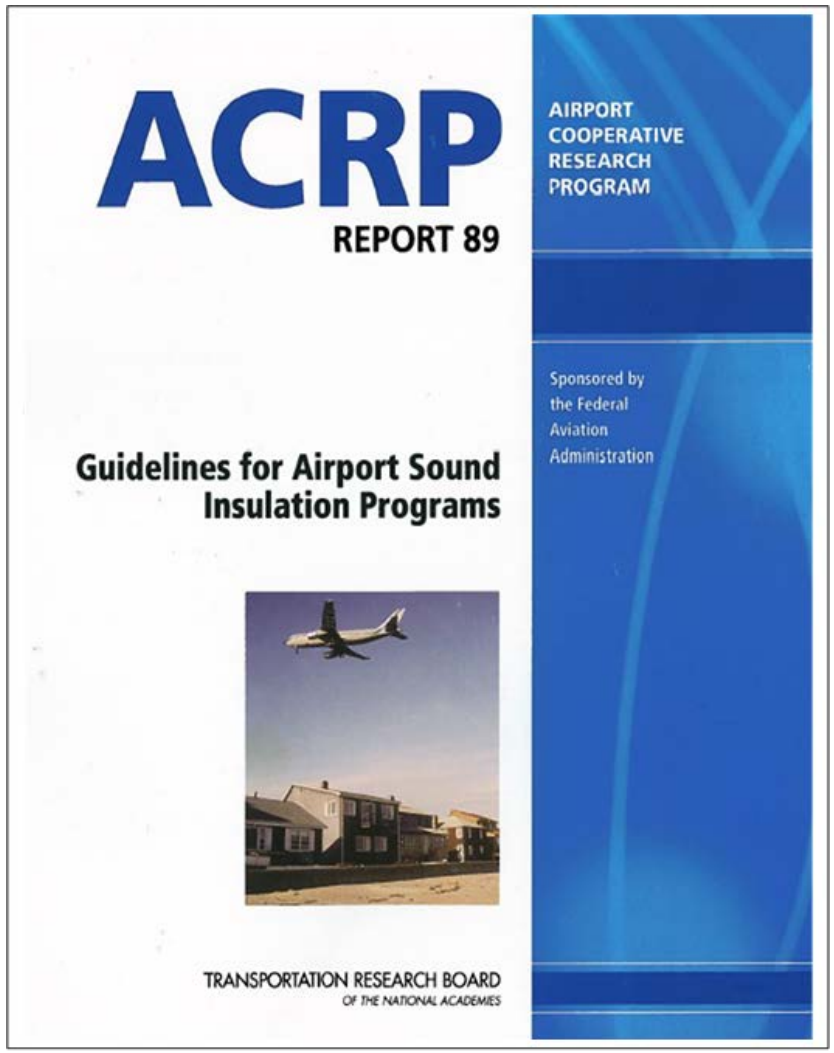

Overview of ACRP Report 89

Michael K. Payne, AIA
Principal Investigator

ACRP 02-24: Project Objectives

"Objective of the research is to develop updated guidelines for sound insulation of residential and other noise sensitive buildings for potential use by airport and non-airport sponsors to develop and effectively manage their aircraft noise insulation projects."

-TRB Project Description

What are the "Guidelines"?

Guidelines for Sound Insulation of Residences Exposed to Aircraft Operations

Written by Wyle Laboratories and first published in 1992 and updated by the U.S. Navy in 2005 as

"…a project management handbook for studying, initiating and implementing residential sound insulation programs…"

Topics included:

- Basic Concepts of Noise & Acoustics
- Noise Reduction Requirements
- Sound Insulating New and Existing Homes
- Costs and Code Issues

What are the "Guidelines"? (cont)

The 1992 Guidelines are currently the FAA's adopted guidance for sound insulation as noted in PGL 12-09 issued August 17, 2012

"In 1992, FAA adopted guidance on testing frequency, sampling and other statistical measures that can be applied to a neighborhood to estimate the interior noise levels in the residences that are in the 65 dB contour.[13] .... Long standing agency policy is that an airport sponsor must use the 1992 guidance to establish the existing interior noise levels to determine whether or not the building qualifies for sound insulation using AIP."

[13]Advisory Circular 150/5000-9A - Announcement of Availability Report No. DOT/FAA/PP/92-5, *Guidelines for the Sound Insulation of Residences Exposed to Aircraft Operations*

Updating the Guidelines

While there was much useful information in the two previous versions, updates were required to reflect current costs, codes and "Best Practices".

Team Approach:

Build upon the two previous versions by maintaining that which was useful and relevant while ***updating and expanding*** the Guidelines in key areas such as:

- Energy performance and sustainability
- Community Outreach
- Improvements in Products
- Current Code and other Regulatory Requirements
- Bidding methodologies and project costs

The Research Team

Theresia H. Schatz, A.A.E. – Senior Program Officer, ACRP

Michael Payne – *The Jones Payne Group*	Principal Investigator *and* Historic Treatment Design
Rita Smith – *The Jones Payne Group*	Project Manager *and* Non-Historic Treatment Design
Jack Freytag – *Freytag & Associates*	Acoustical Engineering
Deborah Murphy Lagos – *URS Group*	Program Development
Mark Culverson – *Larson Manufacturing*	Product Development
Robert Valerio – *Hill International*	Project Reporting / Closeout
Jean Lesicka – *CSDA Architects*	Community Outreach
Jim Leana – *S&L Specialty Contracting*	Construction Contracting
Robert Smith – *Consultant*	HVAC / Ventilation
Vernon Woodworth – *Consultant*	Energy Efficiency & Sustainability

Report 89: Content

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CONTENTS

PGL 12-09

Program Guidance Letter 12-09:

Eligibility and Justification Requirements for Noise Insulation Projects

1st discussed 2/17/11; Draft issued 3/27/12; Final Issued 8/17/12; Revised 11/7/12

The changes brought about by the PGL are significant in terms of program costs, community relations, and the way programs will be conducted in the future. It also affected updating the Guidelines which were 3 months from completion.

THE most profound change for RSI programs results from the PGL's "clarification" of what homes are eligible for sound insulation.

Per the PGL, the average interior noise level of all habitable rooms in a residence must be DNL 45 dB or greater for the house to be eligible for sound insulation.

Prior to the PGL nearly every RSI program's policy understanding was that a home is eligible for sound insulation if it is located in DNL 65 dB or higher contour; interior noise levels was not a factor in determining eligibility .

Impacts of PGL 12-09 (cont)

Prior to PGL, sample acoustical testing (usually 10 -15%) was conducted in order to design treatments and confirm that NR goals were met.

Per the PGL, interior noise levels need to be determined to confirm eligibility. This will effect percentage of testing required (100%?) and programs costs.

Some important questions related to testing:

1) What testing methodology(ies) should be used to measure interior noise levels? (i.e., aircraft overflight? Artificial noise? Predictive modeling?)
2) What are the margins of error in each method that need to be taken into account?
3) Is there a standard protocol for testing that acoustical experts can agree on, and, if so, will the FAA agree to accept it?
4) The 1992 Guidelines as the FAA's "adopted guidance" conflict with provisions in the PGL regarding testing and other issues. As such, what parts of the 1992 Guidelines apply to programs?

Impacts of PGL 12-09 (cont)

A sampling of other, non-acoustical, issues:

1) What will be the percentage of homes that actually qualify for treatment and how will programs manage community expectations that sound insulation would be provided to all houses?
2) How will programs deal with inconsistencies in treatments in neighborhoods based upon home maintenance issues?
3) Testing is done with windows closed; if a house is ineligible for sound insulation but needs to have windows open for fresh air and ventilation, what secondary treatments will the FAA allow for AC or supplementary fresh air so the windows can remain closed?
4) The PGL has eliminated numerous treatments that were previously considered eligible for reimbursement: how will programs manage perceived in treatments in homes treated prior to the PGL?

Resolving outstanding issues

Options for the FAA to address outstanding questions / issues:

- Provide additional information through the FAQ process set up for the PGL
- Create an Advisory Circular document that focuses on the policy and technical issues raised in Report 89.
- Alternatively, assuming its timely publication, address issues in the updated Airport Improvement Program (AIP) Handbook - Order 5100.38D (currently in draft form)

NOTE: Time is of the essence in resolving issues since ongoing programs will be subject to the PGL after September 30, 2015 and new programs are subject to the PGL immediately.

Resolving outstanding issues (cont)

Additional option: **ACRP 02-51, *Evaluating Methods for Determining Interior Noise Levels Used in Airport Sound Insulation Programs***

The RFP issued on November 26, 2013. Key messages:

"…there is no industry standard to guide measurement procedures to confirm a dwelling's eligibility…"

"Research is needed to gain a better understanding of the factors that lead to differences among measurement methods and to understand and minimize inaccuracies in estimating interior noise levels"

A major goal of the research is to "…evaluate the accuracy of measurement methods (i.e., actual aircraft, exterior-to-interior artificial sound source, interior-to-exterior artificial sound source, and predictive modeling) and to identify procedures to minimize measurement inaccuracies."

NOTE: Proposals are due Jan 30, 2014 and the duration of the project is 12 months.

Overview of ACRP Report 89

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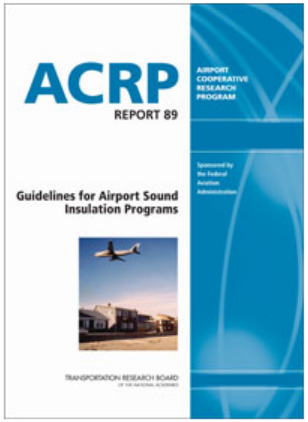

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Guidelines for Airport Sound Insulation Programs

TRB's Airport Cooperative Research Program (ACRP) Report 89: Guidelines for Airport Sound Insulation Programs provides updated guidelines for sound insulation of residential and other noise-sensitive buildings. The report is designed to help airports and others develop and effectively manage aircraft noise insulation projects.

Project: Project Information
Project Number: 02-24

E-Newsletter Type: Recently Released TRB Publications
TRB Publication Type: ACRP Report

This Summary Last Modified On: 8/10/2013

Overview of ACRP Report 89

QUESTIONS ?

THANK YOU !

Project Timeline

KEY MILESTONES DATES

Project Kickoff Meeting:	September 17, 2010
1st Survey – ANMS	October 4, 2010
Complete 2nd Survey – "Best Practices"	February 4, 2011
Complete 2nd Survey Data Analysis	April 4, 2011
Submit Interim Report to Panel	May 2, 2011
Submit Draft Guidelines	July 27, 2011
Submit Final Guidelines	December 31, 2011

Next Activities

KEY MILESTONES DATES

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90th Annual Meeting
Transportation Research Board

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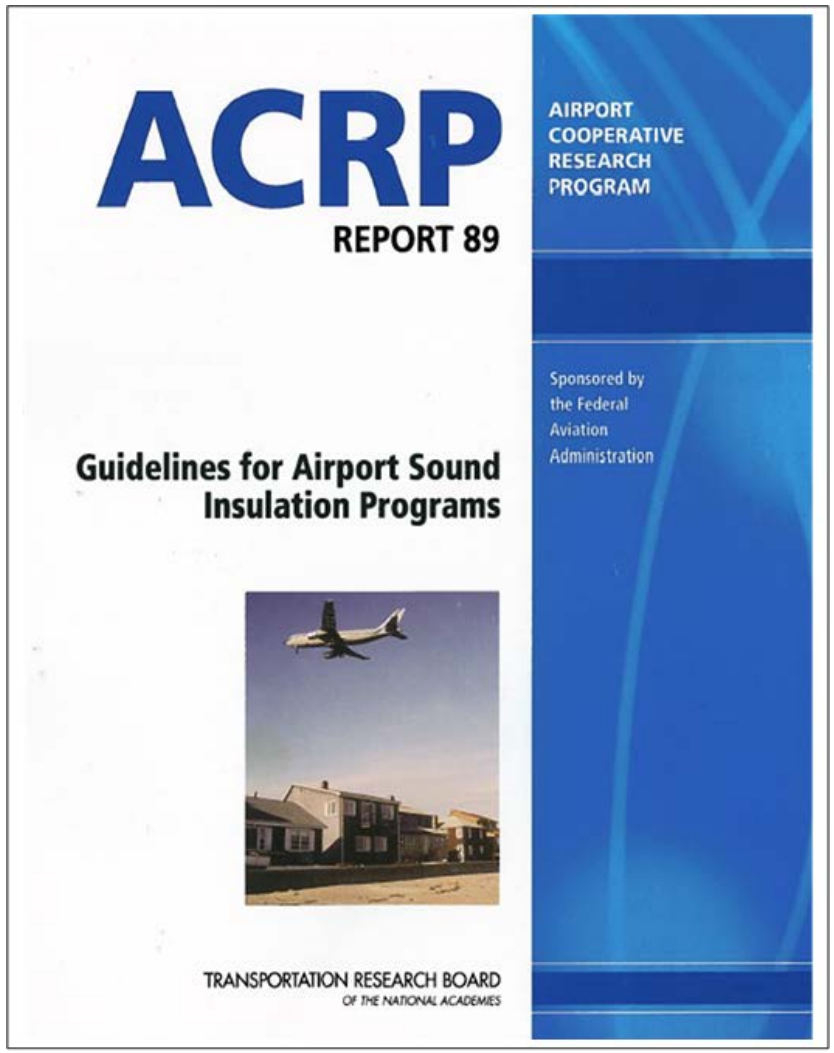
AIRCRAFT NOISE SUBCOMMITTEE MEETING ADC40 (1)

Overview of ACRP Report 89

Michael K. Payne, AIA – Principal Investigator

The Jones Payne Group

January 24, 2011

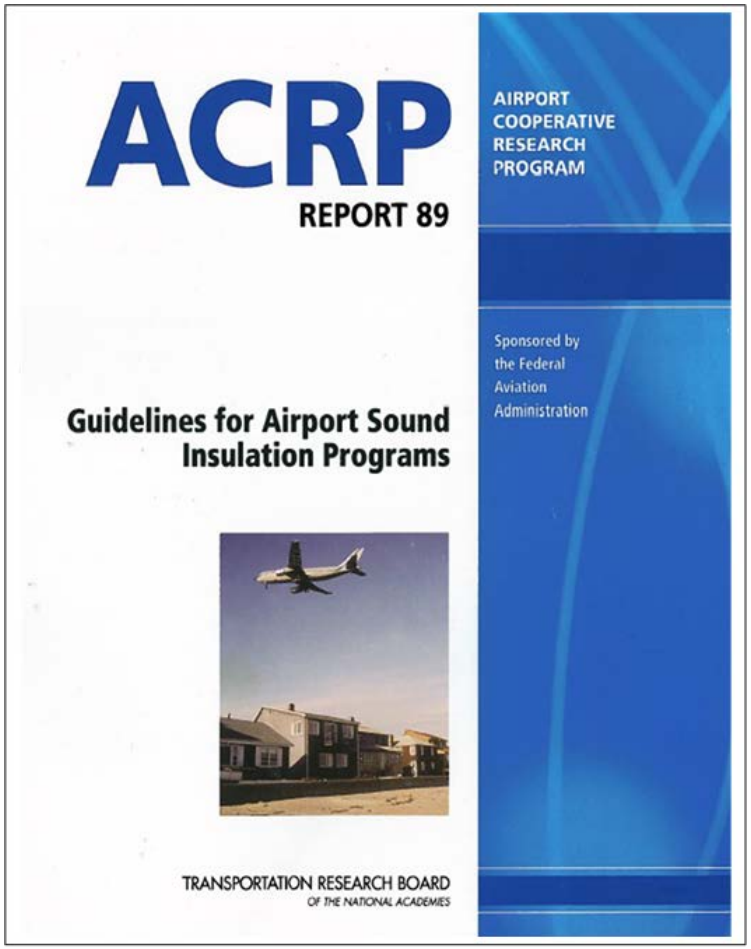


Overview of ACRP Report 89

Michael K. Payne, AIA
Principal Investigator

Aircraft Noise Subcommittee Meeting ADC40 (1)

Aircraft Noise Subcommittee Meeting ADC40 (1)



Overview of ACRP Report 89

Michael K. Payne, AIA
Principal Investigator

Outline of Presentation

- ACRP 02-24 – Project Objectives
- What are the “Guidelines”?
- The Research Team
- Project Timeline
- “Updating” the Guidelines
- Research Methodology
- ANMS Session Survey – October 4, 2010
- “Best Practice” Survey – Ongoing
- Next Activities

Research Methodology

Team's research approach predicated on individual Team member expertise in their assigned areas of investigation and their outreach to determine "best practices" and trends that currently or in the future will impact sound insulation programs (SIP's).

The Team is / has conducted two surveys as a means of getting insight into the use of the existing Guidelines as well as collecting "Best Practice" information from key stakeholders in SIP's.

Two surveys have been undertaken:

The **first** was conducted at the 10th Annual AAAE Noise Mitigation Symposium held in San Francisco on October 4, 2010.

The **second** was sent out on December 2nd and will be completed on February 4th.