A-96-01
II-A-212

EPA United States Environmental Protection Agency

EPA 550/9-82-340

ACTIONS AFFECTING LAND-USE COMPATIBILITY AT U.S. AIRPORTS

MARCH 1982

U.S. ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF NOISE ABATEMENT AND CONTROL
WASHINGTON D.C. 20460

II-96-01
II-A-212

50272-101

REPORT DOCUMENTATION PAGE	1. REPORT NO. EPA 550/9-82-340	2.	3. Recipient's Accession No.
4. Title and Subtitle: Actions Affecting Land-Use Compatibility at U.S. Airports			5. Report Date: March 1982 6.
7. Author(s): T. Barano and J. Schettino			8. Performing Organization Rept. No.
9. Performing Organization Name and Address: ORI, Inc. 1400 Spring Street Silver Spring, MD 20910			10. Project/Task/Work Unit No. 11. Contract(C) or Grant(G) No. (C) (G)
12. Sponsoring Organization Name and Address: Office of Noise Abatement and Control U.S. Environmental Protection Agency Washington, DC 20460			13. Type of Report & Period Covered: Letter Report - Final 14. EPA/ONAC

15. Supplementary Notes

16. Abstract (Limit: 200 words)

This report documents the actions taken by airports as a result of recommendations made by Airport Noise Control and Land Use Compatibility (ANCLUC) studies funded by the Airport and Airways Development Act of 1970 (ADAP) and as a result of FY 1980 Federal grants authorized by the Aviation Safety and Noise Abatement Act of 1980.

17. Document Analysis a. Descriptors

Noise control, noise abatement, land-use compatibility, U.S. airports land-use compatibility

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement: NTIS ONLY - UNLIMITED	19. Security Class (This Report): UNCLASSIFIED	21. No. of Pages: 20
	20. Security Class (This Page): UNCLASSIFIED	22. Price

(See ANSI-Z39.18) See Instructions on Reverse

OPTIONAL FORM 272 (4-77)
(Formerly NTIS-35)
Department of Commerce

ORI
Silver Spring, Maryland 20910

LETTER REPORT

Actions Affecting Land-Use Compatibility at U.S. Airports

T. Baranano
J. Schettino

ORI, Inc.
1400 Spring Street
Silver Spring, Maryland 20910

MARCH 1982

PREFACE

This is a letter report on land-use actions and operational measures taken to promote land-use compatibility at U.S. airports. Whenever specific airports are cited, three letter abbreviations are used. The abbreviation and full airport names are cross-indexed at the end of the report.

This report has been approved for general availability. The contents of this report reflect the views of the contractor, who is responsible for the data presented herein. This report does not necessarily represent the official views or policy of EPA. This report does not constitute a standard, specification or regulation.

PERMISSION IS GRANTED TO REPRODUCE THIS MATERIAL WITHOUT FURTHER CLEARANCE

TABLE OF CONTENTS

LIST OF TABLES

ACTIONS AFFECTING LAND-USE COMPATIBILITY AT U.S. AIRPORTS

INTRODUCTION

As part of EPA's responsibility to coordinate the programs of Federal agencies relating to noise research and noise control and to publish from time to time reports on the status and progress of these programs, EPA's Office of Noise Abatement and Control undertook a study to document the progress made to achieve compatible land-use around U.S. airports. As part of this effort, EPA decided to document the actions taken by airports as a result of recommendations made by ANCLUC studies funded by the Airport and Airways Development Act of 1970 (ADAP) and as a result of FY 1980 Federal grants authorized by the Aviation Safety and Noise Abatement Act of 1980 whose implementation was made possible by FAA Part 150 regulations. In order to assist EPA in this project, ORI was contracted to conduct this study.

METHOD

ORI conducted a detailed survey of fifty-five of the nation's airports with active programs in noise control. These airports included those with ongoing or completed ANCLUC studies and those which had received FY 1980 noise grants. ORI collected the following information from the airports:

- The extent and types of land-use related actions (including: zoning changes, land purchase, easements, building soundproofing and building code requirements, and disclosure requirements) implemented to date and planned for the near future.
- The implementation costs incurred by these programs -- both to date and expected in the future -- and their means of funding.
- The benefits of aircraft noise abatement operational changes (flight procedures, ground tracks, or preferential runway use) in reducing the numbers of residences exposed to noise equal to or greater than the 65 dBA day-night sound level coutour.

Nineteen airports replied in writing; twenty-one furnished information by phone. Fourteen of the 24 airports designated as 'ANCLUC pilot projects' by U.S. DOT provided information for the study. Five of the forty airports replying by phone or writing had received FY 1980 noise compatibility grants.

FINDINGS - HISTORICAL LAND-USE ACTIONS (OFF AIRPORT)

Twenty-two of the 40 airports studied had taken land-use actions for noise compatibility spending a total of $251,260,000. Sixteen airports made land purchases, ten made zoning changes, three bought easements, and only one (LAX) did soundproofing (to both public and private structures). Although the cost of land was high in many instances, the preferred method of land acquisition was fee simple acquisition. The average amount spent per unit for all land-use changes was $50,130 per acre. The average amount spent per acre for all land-use changes was $9,207. Three airports (LAS, MSY and CPR) purchased primarily agricultural land which contained no residential units. Zoning changes were primarily changes from residential to industrial or commercial uses, and were often made at no cost to the airport authority.

The source of funding for nine airports was a combination of ADAP funds and city, local or State funding. The latter included funding from a state utility (MASSPORT) and a State Farm Loan Board (CPR). At six airports, ADAP funds were combined with airport revenues. Three airports were unable to identify which funds they used in combination with ADAP funds. Two claimed to have used city funding only; one used airport funds as its sole source of funding.

Several airports stated that they had completed their land purchases. These and other airports expressed a desire to keep surrounding impacted land undeveloped for residential uses (BED, HRL, LCH and SLC). Eighteen airports had implemented no land use changes. Only five of these eighteen (BDL, BRL, ESF, JFK, HNL) had no plans for future land-use changes. Seven indicated a desire for land-use actions but had no definite plans.

FINDINGS - PROJECTED LAND-USE ACTIONS (OFF AIRPORT)

Only six airports with no previous experience formulated definite plans to initiate land-use actions. Most of the airports that had already undertaken substantial land-use actions plan future actions. Twenty-two airports have budgeted $393,900,000 for future land-use changes.[1] Twelve plan land acquisition, six plan zoning changes and three plan soundproofing. One airport (RNO) projects spending $2.6 million on a purchase assurance plan. Two others (STL and LAX) will buy easements. Two of three airports that plan to soundproof residences and schools are older, urban airports (PIT, STL). Soundproofing and purchase of easements may be effective at another older, urban airport, Cleveland Hopkins International, according to the airport spokesperson. Only one airport, Las Vegas - McCarran International, plans to construct noise barriers.

FINDINGS - AIRPORT RELATED AND OPERATIONAL MEASURES

Twenty-eight airports reported taking airport related and operational measures for noise abatement reasons. These included two airports which plan to construct new runways at a cost of $4 to 5 million

[1]At a cost of $88,460 per unit for all land-use changes.

each. Three additional airports plan runway relocation, reconstruction or extension to alleviate noise. Other operational measures taken were many, ranging from preferential runways to horizontal and vertical control to curfews. The most popular operational measures taken were arrival and departure flight procedures, which were taken by sixteen airports. The use of preferential runways was required at thirteen airports. Data on types of procedures required and airport related changes are given in Table 1.

In addition to the above changes, one airport installed a noise monitoring system (VNY); another created a staff position for noise control (PAE). Only one airport (BED) had penalties for infractions of its operational procedures. This airport and VNY were the only airports to require a quiet fleet.

BENEFITS FROM ACTIONS

Data quantifying the benefits to the affected population was scarce. Only seven airports quantified benefits due to operational measures. These seven reported that a total of 2,781 units were removed from the >65 Ldn band. By comparison, five airports quantifying benefits from land-use changes claimed that 909 units were removed from the >65 Ldn band. (See Table 2).

This study was unable to determine whether some of the 5,012 units affected by land-use changes were not included in the 909 units reportedly removed from the >65 Ldn band. The cost to airlines of procedural changes was also not determined by this study.

CONCLUSIONS

Progress is being made at U.S. airports to promote land-use compatibility relating to noise. Airports have spent $251,260,000 to plan and implement land-use changes that have affected 5,012 units. This study has documented that 909 of these units have been removed from the >65 Ldn noise band. The funding for land-use changes has come in part from Federal grants to purchase land, to soundproof, and to facilitate zoning changes.

The most common land-use action funded by Federal grants has been land acquisition. Although effective, this action is expensive and not always feasible, particularly in developed areas. Land purchased is also subject to legal challenges (John Wayne Airport, CA) and may be underfunded (Lake Charles, LA). Land acquisition for noise reasons may be incompatible with environmental impact requirements (California) and is open to suspension by political bodies. Cleveland's City Commission, for instance, refused to approve airport land-use changes.

Operational measures taken by airports have removed 2,781 units from the >65 Ldn noise band. These actions are also subject to challenge, this time by the FAA for safety and other reasons. John Wayne Airport, for instance, may not implement noise reduction power cutbacks.

Both land-use actions and operational measures that have been taken to date benefit only a fraction of the persons who could benefit from noise related actions. They are, however, a 'holding action' for noise control that airports have begun to implement in a serious manner.

TABLE 1

SUMMARY OF LAND-USE AND OPERATIONAL
CHANGES AT 40 AIRPORTS SURVEYED

Historical Land-Use Changes at 22 Airports

NUMBER OF AIRPORTS	TYPE OF CHANGE
16	Land Acquisition
10	Zoning Changes
3	Easements Purchased
1	Soundproofing

Projected Land-Use Changes At 22 Airports
(Includes on-site development)

NUMBER OF AIRPORTS	TYPE OF CHANGE
12	Land Acquisition
6	Zoning Changes
3	Soundproofing
2	New Runways
4	Other Runway Changes
2	Easements Purchased

Airport Related and Operational Measures
Implemented by 28 Airports

NUMBER OF AIRPORTS	TYPE OF CHANGES	
6	Time of Day Restrictions	
2	Runway Development	Airport Related
4	Run up Location and Hush Houses	Airport Related
1	Noise barrier Construction	Airport Related
3	Type of Aircraft/Quiet Fleet Restrictions	Airport Related

TABLE 1
(Continued)

NUMBER OF AIRPORTS	TYPE OF CHANGE	
13	Preferential Runway Use	Aircraft Operational
16	Arrival and Departure Flight Procedures (includes ground tracks)	Aircraft Operational
9	Climb and Approach Profile Changes	Aircraft Operational

TABLE 2

UNITS REMOVED FROM NOISE BANDS
BY OPERATIONAL AND LAND-USE CHANGES

Units Removed from Noise Bands by Operational Changes

AIRPORT	UNITS REMOVED FROM NOISE BAND	COMMENTS
ALB	3	From 65 to 75 Ldn band
BIS	17	15 from 65 to 75 Ldn; 2 from >75 Ldn band
ICT	1,543	1,514 from 65 to 75 Ldn, 29 from >75 Ldn band (3.5 residents/ unit assumed)
MRY	40	From >75 Ldn band
MSY	1,163	1,114 from 65 to 75 Ldn, 49 from >75 Ldn
PAH	15	From >75 Ldn Band

Units Removed by Land-Use Actions

AIRPORT	UNITS REMOVED FROM NOISE BAND	COMMENTS
ORF	588	Rezoning
RNO	48	From 65 to 75 Ldn; by land acquisition
SLC	13	From 65 to 70 Ldn; by land acquisition
STL	260	From >75 Ldn; by land acquisition

APPENDIX 1

HISTORICAL LAND-USE CHANGES TO 1981

APPENDIX 1

HISTORICAL LAND-USE CHANGES TO 1981

Air-port*	Total Cost $ Mil.	FY 1980 Grant	Total Units Affected	** Type of Action	Comments
TOTAL	251.260		5,012		$107.26 Million without LAX
LAX*	144.0		2,832	P	These may be pre-ANCLUC purchases
LAX*	27.8			Sp,E	Soundproofing, $24.2 Million
ATL*	20.0	3.5	464	Z	
LUK*	13.4		249	P	
RNO*	13.4		48	P	
STL*	9.9		260	P	
BHM	8.0	2.32	100	P,E	
PIT*	5.2	1.76	40	P	
BIS*	3.3		17	P	
ORF*	3.0		588	Z	
CPR*	1.0		0	P,Z	
SAV	1.0			P,Z	
VNY	0.412			P,E	
BED*	0.300		5	P	
CLE	0.300		6	P	
MCO	0.249		3	P,Z	
ALB	0.075		3	P	
COS	Unknown			Z	Zoning ordinance includes sound-proofing provision
GTF	Unknown			Z	
LAS	Unknown		0	P	
LHC	Unknown			Z	
MSY*	Unknown	1.3	0	P,Z	
SLC*	0		400	Z	

**P = Land purchase
Sp = Soundproofing
E = Easements purchased
R = Runway changes
Z = Zoning changes

*ANCLUC Airport.

APPENDIX 2

PROJECTED LAND-USE CHANGES

APPENDIX 2

PROJECTED LAND-USE CHANGES

Air-port*	Total Cost $ Mil.	FY 1980 Grant	Total Units Affected	** Type of Action	Comments
TOTAL	393.9		4,453		
ATL*	211.0		2,000	Z	Unclear whether land purchase is involved
MCO*	50.0		0	P	
STL*	37.0		885	P	
STL*	18.5			Sp	
PIT*	7.5		67	P	
PIT*	20.2			Sp	** P = Land purchase
RNO*	14.1		228	P	Sp = Soundproofing
RNO*	1.3			Sp	Z = Zoning changes
LUK*	11.0		100	P	E = Easements bought
JWY	10.0		100	P,E	R = Runway changes
BIS*	5.0			R	New Runway
MRY	4.0		60	R	New Runway
ALB	2.0	2.0	10	P	
MSY*	1.0		23	P	Relocation of residents is planned
CPR*	0.8		N/A	P	
BED*	0.5		N/A	P	
PAH	N/A		20	P	
LHI				Z	No land purchase (no cost)
SLC*	0		900	Z	No land purchase (no cost)
TVL				Z	No land purchase (no cost)
ICT				Z,R	No land purchase (no cost)
LAX*				R	Runway reconstruction, relocation and extension (no land purchase involved)
COS*				R	
PIT*				R	
LAS	Unknown		60	P,Z	
ORF*	Unknown				Some land-use changes are planned

*ANCLUC Airport.

INDEX

CONTACTS FOR NOISE COMPATIBILITY
LAND-USE ACTIONS - 1981

Airport Abbre-viation	Airport Name	State	Contact	Phone
ABE	Allentown-Bethlehem-Easton	PA	Marc Roth	215-791-2252
ALB	Albany County	NY	John J. Masko, Jr.	518-482-2948
ATL	W. B. Hartsfield-Atlanta	GA	Shirley Harris	404-530-6610
BDL	Bradley International	CT	Bob Juliano	203-623-3940
BED	L. G. Hanscom Field	MA	Lynn Burckhart	617-274-6822
BHM	Birmingham Municipal	AL	Waverly Johnson	205-595-2129
BIS	Bismark Municipal	ND	R. W. Heinemeyer	701-222-6502
BRL	Burlington Municipal	IA	C. Michael Rukgaber	319-753-8126
CLE	Cleveland-Hopkins Inter.	NV	Stephen Nagy	216-265-6035
COS	Colorado Springs Minicipal	CO	John Maynard	303-578-6692
CPR	Natroma County Inter.	WY	Jim Parker	307-265-6634
ESF	Esler Reg (Alexandria)	LA	Art Fultz-Manager	318-445-4235
GTF	Great Falls International	MT	Joe Allen	406-727-3404
FUL	Fullerton Municipal	CA	Jay Jaso	714-738-6323
HNL	Honolulu International	HI	Dean S. Nakagawa	808-836-6526
HPN	Westchester County	NY	Heal/Madoian	914-946-9000
HRL	Harlingen International	TX	Eugene H. Snavely	512-423-4380
ICT	Wichita Mid-Continent	KS	Bailis F. Bell-Airport Manager	316-942-8101

INDEX (Continued)

Airport Abbre-viation	Airport Name	State	Contact	Phone.
JFK	JFK, LaGuardia, Newark	NY-NJ	James P. Muldoon	212-466-7474
JWY	John Wayne Municipal	CA	W. J. Martin	714-834-6634
LAS	Las Vegas-McCarran Inter.	NV	Barry Bateman	702-739-5211
LAX	Los Angeles International	CA	Ernie Gonzalez	213-646-7614
LCH	Lake Charles Municipal	LA	C. F. Guidry	318-477-6051
LHI	Ft. Lauderdale/Hollywood	FL	Robert Mearns	303-765-5088
LUK	Greater Cincinnati	OH	Robert A. Keefe	606-283-3166
MCO	Orlando International	FL	Norm Glass	305-826-2001
MRY	Monterey Penin	CA	John Peitrowski	408-373-3731
MSY	New Orleans Int./Moisant	LA	F. Roy Madgwick	703-998-3200
ORF	Norfolk International	VA	Kenneth R. Scott	804-857-3351
PAH	Barkley Reg. Paducah	KY	Richard Roof-Airport Manager	502-442-0521
PAE	Paine Field-Snohomish	WA	Donald Bakken	206-353-2110
PIT	Greater Pittsburgh Inter.	PA	Suzanne Hobbinf	412-778-2500
RNO	Reno Cannon International	NV	Ray Lubomski	785-2800
ROC	Rochester/Monroe	NY	Samuel A. Cooper	716-436-5624
SAV	Savannah Municipal	GA	E. E. Davison	912-964-0514
SLC	Salt Lake City Inter.	UT	Paul B. Gaines	801-539-2400
STL	Lambert/St. Louis	MO	Bernard D. Hartman	314-521-3000

INDEX (Continued)

Airport Abbre-viation	Airport Name	State	Contact	Phone
TVL	Lake Tahoe	CA	Edward Lane	916-541-4080
VNY	Van Nuys	CA	Jeff Pappas	213-785-8838