Project 008 Noise Outreach

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- FAA Award No.:13-C-AJFE-PSU Amendments 16
- Period of Performance: July 31, 2016 to July 31, 2017
- Task(s):
  1. Stakeholders Interactions
  2. Content Development
  3. Site Navigation and Infrastructure Enhancement

Project Funding Level

This project supports the Outreach efforts at Penn State with $75K of FAA funds. Matching funds are anticipated to satisfy cost share on all tasks.

Investigation Team

For 2016-2017 the investigation team includes:
P.I.: Kathleen Hodgdon Research Associate
Researcher: Maurie Caitlin Kelly Research Associate
Researcher: Bernd Haupt Senior Research Associate

Project Overview

The Outreach project seeks to improve airport and community interactions by providing information and education on aviation noise topics. Outreach has been implemented through the NoiseQuest website and by direct interactions with stakeholders. NoiseQuest (NQ), located at www.noisequest.psu.edu, is an international resource that is designed to

implement global education on aviation noise topics. The site presents outreach content and aviation noise information on a diverse set of topics. The PSU Outreach team has continued to expand and enhance the NoiseQuest website.

Outreach Goals:
1. Enhance global knowledge on aviation noise topics
2. Increase awareness and provide information to address aviation noise related issues
3. Interact with stakeholders to identify new content areas and current noise issues
4. Provide educational information in a format that is accessible to the general public
5. Present information on NoiseQuest in an easily navigated, user friendly context

Task 8.1: Stakeholders Interactions

Pennsylvania State University

Objectives
The objectives of this task includes: (1) interactive outreach to identify aviation noise programs; (2) obtain airport noise contour data from airport noise managers; and (3) gather contributions of content to be shared on the NoiseQuest site.

Research Approach
Interactive outreach with airport noise managers and community groups was conducted to: (1) identify concerns that could be addressed by expanded content topics; (2) identify successful programs and initiatives; and (3) request GIS noise contour data. The site user statistics are monitored to better inform the site development.

Milestones
We communicated with airport noise managers, stakeholders, and community organizations to identify updates for existing content and opportunities for new content development. We obtained GIS data to display airport noise contours on NQ Explorer from additional airports.

Major Accomplishments
We continue to interact with airport noise managers and community groups to identify topics of interest, successful implementations of outreach, or other approaches taken to resolve aviation noise issues. We investigated online feedback options for the site, but determined not to add the feature at this time. We had reservations since we would not be able to provide real-time monitoring of the comments and community members may post noise concerns to NQ instead of contacting local airport noise managers or the FAA's Noise Ombudsman. Jason Schwartz (ASCENT Advisory Committee Member), from the Port of Portland is an active team member. He has provided ideas and content topics as well as offering to interact with other airport noise managers on our behalf. We have contacted airport noise managers to obtain contours for NQ Explorer and we were successful in obtaining updated contours from Philadelphia International Airport. We also received data from the San Francisco International Airport, which consists of their 2014 Noise Exposure Map and the 5 year (2019) noise projections.

We interact with the National Organization to Insure a Sound-controlled Environment (N.O.I.S.E.) and they have shared their contact list for airport noise managers as well as provided ideas for content and the Spotlight section. Emily Tranter (N.O.I.S.E. National Coordinator) is working with us on identify content topics as well as programs to feature in the Spotlight section. We continue to encourage stakeholders to link their site to NoiseQuest. We continue to monitor our site statistics to gain insights on site usage (see Appendix 1 for Site Statistics).

Publications
Contents are published at www.noisequest.psu.edu.

Outreach Efforts
We interact with airport noise managers and community groups from across the country.

Awards
None

Student Involvement
None

Plans for Next Period
We will continue to monitor site statistics to determine site usage patterns. To promote greater site usage, we will work to get additional stakeholders to link to NoiseQuest and to provide recommendations for content.

Task 8.2: Content Development

Pennsylvania State University

Objectives
This task is focused on identifying and developing content that addresses aviation noise impact and outreach education.

Research Approach
The Outreach team seeks to identify content that presents updates on aviation noise research, addresses noise issues, or meets the educational outreach needs of aviation stakeholders on specific topics.

Milestones
The NoiseQuest team worked with a team of FAA managers to review the entire NoiseQuest site identifying areas for updated content. The team maintained existing site areas and added new content.

Major Accomplishments
A full site review was conducted by the NoiseQuest team working with FAA program managers. Edits were added to content in About Airports, Noise Basics and Noise Research and Community Tools. Topics reviewed included INM, AEDT, NextGen, PBN, general updates to noise models, air traffic control, metrics, and the glossary in community tools. We reviewed recommendations made by AEE managers and improved the readability of suggested edits so that the content reading level targeted approximately a 10th to 12th grade reading level before the final edits were uploaded to the site. Updated content was added to the "Noise Basics" and "Noise Models" section of the website. In addition, new content and edits to existing content were completed for the following webpages: Air Traffic Control, FAA Regulations, Continuous Descent, Spotlight on Noise, and Noise Effects. We are not adding content on historical noise contours at this time.

We are gathering additional materials to expand content on PBN and low boom noise impact. We are working with NASA and the NASA sponsored Waveforms Sonicboom Perception and Response Risk Reduction (WSPRRR) team to develop content on supersonics and low boom noise impact. This NASA sponsored team is developing a test plan for future low boom community field tests. The NASA WSPRRR team includes both ASCENT and NASA researchers, who can team with the NoiseQuest team to identify and develop the low boom content for the NoiseQuest site.

Working with PSU lawyers, we reviewed the site disclaimer language and left the current disclaimer in place. We can revisit this in the future if warranted. We updated the site to acknowledge contributions from both PARTNER and ASCENT researchers.

Publications
Site developed at www.noisequest.psu.edu

Outreach Efforts
We develop the Outreach content by reaching out to stakeholders for content ideas and development.

Awards

None

Student Involvement
None

Plans for Next Period
Content Development: The existing site content will be enhanced or expanded. New content topics will be identified and relevant features added to the site. Content is planned for, but not limited to, topics such as information on low boom noise, NextGen, and/or helicopter noise. Other topics will be identified based on stakeholder engagement.

Task 8.3: Site Navigation and Architecture Redesign and Development

Pennsylvania State University

Objectives
Efforts under this task maintain the site architecture and enhance site navigation.

Research Approach
To ensure that the site is accessible to the general public, the team works to assure that the information on NoiseQuest is presented in an easily navigated user-friendly format. This effort includes website management including backups, updates, and infrastructure enhancement.

Milestones
The entire site was reviewed and updates and new content were posted to the site. During the review, broken links were identified and addressed. Modifications to the NQ Explorer were investigated.

Major Accomplishments
The entire site was reviewed, resulting in updated and new content being added to NoiseQuest (see Task 8.2 for a list of topics). Methods to provide the opportunity for online user feedback on site content were discussed and a template for an online survey was devised. The decision was made to not add a feedback survey to the site at this time. The NQ website was migrated to new server in the Advanced CyberScience Infrastructure facility at Penn State. To monitor usage of the entire site, website statistics were moved to Google Analytics.

NoiseQuest has over 100 pages of content, each with multiple links. We continue to identify alternate links and materials for the site. Links changed by other sites are difficult to track, but we are working to identify and update broken links. Link checkers were run on all NQ pages and new links were updated.

We acquired and uploaded Geographic Information System (GIS) data to the NQ Mapper application for updated noise contours from Philadelphia International Airport and from San Francisco International Airport. The team identified display issues with the NQ Mapper application in the NQ Explorer, which were subsequently associated with a change in the Google Map's Application Programming Interface (API). This change in API affected the functionality of the NQ Explorer by interfering with the search and display of airports and the ability to view pop-up windows in the mapping interface. The team investigated options to revise the NQ Explorer and researched alternative options for the interface and a new basemap. These options included potentially utilizing the Environmental Systems Research Institute (ESRI) basemap and API, or alternatives such as Cesium. Options for ESRI were explored beyond the basemap and API. There is the potential for utilizing ESRIs ArcGIS Online (AGOL) as the basis for a new NQ Explorer. This would require that the airport database and noise contours stream via AGOL and a new application would be developed as an interface to the data. Limitations on pop-up windows and linking mechanisms may make this option unviable. The team also discussed options with the Cesium representatives. Cesium provides a 3D "map" so that users can visualize elevation and data together. Working with the Cesium representatives, the team investigated options to develop a test application in the Cesium environment.

Publications

None

Outreach Efforts
The team works to ensure that GIS data formats provided by airport noise managers are compatible with the site.

Awards
None

Student Involvement
None

Plans for Next Period
The team identified the need to upgrade the website to be device agnostic and user-friendly on all platforms simultaneously. The current website is accessible on multiple devices and browsers. However, navigation is not streamlined while accessing the site using small screened devices. The ongoing redesign of the site architecture will streamline the site's usability on a range of hardware (e.g., phones, tablets, touch-enabled laptops, etc.). We will also investigate options to redevelop the NQ Mapper in the NQ Explorer utilizing a new basemap provider to address issues with Google Map's API.

Appendix 1. NoiseQuest Annual Statistics 2016 vs 2015

30,000 Global Sessions in 2016   **28,446 Global Sessions in 2015**

NoiseQuest 2016 Annual Statistics		NoiseQuest 2015 Annual Statistics	
Page Title	Page views	Page Title	Page views
Total	57,643	Total	54,010
NoiseQuest: Noise Basics	12,402	NoiseQuest: Noise Basics	11,769
NoiseQuest: Community Tools	11,438	NoiseQuest: Community Tools	9,514
NoiseQuest: Noise Effects	10,545	NoiseQuest: Noise Effects	9,954
NoiseQuest: About Airports	7,337	NoiseQuest Home	6,584
NoiseQuest Home	6,591	NoiseQuest: About Airports	6,418
NoiseQuest: Sources of Noise	5,995	NoiseQuest: Sources of Noise	6,147
NoiseQuest: NQ Explorer	1,382	NoiseQuest: NQ Explorer	1,626
NoiseQuest: Research	939	NoiseQuest: Research	1,129
NoiseQuest	498	NoiseQuest	528
NoiseQuest: Spotlight	281	NoiseQuest: Spotlight	236

Monthly Trend in page views in 2016