dot.state

Dear Ms. Tuttle:

The BKCC agenda had your name spelled wrong, so I had trouble getting this message to you. Please add these comments to the deliberations.

Thank you.

-----Original Message-----

From: Dave Adams

Sent: Monday, February 15, 1999 10:30 AM

To: 'mary_tuttle@dot.state.ak.us'

Subject: FW: Airport Noise Study Comments

Importance: High

One more try.

-----Original Message-----

From: Dave Adams

Sent: Monday, February 15, 1999 10:29 AM

To: 'mary_ellen_tuttle@dot.state.ak.us'

Subject: FW: Airport Noise Study Comments

Importance: High

Trying again to reach you. the address below failed.

-----Original Message-----

From: Dave Adams

Sent: Monday, February 15, 1999 10:03 AM

To: 'maryellen_tuttle@dot.state.ak.us'

Cc: 'Doug Perkins - BKCC'; 'kozi@alaska.net'; 'jim dokoozian@dokoozian.com'

Subject: Airport Noise Study Comments

Dear Ms. Tuttle:

I previously left a voice mail message re my opposition to the "early turn" for Rwy 6 departures to the south. This email is my written confirmation of the message, submitted within the comment deadline (which strangely is a holiday).

I reviewed the Part 150 draft study, and feel it is seriously deficient in regard to the noise impacts on south Anchorage that an "early turn" will cause. "Deficient" in the sense that the population data are flawed, the assumptions invalid and the impact analysis on our neighborhoods superficial.

Before moving to the Klatt School neighborhood, my family lived due east of Rwy 6L/6R, and we were extremely bothered by the heavy jet noise. One of the SPECIFIC reasons we moved from east Anchorage to the Klatt area was THE QUIET. Now the study is advocating running traffic DIRECTLY over our home and the nearby school. We strongly oppose this change. Had I moved from a quieter area to the neighborhoods near the airport or under the long-standing patterns, I would NOT feel I had any right to take this position. But in this case we deliberately moved OUT from under the pattern to a "safe" area, only to find that the traffic could be moved so it is routed almost directly over our house. Our house was not built for jet noise, nor do we feel it is fair for the airport to effectively require us to close our windows during the summer and trade fresh, cool air for a few dB of attenuation.

Our community council (Bayshore/Klatt) is also very united in its strong opposition to the early turn. Nobody at any meeting has ever been in favor of the revised procedures (early turn). I have the impression from our representatives on this issue that BKCC's concerns have not been given adequate consideration at any point in the process. Their reports to the council have consistently given the impression that the foxes reign supreme in this particular hen-house. A systemic bias that is another process flaw in my opinion.

C-071

Again, my purpose in writing is to strongly urge against the 'early turn' on the Rwy 6 departures south.

Thank you,

Dave Adams and family
1520 Shore Dr.
A/A 99515

4139 Raspberry Road
Anchorage, Alaska 99502
March 15, 1999

Maryellen Tuttell
Noise Program Manager
Anchorage International Airport
P.O. Box 196970
Anchorage, Alaska 99519-6960

Re: The Anchorage International Airport Part 150 Noise Study

Dear Ms. Tuttell:

I have reviewed the Draft Noise Compatibility Program for 1998. I approve of many of the proposed recommendations. Each of the recommendations I will address below. I also have two comments.

My first comment is regarding the 1987 Part 150 Study in which 16 recommendations were made. Twelve years later only two of those recommendations have been fully implemented. Considering the importance of the issue of airport noise and the cost and resources expended during this most recent Part 150 Study, I would hope that we are more successful in implementing the current recommendations. } C-072

Secondly, regarding the current Part 150 Study, one of the most important vehicles to help continuity and ensure implementation of the recommendations is recommendation no. 3.4.1. This recommends the establishment of a noise advisory committee (this was one of the many recommendations of the 1987 Part 150 Study that was not implemented). } C-073

NOISE ABATEMENT MEASURES:

3.2.1: Enhanced Nighttime Runway: This measure is supported, with the additional recommendation that tracking equipment be installed to monitor compliance. } C-074

3.2.2: Implement Consistent Thrust Cutback Power Reductions: This measure is supported; however, I believe that older (noisier) and more heavy laden cargo aircraft will be unable to comply. } C-075

3.2.3: Conduct Detailed NADP Study: The proposed study is supported. } C-076

3.2.4: Implement a Noise Abatement Departure Track for Commuter Aircraft: This measure is supported with the additional recommendation that tracking equipment be installed to monitor compliance. } C-077

3.2.5: Turn Aircraft Departing Runway 6R/L to the South: Because of concerns raised by other members of the technical committee, I cannot at this time support this recommendation. } C-078

LAND USE MEASURES

3.3.1: Compatible Use Zoning: This measure is strongly supported. } C-079

3.3.2: Mobile Home Camper Park Restrictions: This measure is strongly supported. } C-080

3.3.3: Sound Proofing Requirement for New Development: This measure is supported, see additional recommendation below. } C-081

3.3.4: Noise Level on Plats: This measure is supported. However, I am aware that some homeowners in the Sand Lake community do not support this measure. Assuming soundproofing is found to be economic, soundproofing could be used to minimize any negative impacts of this recommendation on the value of the property. See additional recommendation below. } C-082

3.3.5: Comprehensive Planning: This measure is supported. } C-083

3.3.6: Planning Commission Review: This measure is supported. } C-084

3.3.7: Public Land Development Criteria: This measure is supported. } C-085

3.3.8: Noise Overlay Zone: This measure is supported. } C-086

3.3.9: Fair Disclosure Policy: This measure is supported. However, I am aware that some homeowners in the Sand Lake community do not support this measure. See comments to recommendation 3.3.4. } C-087

3.3.10: Land Banking: This measure is supported. } C-088

3.3.11: Soundproofing for Existing Development: This measure is supported. However, this measure should be applied to homes within the 60 dB contour if noise disclosure is required. } C-089

3.3.12: Investigate Sound Buffers/Barriers: This measure is supported. } C-090

3.3.13: Conduct Detailed Aircraft Ground Noise Study: This measure is strongly supported. Many Sand Lake residents have complained about ground noise. } C-091

Additional Recommendations: A study should be initiated to determine for both new and existing construction (a) if soundproofing is economic and if yes (b) the elements of an optimum soundproofing construction package .

CONTINUING PROGRAM MEASURES

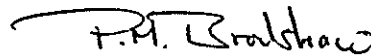
- 3.4.1: Noise Advisory Committee: This measure is very strongly supported. } C-092
- 3.4.2: Noise Monitoring: This measure is supported. } C-093
- 3.4.3: Complaint Response: This measure is strongly supported. } C-094
- 3.4.4: Regulations and Agreements: This measure is supported. } C-095
- 3.4.5: NEM and NCP Review and Revision: This measure is supported. } C-096
- 3.4.6: Noise Program Manager: This measure is strongly supported. } C-097
- 3.4.7: Noise Information Page on the AIA Web Site: This measure is strongly supported. This is a good measure which helps with communication. } C-098
- 3.4.8: Airfield Signs: This measure is supported. } C-099
- 3.4.9: Public Information Program: This measure is supported. } C-100
- 3.4.10: Pilot Information Insert: This measure is supported. } C-101

ADDITIONAL MEASURES TO BE IMPLEMENTED

- 3.5.1: Shift Runway 32 Departures North, Shift Runway 6R Arrivals South: This measure is fully supported. } C-102
- 3.5.2: General Aviation Program: This measure is fully supported; any measure that improves communication is a good idea. } C-103

In conclusion, both Toby Steinberger and myself feel that this process is very worthwhile, but only if we implement a large majority of Part 150 recommendations.

Sincerely yours,



Peter M. Bradshaw
Representative of the
Sand Lake Community
Council to the Part 150
Study

c.c. Sherri Jackson, Chair, Sand Lake Community Council

Anchorage International Airport

**ANC PART 150 NOISE STUDY UPDATE
TECHNICAL ADVISORY COMMITTEE**

FEBRUARY 9, 1999
~~May 27, 1998~~

Do you have comments regarding the Part 150 Noise Study Update? If so, please note your comments on this form. The form can be left here or you may mail it back to the Airport at the address listed below. Thank you.

Name: ALEX YOUNG
Address: 6401 BLACKBERRY ST
City, State, Zip Code: ANCH AK 99502

I AM IMPRESSED WITH THE DETAIL OF WORK DONE. I LIVE
IN A "NON COMPATIBLE" AREA. I AM DISTURBED BY THE
IMPLICATIONS OF PUBLICITY AND THE EFFECT ON MY
PROPERTY VALUE. WHAT EFFORT IS BEING MADE TO LIMIT
NIGHTTIME OPS? THERE ARE A HUGE # OF FLIGHTS IN
THE MIDDLE OF THE NIGHT. THIS SERVES THE CONVENIENCE
OF THE CARRIERS BUT GREATLY AFFECTS ME & PEOPLE
LIKE ME. IS THE AIRPORT GOING TO, IN THE LONG RUN,
RUN DOWN PROPERTY VALUES? WILL THEY BUY MY
HOUSE? HOW ABOUT ELIMINATING ENGINE RUN UPS ON
THE EAST END OF THE AIRPORT? MOVE RUNWAY

C-104

C-105

C

C

Mail to: Anchorage International Airport, Noise Program

24R + 6L
TO THE EAST

P.O. Box 196960, Anchorage, AK 99519-6960



March 5, 1999

Maryellen Tuttell
Noise Program Manager
Anchorage International Airport
P.O. Box 196960
Anchorage, Alaska 99519-6960

Dear Ms. Tuttell:

**Comments on Draft Noise Compatibility Program (NCP) 1998
Anchorage International Airport**

I have reviewed the draft NCP and have the following comments:

1. Section 1.4 should be revised to reflect FAA's determination that the NEM is in compliance with Part 150. } F-001

2. Table 1.1:

II. E.1. Documentation of comments: Add the final public hearing comments to Ch. 7. } F-002

III.A.2. Update to reflect FAA determination of compliance. } F-003

IV. A. 2. References to sec. 5.10.1 and 6.9.6 are incorrect. } F-004

IV. A. 4. Add sec. 5.8. } F-005

V.G.1., 2.and 3., and H.1. Add reference to sections 3.6 and 3.7. } F-006

3. Section 3.4: Continuing Program Measures. The FAA strongly supports the concept of continuing program measures to ensure implementation of the proposed noise abatement, mitigation and land use measures. In particular, I think that a Noise Advisory Committee should be formed with representatives from all parties responsible for implementation as well as members of the surrounding neighborhoods to keep us focused on the importance of implementation. I concur that the NAC should meet quarterly as a minimum. } F-007

3. Table 3.4 and Table 3.7: Some of the new measures proposed under continuing program measures will have to be researched to determine eligibility for AIP funding. } F-008

4. Section 3.5.1: The FAA concurs with measure (2), Shift Runway 6R Arrivals South and the FAA is in the process of implementing this procedure to shift to the south, Runway 6R arrivals from the east at night. With regard measure (1), Shift Runway 32 Arrivals North, however, FAA ATC tells carriers to fly the FMS procedure because the existing FMS procedure flies over EDF's restricted area and not over residential areas. If (1) is intended to mean further north than the FMS procedure, the FAA does not concur with this since that would take flights over residents of Eagle River, Chugiak or other communities further north and the impact on these communities would have to be determined prior to the FAA's concurrence with this measure.

F-009

5. Table 3.5. Last Noise Abatement Flight Track Measure: The proposed commuter departure corridor needs to be evaluated in conjunction with the proposed NADP and early turn for air carrier aircraft to ensure sufficient lateral separation could be provided between the two corridors and to ensure that departure flow rates are not reduced.

F-010

6. Table 3.6 Some of the New Proposed Land Use Measures have to be researched to determine AIP eligibility.

F-011

7. Section 3.6.3 Please provide a copy of the current Preferential Runway Use and Noise Abatement Bulletin.

F-012

7. Table 5.4 Enhance Nighttime Runway User Program: I would like to see more specific analysis/information to document the basis for the reduction in noise impacted population. A clear description delineating under what conditions the enhanced runway use program would and would not be used should be added. For example: conditions when possible "wind shear" over Fire Island is reported by carriers; the uphill grade on 24L makes the effective runway length shorter allowing less payload; conditions which allow selection of the next preferential runway in the Airport's runway use bulletin like airspace and airfield congestion resulting in excessive delays. Please note that the comparison of the runway 32 and 24L departure tracks to demonstrate the potential benefits of this measure are somewhat misleading because when aircraft are departing 24L, the arrival gates are switched so that the arrival tracks are over northeast Anchorage. This needs to be clearly articulated in the NCP so that the Airport, the Carriers, the Community and the FAA all understand the basis for the potential reduction and to be clear that the potential benefits are not overstated. Under "Effect on Aircraft Operations" add the additional travel time for the transoceanic flights from the south.

F-013

8. Table 5.7 Combine NADP with Early Turn for Runway 6 Departures.

a. Under responsible agency, add Flight Standards Division after Air Traffic Control. Flight Standards actually develops the revised SID. Also change "KNIK 5" to "Anchorage 2" SID.

b. Need to ensure that this procedure does not conflict with proposed commuter departure corridor.

c. Under Legal Implications, add NEPA requirements.

d. I concur that further analysis is needed over the SEL analysis conducted to date. Before deciding to include this measure in the NCP, I would like the DNL

F-014

analysis done to ensure the noise benefits are great enough to warrant the shift in the noise impacted areas.

F-014

9. Table 5.11 Commuter Arrival and Departure Corridor to the Southeast.

- a. Since the analysis done to date indicates that "Changing the location of commuter and GA operations would not alter the DNL contours used to establish land use compatibility", it does not appear meet the basic criteria for inclusion in the NCP. This measure would, therefore, likely be disapproved by the FAA.
- b. Under Responsible Agency, change "KNIK 5" to "Anchorage 2" SID.
- c. Under Effects on Aircraft Operations, the impact may be greater that indicated here since it does not appear that peak operational periods are considered.
- d. Further as noted above, further analysis would have to be conducted to ensure that this corridor would have the required lateral separation from the departure corridor associated with the combined NADP and early turn.

F-015

As noted in Clarence Goward's comments, there are numerous incorrect references and other inconsistencies throughout the document. Prior to submission of the final NCP, please ensure that the document is thoroughly edited.


F-016

An executive summary should be prepared which presents all of the proposed NCP measures. The executive summary should list the responsible party/parties, the proposed timeline for implementation each measure, the funding sources and other information needed to ensure a process is established to implement this NCP. The executive summary can be used to brief decision-makers within agencies responsible for implementation, by the Noise Advisory Committee to track progress, and by the FAA to pursue discretionary noise money.

F-017

If you have any questions on these comments, please do not hesitate to contact me at 271-5454.

Sincerely,


 Patricia A. Sullivan

Attachment, Clarence Goward's comment on draft NCP

Cc: Bill Chord, ANC ATCT Manager
Clarence Goward, AAL-530

Clarence Goward, FAA Air Traffic Division Comments on Draft Noise Compatibility Program

I have reviewed the draft Noise Compatibility Program and offer the following comments:

- ◆ Para. 1.2, bullet 3 - suggest adding the word "revised" before "NCP" for clarification. } F-018
- ◆ Table 2.1, first cell under "Implementation Status," second sentence – consider adding an "s" to the word "time" } F-019
- ◆ Para. 2.2, bullet 1, last line – consider changing the word "planned" to "projected." } F-020
- ◆ Para. 2.2, bullet 2, last line – consider changing the word "proposed" to "projected." } F-021
- ◆ Para. 2.2, bullet 2, last line – suggest adding "60 dB" after "DNL" for consistency. } F-022
- ◆ Para. 3, first paragraph – the first sentence says there are 4 noise abatement measures, the second sentence says Table 3.2 lists the noise abatement measures, and Table 3.2 shows 5 proposed revisions or new noise abatement measures. } F-023
- ◆ Para. 3, first sentence – It states the NCP includes 19 measures, however, the listed measures in the same sentence do not add up to 19. } F-024
- ◆ Table 3.2 – Suggest reversing the order of the two rows under "Noise Abatement Flight Paths" to be consistent with the order they are discussed in succeeding paragraphs. } F-025
- ◆ Para. 3.2.5, last sentence – This does not appear to be consistent with Table 5.10 which states, "a formal procedure to encourage turns to the north or south prior to the Seward Highway is not recommended as a noise abatement measure." It also states that "early turns to the north or south, off the extended runway centerlines, increase the population exposed to aircraft noise." } F-026
- ◆ Para. 5.1, first sentence – It says 7 noise abatement alternatives were proposed for implementation. First sentence of para. #2 says six. } F-027
- ◆ Table 5.1, shows 7 measures recommended. First sentence of para. #2 says six. } F-028
- ◆ Table 5.1, page 49, 7th cell under "Part 150 Recommendation" – suggest adding a comma after "recommended." } F-029
- ◆ Table 5.2, first cell under "Measure as Implemented," second sentence – Suggest adding an "s" to the word "time" } F-030
- ◆ Para. 5.6.7, 4th sentence – Consider changing the period at the end of the sentence to a comma and de-capitalise the first word of the next sentence. } F-031
- ◆ Table 5.5, cell to the right of "Airport and ATC Operational Considerations," second paragraph, second sentence – Suggest inserting the word "reach" between "will" and "two thirds" } F-032

- ◆ Table 5.7, bottom right cell – I believe this measure would be a formal change in procedures below 3,000 and would require documentation under the provisions of NEPA. } F-033
- ◆ Para. 5.8, last sentence – There are 15 measures listed following this paragraph, rather than 14. } F-034
- ◆ Para. 5.8.14, 5th sentence – “...have limited operational near AIA” needs rewording. } F-035
- ◆ Table 5.11, 1st sentence under right of “Net Change in Community Noise and Overflight” – Under Part 150, Noise Compatibility Planning, the Administrator approves program measures if they are “reasonably consistent with achieving the goals of reducing existing noncompatability land uses around the airport and preventing the introduction of additional noncompatible land uses. This measure does not accomplish this. } F-036
- ◆ Table 5.11 – The study does not show enough information on the numbers of complaints or quantify the benefit. There is not enough information to determine if the benefits would outweigh the cost/operational impacts of this measure. } F-037
- ◆ Table 5.12, first cell, last sentence – change “o” to “of” } F-038

**Municipality
of
Anchorage**



P.O. Box 196650
Anchorage, Alaska 99519-6650
Telephone: (907) 343-4431
Fax: (907) 343-4499
<http://www.ci.anchorage.ak.us>

Rick Mystrom, Mayor

OFFICE OF THE MAYOR

May 4, 1999

Mr. Morton V. Plumb
Director
Anchorage International Airport
P.O. Box 196960
Anchorage, Alaska 99519-6960

RE: AIA Noise Compatibility Program

Dear Mr. Plumb:

Thank you for the opportunity to review Anchorage International Airport's (AIA's) Noise Compatibility Program. I appreciate AIA's recognition of the importance of reducing airport noise impacts and protecting the health and welfare of the residents of Anchorage.

It is clear that implementing the program requires a good working relationship between AIA and the Municipality of Anchorage. Anchorage's economy and the quality of life of Anchorage residents depend upon successfully addressing existing and potential airport noise impacts on the community. The Municipality will continue to provide input to AIA on the program.

Again, thank you for the recognition of the importance of working together to resolve this important issue.

Sincerely,

A handwritten signature in black ink, appearing to read "Rick Mystrom". The signature is fluid and cursive, written over a horizontal line.

Rick Mystrom
Mayor

LG-001

"City of Lights and Flowers"

RESPONSE TO WRITTEN PUBLIC COMMENTS RECEIVED ON DRAFT NCP

C001 - Comment acknowledged.

C002 - See Comments C003 through C005.

C003 - The modeled arrival and departure flight tracks in Figures 5.6 through 5.10 in the December 9, 1998 AIA FAR Part 150 Update Noise Exposure Map (NEM) are nominal flight tracks based on actual aircraft flight tracks contained in the 12,000 ARTS flight tracks collected and analyzed for the study. Annual average flight track usage is presented in Tables 5.6 through 5.10 of the NEM. The maps and tables in the NEM represent the current flight tracks used and the distribution of flights on the various flight tracks. The NEM document does not address maintaining or increasing flight operations.

C004 - Comment acknowledged.

C005 - The referenced Attachment 1 states, "The greatest noise impacts from touch and goes are very close to the floatplane base." That is, the highest noise exposure levels associated with these operations are near the lake where aircraft are close to (landing or departing) or on the surface of the lake. As depicted in Figure 5.8 of the NEM, the flight tracks depicting the downwind leg for landings to the west on Lake Hood are dispersed and extend several miles from the base leg.

C006 - Comment acknowledged. It is important to clarify the discussion during the public meeting, which was centered on the potential of moving touch and goes from the Lake Hood Float Plane Base to some other facility. During the discussion, it was indicated that touch and goes comprise approximately 11 percent of the Lake Hood Float Plane Base operations. It was also indicated at the meeting that the elimination of 11 percent of the operations would reduce the DNL by less than 1 decibel. The actual reduction is a 0.5 decibel decrease in the DNL, which would not be noticeable. Therefore, although 11 percent of the Lake Hood Float Plane Base operations equal approximately 10,000 operations, it does not follow that 10,000 operations equals 1 decibel or that one touch and go operation equals 1/10000th of a decibel.

C007 - AIA staff, not the residents, would be responsible for conducting the pilot awareness program. AIA staff will pursue several means of contacting pilots through mailouts to permit holders and aviation groups, meetings with flight schools and instructors, and meetings with general aviation groups. Most general aviation groups know that addressing noise issues is in their own interest as well as AIA's. The awareness program would be designed to minimize aircraft noise impacts associated with aircraft operations at the Lake Hood Float Plane Base. The term "Fact Sheet" in the Noise Compatibility Program (NCP) refers to a sheet of information, prepared by AIA, discussing AIA's noise abatement policy for the Lake Hood Float Plane Base. Residents are not required to compile lists of noise events, as in the referenced Attachment 2, for AIA to develop the Fact Sheets.

C008 - Review copies of the document were placed at City Hall, the public library, and the Federation of Community Councils office in early January and the location of these review copies was noted in the newspaper insert distributed on January 18, 1999. In

addition, individual copies were available from AIA at the number listed in the newspaper insert and the public notice. Although the public notice could have been more clearly worded, the document was available for review and individual copies were available for more detailed review.

- C009 - As described on page 29 of the NEM, "The noise measurement data were not used to "adjust" or "calibrate" the Integrated Noise Model, a procedure that would require prior approval from the FAA." Therefore, the noise contours do not rely on the 1995 noise measurements. As depicted in Table 5.1 on page 48 of the NEM, the forecasts used to develop the 2002 noise contours were based on trends in historic operations. The 2002 aircraft fleet mix data depicted in Table 5.3 on pages 51 and 52 of the NEM, were derived from trends in historic landing records. Due to the logarithmic nature of the Day-Night Average Sound Level (DNL), small changes in fleet mix or operations have little effect on the size of the noise contours. For example, a 3.8 percent decrease in operations would reduce the DNL contours by 0.16 decibels -- an imperceptible amount.
- C010 - Although the federal guidelines for land use compatibility indicate that all land uses are compatible in areas with a DNL of less than 65, the FAA and other federal agencies recognize that many people living outside the 65 DNL contour but within the 60 DNL contour are adversely affected by airport noise. The Federal Interagency Committee on Urban Noise (FICUN), of which FAA is a member, has long recommended that noise sensitive land uses should be restricted in areas outside the 65 DNL contour. As stated in Section 6.4.2 of the NCP, a study group comprised of the FAA, the aviation industry, and airport community groups studied this issue in the early 1990s and issued a report in 1995 recommending that appropriate land use planning be supported beyond the 65 DNL contour. AIA has historically used the 60 DNL contour as the long-term planning criteria.

Because aircraft noise can be transient and, in some areas, is seasonal, it is not always possible to know that a property is in an area impacted by aircraft noise. The goal of the fair disclosure policy ensures that property buyers are properly informed about the existence of aircraft noise *before* they purchase the property. When property purchasers are properly informed, it reduces the likelihood that people who are very sensitive to noise will purchase the property or that the previous property owner and/or realtor will be sued for not informing the buyer of the aircraft noise. The State currently has a real estate disclosure law (AS 34.70) that requires disclosure of defects or other conditions affecting the property, including "recurring noise or other nuisance factor that has disturbed you as an occupant of the property" (State of Alaska, Residential Real Property Transfer Disclosure Statement). This measure is intended to ensure that residents are aware of this requirement and to modify the disclosure form, if necessary, to ensure awareness.

The noise contours developed in this study provide objective information on noise levels in the areas around AIA. Peoples' reactions to this noise is subjective. Some people don't mind aircraft noise, while others are greatly annoyed by it. Fair disclosure ensures that property purchasers have an opportunity to consider aircraft noise as one element of their purchase. The ease or difficulty in selling a property is more likely to be tied to market conditions, than to the disclosure of aircraft noise. As stated in Table 6.16 on page 174 of the NCP, the measure may have some effect on property values, but the effect is expected to be slight.

Real estate disclosure is required for many conditions affecting properties and this not expected to have any effect on free speech rights nor would disclosure constitute a taking without due process.

C011 - The Study addressed noise reduction (abatement) measures suggested by the Technical Advisory Committee and the public. Operations in Alaska were specifically excluded from the Stage 2 phase-out in the 1990 noise regulations. Inclusion of intra-Alaskan operations under the Stage 2 phase-out would require Congressional legislation and would likely be very difficult to implement. AIA will continue to monitor Stage 2 operations and their contribution to overall noise exposure after the year 2000 phase-out to determine if further action on Stage 2 operations is needed.

The NEMs used in this study take into account the phase-out of Stage 2 operations for most carriers and the retention of Stage 2 operations for the intra-Alaskan carriers.

C012 - In order to produce a noticeable reduction in general aviation noise (about 1.5 dB DNL), at least 17 percent of the general aviation aircraft operations would have to be eliminated. Such an attempt to limit general aviation operations is likely to be met with strong opposition from the FAA. The FAA provides AIA with federal funds to support aviation activities and in accepting these funds AIA agrees to numerous grant assurances. These assurances prohibit AIA from implementing restrictions on aviation activities that would discriminate against any specific class of aviation user. As depicted in Table 6.1 on page 82 of the NEM, the measured energy-averaged DNL in areas exposed to general aviation noise from Lake Hood Float Plane Base operations ranged from 58 to 61 decibels. The fact that this level of noise generates citizen complaints confirms the fact that noise impacts occur beyond the 65 DNL contour as discussed in C010. As discussed in the NCP, AIA will continue to work with the general aviation community to reduce noise impacts associated with these operations.

C013 - In general, noise barriers are known to be effective at reducing noise from aircraft ground operations under certain conditions. At AIA, there are several sources of aircraft ground noise including aircraft runups, taxiing, start of takeoff roll, and auxiliary power units. Analyzing the noise levels of these sources and determining the effectiveness of specific types of barriers is beyond the scope of the Part 150 process. However, if approved, the detailed ground noise study measure would be eligible for federal funding and AIA would proceed with a study of ground noise issues to determine if and where barriers would be effective as well as evaluating other structural and operational measures for reducing ground noise.

C014 - The Study has been conducted in accordance with FAA noise compatibility guidelines and was completed in the interest of reducing noise impacts on the community through implementation of both noise abatement and land use measures.

C015 - Comments acknowledged.

C016 - FAR Part 150 addresses areas exposed to very high cumulative noise levels (typically 60-65 DNL and greater). The goal of Part 150 is to reduce the noise contours and the noncompatible land uses in those areas exposed to aircraft noise levels of 60-65 dB DNL and greater. These noncompatible areas are within a couple of miles of AIA. These are areas where the noise level is recognized nationally as being incompatible with most residential land uses. However, some people will find aircraft noise

objectionable even at much lower levels. Aircraft noise issues outside of the noise contours must be addressed outside of the Part 150 process.

- C017 - Since changing flight tracks in the vicinity of Bear Valley would not result in a reduction of the noise contours or the noncompatible uses within the contours, such changes are not likely to receive FAA approval within the Part 150 process. AIA and the FAA have worked to address noise concerns in South Anchorage outside the Part 150 process by moving flight tracks further south between 10 p.m. and 7 a.m.
- C018 - The NCP is designed to reduce noise generated and noncompatible land uses in all areas. Implementation of this program is not expected to adversely affect South Anchorage.
- C019 - Air carrier aircraft currently depart west approximately 5 percent of the time. Increasing the use of this runway configuration during nighttime hours, when wind and traffic conditions allow, is expected to result in reducing noise impacts within the noise contours. Increasing the use of Runways 24L and 24R for departures at night will reduce departure noise impacts within the noise contours to the east of AIA without increasing departure noise impacts within the noise contours to the west due to the presence of Cook Inlet. The "reverberations" noted likely refer to the noise from start-of-takeoff roll on Runways 24L and 24R, which may be particularly noticeable at distant locations to the southeast and northeast of AIA when the winds are blowing from west to east or when there is an inversion layer. Although noticeable due to its low-frequency content, start-of-takeoff roll noise does not influence the contours to the east of AIA as significantly as noise from aircraft departing Runways 6R and 6L to the east. See C016.
- Flight tracks for western departures over the Anchorage hillside have also been moved to the south to reduce the impact of operations between 10 p.m. and 7 a.m.
- C020 - AIA has decided to remove the Combine NADP with Early Turn for Runway 6 Departures measure from the final NCP. Although this measure was expected to reduce noise impacts in some areas close to AIA, it had the potential to increase noise in some areas farther from AIA. Although the focus of the Part 150 NCP is to reduce the noise contours and the non-compatible land uses with them, AIA's goal is to do this without having a significant negative impact on other areas outside the contours. This measure may be reconsidered during the next Part 150 Study Update when more data on the existing noise environment farther from AIA is available from the proposed Aircraft Noise Operations Monitoring System.
- C021 - The noise abatement measures included in the NCP must be able to show a decrease in the noise contours or the number of residents within those contours. The suggested flight track changes would not meet these criteria and are not likely to be approved by FAA within the Part 150 process. AIA will continue to work with the FAA to address this issue outside the Part 150 process.
- C022 - Comment acknowledged. This measure was reviewed in the Part 150 Study, but it was determined that it would not result in a significant change to the noise contours. Again, AIA will continue to work with the FAA to address this issue outside of the Part 150 process.
- C023 - Comments acknowledged.

C024 - Your opposition is acknowledged.

C025 - State law currently requires residential real estate disclosure, including disclosure of recurring noise or other nuisance. It is in the public interest for home buyers to be given notice of known conditions affecting properties, including recurring noise. Real estate disclosure within airport noise contours is being pursued by airports throughout the U.S.

C026 - Comment acknowledged.

C027 - The Part 150 Study and the NCP are designed to reduce and minimize AIA's noise impacts on current and future residents of Anchorage. The real estate disclosure measure is designed to provide potential home buyers with full disclosure as required by State law. The goal of the real estate disclosure measure is to provide objective information on the noise exposure within areas near AIA. Providing this information allows noise sensitive people to take the noise environment into consideration in their decision making. This protects both the buyer and the seller, as well as the airport, and reduces the potential for lawsuits associated with lack of disclosure. Anecdotal evidence from AIA and Raleigh-Durham, N.C. indicates that prospective home buyers consider noise exposure information as one of many factors in their decision of whether to purchase a home. Although the noise information may deter some noise sensitive purchasers, the anecdotal evidence suggests that many people are not deterred and that the disclosure has not had a significant impact on property values.

C028 - As with all measures proposed in the NCP, specific details must be worked out with the appropriate regulatory authorities, in this case the Alaska Legislature or the Real Estate Commission. As noted in C010 and above, the current disclosure form refers to "recurring noise or other nuisance factor that has disturbed you as an occupant of the property". This measure could be implemented through a change to Alaska Statute 34.70 or to the State of Alaska Residential Real Property Transfer Disclosure Statement to make it clear that airport noise information should be disclosed.

The potential negative impact of this measure is recognized in the discussion of costs in Table 6.16 of the NCP. Again, the impact is expected to be slight.

C029 - Again, real estate disclosure is a current requirement and ensuring awareness of the requirement is not intended or considered to be punitive. Aircraft noise is a very technical issue and knowledge of a property's proximity to the airport is not knowledge of the aircraft noise exposure at that property. As depicted in Figure 6.2 on page 133 of the NCP, properties that are equal distances from AIA can have very different aircraft noise environments. AIA often gets calls from new residents stating that they were unaware that there would be airport noise in the area in which they purchased a house. As you note, however, many people choose to live by AIA and are willing to accept the resulting noise environment. AIA also hears from many people who live by the airport and are not bothered by the noise. This measure provides the information to allow people to make an informed choice to live in this environment. Purchase of homes in this area by informed people who are noise tolerant is good for the community and for the airport.

C030 - As noted above, real estate disclosure is currently required by State law. This measure proposes to provide objective information on the noise environment that is needed for

persons to make an informed decision. There is little hard data on the effect of real estate disclosure of airport noise on real estate prices and sales difficulty. However, anecdotal evidence where disclosure has been implemented indicates that airport noise is one of many issues taken into account by homeowners and it may not be the most important factor. Factors such as schools, neighborhood quality, and convenience to work and leisure areas are often considered more important in the purchase decision.

C031 - The FAA's Part 150 guidelines apply only to civilian airports. AIA and the Lake Hood Float Plane Base are owned and operated by the State, which is the sponsor of this Part 150 Study. This Study addresses measures to reduce the impacts associated with noise associated with AIA and the Lake Hood Float Plane Base.

The NCP for AIA is not a proper vehicle for policy decisions related to other airports. Not all airports are subject to identical pressures and concerns relative to noise impacts. For example, AIA and Merrill Field area subject to different land use pressures, have different types of air traffic, have different potentials for future growth, and have a different level of importance in the National Air Transportation System. These factors, in turn, help establish the level of land use controls that are deemed necessary for an individual airport. Real estate disclosure provisions could be drafted to be uniformly applicable in proximity to all airports for which Part 150 noise contour modeling has been completed. In any case, however, there is adequate justification for requiring disclosure in proximity to AIA even if it is not required elsewhere.

C032 - The DNL contours depict the annual average aircraft noise exposure levels from operations at AIA and the Lake Hood Float Plane Base – objective levels that can be measured using an aircraft noise monitoring system. Annoyance is a subjective human reaction to aircraft noise exposure levels. The relationship between the objective aircraft noise levels and the subjective human reaction of annoyance is depicted in Figure 6.5 on page 151 of the NCP. According to Figure 6.5, approximately 17 percent of the prospective buyers are expected to be "seriously annoyed" by aircraft noise levels of 60 DNL which is proposed as the fair disclosure area. On the other hand, approximately 48 percent of prospective home buyers would not be expected to be annoyed by the aircraft noise levels in this area. The disclosure recommended in the NCP is an effort to provide objective information on aircraft noise, not a subjective interpretation. Prospective buyers would be able to use this objective information in their decision making process.

C033 - As indicated in C032, the DNL contours are objective depictions of areas of aircraft noise exposure. Like flood zones, DNL contours represent an impact area. Just as some homes within a flood zone may be damaged during a flood while others aren't, some people within the DNL contours may be annoyed while others aren't. Aircraft noise exposure levels may change slightly from year to year reflecting changes in wind and weather conditions, but are very consistent over a several year period.

C034 - Fair disclosure is a preventative measure, similar to other land use measures recommended. This measure prevents people from moving into the area unaware of the existing noise environment. It allows people who are sensitive to noise and do not wish to live within areas exposed to aircraft noise of 60 dB DNL and higher to make an informed decision not to do so.

C035 - See C034.

C036 - The 1987 NCP states that the fair disclosure measure was not selected since AIA did not have enabling legislation and other measures were proposed which were expected to prevent additional non-compatible development. Since that time, the State has adopted a Real Estate Disclosure law that requires property owners to disclose material facts about their properties. Airport noise was not specifically addressed in the law, although the disclosure form does require information on "recurring noise or other nuisance factor that has disturbed you as an occupant of the property." Additionally, the land use measures that were proposed to prevent additional non-compatible uses were not successful. Since the 1987 study was completed, AIA has received a significant number of complaints from new residents in impacted areas asking why there had been no disclosure of noise levels when they purchased their homes. In addition, FAA has increased its support for real estate disclosure nationwide since the earlier study was completed. For these reasons, AIA is now recommending this measure.

C037 - Comment acknowledged.

C038 - Comment acknowledged.

C039 - Comment acknowledged.

C040 - The Part 150 Study was a voluntary effort, although federal noise funds do provide an incentive to address the noise issue. Implementation of the approved AIA NCP measures will not change FAA's authority or number of employees.

C041 - Funding of the approved measures will be through the Aviation Trust Fund, which is funded by aviation user fees not federal income taxes.

C042 - Fair disclosure will allow people who don't like aircraft noise to make an informed decision not to live in aircraft noise exposure areas. As mentioned earlier, disclosure of noise or recurring nuisance is already required under State law. Zoning and land use regulation changes proposed are to ensure that land use decisions take into account the noise environment, consistent with the purpose of land use regulations which are police powers used to ensure protection of human health and welfare.

C043 - Comment acknowledged. AIA and FAA staff are committed to ensuring implementation of approved NCP measures to reduce noise impacts associated with AIA operations.

C044 - Comment acknowledged. Although this issue is outside the scope of the Part 150 process, AIA acknowledges the need for AIA and the Municipality of Anchorage to work together to balance the aviation demands faced by AIA, the need for economic growth, and the desire for a high quality of life in Anchorage.

C045 - The Combine NADP with Early Turn for Runway 6 Departures measure has been removed from the final NCP. AIA will be implementing NADPs on the existing flight tracks for Runway 6 departures. The Combine NADP with Early Turn for Runway 6 Departures measure may be reconsidered during the next Part 150 Study Update when more data is available on the success of the NADPs on existing flight tracks from the proposed Aircraft Noise Operations Monitoring System (also see C020).

C046 - Minimizing aircraft noise impacts from aircraft ground operations including runups will be the focus of the detailed ground noise study recommended in the NCP.

C047 - Great care has been applied in developing the noise contours that define the noise impact areas. The FAA and other federal agencies have repeatedly studied the best metrics to use to evaluate aircraft noise impacts and have consistently supported the DNL metric. The FAA-approved INM model is the most accurate model available for depicting cumulative aircraft noise exposure in the areas around airports. INM modeled noise levels have been shown to compare well with measured noise levels throughout the U.S. As described on page 55 of the NEM, over 12,000 actual flight tracks were used to develop the modeled flight tracks and flight track usage. Aircraft types were derived from landing records and operations were based on historical trends. As described on page 89 of the NEM, "The measured and modeled noise levels compare favorably given the runway use during the noise measurement periods." In addition, due to the logarithmic nature of noise, the DNL contours are very stable. For example, for a given aircraft fleet, a doubling of operations produces only a 3 decibel increase in the DNL contours. Therefore, the impact areas are likely to remain impacted overtime.

The NCP recommends a range of noise abatement and noise mitigation measures designed to minimize aircraft noise on impacted parcels. Unfortunately, due to FAA funding considerations, at this time funding for sound insulation programs is only available for residences within the 65 DNL contour.

AIA's 1987 NCP included a measure to require noise notes on new plats within the AIA noise contours. This measure is already being implemented through the MOA plat review process. This is simply a measure that will be continued. The Fair Disclosure measure is designed to ensure that real estate property transfer disclosures, currently required under State law, address airport noise issues (see C010 and C027).

C048 - AIA is committed to seeking FAA funding for the approved Part 150 measures, including sound proofing and an Aircraft Noise Operations Monitoring System. AIA can not even apply for the FAA noise mitigation funds without AIA adoption and FAA approval of an NCP.

C049 - Dense forested areas (more than 300 feet deep) close to a noise source can provide a noticeable reduction in noise in areas directly adjacent to the forested area. While aesthetically pleasing, less dense plantings do little to reduce aircraft noise. Berms or noise walls are usually more effective than trees and can fit into smaller areas, however, they too must be located very close to the noise source and will only reduce noise in areas close to the berm or wall. Placement of any type of barrier near a runway, taxiway, or other aircraft movement area is difficult due to federal regulations which protects not only the areas off either end of the runway, but also areas to the sides of the runway (FAR Part 77). Also, many of the marshy areas surrounding AIA are high value wetland areas that are protected under the Clean Water Act and which would require regulatory approval for planting dense forested buffers.

If approved by the FAA, the proposed ground noise study measure discussed on page 27 of the NCP will determine the need, benefits, and feasibility of forested buffers, berms and noise walls at AIA.

C050 - Although noise associated with commercial aircraft operations can cause vibrations in windows, it does not cause damage to homes in good condition. If approved and funded by the FAA, the residential sound proofing program will likely be limited to areas within the 65 DNL and above, although the exact boundaries may be modified to include entire

blocks or other logical boundaries. AIA will notify eligible homeowners when the project begins. AIA will continue to work with home owners, developers, contractors and others in the construction industry to provide information on improvements that can be made to new and existing residences outside the areas eligible for the sound proofing program.

C051 - Comment acknowledged.

C052 - There are no restrictions on the aircraft engines allowed to operate at AIA. The federal regulations regarding the phase-out of Stage 2 aircraft apply only to those aircraft operated to the Lower 48. As described on page 115 of the NCP, under federal law "Aircraft that are operated exclusively within Alaska or between Alaska and international destinations are not subject to the phase-out." Since the majority of operations at AIA travel on to the Lower 48, however, the phase-out is expected to result in a significant decrease in noise at AIA as well as in the Lower 48. As stated in the NCP, AIA will "... continue to monitor the percentage of Stage 2 operations at AIA and calculate their impact on the noise environment." The analysis currently required to monitor this issue is very time intensive and requires hand calculation of detailed statistics. The proposed Aircraft Noise Operations Monitoring System will make the monitoring process much more efficient.

C053 - Issues of aircraft safety are beyond the scope of FAR Part 150, which focuses exclusively on aircraft noise and land use. Regulation and enforcement of aircraft operating weights rests with the FAA Flight Standards Division.

C054 - All runways were fully operational when the noise measurements were conducted in the summer and winter of 1995.

C055 - The timing for the proposed residential soundproofing program, described on page 182 of the NCP, is dependent on if and when the FAA approves this mitigation measure, the availability of federal funding, and the contracting process. The program is proposed to occur over several years. Again, only residences within the 65 DNL and greater contours are likely to be eligible under current FAA guidelines although the boundaries may be modified somewhat to conform to street blocks or other logical boundaries.

C056 - Comment acknowledged. AIA has been working with the MOA Planning Department and Public Works and Building Safety Department regarding the specific wording for plat notes. AIA's intent is to ensure that sound attenuation is incorporated, while leaving the decision on specific measures to the builder. This was required of the Anchorage School District during construction of the Kincaid Elementary School and was very successful.

C057 - Building codes can be used to address the reduction of aircraft noise and addressing this issue in many communities. Due to local code requirements for thermal efficiency, the modifications required for sound insulation are not likely to add significantly to a builders cost. Demonstrating the acoustical performance of the building envelope would be a requirement of building permit sign off and would be the responsibility of the builder not the building department.

C058 - It is unclear to which measure the comment is referring. As with many programs, various measures included in the first NCP have not been fully implemented for a variety of reasons. AIA will work closely with the FAA, airlines, and the Municipality to ensure that the measures included in this NCP are implemented.

- C059 - FAA regulations on aircraft operations always ensure that safety is the highest priority. As described on page 75 of the NCP, "The decision to use an NADP rests solely with the pilot-in-command. Therefore, the State DOT and PF cannot *require* the use of NADPs, but can encourage their use at AIA."
- C060 - The Alaskan exemption exists in the law passed by Congress. Revocation of the Alaskan exemption from the Stage 2 phase out would require an act of Congress.
- C061 - Comment acknowledged.
- C062 - Comment acknowledged.
- C063 - See C020.
- C064 - The term "Noise Compatibility Program" originates in FAR Part 150 and is used here for consistency. While the sound of an aircraft may be pleasant to one person, it can be noise to someone else. Since the purpose of the study is to minimize aircraft noise impacts on non-compatible land uses, noise is the appropriate term.
- C065 - As described on page 15 of the 1998 AIA NEM, the Sound Exposure Level (SEL) of an individual aircraft noise event is based on the duration and sound level of the event. Given two events with equal maximum levels, the event that is longer will sound louder. SELs were summed to develop the DNL contours in the NEM and the NCP.
- C066 - Comment acknowledged.
- C067 - As described on pages 106-108 in the NCP, AIA recognizes that commuter operations "... are a source of community complaints which could be minimized by taking advantage of the open space areas along the Minnesota Drive corridor." AIA is recommending the adoption of a commuter aircraft departure corridor along Minnesota Drive. Larger air carrier jets departing Runways 6R and 6L are subject to Standard Instrument Departure Procedures, which have minimum altitude or distance requirements delaying turns to the south. AIA has decided to delete the Early South Turn with the NADP measure from the final NCP (see C020).
- C068 - Comment acknowledged.
- C069 - See C041.
- C070 - Comment acknowledged.
- C071 - See C020.
- C072 - AIA is committed to the implementation of the FAA-approved measures and will work closely with the FAA, airlines, and the Municipality to do so.
- C073 - AIA is committed to the establishment of a noise advisory committee.
- C074 - Comment acknowledged. AIA is proposing to acquire an Aircraft Noise Operations Monitoring System that will allow compliance monitoring.

- C075 - Comment acknowledged. See C059.
- C076 - Comment acknowledged.
- C077 - Comment acknowledged.
- C078 - See C020.
- C079 - Comment acknowledged.
- C080 - Comment acknowledged.
- C081 - Comment acknowledged. An understanding of the cost of soundproofing existing properties and the “. . . elements of an optimum soundproofing construction package . . .” may be obtained through a pilot sound insulation program. Quantifying the incremental cost of including sound insulation in new structures may be difficult due to varying home sizes and types of construction. See C057.
- C082 - Comment acknowledged. This is a continuation of a measure that was recommended in the 1987 NCP and has been implemented over the last few years with no discernable impact on property values.
- C083 - Comment acknowledged.
- C084 - Comment acknowledged.
- C085 - Comment acknowledged.
- C086 - Comment acknowledged.
- C087 - Comment acknowledged.
- C088 - Comment acknowledged.
- C089 - Comment acknowledged. FAA funding criteria for soundproofing programs is normally for areas within DNL 65 dB and higher. Funding priority is given to areas within the highest noise levels first. FAA funding criteria also typically requires that sound insulation reduce interior noise levels be reduced to DNL 45 dB, which is a Noise Level Reduction (NLR) of 25 to 30 dB for homes within DNL 65 to 70 dB. Typical home construction has an NLR of about 20 dB. Therefore, homes within the DNL 60 to 65 dB may already meet FAA interior sound level criteria.
- C090 - Comment acknowledged.
- C091 - Comment acknowledged.
- C092 - Comment acknowledged.
- C093 - Comment acknowledged.

C094 - Comment acknowledged.

C095 - Comment acknowledged.

C096 - Comment acknowledged.

C097 - Comment acknowledged.

C098 - Comment acknowledged.

C099 - Comment acknowledged.

C100 - Comment acknowledged.

C101 - Comment acknowledged.

C102 - Comment acknowledged.

C103 - Comment acknowledged.

C104 - Comment acknowledged. See C027.

C105 - Nighttime operations are recognized as being more disruptive than daytime operations and are given a 10-decibel penalty to reflect this. The Airport Noise and Capacity Act (ANCA) of 1990 restricted the ability of airports to implement nighttime restrictions. ANCA was enacted as a result of Congress' concern regarding the potential negative impacts on the national air transportation system, if airports across the country implemented nighttime restrictions. ANCA instead required airlines to phase out noisier aircraft by the year 2000. AIA's proposed nighttime runway use measure is designed to minimize the noise impact of nighttime operations by directing nighttime departures to the west over the water when traffic and weather allow.

C106 - The analysis in the NCP for the year 2017 forecast indicates that noise levels in this area are not expected to increase significantly from current levels, therefore, there is no reason to expect a significant erosion of property values. AIA's Revised NCP is designed to minimize the impact of AIA operations on the community through both noise abatement measures and preventative or remedial land use measures. All preventative and remedial land use measures proposed must meet FAA guidelines for funding. These guidelines limit remedial programs, like soundproofing, to areas within the 65 dB DNL and above contours. Acquisition programs for vacant lands (preventative measure) are limited to areas within the 65 dB DNL contour and above, while acquisition of developed residences (mitigation measure) are limited to areas within the 70 dB DNL contour and above. AIA is not proposing to purchase any existing residences under this NCP. Eligibility of specific residences for soundproofing will be determined on a detailed scale upon approval of this proposed measure by the FAA.

C107 - AIA's Preferential Runway Use and Noise Abatement Bulletin requires all nighttime engine runups to occur at the west end of the east-west runway or at the north end of the north-south runway. Aircraft operators are only allowed to run engines at idle on other ramp areas at night.

C108 - Moving Runway 24R/6L to the east would not result in any noise benefits to the community. AIA has looked at the potential for extending Runway 24L/6R to the west to reduce the impacts associated with east departures. Although this extension could decrease some east departures, the airlines and FAA Air Traffic Control have concerns regarding wind shear off the west end of the runway and impacts on runway capacity when in the Arrive 14/Depart 24 configuration. The benefits of extending Runway 24L/6R to the west were not found to justify the costs at this time.

RESPONSE TO FEDERAL AGENCY COMMENTS

F001 - Section 1.4 has been revised to reflect this.

F002 - The final public hearing and comments received have been addressed in Chapter 7 and Appendix C.

F003 - Table 1.1, Section III.A.2. has been revised to reflect this.

F004 - Table 1.1, Section IV.A.2. has been revised to reflect the correct references, which are Sections 6.6.2 and 6.6.3.

F005 - Table 1.1, Section IV.A.4. has been revised to add a reference to Section 5.8.

F006 - Table 1.1, Sections V.G.1, 2, and 3 have been revised to add references to Tables 3.6 and 3.7.

F007 - Comment acknowledged.

F008 - Comment acknowledged.

F009 - On page 33 in Section 3.5.1 of the NCP, measure (1) shift Runway 32 nighttime departures to the north applies to those tracks that are *south* of the FMS track. Aircraft flying the FMS track, which overfly Elmendorf Air Force Base, do not overfly the more heavily populated areas in northeast Anchorage.

F010 - The Combine NADP with Early Turn for Runway 6 Departures measure has been removed from the proposed measures in the NCP. If approved, AIA will coordinate with the FAA and commuter airlines to ensure that the departure corridor does not negatively impact safety or capacity.

F011 - Comment acknowledged.

F012 - This section has been revised and no longer references the Preferential Runway Use and Noise Abatement Bulletin.

F013 - As stated in Table 5.4, implementation of this measure results in a reduction of the DNL contours to the east of AIA, reducing the noise impacted population within the 65 dB DNL contour by 130 people. The reduction in the DNL contours to the east is a result of shifting nighttime departures from the east to the west over the water. As with all other noise abatement procedures, the depart Runway 24, arrive Runway 14 nighttime configuration would be used when winds, weather, and air traffic volume permits.

Likewise, even when this configuration is in use, individual pilots may request a different runway due to operational considerations. Although arrivals will be over northeast Anchorage when departures are on Runway 24L, they are significantly quieter than the Runway 32 departures depicted in Figure 5.2. Table 5.4 will be revised to reflect the additional flight time for transoceanic flights from the south.

F014 - The table will be revised to reflect the correct FAA divisions, the ANC 2 SID, and the NEPA requirements. The Combine NADP with Early Turn for Runway 6 Departures measure has been removed from the NCP (see C020).

F015 - See C020 and F014 regarding the conflict between commuter flight tracks and commercial air carrier departures to the east. This measure has two noise reduction benefits. First, Table 5.5 indicates that 60 percent of the commuter and general aviation departures use Runways 6L and 6R compared to 14 percent for air carrier jets. This difference results from FAA's desire, for air traffic control purposes, to separate the slower commuter aircraft from the faster air carrier jets. However, these commuter departures overfly noise sensitive areas southeast of AIA. Use of the recommended commuter departure corridor will offset some of the noise impacts of these departures. Second, FAA's practice of departing commuter aircraft on Runways 6L and 6R increases the availability of Runway 32 for air carrier jet departures, which directs the noisiest aircraft departures over water. This allows FAA to stay in the Preferential Runway Use configuration for longer periods of time. Therefore, while it is true that this measure by itself may not reduce the DNL contours, its use may enhance the FAA's ability to adhere to the Preferential Runway Use Program for longer periods of time, thereby contributing to the reduction of the DNL contours. Thus, this measure meets the basic criteria for inclusion in the NCP.

KNIK 5 SID will be changed to Anchorage 2 SID.

F016 - Comment acknowledged.

F017 - Comment acknowledged.

F018 - Comment incorporated by revision.

F019 - Comment incorporated by revision.

F020 - Comment incorporated by revision.

F021 - Comment incorporated by revision.

F022 - Comment incorporated by revision.

F023 - The text and table were revised to be consistent.

F024 - The text and table were revised to be consistent.

F025 - Comment incorporated by revision.

F026 - Early turns to the south without the use of a NADP are not recommended. Table 5.10 discusses an early turn to the south *without* an NADP. The last sentence in 3.2.5 discusses an early turn to the south *with* an NADP.

F027 - The text was revised to be consistent.

F028 - The text was revised to be consistent.

F029 - Comment incorporated by revision.

F030 - Comment incorporated by revision.

F031 - Comment incorporated by revision.

F032 - Comment incorporated by revision.

F033 - The NEPA documentation requirement was added to Table 5.7.

F034 - The text was revised to be consistent.

F035 - This sentence was reworded.

F036 - See F015.

F037 - The number of complaints were not used to quantify the benefits of the measure. Use of the noise abatement flight track would reduce the number of people within the 75 decibel SEL contours, as compared to the current flight tracks. Table 5.11 indicates that, "No significant effects on aircraft operators are expected." and that "No appreciable effect on air service is anticipated." Therefore, there is no significant cost or operational impact associated with this measure to compare to the benefits. See also F015.

F038 - Comment incorporated by revision.

RESPONSE TO LOCAL GOVERNMENT COMMENTS

LG001 - Comment acknowledged.

Response to Public Testimony

PUBLIC TESTIMONY AT FEBRUARY 9, 1999 PUBLIC MEETING

VICTORIA LEINON: I live over in the Tanaina Hills Subdivision which is in the yellow on the map of high noise areas. My only question to this whole noise study is I think it's rather ironic that we have all these council leaders giving testimony and giving input, and it doesn't see like their input is that worth anything. Just from the three out of the four council members who actually said something, there's no information -- or I should say, they didn't get anything out of this whole entire study. So that's my only concern right now as far as this meeting.

As far as the noise at my house, my husband is a pilot, so we kind of live with it, because we know that this happens. However, it -- the noise at night is probably the major concern, unless you sleep in the day, of course, but we sleep at night, so I'm just -- I guess the biggest part of the study that I'm really concerned is the night noise, and how we can in some way change the noise level right now.

ERNIE HALL: My name is Ernie Hall, I am a former Chairman of the Board for the Anchorage Economic Development Corporation, and I will do my best to read this within the three-minute allotment. Basically it's the position of the Anchorage Economic Development Corporation regarding the Anchorage International Airport Noise Study.

The Anchorage Economic Development Corporation, AEDC, has identified the Anchorage International Airport, AIA, as one of the most important economic engines of the metropolitan area of Anchorage. With over 11,000 employees and 319 million in payroll, the AIA accounts for almost one job in ten in Anchorage. In 1999, 34 air carriers have landing rights at AIA. The Airport currently serves over 5 million passengers annually, over half are Alaskans, with 25 percent domestic visitors, and 15 percent international travelers. Based on current trends, 6 million passengers are expected by the year 2005. The Anchorage International Airport is a top U.S. cargo airport based on landed weight of all cargo aircraft. Over 95 percent of the cargo between the U.S. and Asia stops in Anchorage. The expanded cargo transfer capability ruling approved the U.S. Department of Transportation has enhanced the ability of cargo carriers to transfer cargo in Anchorage. This makes AIA even more attractive for the cargo hub operations and inter-airline cargo transfers.

Operational conditions. The AIA advantages which attract over 500 flights per week, are based on location and operational flexibility. The accidents of geography provide the location advantage. AIA lies within nine hours of 95 percent of the industrial world, thus it forms a convenient and fuel efficient intersection between major markets. The other major advantages are a profile of 24 hours, seven days a week availability, and excellent operational control.

I will pass and go into the very end, and that we also believe that the noise conflicts can be prevented with the things that are outlined in the proposals and the buffering and landscaping can also play a great deal in abating the noise levels around the airport here.

I do have a complete written presentation here that I will leave to be presented to the record.

KAREN BUTTON: Thanks. My name is Karen Button, and I was born and raised in Anchorage. I've lived in the Spenard/Turnagain area for most of my life, and I was just -- I bent the ear of Jenny for most of the break complaining about what I've seen as not very wise planning. I mean, I think that economic growth is fine, but -- it's necessary, but it doesn't have to be economic growth at the expense of everything else. I mean, we have a choice as a community I feel to plan wisely and to develop our resources wisely, and I don't feel like that that's being done in this case. It's my feeling that Anchorage is not an appropriate place to be such a cargo hub. You know, you have a fairly small bowl where we are dealing with pretty high noise levels.

I noticed on the map I live very far away from the 65 decibel noise contour, and yet my windows rattle at night. I live downtown and there are days where my office windows rattle due to jet traffic.

So I would like for -- in this study, I'm appreciative that there is this noise study that's going on, but I would like to have this noise -- I'm not sure if this is an advisory group or what exactly, but I'm a little bit disturbed by the fact that there's a master plan going on, I don't know if air pollution is being looked at or not, if water quality is being looked at, sprawl and development, I mean, traffic to and from the Airport. These are all issues associated with the Airport in addition to the noise, and I think that they should be all looked at in conjunction with one another, not compartmentalized. And I do think that we as a community have a choice about whether or not we want to see growth to the point where it chases residents out of Anchorage. Thanks.

SALLY BURKHOLDER: I am Sally Burkholder, and I'm a person who never thought there was going to -- they were going to live under a flight path. The area where I live is labeled DNL 60. Tonight it may be less than 60, the wind's not out of the south. A couple weeks ago it was probably well over 70. The averages and the way they measure noise are not really indicative of the full problem. When you have three or four days of jets going over your house, even if the next month there's not one that goes over, you've still lost a lot of sleep in three or four days. And the only picture to ever fall off my walls in 30 years that I've lived in Alaska was not due to an earthquake. It's when a jet went over.

On the positive side, I will say there's been some improvement in the last four years. There's a lot less jets taking off on runway 14 when there's no need to. But under certain wind conditions they do need to go that way, and I do thank whoever's in charge of cutting down the unnecessary flights.

There's some facts that we all know. The City wants a lot more homes so they have a better tax base. The Airport wants expansion. People want more jobs. We're all here in Anchorage I guess sharing in the success of a large airport. And if we're going to share in that success, we probably ought to share in the noise. And I suggested four years ago at the beginning of this process that instead of picking out one flight path off each runway, or one or two that were preferred, that perhaps we ought to share the noise. One month you go off at a certain heading, the next month you change it by 10 degrees, the next month 10 more degrees, and you share the noise. Right now, every jet that takes off on 1-4 gets to 400 feet, and they make a 50 degree turn to the right. Puts them right over my house. There's no reason they can't make a 40 degree turn, a 30 degree turn, no turn at all, turn to the left a little bit. If we're all going to share in the profits of this Airport and the City, we might as well all share in the noise.

And I'd just like to close by saying that when you said new flight path, you're just taking one person's problems and giving it to another. And I would also like to warn you that I think the next problem in the future we may be sitting here in a couple years worrying about is the air pollution from the jets. And that may be a lot worse problem than noise.

MERLE AKERS: My name is Merle Akers, I'm a Turnagain homeowner. I also am a Part 135 pilot. I also own my own airplane at Lake Hood.

I'm going to start right out. One of the things I heard tonight, and I've heard it before, is that we can't do anything because of the FAA regulations. One of the things I want to -- one of the problems we have in this Bowl is that we created an airport at Anchorage International with Runway 14/32, and then they've extended the runway. There are serious safety problems with that runway. They've been there, they're talked about monthly at the meeting Bill Chord holds at his tower. The airline people know it there. And yet we continue to build the Airport irregardless of the safety problems. FAA says they cannot, will not change the procedures to make it safe.

You have the same problem with your noise here. One of the things on this study is that I noticed the Lake Hood traffic -- we have Lake Hood traffic going out Wisconsin. There is no mark, dbl, whatever you call your line running out through there, to show that flight path. Now, apparently that's because that's on -- these lines are based on an average. But what wakes you up is 2:30 in the morning with the air taxi going right down Wisconsin at 300 feet taking people to Lake Creek to go fishing. That's what bothers people.

Now, the other thing that I want to -- and I don't know where this noise -- how this noise is going to -- this noise study works. But it seems like to me what we're doing with the noise study, we build the facility and then we study how much noise we've got. It seems like to me we've got that backwards. We should be doing the projection of the noise before we build the facility. I thank you.

MARK MADDEN: My name is Mark Madden, and I am an associate professor of aviation management and pilot training out at the University of Alaska-Anchorage. And with that said, I'm sure you already have some preconceived ideas of what my approach to this subject's going to be, but hopefully I can give you a little bit of a different perspective on what we're all talking about tonight.

First of all, my compliments to all involved for doing this type of study. It's important that there is communication. It's very important that we all listen.

A couple of things to keep in mind. When we choose where we decide to live, we always have to have a compromise. If we live far away from a large metropolitan area, we get away from the noise. We also get away from the amenities. We also get away from the convenience that a large city offers.

With that in mind, please keep in mind that the aviation industry may very well be the first industry in this state that is self-sustaining and not natural resource based. That's a significant consideration, especially when you think about what's happening in the Legislature right now as it relates to the State budget.

Another thing to keep in mind is from a perspective standpoint, there was a statement made at the beginning of this presentation that the Part 150 noise study does not take safety into consideration. My advice and recommendation to everyone here is to keep in mind that safety is very much a part of the final analysis. I don't think anyone here would feel very good about knowing that a potential accident could have been avoided had there been more reasonable noise abatement procedures. Keep in mind that when you reduce power on take off, you reduce your margin of safety. When you do an early turn out, you reduce your margin of safety. Thank you.

JAY STANGE: Good evening. My name is Jay Stange, that's S-t-a-n-g-e, and I am here tonight primarily because I've been working over the last several months with a group of people who were writing the comprehensive plan for Anchorage. It's part of a citizen task force. We talked about transportation, meaning air quality, land use, traffic. We talked about the Airport a little bit, but apparently we didn't get too far, because not much of our discussion about the Airport made it into the final document, which is why I'm here tonight.

I wanted to offer the comment that I think that we're approaching this process backwards. Right now the Airport is asking the City to consider changing zoning so that impacts from noise won't be as severe. I think that what really needs to happen in our community is we need as -- as Anchorage citizens, we need to decide what is the acceptable level of noise, and what is the acceptable level of airport growth? Unfortunately, we haven't had a chance to do that.

There's a comp plan going on right now, it's a plan for the next 20 years of Anchorage. The City has usually ignored the plan, as you've seen when they build the new box stores in midtown where they change the zoning and disregard the comp plan. That happens quite frequently, so it doesn't exactly have a lot of teeth. But it's been interesting to watch that process, because the State of Alaska and the Municipality of Anchorage kind of point fingers at each other, saying, well, it's not our responsibility to bring the concept of defining the Airport size to the public. The State of Alaska owns the land, the City of Anchorage has the land use planning, and there's a little disagreement right now about who should be doing what. But I think that, you know, if the citizens of Anchorage decide to reconcile this problem, the best way to do it is to start with limiting the Airport. One suggestion is to move it over to Fort Richardson and Elmendorf when those bases are decommissioned.

Another quick point before I go, we're not a cargo hub here in Anchorage, and respectfully, Mr. Madden, this is natural resource dependent. It's actually a refueling stop, the Airport here in Anchorage. It's not a

cargo hub, although there is some cargo that's stopped and sorted here. Mostly it's just people stopping and getting some gas on their way to Asia or on their way from Asia.

So thanks very much, and I hope that everybody out there who cares gets more involved in this process. And it was a big mistake to make the public testimony at the end tonight. I think half the people in the audience went home.

WALTER BETTILYON: Good evening. My name is Walter Bettilyon, I'm the director of operations over at Security Aviation. And with that in mind, I'm real happy with the growth of the Airport. A large number of jobs depend on it. I think that it can handle even more growth than what it's got with some proper planning. However, as a private homeowner that owns a couple of pieces of property within the DNL 60 line, I have a couple comments to make.

Presently night departures utilize Runway 32, and moving night departures to Runway 24 will move the source of the departure noise a half-mile closer to the highest density of homes within the DNL 60 contour. That's the line that is closest and adjacent to the Airport. Homes located along Jewel Lake Road, Raspberry, Connor Drive, et cetera, will suffer a significant increase in noise. The owners of those properties have already been identified as having been -- being located in a significantly noise impacted area. Changing night departures to Runway 24 would do nothing to alleviate the impact on homes presently located within the DNL 60 perimeter. The change to Runway 24 may slightly reduce the noise level for Muldoon and Eagle River, but only by additionally penalizing those within the DNL 60 contour.

It also appears that the computer model that plotted the DNL 65 line may not have taken into account the elevation, barrier vegetation or lack thereof, and the directional orientation of the various homes, in addition to a number of other variable factors. I know from my own experience that I can hear noise levels greater than at a home that's located right next to me that is on the opposite side of the DNL 65 contour. And that's as a result of the orientation of my house, and the fact that it's on a higher elevation, along with a large number of other homes that are also on a higher elevation. Those homes pick up the noise quite a bit more than some of the homes closer to the Airport. If this is what everybody's going to base things on, I'd really like to see some more information on how the line was plotted. I think a lot of it -- or not necessarily a lot of it, but a good portion of it may have been somewhat arbitrary based on some random samplings.

Also, has the noise at Elmendorf and Merrill Field been factored into this study? We talk about trying to alleviate some of the noise that people complain about in the downtown area. I'm a little concerned that some of the general aviation operations off of Merrill Field along with the military operations off of Elmendorf may be actually the largest contributors to noise in those areas, and not actually the noise of the aircraft coming off of Anchorage International. And I've reviewed some of the information. I haven't really seen an assessment or analysis that broke down specific flight paths versus military aircraft and the airline aircraft.

And that's pretty much all I've got to say, but I'd really like to recommend that everybody take an active part in this. The Airport is really a jewel of Alaska. I mean, it's one of -- like a number of people have said, one of the self-sustaining resources that we've got that doesn't actually involve cutting down forests, digging up our land, et cetera.

KATHY GLEASON: Thank you, members of the advisory committee. I would also like to express my displeasure of how this was formatted. A public hearing started at 9:00 p.m. on a work night is ridiculous for a public agency to do, and I think that was really poor planning. Obviously you lost at least half of your audience. I, for one, would have loved to hear -- have a question and answer session after your presentation and committee comments. I'm so curious what all the people who turned out tonight had to say about all of this, and now only a handful of us will testify, and some will submit written comments, and we'll never know what they said in the context of maybe what I would base my comments on.

My yard was one of the monitoring sites at 4211 Bridle Circle in Turnagain. When the readings were taken, what year was that? '96 or '97?

STEVE ALVERSON: '95.

KATHY GLEASON: '95. Wow, time flies. That was four years ago. I have experienced much, much more noise at my home now than in 1995, and I'm afraid these contour lines do not adequately reflect what has happened in the interim while this Study has drug on and on. To hear that it's been taking place for four years really shocked me. I knew I'd been coming here for a long time, but I didn't realize it had been that long. And at that time I had no ground noise at my home. None. Now I have it almost 24 hours a day. And to hear that this noise study does not even address that, and another noise study will have to look at that, now long will that take? Another four years? In the meantime we've got a serious noise problem that is not being addressed in a realistic manner. I'm sorry, I'm going to continue. There's no recourse for my home on this contour map at 60 DNL, because I won't qualify for FAA funding to soundproof my home. Even the homes that will qualify, if they want to have their windows open at night in the summertime, it won't do them a bit of good, because noise is being shifted, and emphasis is take-offs to the north, that's shifting more noise to the Turnagain area, so that's not being addressed. There's just so much lacking in this. When I bought my home in 1982, we looked at the 20-year master plan. Believe me, there was no mention of major cargo development, no noise contours showing I would have a noisy home. So there's no recourse for those of us who are long-time homeowners in Turnagain.

With all due respect to Frank, I like you a lot, Frank, and I hope you know that. He has not represented our Community Council well. He hasn't even been to council meetings in several months. Our Council has not discussed this, so you are not getting true representation of what Turnagain residents have to say about airport noise.

Lastly, I think that the Airport -- the abatement measures should much more address land use development and the management of it within the Airport boundaries rather than trying to manipulate land use ordinances outside of the boundaries. They need to go through a local public process so that we can -- if there's a major lease proposed, it can go before Platting, it can go before P&Z. They need to get a conditional use permit in transitionally zoned land according to Title 21, but the Airport says, oh, we don't have to do that. We don't have to do that. Well, it's time they do it. And I think this committee ought to make that as a recommendation in this process. Thank you.

ED CULLINANE: When we moved here into Anchorage in 1992 and built our house on Sportsman's Point area, I thought, my, what a nice, quiet subdivision, at the end of a cul-de-sac. Yes, I knew there was an Airport here, but the noise levels have increased probably I think because of the number of houses that were built around us subsequent to that. Well, that's our fault. That's no problem.

But I think that we could all benefit from having our government leaders follow through with the institution of what has already been approved, and that is the Stage 3 noise levels as well as the Stage 2 noise levels that aircraft must adhere to in the year 2003. And if we could just have those noise levels adhered to by the aircraft operators and owners, I think that that would go a long way to alleviating a lot of the noise problems we have. Thank you.

JOANNE GOING: My name is Joanne Going, and I've lived in the airport area since 1985, and in 1992 I purchased my current home from the retiring head of FAA, Frank Cunningham. And at that point, we discussed the air noise from the runways, of which I have a very nice view from my house. I'm at Four Corners. And I just have two concerns that I didn't hear addressed.

I like the Airport, I like the view, and I like the growth of the economy there. But it appears that the DNL 60/65 line that was the computer model did not take into effect the hillside and the slope there around Four Corners. I don't think my dishes should rattle, and they always don't rattle, but I don't think they really should rattle at all. And for some reason they have been doing that periodically.

And I also have a concern about the ground noise if you switch from 24R, the ground noise sometimes can be overbearing. And I question the logic to use this at night, that it seems like it would impact -- I mean, if I hear it, I can just imagine those that live around the area that's impacted in the yellow area, that

it would just be more difficult. Or, you know, it would make it a real dark yellow or something, a different color, because it would be difficult, and those are already impacted in that area.

Those are my only two concerns. Thank you.

SHEILA HIKER: Hi, my name is Sheila Hiker, and I moved into my house this year, and this is my first meeting here. And I was really surprised to find out that the DNL 60, they're going to try to change the land plat so it says that we have all this noise. And I think that if -- I also found out that my house doesn't qualify for soundproofing. And I don't think that that's fair that I have to go and warn people if I try to sell my house, well, this is in the Airport zone, and it makes too much noise, but it doesn't make so much noise that they will fix it. And that just -- there's something really wrong with that, and I totally disagree with that.

RESPONSE TO PUBLIC TESTIMONY ON DRAFT NCP AT FEBRUARY 9, 1999 MEETING

- P001 - The Technical Advisory Committee was formed to allow for an exchange of information between AIA and representatives of various groups and to ensure that AIA considered the many different perspectives on airport noise represented by these different groups. As the responsible agency, AIA must decide what measures to incorporate into the NCP. The fact that AIA's recommendations may differ from recommendations made by community council representatives and other interested groups reflects the fact that AIA has to consider the wider range of perspectives in the community and the regulatory limitations imposed by federal and state regulations in making a final determination on recommended measures. This should not imply that input from these parties has been ignored. All input was seriously considered during AIA's deliberations on final recommendations.
- P002 AIA acknowledges that nighttime noise has a significantly higher impact than daytime noise and this is reflected in the 10 dB penalty given to nighttime noise events in the FAA's Integrated Noise Model.
- P003 Comment acknowledged.
- P004 AIA acknowledges the concerns regarding the balancing of economic development and other issues. See C043.
- P005 Comment acknowledged.
- P006 The AIA Master Plan Update currently underway does address other environmental and land use issues in addition to noise.
- P007 Comment acknowledged.
- P008 Comment acknowledged.
- P009 AIA did evaluate flight track changes associated with south departures. The analysis indicated that the current flight track minimizes the impacts associated with these departures. The review criteria used by the FAA during the NCP review and approval process would not approve a change which would result in spreading the noise impact to new areas.
- P010 Comment acknowledged.
- P011 These issues are outside the scope of this study.
- P012 AIA acknowledges that single events during the nighttime are the most disturbing noise impacts (see P002), however, federal regulations and ongoing research identify the cumulative exposure metric (DNL) to be the most reliable measure for noise compatibility planning efforts.

- P013 Comment acknowledged. Unfortunately, airport noise was not considered an issue when AIA was sited in the early 1950s.
- P014 Comment acknowledged.
- P015 Comment acknowledged. Safety is considered during development of the NCP. All flight procedure and flight track measures recommended in the NCP are reviewed for safety considerations prior to FAA approval.
- P016 Comment acknowledged. See C043.
- P017 Comment acknowledged.
- P018 Less than 40% of AIA's all-cargo operations in 1997 were "gas and go" type operations. AIA is a cargo hub airport that supports both domestic and international air cargo operations. Federal Express, United Parcel Service, United, Northwest, and Polar all have international cargo hubs at AIA. In addition, there are domestic cargo operations serving the bush, including Alaska Airlines, Northern Air Cargo, Alaska Cargo Express, and Lynden Air Cargo. AIA cargo operations also include a unique bypass mail operation for the U.S. Post Office. The federal government recently gave foreign carriers the authority to transfer cargo between planes in Anchorage, which is likely to increase cargo hubbing activities further. A 1998 report by the Institute of Economic and Social Research at the University of Alaska Anchorage states that 30% of airport jobs, which account for 10% of all jobs in Anchorage, are related to international cargo operations. An increasing percentage of these jobs are related to hubbing activity.
- P019 Comment acknowledged. AIA attempted to provide a variety of opportunities for the public to provide input in both formal and informal manners, including one-on-one discussion during the workshop portion, the court reporter that was available for recorded comments, written comment forms, and the public testimony period. Finally, public comment on the Draft NCP was also accepted throughout the public review period.
- P020 See C019. Although Runway 32 is currently the preferred departure runway at night, approximately 14 percent of the air carrier jets depart to the east at night due to wind and weather conditions that are unfavorable to Runway 32 departures. Runway 6R and 6L departures at night contribute significantly to the DNL contours and noise impacts east of AIA. Departing on Runways 24L and 24R at night will reduce the noise impacts east of AIA without significantly increasing noise impacts south of AIA. It is recognized, however, that the character of the noise near the start-of-takeoff roll for Runways 24L and 24R may change.
- P021 The INM is a "flat earth" model, which does not take into consideration the elevation of surrounding homes. The model does include attenuation for "soft" or grass covered earth for noise from aircraft on the ground. The location and orientation of individual homes are not input into the model. Because the noise from aircraft in flight usually dominates the noise contours near airports, home elevations and orientations are not usually significant with respect to the DNL contours. Home elevations and orientations may be significant when they are exposed exclusively to noise from aircraft on the ground (e.g., taxiing, reverse thrust, run-ups, etc.). Homes on a hill facing the airport will be exposed to higher levels of noise from aircraft ground operations than those on the

opposite side of the hill where homes are shielded from the noise. If approved by FAA, the detailed ground noise study that will follow the Part 150 will document these effects in the neighborhoods near AIA. The FAA-approved INM remains the most accurate model for depicting the cumulative noise impacts around airports. The modeling for AIA was not based on random sampling, but was based long-term trends in runway use, flight tracks, and the aircraft fleet mix operating at AIA in the base year. The contour lines are plotted using NMPLOT, a contour-plotting program supplied with the INM. The contour lines connect locations of equal DNL values. As stated above, DNL contours lines usually correlate well with measured values.

- P022 This study only addresses airport noise associated with AIA and the Lake Hood Float Plane Base. Merrill Field and Elmendorf Air Force Base have conducted noise studies in the past. Impacts associated with those facilities tend to be very localized.
- P023 Comment acknowledged.
- P024 Comment acknowledged. See P019.
- P025 Despite the length of the study, the DNL contours still accurately represent the aircraft noise exposure from operations at AIA. As stated earlier, it would take a doubling of operations (assuming the same fleet mix) to change the DNL contours by 3 dB.
- P026 The AIA Part 150 Update revealed that there are a variety of ground noise issues that require a level of study beyond the level included in the Part 150 scope of work. The detailed ground noise study will be completed in as expeditious manner as possible.
- P027 FAA guidelines for funding sound insulation programs focus on areas of DNL 65 dB and higher. Areas below DNL 65 dB may be eligible for federal sound insulation funding at some point in the future, but may be dependent on the completion of sound insulation programs in areas above DNL 65 dB.
- P028 AIA's preferential runway use program, which seeks to maximize north departures, has been in place for more than 10 years. Therefore, the emphasis to takeoff to the north is consistent with long standing noise abatement policy.
- P029 International aviation is a rapidly changing industry and it is difficult to forecast precisely the direction in which the industry will go in the future. The Master Plans are based on the best available information and forecasts at the time of development.
- P030 Community Council representatives were designated by the relevant community councils. AIA recognizes that any representative is not going to be able to reflect the variety of opinions represented within any community council area.
- P031 AIA has addressed both noise abatement and land use measures as required under FAA guidelines on noise compatibility planning. It is important to recognize that despite AIA's best efforts, AIA will never be able to eliminate noise. An airport is an industrial use and local land use planning must take this into consideration during land use planning decisions.
- P032 Comment acknowledged. See C050 and C058.

P033 Comment acknowledged. See P021.

P034 Comment acknowledged. See P020.

P035 Comment acknowledged. See C045.