Noise Programs in Areas Outside DNL 65 dB

AAAE Airport Noise and Mitigation Symposium

Boca Raton, FL

October 5, 2009

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Harris Miller Miller & Hanson Inc.

Agenda

- Background on DNL 65 Issues
- ACRP Synthesis Program
- ACRP Synthesis 16
- Discussion

Background on DNL 65 Issue

- How did DNL 65 become “standard”?
- Reasons we should address noise beyond DNL 65
- What assurances are needed?
- Other questions that must be answered

History of DNL 65

- **1972: Noise Control Act**
  - Study “the implications of identifying and achieving levels of cumulative noise exposure around airports”
  - Publish “information on the levels of environmental noise requisite to protect the public health and welfare with an adequate margin of safety.”
- **Results of 1972 Noise Control Act**
  - Recommendation of DNL as appropriate metric
  - Recommendation of DNL 55 as “level of environmental noise requisite to protect the public health and welfare with an adequate margin of safety”

History of DNL (cont)

- **1974: Maryland Aviation Noise Policy**
  - Model for Part 150
  - Balance environmental goals with technical and economic feasibility
- **Recommendations:**
  - DNL 65 recommended as threshold of compatibility with residential land use
  - DNL 60 recommended “when US fleet noise level is reduced 5 dB below 1975 level”

History of DNL 65 (cont)

- **1976: FAA Noise Policy**
  - Recognized need for balance between what is desirable and what is achievable
- **1979: Aviation Safety and Noise Abatement Act (ASNA)**
  - Establish "a single system of measuring noise"
  - Establish "a single system for determining the exposure of individuals to noise resulting from airport operations, including noise intensity, duration, frequency, and time of occurrence"; and
  - Identify land uses normally compatible with various exposures of individuals to noise
- **Result**
  - FAR Part 150, with guidelines: DNL 65 "normally compatible" with residential land use

Reasons to Address Noise Outside of DNL 65

- Court order
- Local land use compatibility guidelines
- Maturation of existing noise compatibility program, and substantial complaints arising in areas outside DNL 65
- Existence of reasonable and cost effective programs to address residential concerns outside DNL 65
- Potential evolution of federal and international policy outside DNL 65
- Necessary to gain community support for a proposed airport expansion program

Reasons to Address Noise Outside of DNL 65: Court Orders

- **Court Requires Airport to Provide Mitigation Beyond DNL 65**
  - 2007 Minneapolis-St. Paul International Airport
- **Court Ruling that DNL 60 is a Reasonable Threshold of Significance**
  - 2005 Naples, Florida

Reasons to Address Noise Outside of DNL 65: Local Land Use Measures

Jurisdiction	Airport	Level	Prohibited	SI required	Easement	Disclosure
Adams County, CO	DIA	60 DNL	√			
Boise, ID	SUN	60 DNL		√		
Cleveland, OH	CLE	60 DNL		√		
Durham, NC	RDU	60 DNL		√		√
Flagstaff, AZ	FLG	60 DNL		√	√	
Loudon County, VA	IAD	60 DNL		√	√	√
Mesa, AZ	PHX	60 DNL		√	√	
Minneapolis, MN	MSP	60 DNL		√		
Naples, FL	APF	60 DNL	√			
Orlando, FL	MCO	60 DNL		√		√
Reno, NV	RNO	80 Lmax		√		√
Truckee, CA	TRK	55 CNEL		√	√	

Reasons to Address Noise Outside of DNL 65: Reasonable and Cost-effective programs exist

- **Flight Procedures**
  - Continuous Descent Arrival (CDA)
  - Noise Abatement Departure Procedures (NADP)
  - Required Navigation Procedures (RNP)
- **Most noise benefit beyond DNL 65**
- **Many of these options also have positive emissions benefit**

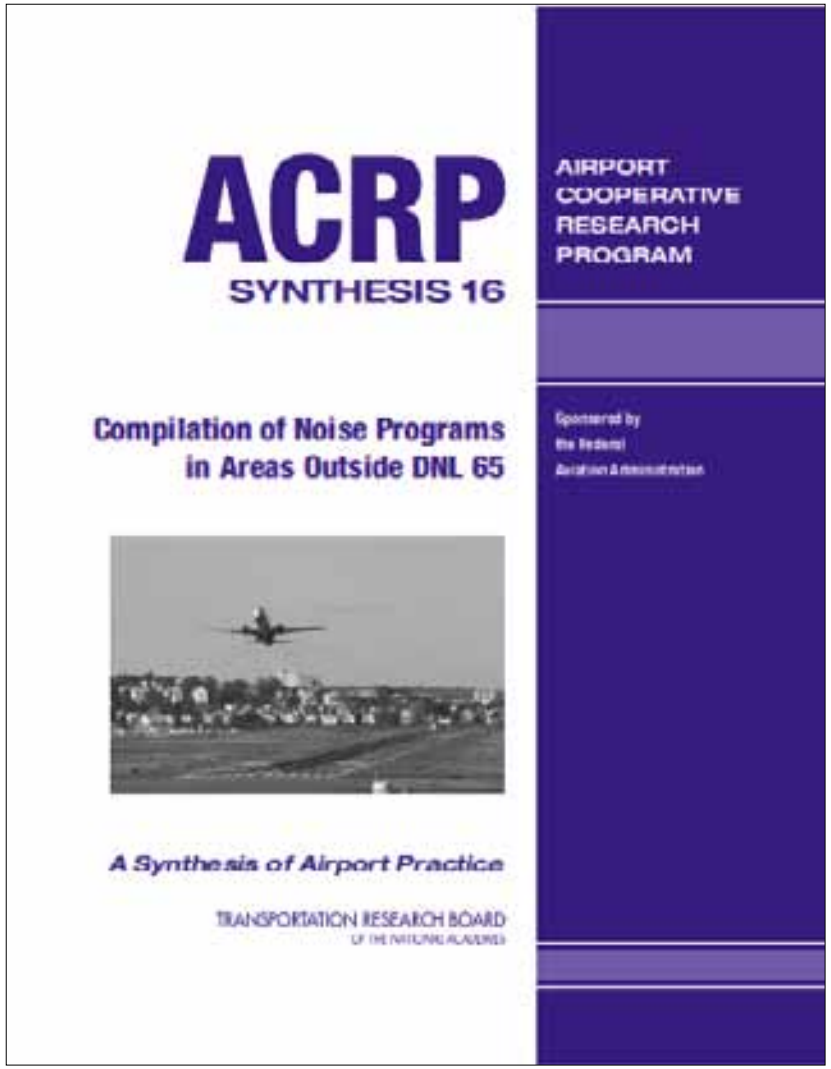
Reasons to Address Noise Outside of DNL 65: Potential evolution of federal and international policy

- **Federal policy**
  - JPDO has identified long term noise policy goal of having significant noise (DNL 65) on airport property, and moderate noise (DNL 55) on compatible land use
- **CAEP**
  - ACI-NA seeking increased stringency, difficult to justify on DNL 65 basis

Assurances Airports Must Have

- FAA should be encouraged to institute balanced and cost-effective noise abatement procedures
- Airport operator must demonstrate that there are substantial community noise concerns in areas outside the DNL 65 contour
- All similar noise-sensitive uses within the DNL 65 contour should be appropriately addressed first
- Jurisdictions beyond DNL 65 must adopt controls to prevent future residential land uses before the airport begins funding land use actions in those areas
- Financial capacity of airport should be addressed before funding could be used beyond DNL 65

ACRP Synthesis 16: Compilation of Noise Programs Outside DNL 65



Airport Cooperative Research Program (ACRP)

- **The Airport Cooperative Research Program (ACRP) carries out applied research on problems that are shared by airport operating agencies.**
- **Funded by FAA, administered by TRB:**
  - Funding in FY10 at $15M
- **ACRP Synthesis Program reports on current knowledge and practice and provides a compendium of the best practices:**
  - Assemble documented information
  - Identify best practices
  - Identify all ongoing research
  - Learn what problems remain largely unsolved
  - Organize, evaluate, and document information
  - Disseminate the synthesis information

ACRP Synthesis 16 Project Panel

- TERESA ARNOLD, McCarran International Airport
- MARK CLARK, Buffalo Niagara International Airport
- PATRICIA DAVIES, Purdue University
- CHRISTINE GERENCHER, Transportation Research Board
- CHAD E. LEQVE, Minneapolis–St. Paul Metropolitan Airports Commission
- JASON SCHWARTZ, Port of Portland (Oregon)
- THEODORE SOLIDAY, City of Naples Airport Authority
- SCOTT TATRO, Los Angeles World Airports
- MARY L. VIGILANTE, Synergy Consultants, Inc., Seattle
- VICKI CATLETT, Federal Aviation Administration (Liaison)
- JOE DIPARDO, Federal Aviation Administration (Liaison)
- JESSICA STEINHILBER, Airports Council International–North America

ACRP Synthesis 16 Scope

- Compile the existing and proposed applicable laws, policies, and regulations, plus relevant court decisions
- Conduct survey of airports on noise practices outside DNL 65
- Conduct interviews for case studies
- Synthesize, analyze data
- Prepare draft report
- Review with Project Panel
- Prepare final report

PDX
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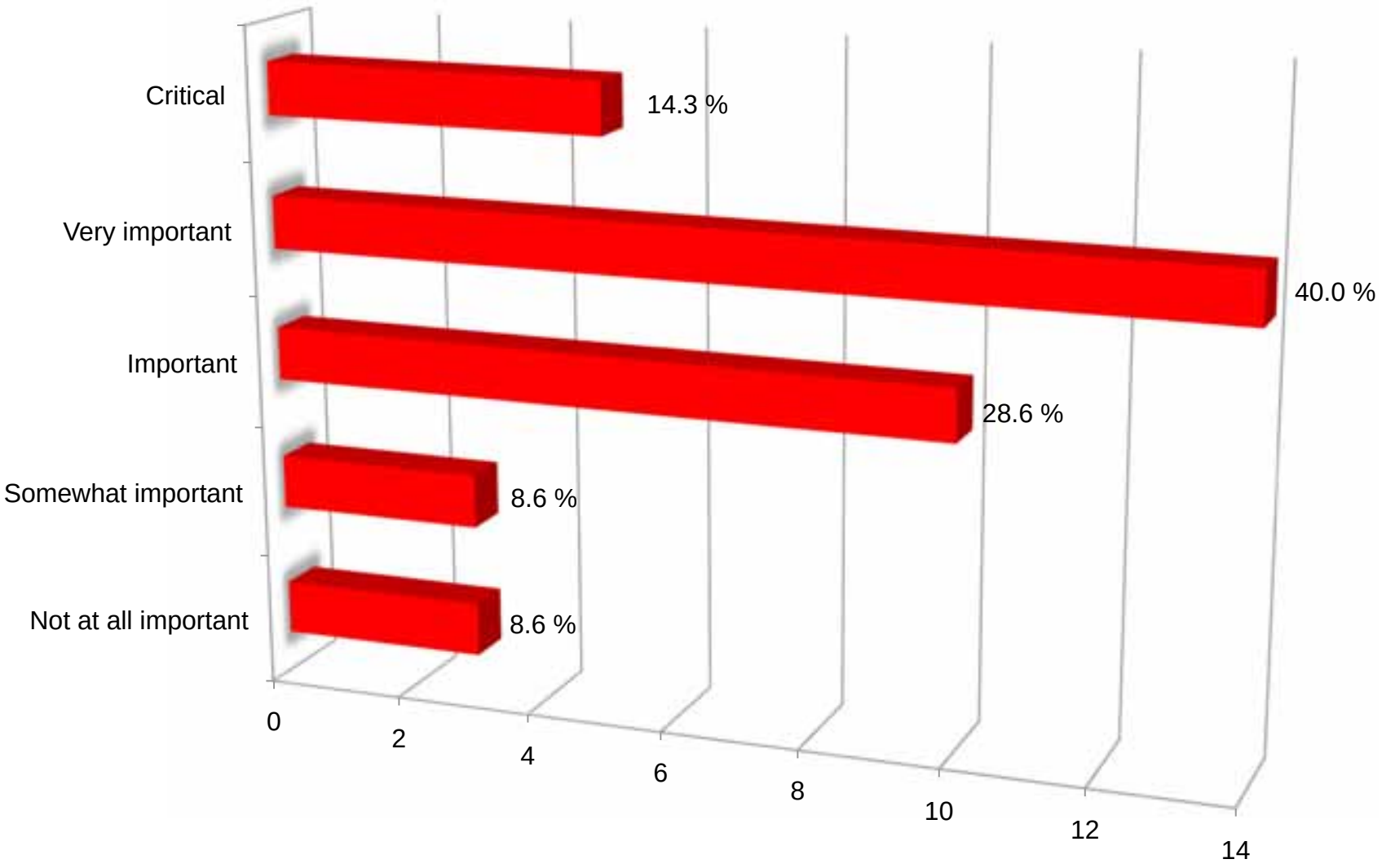
EWR
TRK
RNO
OAK
DEN
APA
IAD
LAS
SBA
VNY
LAX
SAN
PHX
RDU
BNA
DFW
MCO
TPA
FPR
SUA
BCT
APF
FLL
Pacific Ocean
Atlantic Ocean
Gulf of Mexico
Less than 50,000 Operations
50,000 to 100,000 Operations
100,000-250,000 Operations
More than 250,000 Operations

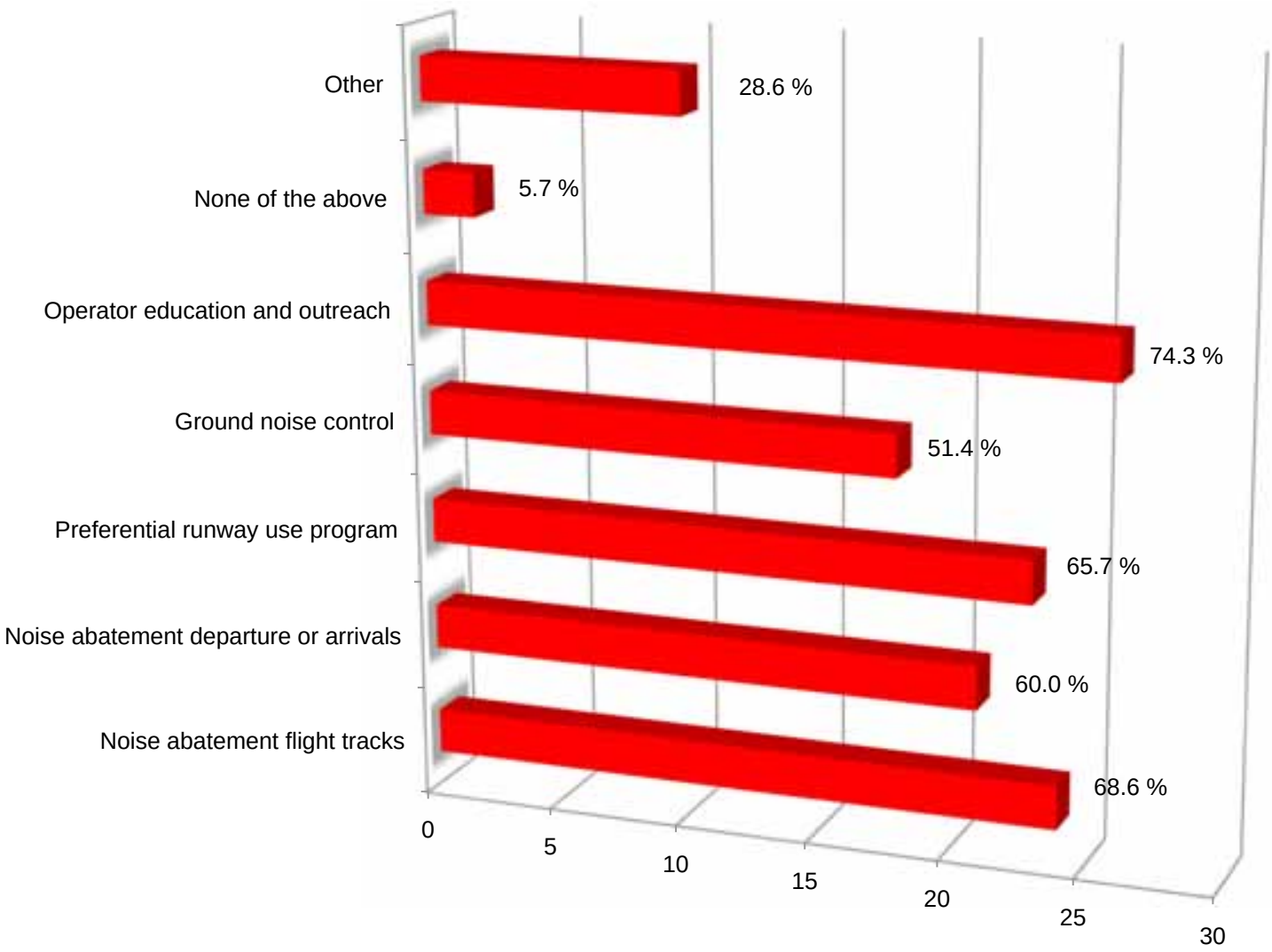
Five General Questions

- How important are noise concerns outside DNL 65 for your airport?
- What methods does your airport use to minimize noise outside DNL 65?
- What is your motivation for addressing noise outside DNL 65?
- What percent of your noise complaints come from people who live outside DNL 65?
- What kind of outreach tools do you use to communicate with people exposed to noise outside DNL 65?

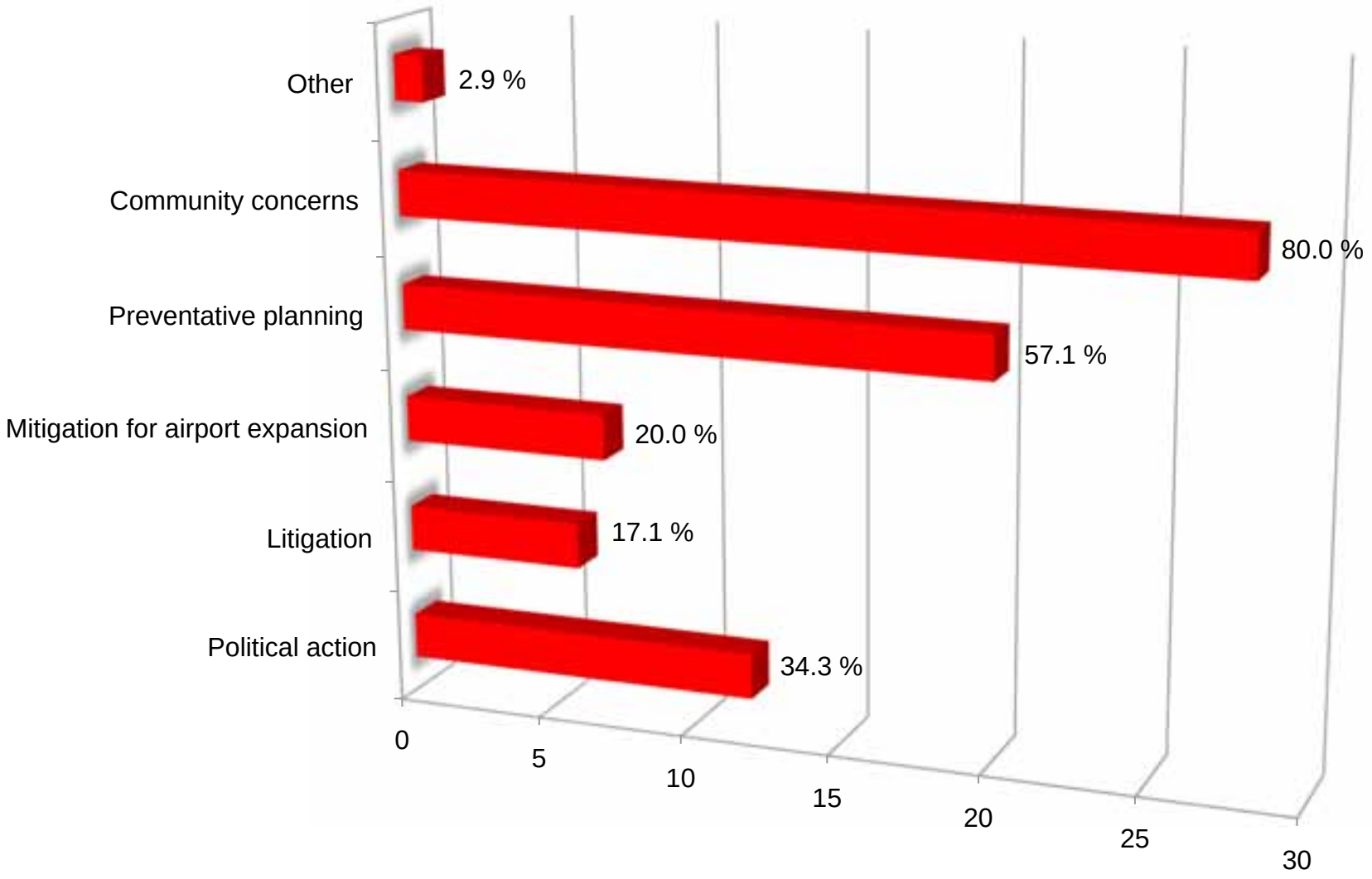
How important are noise concerns outside DNL 65 for your airport?



What methods does your airport use to minimize noise outside DNL 65?



What is your motivation for addressing noise outside DNL 65?



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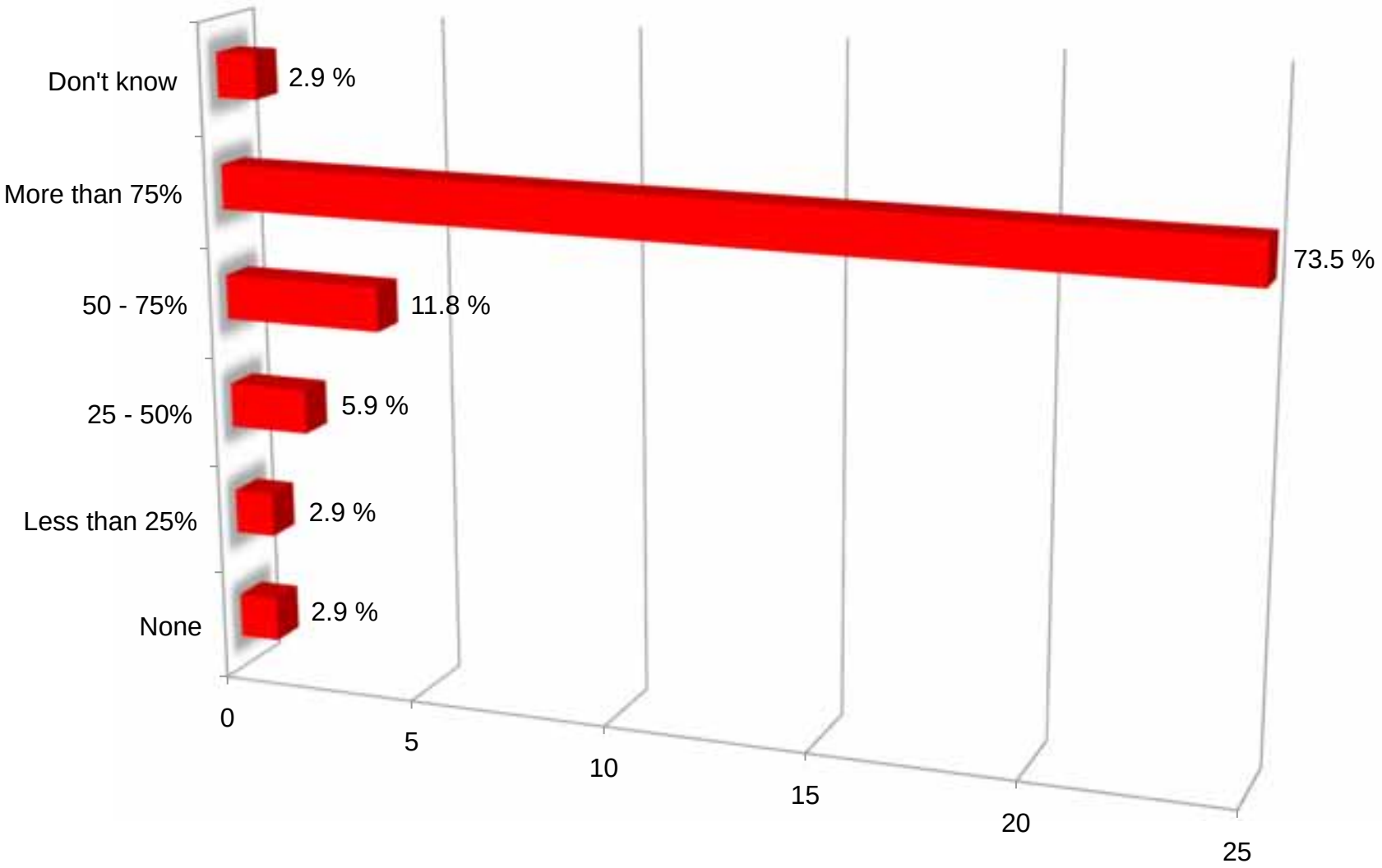
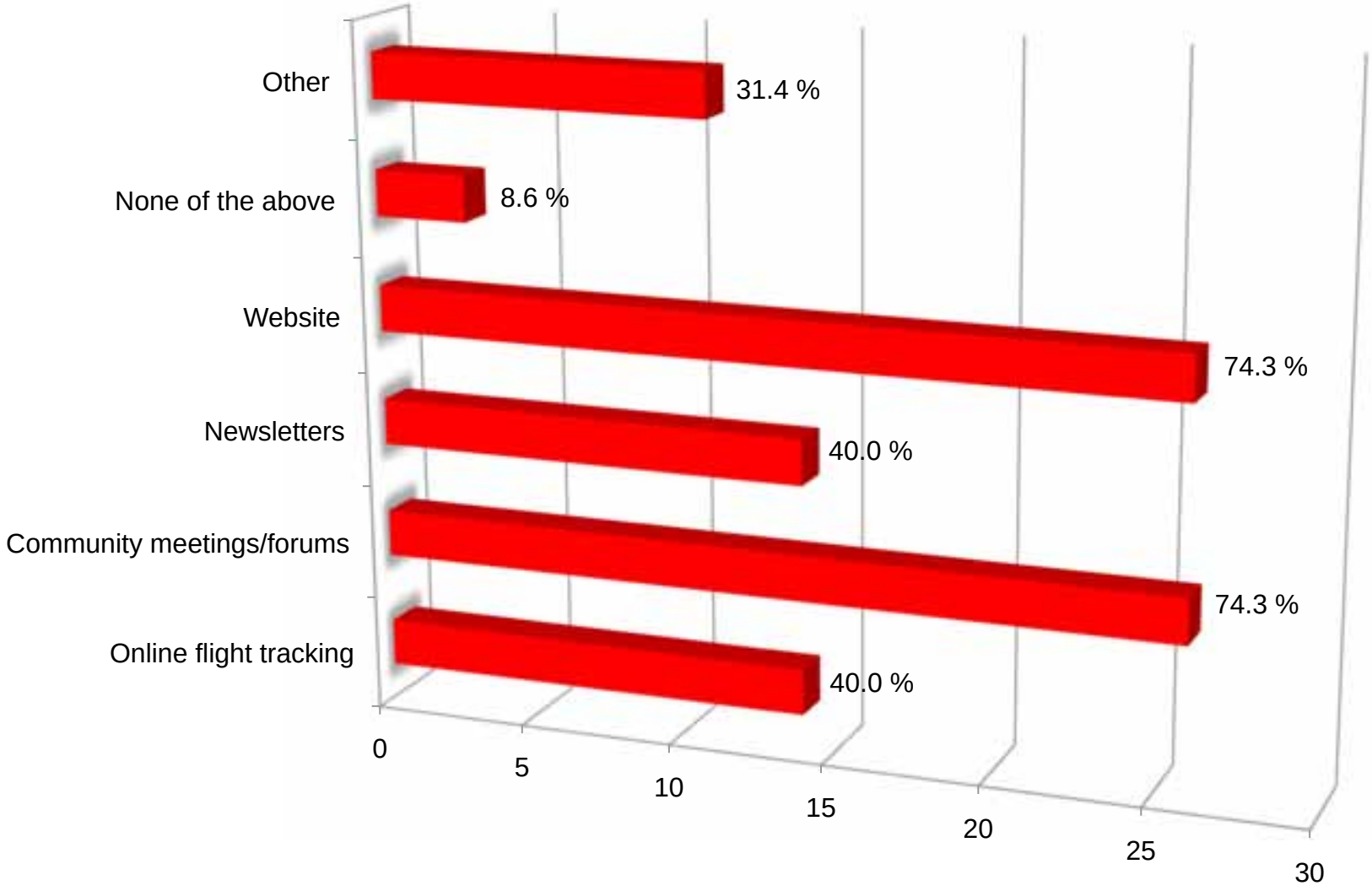


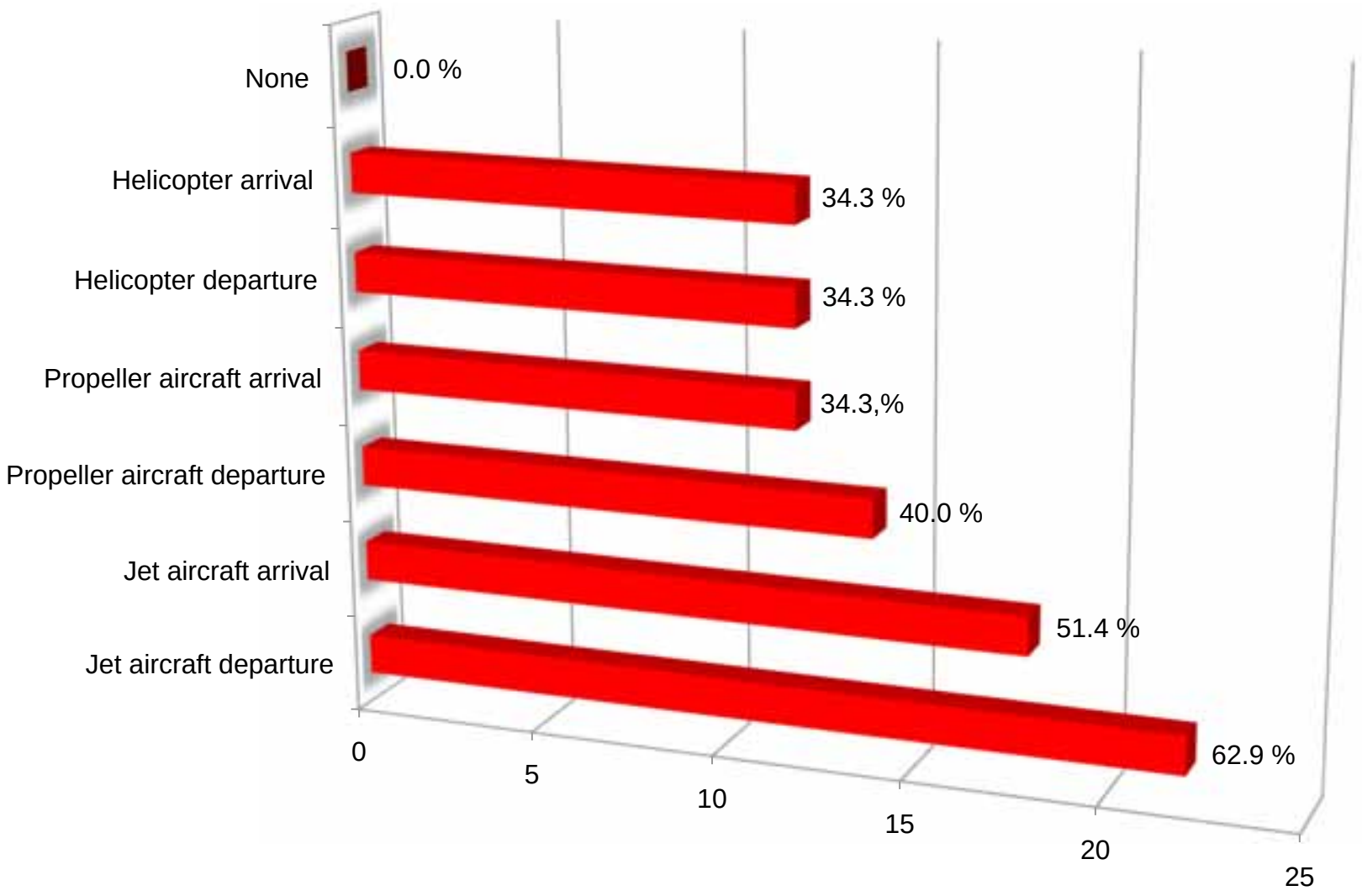
What kind of outreach tools do you use to communicate with people exposed to noise outside DNL 65?



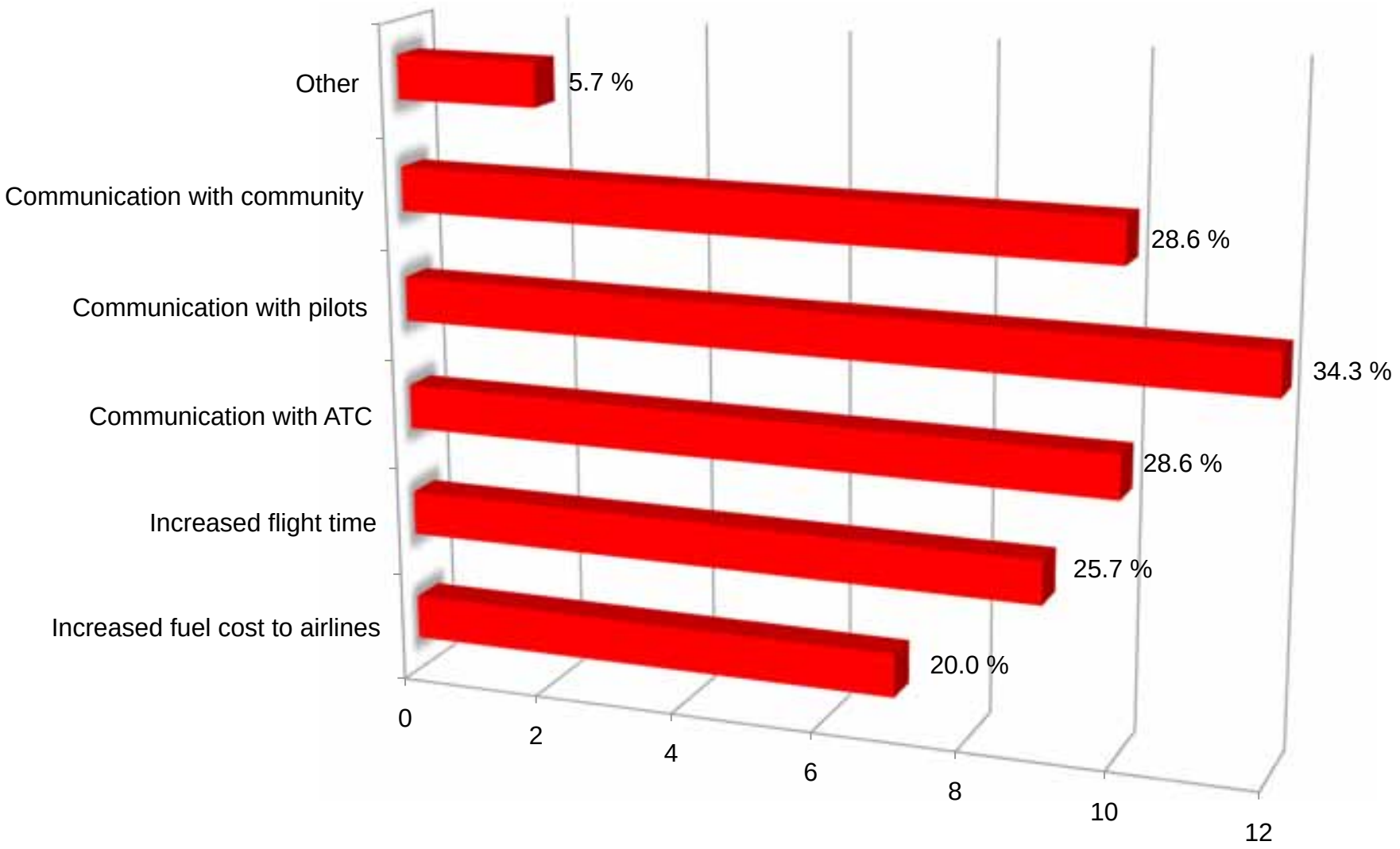
Operational Procedures

- Do you use noise abatement flight tracks for noise abatement (what type)? Are there any drawbacks or challenges?
- How effective are your noise abatement flight tracks at reducing noise over sensitive communities outside DNL 65? At reducing complaints?
- Do you use Departure or Arrival Flight Procedures for noise abatement (what type)?
- How effective are your noise abatement procedures at reducing noise over sensitive communities outside DNL 65? At reducing complaints?
- Does your airport have procedures to minimize Ground Noise (i.e. from takeoff roll, reverse thrust, taxi, or engine runups)?

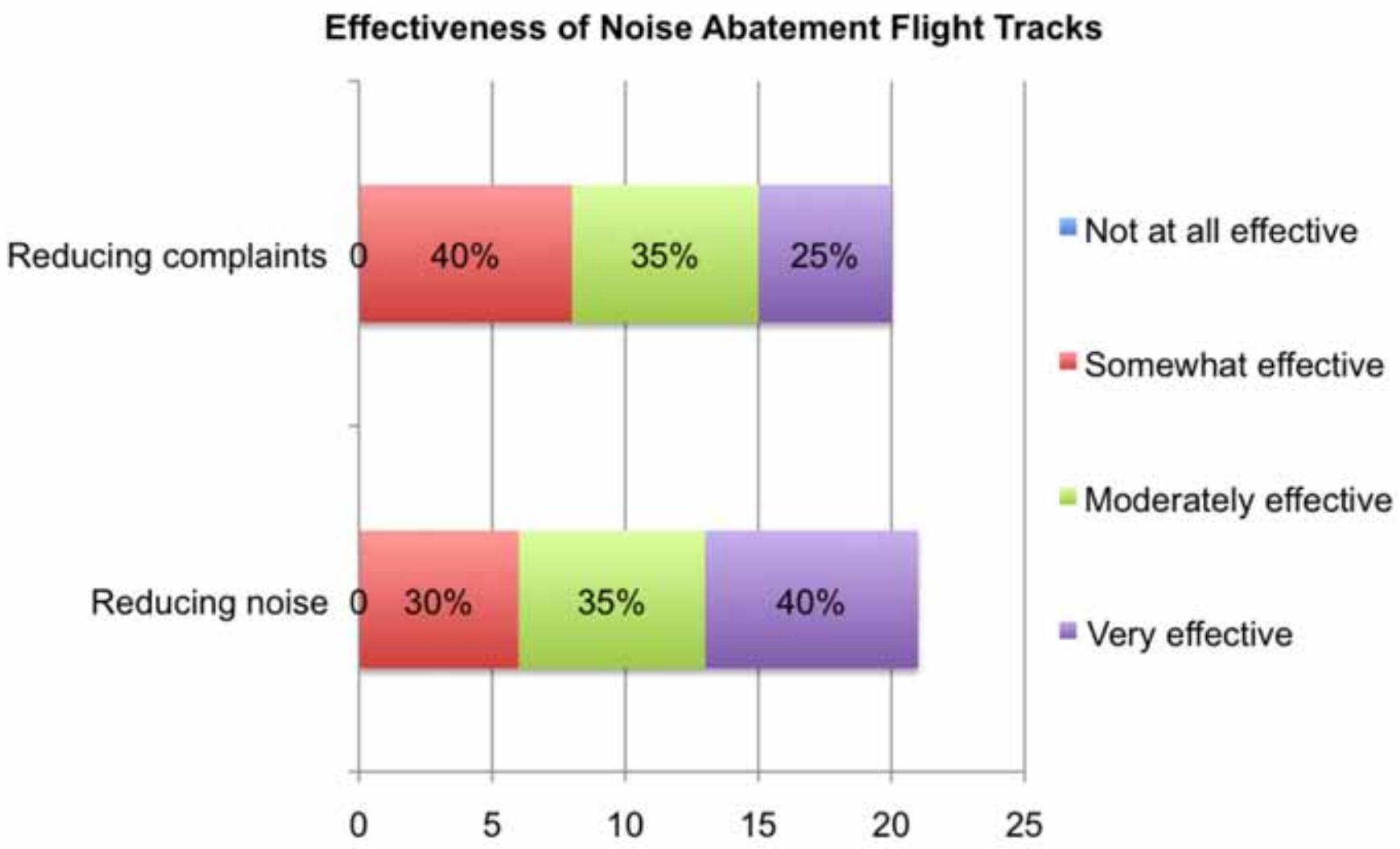
Operational Procedures: Noise abatement flight tracks



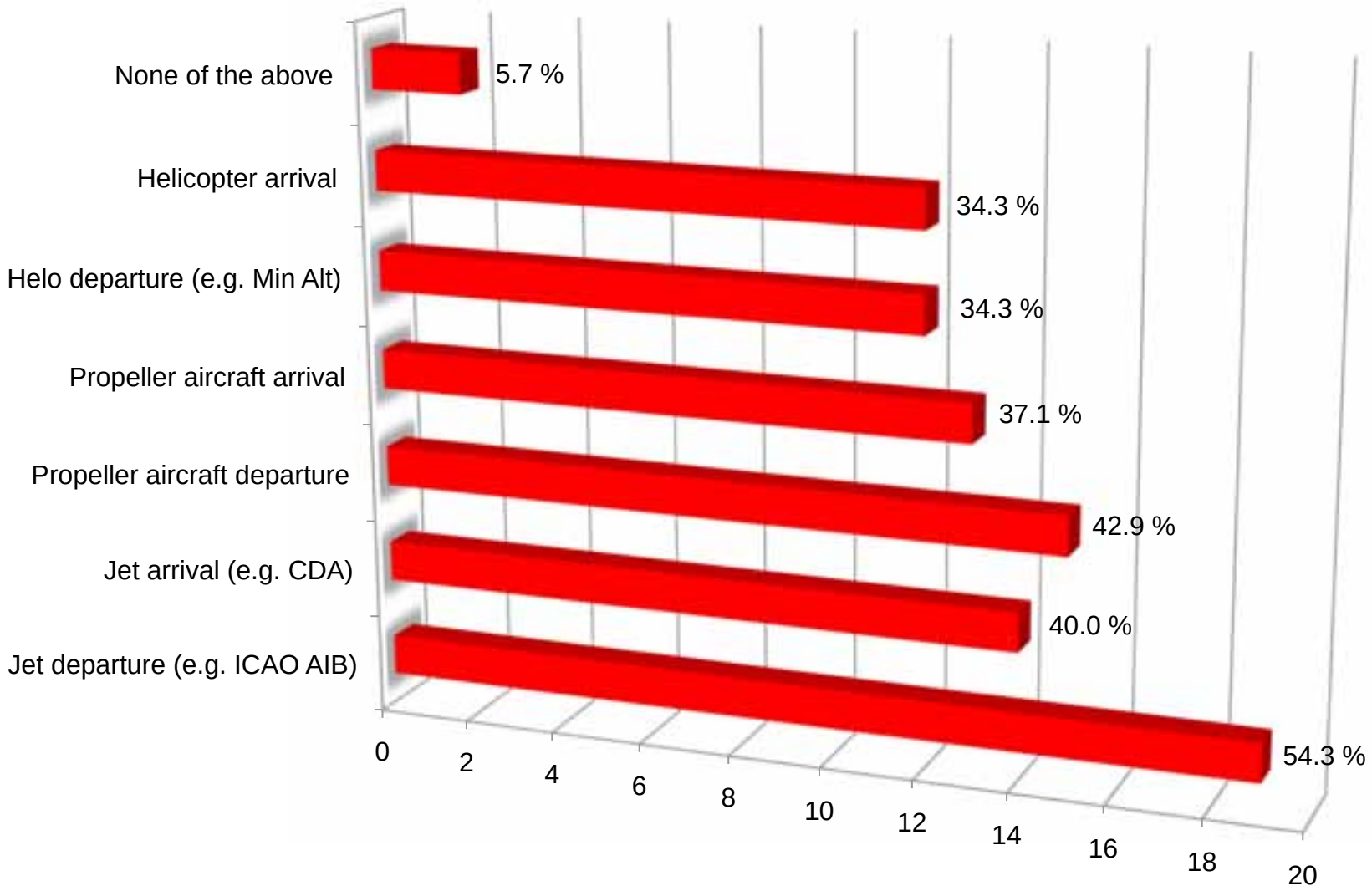
Challenges to implementing noise abatement flight tracks at surveyed airports



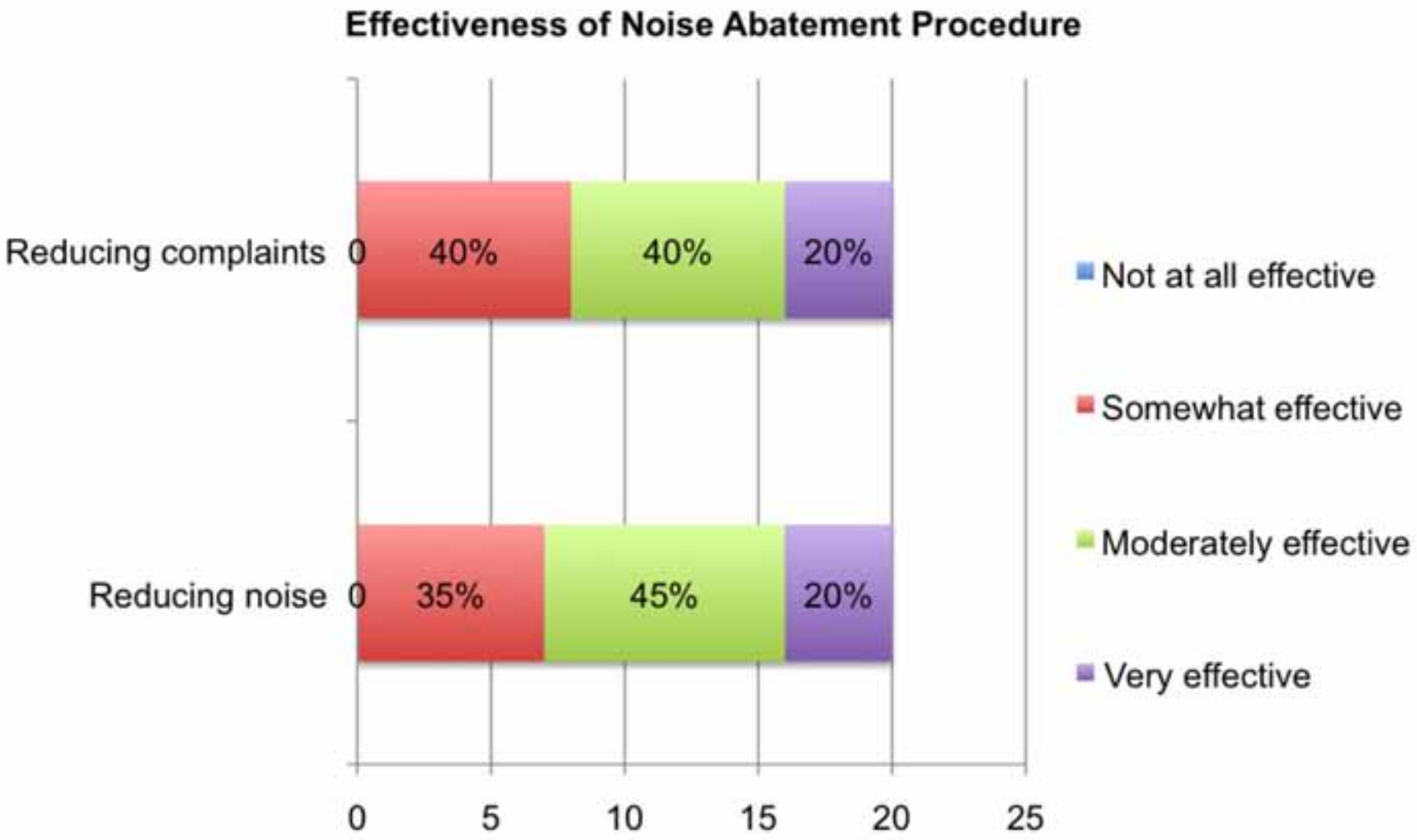
Effectiveness of noise abatement flight tracks at surveyed airports



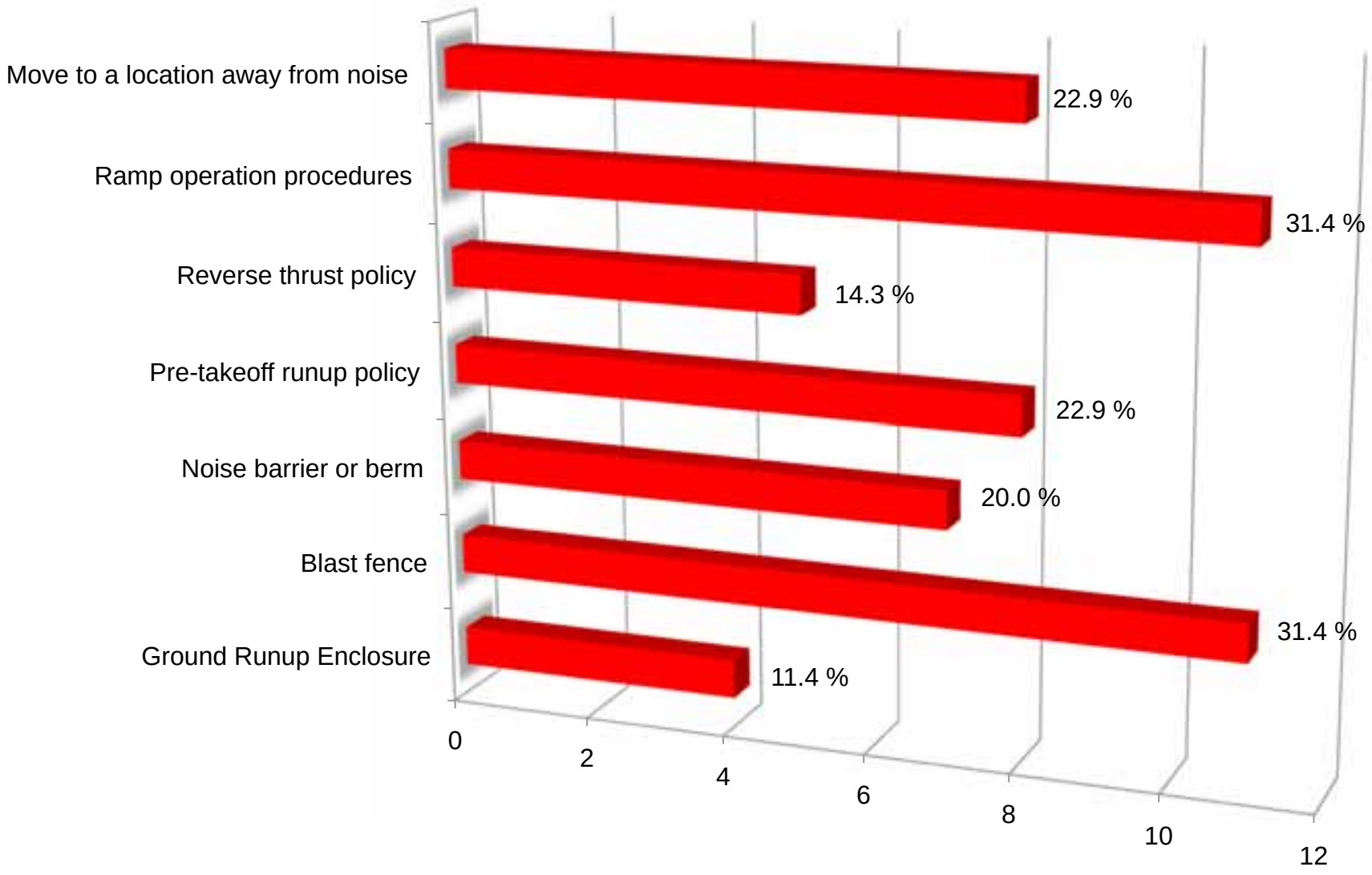
Operational Procedures: Noise abatement flight procedures



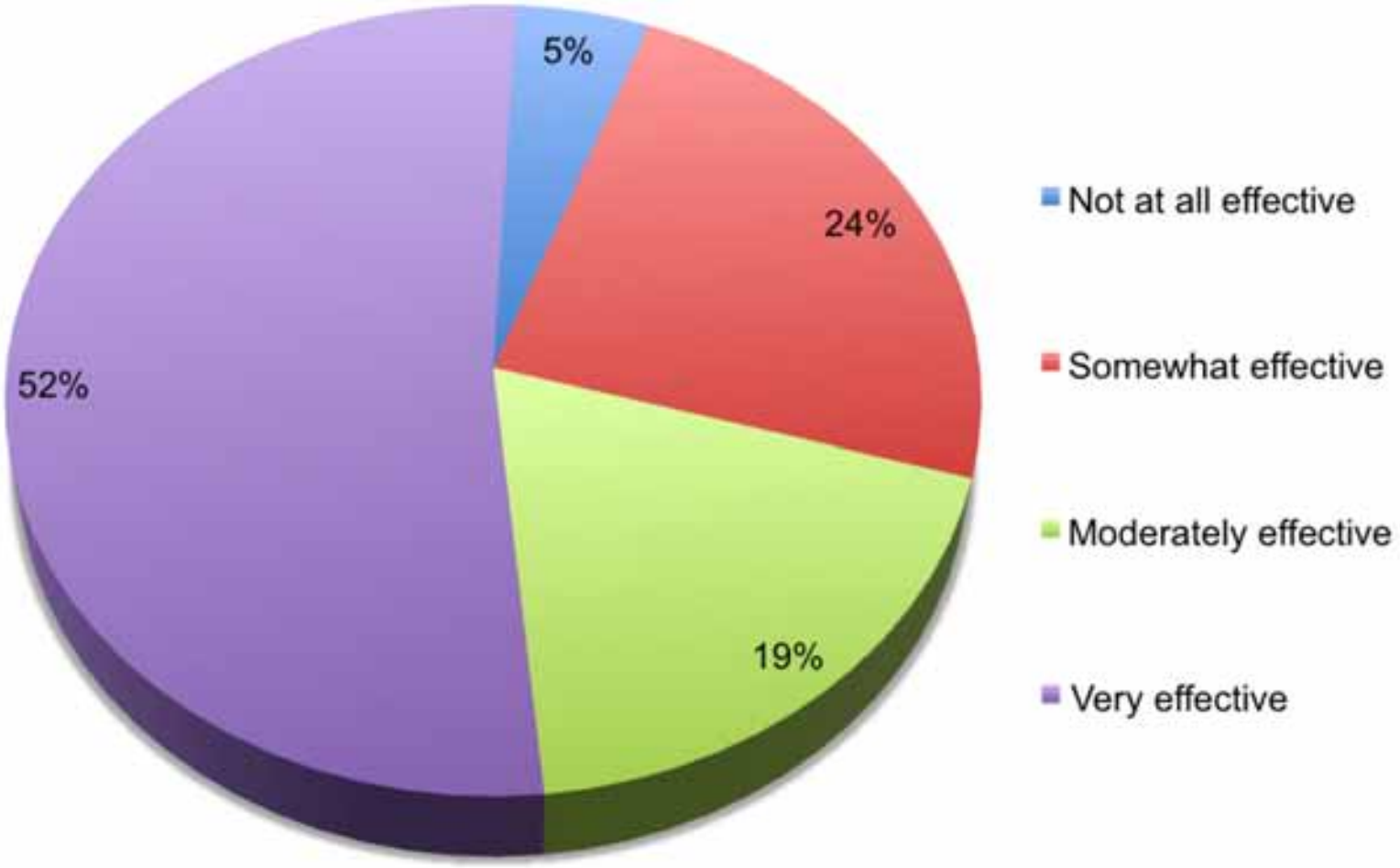
Effectiveness of operational procedures



Types of Ground Noise Procedures



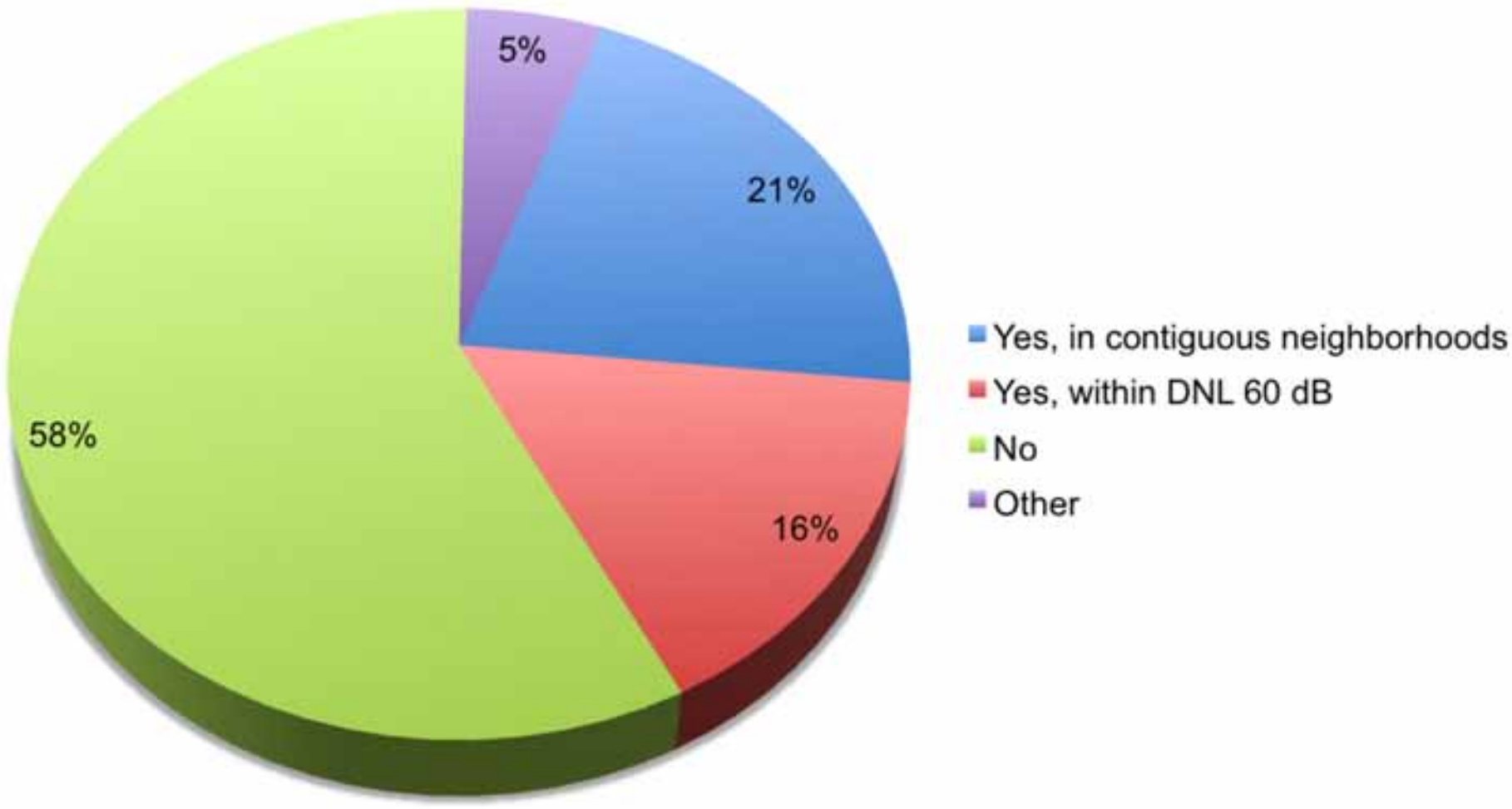
Effectiveness of Ground Noise Procedures



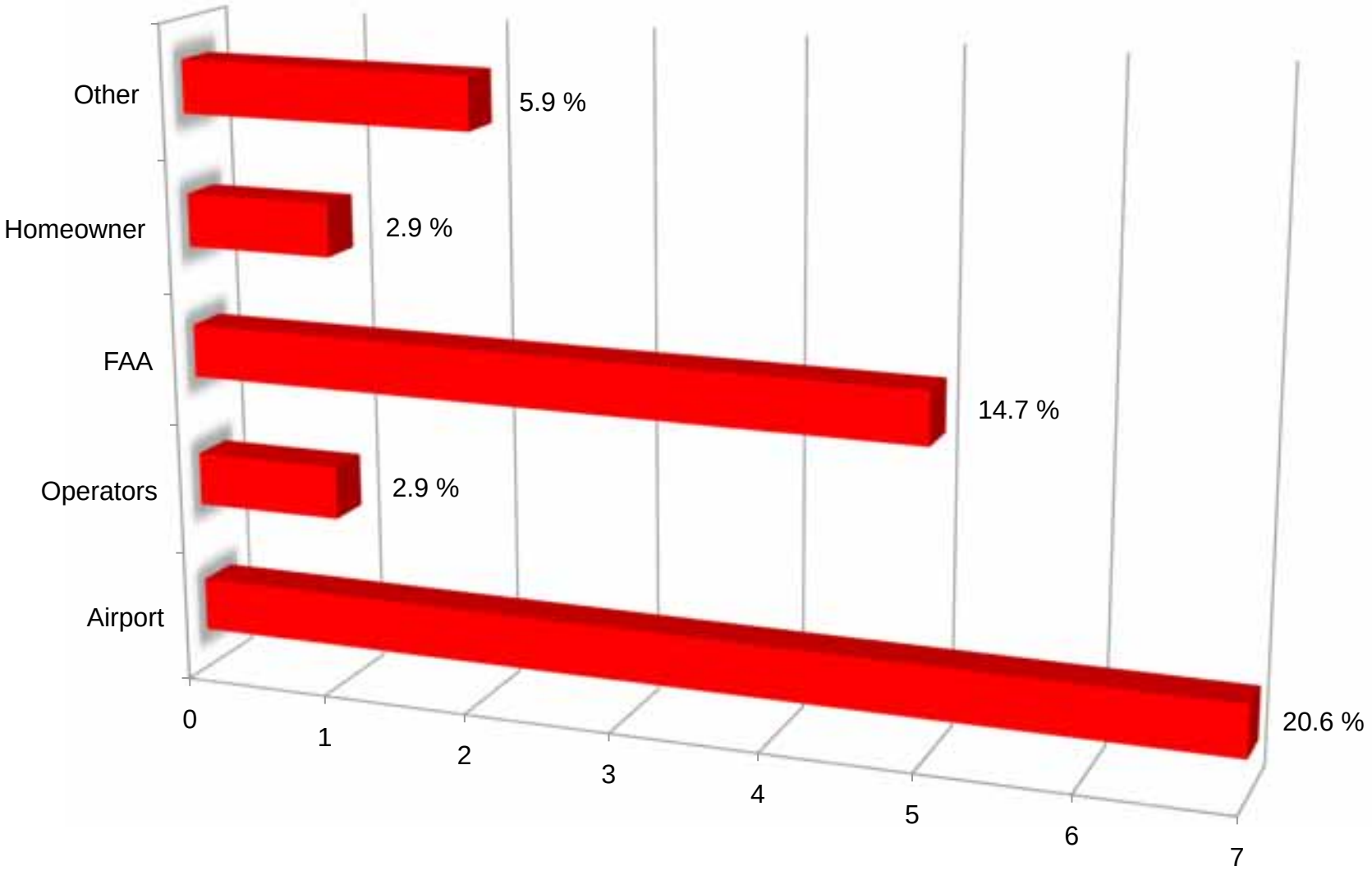
Land Use and Sound Insulation

- Do you have land use measures that apply outside DNL 65?
- What type of zoning do you or the land use governments surrounding the airport use outside DNL 65?
- Do you offer sound insulation to any homeowners living outside DNL 65?
- What is your funding source for sound insulation outside DNL 65?
- How effective are your land use policies at preventing non-compatible land use?

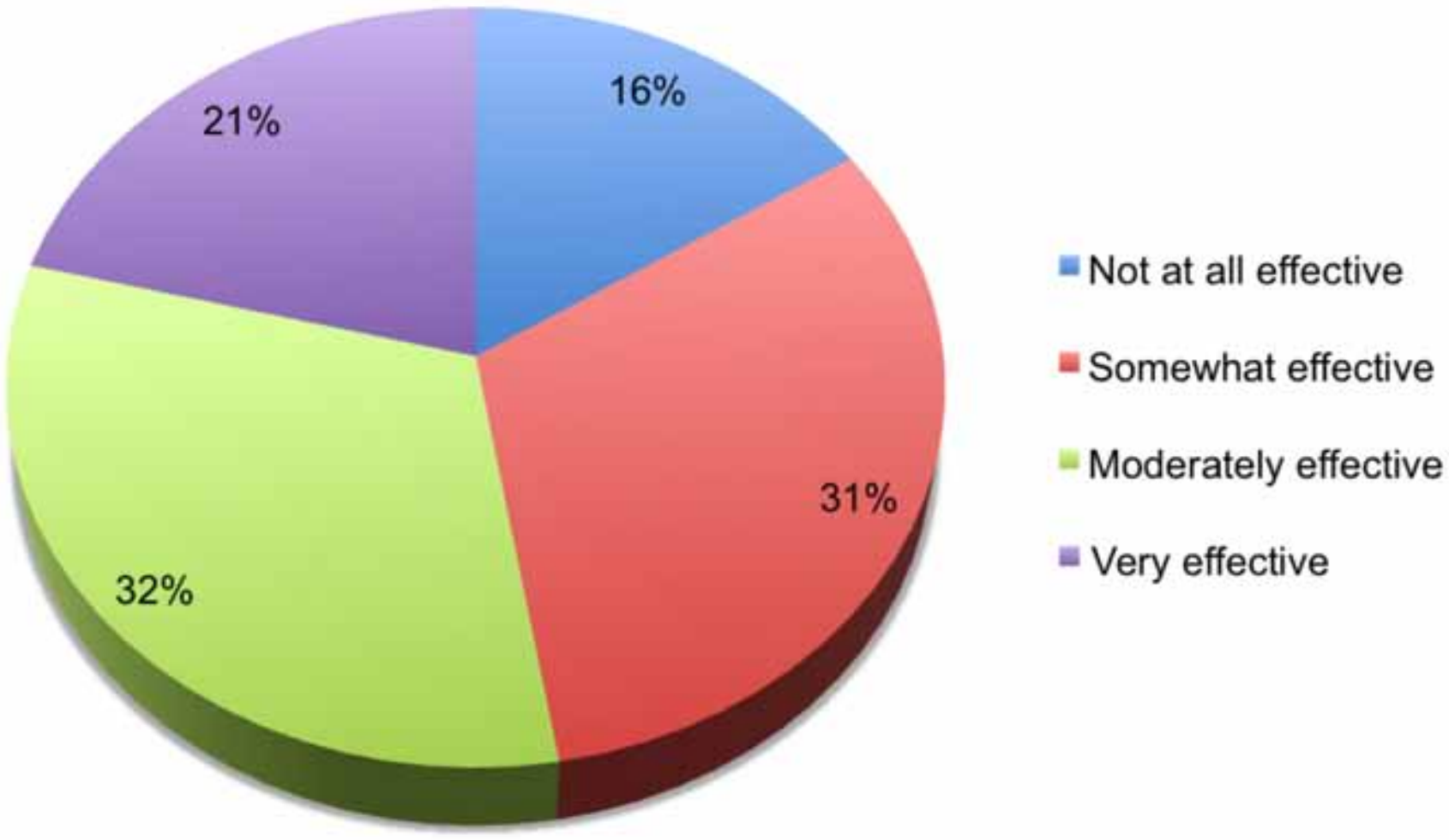
Do you offer sound insulation to any homeowners living outside DNL 65?



What is your funding source for sound insulation outside DNL 65?



How effective are your land use policies at preventing non-compatible development in communities outside DNL 65?



Conclusions

- **83% of respondents indicated that noise issues outside DNL 65 were "important," "very important," or "critical" to their airport.**
- **The most common ways to minimize noise outside DNL 65:**
  - operator education and outreach (74%)
  - noise abatement flight tracks (69%)
  - preferential runway use programs (66%)
  - noise abatement departure or arrival procedures (60%)
  - ground noise control (51%)
- **"Community concerns" were indicated by 80% of respondents as the motivation for addressing noise outside DNL 65.**
- **74% of respondents indicated that more than three-quarters of their noise complaints came from people who live outside DNL 65.**

Other findings

- Majority of airports use flight tracks and/or flight procedures outside DNL 65, but no consistent methodology for evaluating them, little FAA guidance.
- Most airports have some type of ground noise procedures, some (25%) designed exclusively to address noise outside DNL 65.
- More than half of surveyed airports have land use compatibility measures outside DNL 65.
- Majority of respondents (58%) do not provide sound insulation outside DNL 65; 20% provide in ‘contiguous’ neighborhoods; 18% within DNL 60.

Further research recommended

- Toolkit of strategies to address noise outside DNL 65
- Better communication (some of this already underway)
- Identify barriers to implementing land use measures
- Better understanding of relationship between noise complaints and noise level

Questions for discussion

- How far outside DNL 65 can meaningful improvements be made? What is the cost?
- What do you see as the major barriers to implementing a lower threshold of land use compatibility?

FAA Research Roadmap workshops: Your chance to participate!

- December 10-11, Washington, DC
- March 4, 2010, San Diego, CA

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