



# **Aircraft Noise Mitigation Center of Excellence**

## **Initial Priorities**

6 May 2003 Information Meeting

Thomas L. Connor  
Manager, Noise Division



## FY 2003 Appropriations for FAA RE&D

*“Environment and energy.—Of the funds provided for environment and energy, \$850,000 is for a study of the effectiveness of current research in aircraft noise reduction technology, to be conducted by the Louisville Regional Airport Authority, as proposed by the House. In addition, \$15,000,000 is provided to speed up the introduction of lower noise aircraft technologies, as proposed by the House. **Within the funding provided, FAA is directed to conduct, in concert with an affected airport, a further study of low frequency aircraft noise. The flaws identified with the previous low frequency noise impact study should be corrected with this follow-on study.**”*

[Congressional Record – House, February 12, 2003, pg. H1200]



## CONTINUOUS DESCENT APPROACH FLIGHT DEMONSTRATION TEST AT LOUISVILLE INTERNATIONAL AIRPORT

J.-P. Clarke  
MIT

J. Brown, K. Elmer, C. Hunting, D. McGregor,  
B. Shivashankara, K. Tong, A. Warren, and J. Wat  
The Boeing Company

Report No. ICAT-2003-1  
March 2003

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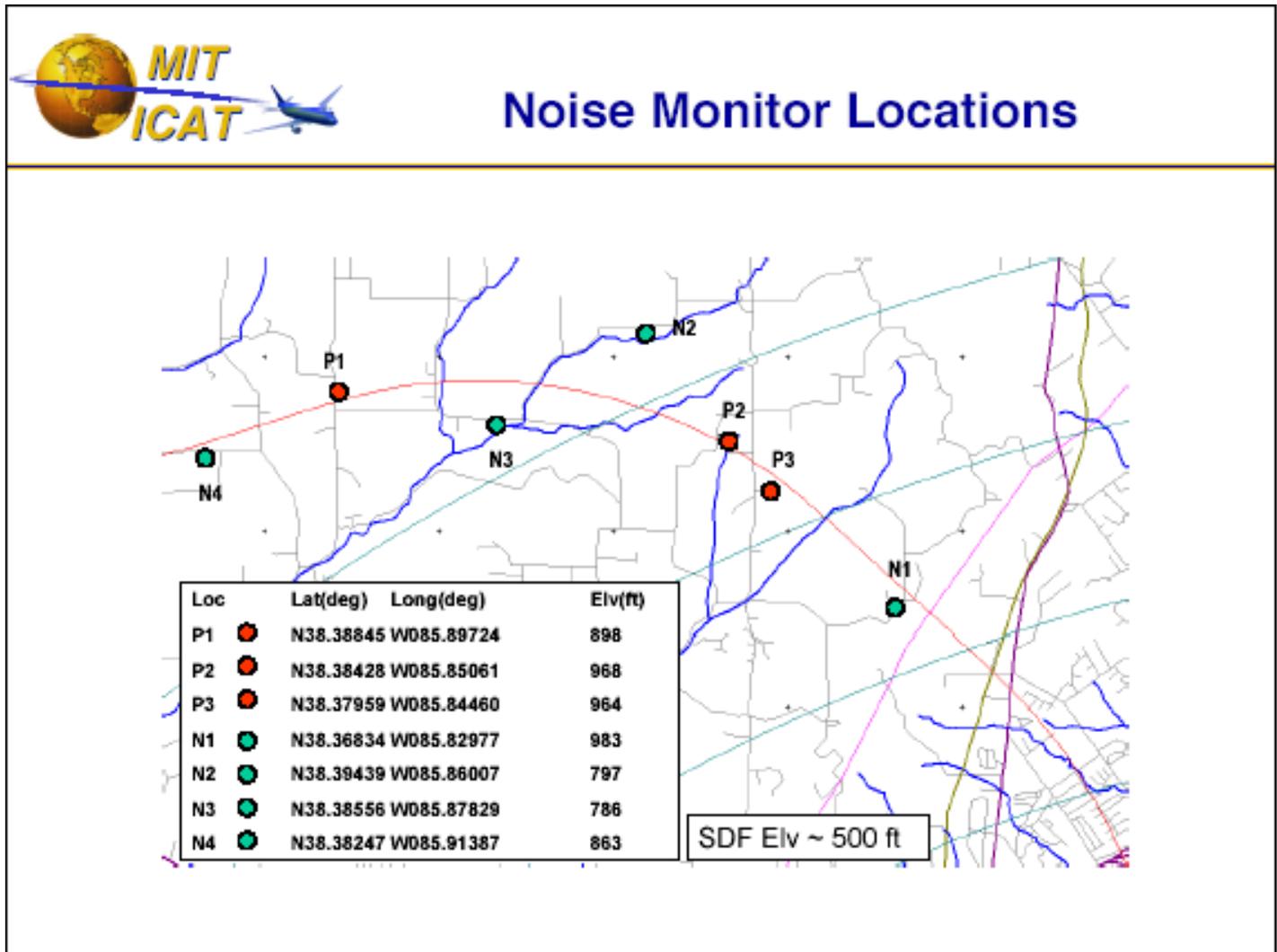
### Louisville Flight Test

#### ■ Objectives

- ❑ Develop noise abatement procedure for Louisville International Airport (KSDL) that can be flown by aircraft with current Flight Management System (FMS)
  - ↔ LNAV with latitude and longitude of each waypoint to achieve lateral profile
  - ↔ VNAV with speed and altitude constraints to achieve vertical and speed profiles
- ❑ Measure the noise benefits of the noise abatement procedure

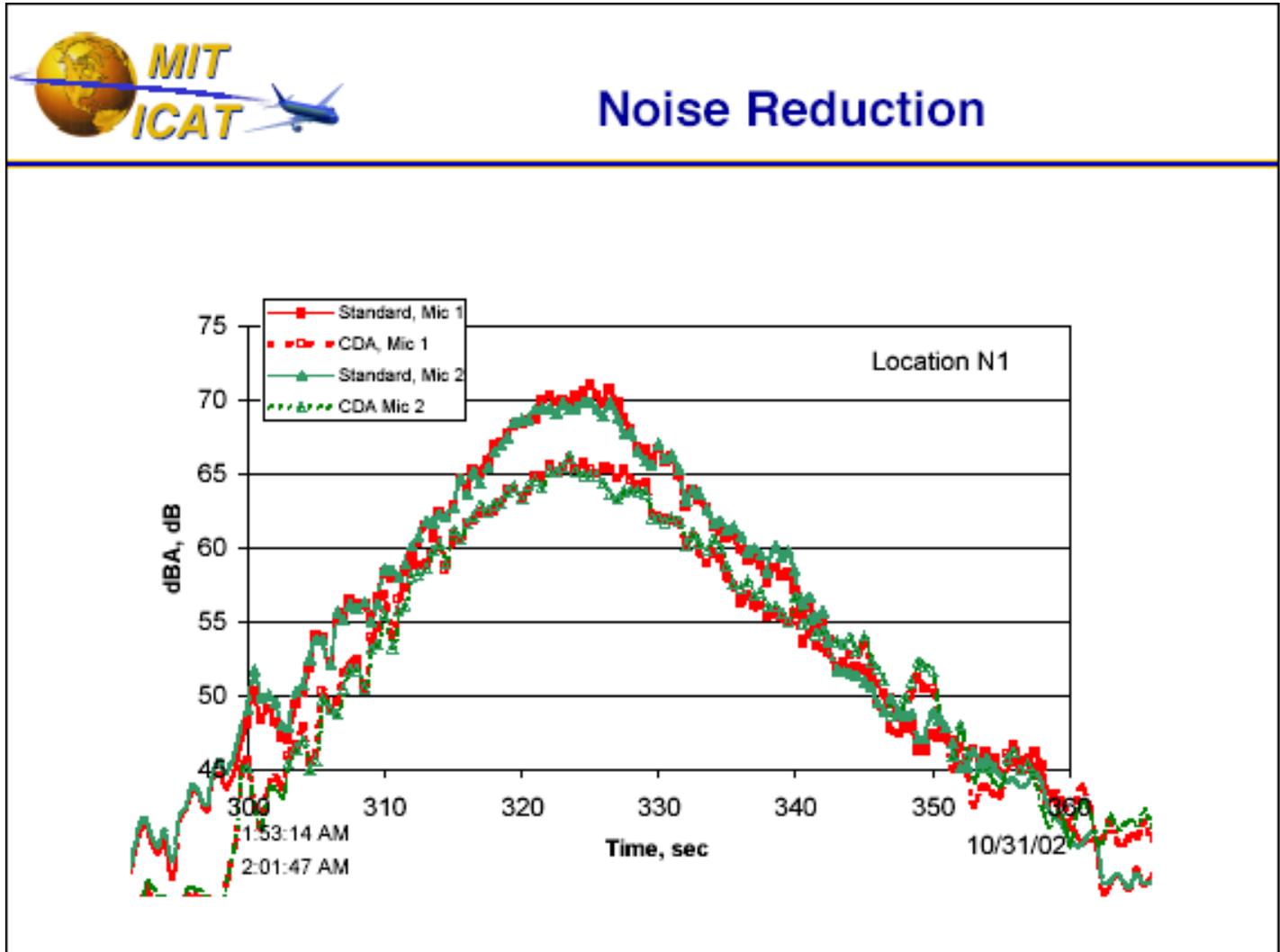


# Noise CoE - **Priorities** - Louisville



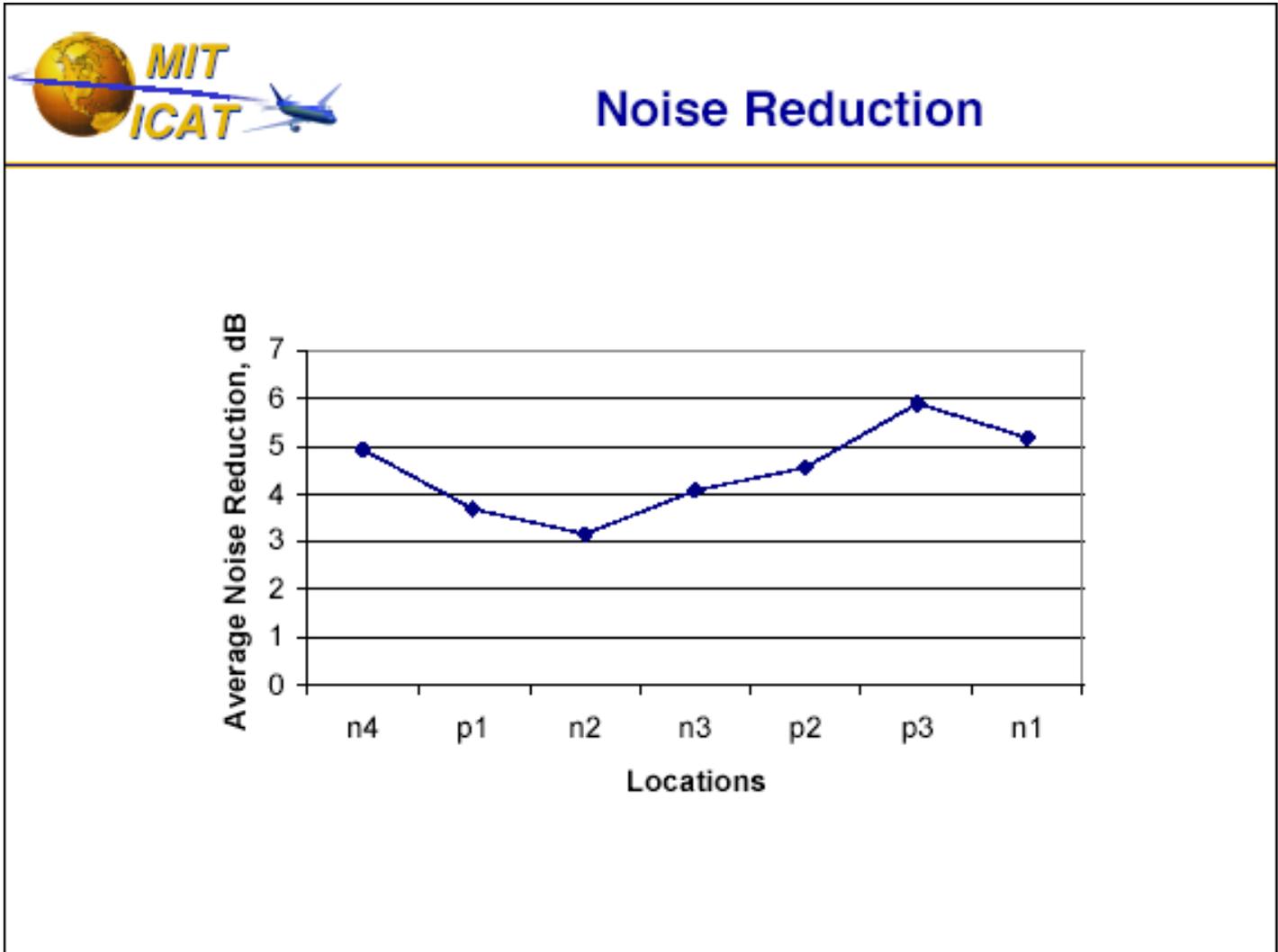


# Noise CoE - **Priorities** - Louisville





## Noise CoE - **Priorities** - Louisville





## Research Recommendation

- Focus on integrating the procedure into current and future ATM systems so that it becomes more widely used for arrivals into airports.
  - **Human factors (controllers and pilots)**
  - **Capacity implications**
  - **Noise benefits repeatability**
  - **Procedure design (starting with KSDF)**



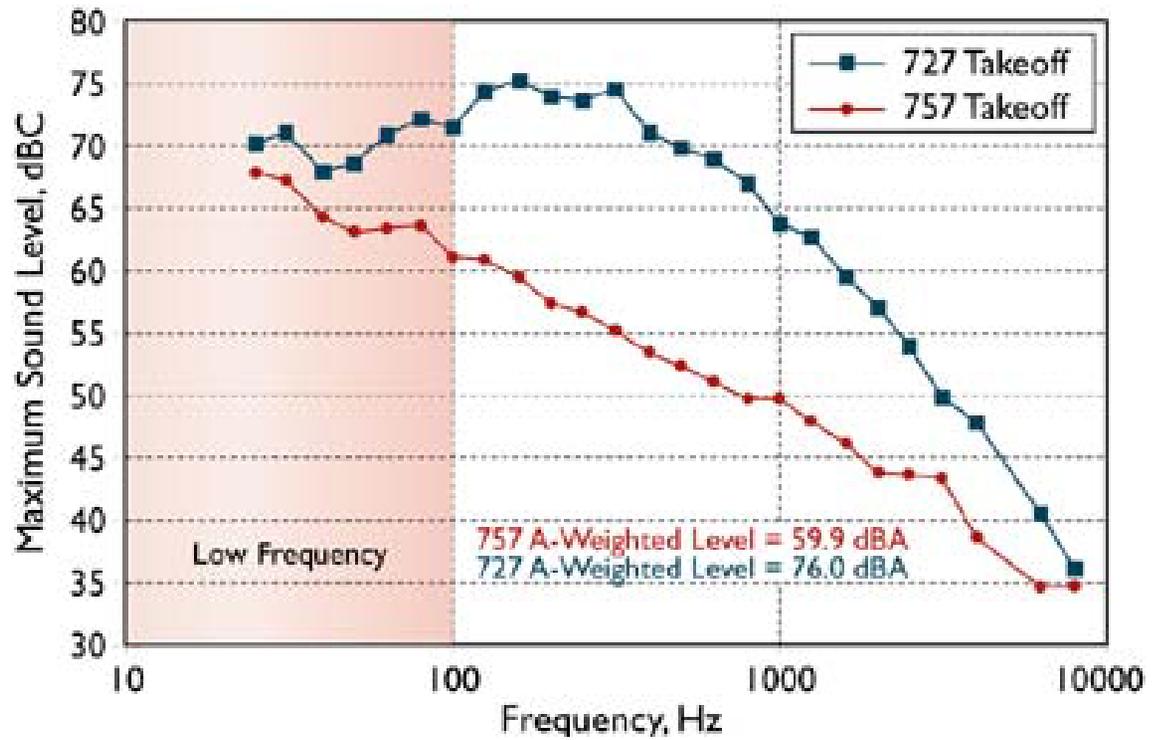
*Affected airport* Minneapolis – St. Paul  
International Airport (MSP)

*Study of low  
frequency noise  
(LFN)* Low frequency noise  
(<100 Hz) causes rattle-  
related annoyance.

*Correct flaws in  
previous study* FICAN finding



# Noise CoE - **Priorities** - **MSP**





## MSP LFN Study History

- Minneapolis Metropolitan Airport Commission (MAC) and City of Richfield engage a panel of 3 experts, **MSP LFN Expert Panel**, to study potential effects of low frequency noise around MSP.
- FAA solicits participation of the **Federal Interagency Committee on Aviation Noise (FICAN)** to review MSP LFN Expert Panel work.
- Expert Panel produces 3 volume ***Findings of the Low-Frequency Noise Expert Panel, 30 September 2000.***
- 2 of 3 panel members brief FICAN.
- FICAN makes finding (**[http://www.fican.org/download/lfn\\_expertpanel.pdf](http://www.fican.org/download/lfn_expertpanel.pdf)**)



## FICAN Finding

- + Assumption that noise-induced vibration can heighten reaction is consistent with WHO 1999 Guidelines for Community Noise.
- + Social surveys can be valuable tools in the examination the effects of noise.
- **Lack of evidence that presence of vibration increases annoyance.**
- **Absence of measurements of vibration (ignored FAA advice on applicability of ANSI S3.29-1983 [R1996]).**
- **Little scientific justification to reject LLF (ANSI S12.9, Part 4) and then create LFSL.**
- **Survey questionnaire questioned.**
- **Commingling LAX and MSP survey results questioned.**
- **Further research needed to address complex interactions among building construction, contribution of loudness to annoyance, and contribution of rattle to annoyance.**



Questions?