

# Aviation Noise Impacts Roadmap



Federal Aviation  
Administration

Presented to: Aviation Noise Impacts Roadmap  
Meeting

By: Dr. Lourdes Maurice  
Director  
FAA Office of Environment and Energy

Date: 19 April 2011



# Outline

- **Environmental Impacts and Concerns**
- **Balanced Approach to Reducing Impact**
- **Noise Research Framework**
- **Next Steps**



# NextGen Environmental Goals/Challenges

- *NextGen goal to increase mobility is dependent upon addressing & mitigating aviation environmental impacts & dealing with related energy issues*



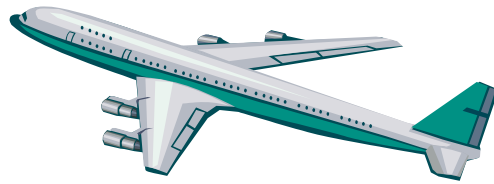
## NextGen environmental goals

- Absolute reduction of significant **community noise** and **air quality** emissions impacts
- Improve NAS **energy** efficiency and, supply of and access to, alternative fuel sources
- Achieve carbon neutral growth by 2020 compared to 2005 baseline for **climate change**
- Reduce significant aviation impacts associated with **water quality**

## 5-Pillar approach to develop solutions

- P1 Improved science and modeling
- P2 Accelerated maturation of new aircraft technologies
- P3 Renewable fuels
- P4 Accelerated ATM Improvements and Efficiencies
- P5 Policies, Environmental Standards, Market Based Measures and Environmental Management System

# Analyzing Noise Impacts



## Annoyance



## Sleep disturbance



## Visitor Response



## Health and welfare

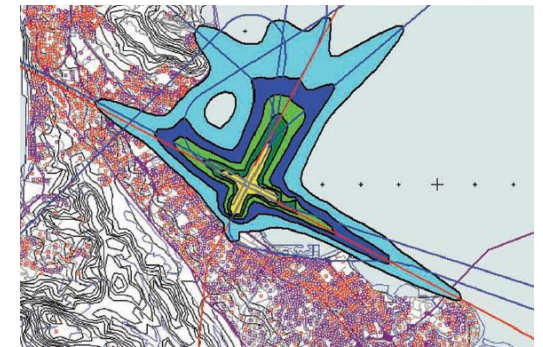
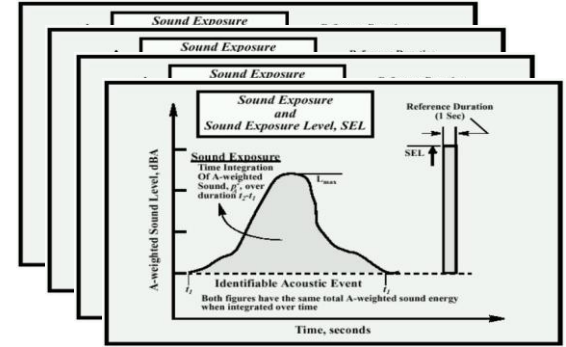
## Speech interference



## Children's learning



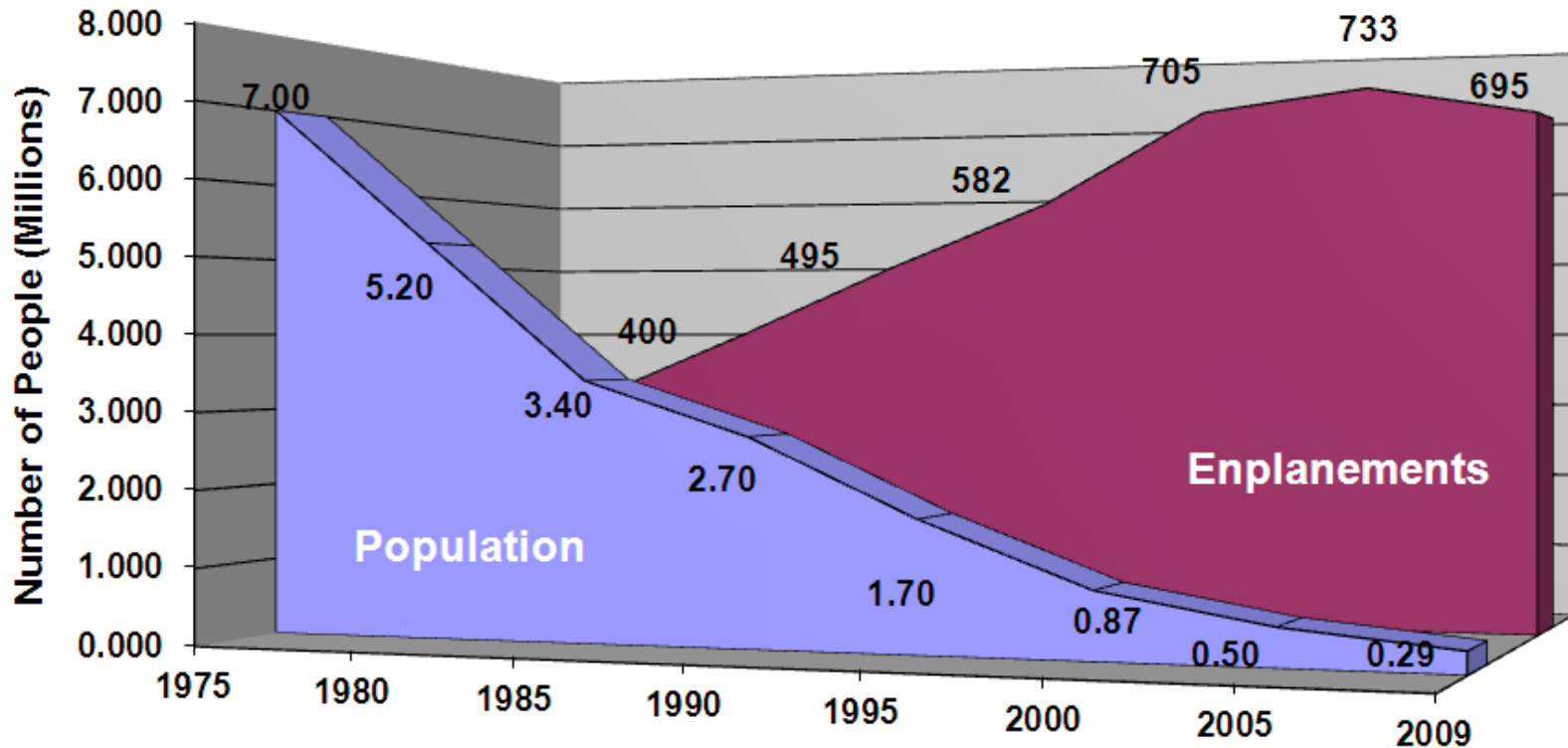
## Wilderness



## Day/Night Average Sound Level (DNL)

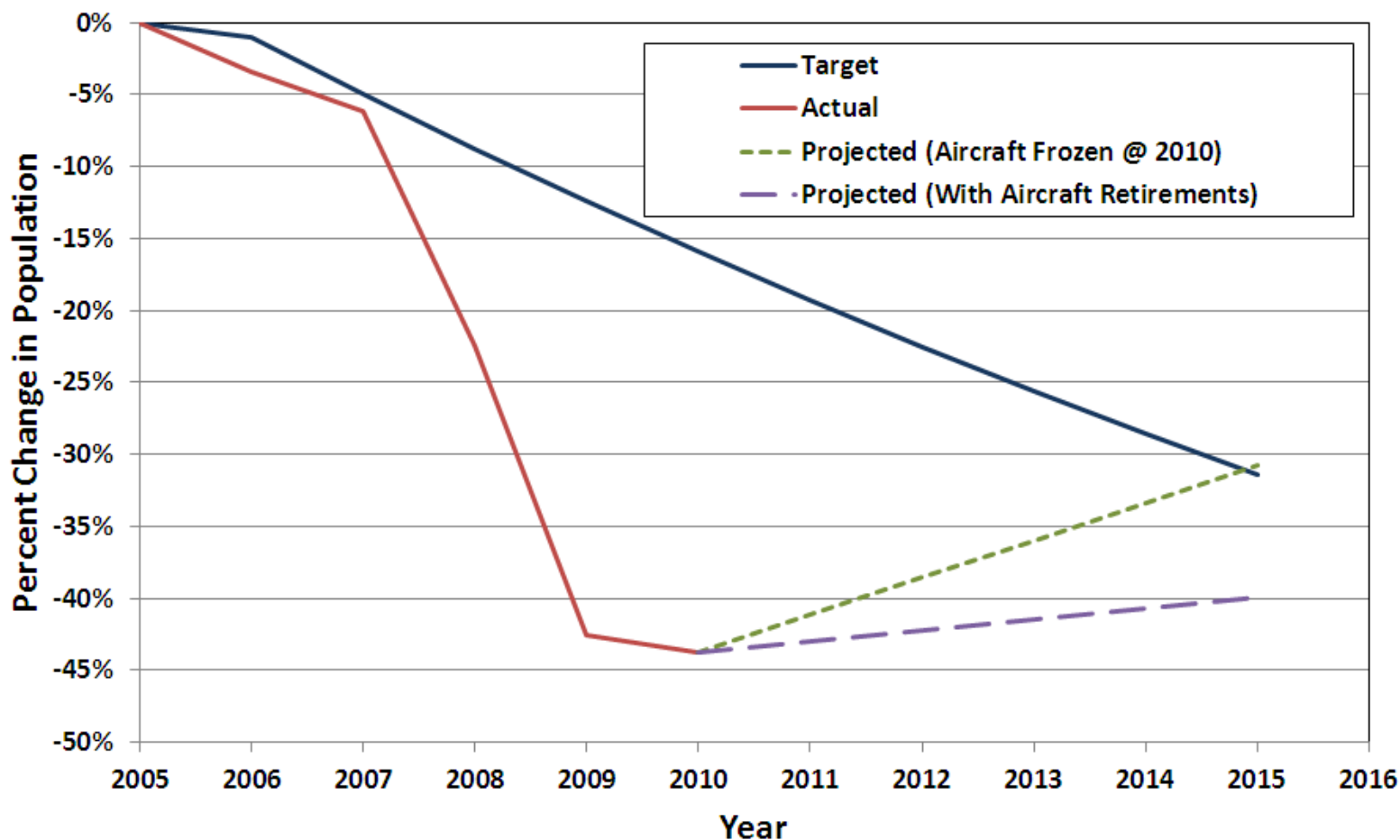
# Noise Exposure: Historical Perspective

## Order of Magnitude Noise Exposure Reduction Despite Traffic Growth



# Traffic growth could also catch up with gains

## National Noise Exposure to Significant Noise Trends vs. FAA Targets



# Aviation Noise Impact Continuing Concerns

- Long-standing noise impact significance criteria and land use compatibility guidelines may not sufficiently address evolving nature of noise impact and increased public sensitivity
- Community response data providing the foundation for determining significant impact is based on reactions to all transportation noise (not aviation-specific) and relies on dated U.S. studies
- There are gaps in knowledge of noise effects on health and welfare, including sleep disturbance, student learning
- The primary metric (DNL) and the threshold of significance (DNL 65) are not well understood or trusted by the public
- Aviation noise impacts on naturally quiet resources (e.g., national parks) are not well-understood and not adequately addressed by DNL 65
- Environmentally-based decisions need common metric/approach by which to evaluate noise relative to other impacts



# Balanced Approach to Reducing Impact

- Noise reduction at the aircraft source
  - ❑ Increased stringency in aircraft noise standards and successive operating phaseouts of noisier aircraft
- Airport and land use compatibility planning and mitigation (DNL  $\leq$  65 dB is noise-compatible)
  - ❑ Substantial AIP and PFC funds invested in Part 150 noise compatibility planning and mitigation projects since 1982
- Noise abatement operational procedures
- Noise restrictions (governed by Part 161 and airport grant agreements)

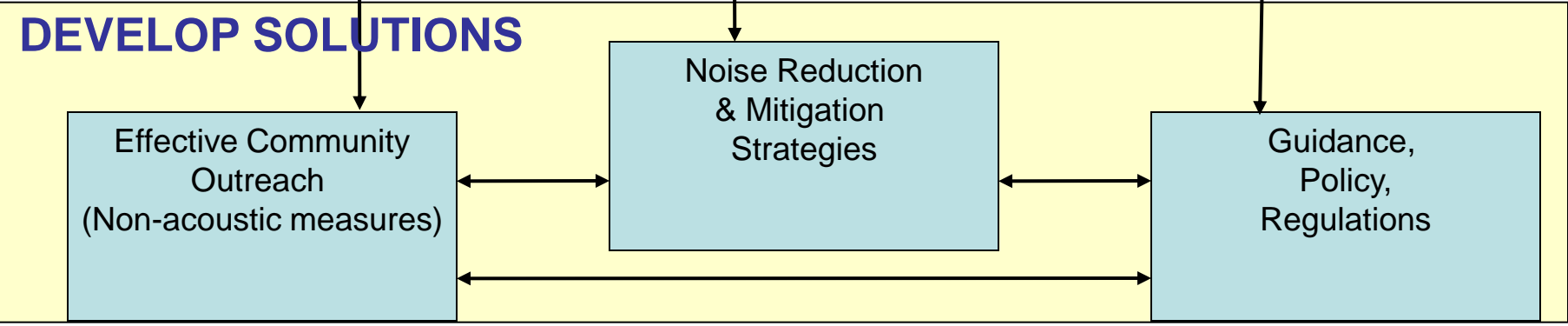
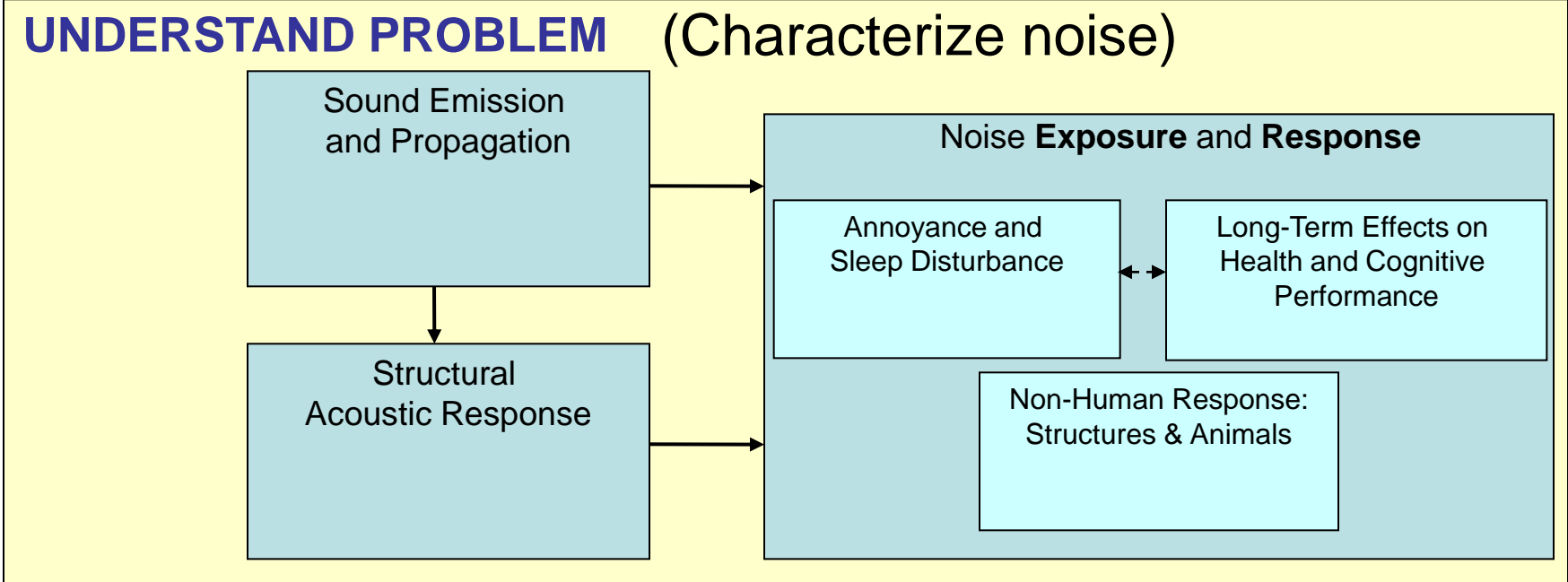


# FAA Vision

- Aircraft operating in the US are *quieter*
  - advancing noise reduction technology insertion into fleets plus increased stringency and/or phase-outs
- Our land use compatibility guidelines and noise impact / mitigation criteria are *based on best scientific evidence*
- Increase public trust and understanding in how we describe noise exposure and its effects
- We reduce the effects of noise *efficiently*
  - where and when it matters
  - balanced with other environmental considerations
- We fulfill our agency's mission to deliver capacity and efficiency *while addressing public concerns attributed to aircraft noise*



# Noise Research Roadmap Framework



# Way forward

- **Continue** to pursue collaborative research
- Execute research program as funding is available
- Prepare for policy implications of research

