Federal Aviation
Administration

RPA N: Noise Programs
RPA E: Airport Environmental

Presented to: Airports REDAC Subcommittee

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RPA N – Noise Programs

RPA N - Airport Noise	FY16	FY17	FY18	FY19
N1 National Noise Survey				
N1.1 - National Noise Survey	█			
N1.2 - NEPA Significance Definition		█		
N1.3 - Interior Sound Mitigation		█		
N1.4 - Mitigation Below 65db DNL		█		
N1.5 - National Noise Survey Phone Analysis			█	
N2 DNL & Metrics Evaluation				
N2.1 - Noise Metric Re-Evaluation Using Noise Survey Results				█
N3 Sleep Disturbance				
N3.1 - National Survey to Quantify Impacts of Aviation Noise on Sleep Disturbance		█		
N4 Noise Mitigation				
N4.1 - Investigation of ASTM E966 Adjustment Factors		█		
N4.2 - Noise Level Reduction Review of Test Methods			█	
N4.3 - Noise Abatement Procedure Effectiveness			█	
N5 Operations				
N5.1 - Noise Dispersion with Equivalent Space Operations (ELSO) PBN Procedures	█			
N5.2 - Steeper Noise Abatement Approach Operational Feasibility			█	

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N1.1-1.5 National Noise Survey

Noise Annoyance Survey

- Year-long data collection, drafting final report.
- A public review and comment process will occur prior to making any policy determinations

Phone Analysis National Survey

- Using phone data collected, research WHY people are more or less annoyed by aircraft noise
  - 2,328 phone interviews
- Develop analysis plan to determine what additional information can be identified regarding annoyance responses and people's experiences.
- Same research team - 12 month effort

N3.1 National Survey to Quantify Impacts of Aviation Noise on Sleep Disturbance

Objective: Conduct large scale sleep study to determine national relationship between sleep and aircraft noise.

- ASCENT Grant
- CSRA/UPENN Contract

Phase 1 – Study Design – 12 months *(kicked off in December 2017)*

Phase 2 – Study Preparation – 6-12 months

Phase 3 – Data Collection – 24 months

Phase 4 – Data Analysis & Final Report – 6-12 months

N4 – Noise Mitigation

- *N4.1 - Investigation of ASTM E966 Adjustment Factors*
  - Identify adjustment factors for measurements of noise reduction in sound insulation programs and validate factors through modeling and field measurements.
    - Façade reflection using loudspeaker and <u>flush-mounted</u> microphone = 6bd (5db)
    - Façade reflection using loudspeaker and <u>near-facade</u> microphone = 3.5db (2db)

- *N4.2 - Noise Level Reduction Review of Test Methods*
  - Follow up to 4.1, same team, 18mo effort.
    - Evaluate the 2 measurement methods used in RSIPs and help Airports develop industry standards

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N4 – Noise Mitigation

- *N4.3 - Noise Abatement Procedure Effectiveness*
  - MITRE effort began Sept 2017.
  - Explore operational procedures with the potential to reduce community noise expose
  - Understand procedure usage and effectiveness
  - Develop guidance leading to more effective and frequently-used noise abatement procedures

RPA N – Noise Programs
N5 – Operations

- *N5.2 - Steeper Noise Abatement Approach Operational Feasibility*
  - MITRE effort began Sept 2017.
  - Evaluate feasibility of steeper approaches in terms of performance, terminal instrument procedures, and Flight Management System (FMS) dependencies
  - ID, evaluate and document operational considerations
  - Recommend a path forward for use in the NAS

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Airport Noise Research FY 19/20

Sleep Disturbance Survey

Annoyance Study - Re-evaluation of DNL metric

    Data mine survey results to determine if there is more appropriate metric than DNL to correlate annoyance and aircraft sound level

Develop NLR Stands through SAE A-21

RPA E – Airport Environmental Research

RPA E - Airport Environmental Research	FY16	FY17	FY18	FY19
E1 Environmental Tools and Guidance				
E1.1 - 10-Year Framework for Environmental/Planning R&D				
E1.2 - Airport Air Screening Methods	Phase 1		Phase 2	
E1.3 - Review of Airport Standards, A/Cs, Orders, Design Criteria for Climate Adaption and Resiliency (Severe Weather Resiliency)				
E1.4 - Geospatial Data Library/Environmental Mapping Tool				
E1.5 - Sustainability Synthesis				

RPA E – Airport Environmental Research
N1.3 – Climate Adaptation/Resiliency

- Project completed in November 2017
- Recommendations were grouped based on mechanism (AC, Orders, SOPs, funding, education)
- ACs most promising for ARP
- Implementation Matrix
- Next Steps

Airport Climate Impacts and Recommendations for FAA Programs to Strengthen Airport Resilience and Climate Preparedness

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RPA E – Airport Environmental Research
N1.4 – Geospatial Data Library/Tool

Conduct a feasibility analysis including a roadmap to identify a scalable, easily accessible and centralized environmental mapping tool for the FAA Envir. Protection Spec.

Need:

- Better and more easily accessible environmental and planning geospatial information to improve internal workflow, streamline the integration of planning and environmental processes, and support National Environmental Policy Act (NEPA) reviews.

Solution:

- The use of a geospatial solution towards developing a scalable, centralized geospatial tool can enhance the decision-making process through better management and analysis of spatial data.

Web Mapping Application (WMA):

- Web mapping applications are web based maps that allow the user to interact with the data in various ways such as displaying or querying layers. It is an interactive display of geographic information that one can use to answer questions and is becoming an essential component of many GIS application solutions.*
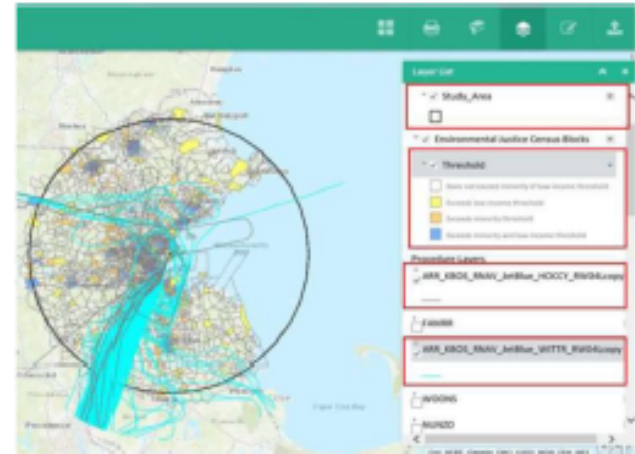
Environmental Visualization Tool (EVT) WMA depicting active layers that can be displayed in a printed map

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FY18 Airport Environmental Research Projects

1. *Geospatial Data Library*
    - Tool Development

2. *Airport Air Quality Screening Methods – Phase 2*
    - Validate current NEPA flow chart and operational screening methods
    - Develop construction methodology for attainment area projects
    - Updates to AQ handbook

3. *Sustainability Synthesis*

Questions?