Appendix A

Meeting Coordination

Philadelphia International Airport
Noise Compatibility Program Update

FAR Part 150 Noise Compatibility Program Update Report

Prepared by:
DMJM Aviation | AECOM

In association with:
Wyle
Portfolio Associates, Inc.
Philadelphia International Airport
Noise Compatibility Program Update
FAR Part 150 Noise Compatibility Program Update Report

Prepared by:
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In association with:
Wyle
Portfolio Associates, Inc.

Study Advisory Committee Meetings
Part 150 Noise Compatibility Program Update

Study Advisory Committee
as of: October 30, 2007

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Study Advisory Committee
Meeting #1

Mercy Wellness Center
Conference Room
Tuesday, October 30, 2007 – 1:00 PM

Meeting Agenda
- Welcome and Introductions
- Purpose and Role of the SAC
- Airport Noise 101 – Overview of Noise Metrics
- What is a Part 150 Study?
- Why is the existing NCP being updated?
- Process for updating PHL’s Part 150 Study
- Next Steps
Part 150 Noise Compatibility Program Update

Purpose and Role of the SAC

➔ FAR Part 150 requires consultation with relevant public and planning agencies.
  ➔ “…FAA officials, state officials, public and planning agencies and other Federal officials having local responsibility for land uses within the DNL 65 dB contour, air carriers, and other aircraft operators to the extent practicable.”

➔ Serve as a link to the community
  ➔ Share your experience and the information you receive with your community.

Part 150 Noise Compatibility Program Update

Purpose and Role of the SAC

➔ Participate in the development of proposed actions and measures.

➔ Provide feedback and suggestions based on your experience and any known concerns of the surrounding communities.
Basic Definitions

Sound - Minute vibrations that can be sensed by the human ear by traveling through air or water.

Noise - Unwanted sound that disturbs our activities and our enjoyment of “peace and quiet.”

Decibel (dB) - The logarithmic unit of measure for sound.

Attenuation - The reduction in the intensity of noise.

<table>
<thead>
<tr>
<th>Common Sounds</th>
<th>Sound Level (dB)</th>
<th>Loudness Compared to 70 dB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air raid siren at 50 ft</td>
<td>120</td>
<td>32 x as loud</td>
</tr>
<tr>
<td>Maximum levels in audiences at rock concerts</td>
<td>110</td>
<td>16 x as loud</td>
</tr>
<tr>
<td>On platform by passing train</td>
<td>100</td>
<td>4 x as loud</td>
</tr>
<tr>
<td>Typical aircraft (15737) 3 miles from take-off (directly under flight path)</td>
<td>90</td>
<td>1/4 x as loud</td>
</tr>
<tr>
<td>On sidewalk by passing typical automotive</td>
<td>80</td>
<td>1/16 x as loud</td>
</tr>
<tr>
<td>Busy office</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>Typical subdivision area</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>Bedroom at night</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Isolated broadcast studio</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Leaves rustling</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Just audible</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Threshold of hearing</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

Source: Handbook of Environmental Acoustics, James P. Cowan, 1994
General Rules

- A change of 3 dB is noticeable to most people.
- 10 dB sounds twice as loud or twice as quiet.
- Doubling or halving the distance between the source and receiver equates to 6 dB.
- Doubling or halving airport operations causes an increase/decrease of 3 dB.
- The attenuation of noise between the outdoors and indoors of a typical house is:
  - 15 dB with windows open
  - 25 dB with windows closed

Single-Event Sound Level Metrics

**Maximum Sound Level (L_{max})**

The highest sound level measured during a single event when the sound level changes over time.
Single-Event Sound Level Metrics

Sound Exposure Level (SEL)

A metric that normalizes the total energy of a noise event to a 1-second duration. Allows the addition of multi-events and calculation of average sound levels.

\[ SEL = 102.7 \text{ dBA} \]

\[ L_{\text{max}} = 93.5 \text{ dBA} \]
**Part 150 Noise Compatibility Program Update**

**Time-Averaged Sound Level Metrics**

*Equivalent Sound Level (Leq)*

Time-average of the total sound energy over a specified time period.

**Day-Night Average Sound Level (DNL)**

Similar to Leq for a 24-hour period with a 10-db weighting for nighttime events (10 PM to 7 AM).

Uses SEL as the single event metric.
Part 150 Noise Compatibility Program Update

Time-Averaged Sound Level Metrics

Day-Night Average Sound Level (DNL)

- Using DNL, 1 night flight = 10 day flights.
- DNL is scientifically related to human annoyance.
- The FAA uses DNL to describe long-term cumulative noise exposure.
- DNL 65 dB is the “Significant noise impact” threshold for EA, EIS, and Part 150 studies.

Part 150 Noise Compatibility Program Update

What is a Part 150 Study?

- Voluntary program initiated by an airport.
- Tries to balance the needs of an airport with impacts on the surrounding communities.
  - Federal Aviation Regulation (FAR) Part 150
    - Affirmed the use of the metric (Day/Night Average Sound Level - DNL) to document noise exposure around airports.
    - Standardizes the use of the Integrated Noise Model (INM) for noise modeling around public-use airports.
Purpose of a Part 150 Study

- Identify existing and potential future (5 years) noise exposure on surrounding communities.
- Develop recommendations to reduce noise levels in communities surrounding an airport.
  - Airport, local municipalities, airlines and/or the FAA
- Establishes eligibility for Federal funding for implementation of approved recommended mitigation measures.

Land Use Noise Sensitivity Matrix
Components of a Part 150 Study

- **Airport Inventory**
  - Document the existing conditions at the airport
    - Current aircraft operational levels and fleet mix
    - Forecasted (5 years) operational levels and fleet mix
    - Existing runway use and flight procedures
    - Existing land use

- **Noise Exposure Maps (NEMs)**
  - Graphical depiction of noise exposure levels on the surrounding communities.
  - Identifies compatible and non-compatible land uses surrounding an airport.
Components of a Part 150 Study

Noise Compatibility Program (NCP)
- Recommendations that an airport proposes to reduce existing and future non-compatible land uses.

Noise Abatement/Operational Alternatives
- Runway Use and Flight Procedures
  - Preferential Runway Use
  - Arrival and Departure Procedures
- Airport Facilities Development
  - Engine Run-up Procedures
  - Acoustical Barriers
- Restriction and Curfews
  - FAR Part 150 requires airport to evaluate, but the Airport Noise and Capacity Act of 1990 restricts airports from implementing.

Land Use Mitigation Alternatives
- Land acquisition
- Sound insulation programs
- Purchase assurance programs
- Zoning/Building Codes
- Purchase of avigation easements
- Real estate disclosure

Program Management Alternatives
- Airport Noise Office and Advisory Committee
- Airport Noise Monitoring Systems
- Updating of program as needed and required
Part 150 Noise Compatibility Program Update

Study Initiation

Submittal to FAA
- NEMs are accepted
- 180 day NCP review

Data Collection
- Airport Operations
- Aircraft Fleet Mix
- Runway Utilization
- Flight Tracks
- Local Land Use
- Base Mapping

Noise Compatibility Program
- Noise Abatement/Operational Measures
- Land Use Mitigation Measures
- Program Management Measures

Noise Exposure Maps
- FAA's Integrated Noise Model
- Existing and Forecasted
- Determine level of impacts

The Part 150 Process

Part 150 Noise Compatibility Program Update

Measure of Success

- Noise impacts are minimized
- Productive participation by all SAC members
- Valuable interaction with the public
- Better understanding of noise compatibility by SAC members and the general public
- Improved relationships between the airport and the surrounding communities
Why is the NCP being updated?

- The original study recommended that the NEMs and NCP be updated in five years
- The measure is being implemented since PHL has experienced, or is anticipated to experience, changes in:
  - Increase in annual operations
  - 2003 – 448,176
  - 2006 – 515,869
  - 2010 – 559,000 (forecasted)
  - 2015 – 622,500 (forecasted)
- Airfield Configuration
- Airspace Design
- PHL committed to update the NCP as a follow-up to the Runway 17/35 EIS.

Factors Influencing Aviation Activity

- International Terminal A-West
  - Opened in May 2003
  - Provided 13 international gates
  - Boosted international service
- Introduction of Low-Cost Carriers
  - Southwest initiated service in May 2004
  - Frontier initiated service in May 2004
- Fare reductions
  - Surge in competitive airfares at PHL resulted in record breaking passenger numbers from 2004 through 2006, which has resulted in changes to aircraft fleet mix.
Part 150 Noise Compatibility Program Update

Changes in Airfield Configuration

Runway 17-35 Extension

Project Purpose and Need:
To reduce current and projected airfield delays at PHL in the short-term

Project Details:
640 foot northerly extension
400 foot southerly extension

Resulting Changes at PHL that could affect existing noise exposure:
A 6,500 foot Runway 17-35 can now accommodate regional jets and narrowbody jet aircraft.

Future Changes to the Airspace

New York/New Jersey/Philadelphia Airspace Redesign

Project Purpose and Need:
To increase the efficiency and reliability of the airspace structure and air traffic control system.

Project Details:
Modifications to airspace configuration and air traffic management procedures, consisting of the design, development, implementation, and use of new or modified Air Traffic Control (ATC) procedures and reconfigured airspace.

Resulting changes at PHL could affect existing noise exposure:
Departure headings that differ from those used at PHL today.
Public Participation

Public participation is a key aspect of this study

Public participation will be promoted through:

- Study Advisory Committee (SAC)
- Keep constituents informed of study progress
- Community informational workshops
- Project newsletters
- Project website (www.phlpart150update.com)

Study Advisory Committee

- Six meetings throughout the study
  1. Study Initiation/Introduction to Aviation Noise
  2. Present Existing and Future Baseline Contours
  3. Noise Abatement Alternatives Working Session
  4. Noise Abatement/Land Use/Program Management Alternatives Analysis
  5. Preliminary Noise Compatibility Program
  6. NCP Implementation
Part 150 Noise Compatibility Program Update

Community Workshops

- Three workshops at five locations throughout the study area.
  - City of Philadelphia – Eastwick – Montgomery County
  - Delaware County – Tinicum Township
  - State of Delaware – Brandywine Hundred/Wilmington
  - Southern New Jersey – Haddonfield/Cherry Hill
  - Southern New Jersey – Paulsboro/West Deptford

- Content of workshops will include:
  1. Study initiation/Airport Noise 101
  2. Presentation of Draft Noise Exposure Maps
  3. Presentation of Draft Noise Compatibility Program

Part 150 Noise Compatibility Program Update

Inventory of Airport Environs

- Update aircraft operational activity
- Update runway and flight track utilization
- Review and document existing Noise Abatement Procedures
- Develop a base map for the study
- Identify changes in surrounding land use
- Document Land Use Planning and Regulations
  - Local land use plans, zoning regulations, etc.
Part 150 Noise Compatibility Program Update

Runway Utilization

Part 150 Noise Compatibility Program Update

Departure Flight Tracks
Part 150 Noise Compatibility Program Update

Arrival Flight Tracks

Noise Measurement Program - Goals

- Respond to community concerns about airport noise
- Provide a better understanding of current community noise exposure.
- Assess the contribution of aircraft noise to overall community noise exposure.
- Measure the sound levels of individual aircraft operations at locations on and around the airfield.
- Characterize both the existing aircraft noise levels and the community (non-aircraft) noise levels.
- Display variability in noise exposure due to changes in wind, weather, aircraft altitudes, distance, etc.
Part 150 Noise Compatibility Program Update

Noise Measurement Program - Details

- Measurements can be used to supplement INM data, but not to take the place of modeling.
- Comparison between monitored data and modeled data. Validate results from INM.
- Evaluate “Slice-in-Time” Noise Environment over a 10-day period (11/7 through 11/16) at up to 30 sites.
- Locations chosen based on aircraft flight paths, sensitivity to noise, suitability for noise monitoring.
- Present results in terms of DNL, LEQ, and single event SEL.
Part 150 Noise Compatibility Program Update

Develop Noise Exposure Maps

- Existing conditions NEM – 2007
- 5-Year Forecast NEM – 2012
- FAA’s Integrated Noise Model (INM)
  - INM utilizes data collected during the airport inventory portion of the study to generate the input files to produce:
    - Noise contours
    - Grid point calculations of predicted noise at specific sites such as hospitals, schools or other sensitive locations

Part 150 Noise Compatibility Program Update

Data Sources and Methodology

Data Sources

- Radar Data
- Air Traffic Control
- TAMIS
- DOT
- FAA TAF
- PHL Records

Analysis & Model Input

- Total Operations By Category
- Flight Tracks & Dispersion
- Fleet Mix Aircraft Types
- Temporal Use (Day vs. Night)
- Runway Use
- Flight Track Use
- Stage Lengths
- Weather (Temp. & Humid.)

Modeling & Presentation

- Noise Modeling
- Noise Exposure Maps
- Grid Point Analysis
- Report
Evaluate existing noise abatement procedures and modify if necessary
Evaluate appropriateness of recommending additional procedures
- Visual approaches to the airport
- Departure procedures – Airspace Redesign
Reprocess noise contours based on recommended procedures
Identify changes (hopefully improvement) in the size and shape of noise contours
Part 150 Noise Compatibility Program Update

Land Use Mitigation Alternatives

- Evaluate existing recommendations and modify if necessary
- Determine eligibility for residential sound insulation program
- Possibly include implementation of sound insulation for Fort Mifflin
- Identify potential for new or additional land use mitigation alternatives
- Work with surrounding municipalities

Part 150 Noise Compatibility Program Update

Program Management Alternatives

- Evaluate existing recommendations and modify if necessary
- Identify potential for new or additional program management alternatives
Part 150 Noise Compatibility Program Update

Public Hearing

- Draft report will be made available to the public for review and comment
  - Distributed to local libraries, local government offices, and at the airport
  - Advertised in the Federal Register
- One final Community Workshop (at one location) will be held in conjunction with a formal public hearing
  - Public will have opportunity to provide formal comments (via court reporter or in writing)
  - All comments will be answered and included in the final report that will be submitted to the FAA

Part 150 Noise Compatibility Program Update

Submittal to FAA

- Federal Aviation Administration will review the Noise Exposure Maps.
- Once the NEMs are approved, the FAA will begin evaluation of the NCP.
- FAA has 180 days to review and approve or disapprove the recommendations contained in the NCP.
- FAA will issue a Record of Approval (ROA) indicating their decision.
- Approved measures become eligible for Federal funding.
Part 150 Noise Compatibility Program Update

Next Steps

- **Community Workshop #1**
  - November 7, 8, 13, 14, and 15 – from 5:30pm to 8pm
- **December 2007/January 2008 – SAC Meeting #2**
  - Present Existing and Future Baseline Contours
- **February 2008 – SAC Meeting #3**
  - Noise Abatement Alternatives Working Session
- **March 2008 – Community Workshop #2**
  - Present NEMs & preliminary Noise Abatement Alternatives
- **April/May 2008 – SAC Meeting #4**
  - Noise Abatement/Land Use/Program Management Alternatives Analysis
- **June/July 2008 – SAC Meeting #5**
  - Preliminary Noise Compatibility Program
- **August/September 2008 – Community Workshop #3**
  - Presentation of the preliminary Noise Compatibility Program
- **October 2008 – SAC Meeting #6**
  - NCP Implementation
- **November/December 2008 - Final Workshop and Public Hearing**
Thank You!

Questions??
MEETING MINUTES

Subject: PHL Part 150 Update – Study Advisory Committee Meeting #1
Place: Mercy Wellness Center, 2821 Island Avenue, Philadelphia, PA 19153
Date of Meeting: October 30, 2007
Attendees: See attached sign in sheet
Date Prepared: November 2, 2007
Prepared By: Morgan Barlow, Portfolio Associates, Inc. and Bill Allen, DMJM Aviation

Purpose: The purpose of this meeting was to initiate the Study Advisory Committee of the Philadelphia International Airport (PHL) Part 150 Noise Compatibility Program Update.

Discussion: The discussion followed the meeting agenda.

1. Welcome and Introductions
   Calvin Davenger, Philadelphia International Airport, welcomed the members of the Study Advisory Committee (SAC). Bill Allen, DMJM Aviation, introduced the study’s consultant team, including Wyle Labs and Portfolio Associates.

   Each SAC member then introduced themselves (see sign in sheet).

   Beverly Harper, Portfolio Associates, reviewed the meeting materials that were provided to all attendees. The meeting materials consisted of: Meeting Agenda; Evaluation Form; Project Fact Sheet; copy of PowerPoint presentation; List of Study Advisory Committee Members; and five Community Workshop Flyers. She encouraged everyone to complete the meeting evaluation form and to assist in the promotion of the Community Workshops with the enclosed flyer. While reviewing the list of SAC members, Ms. Harper pointed out that their names would be listed on the project website.

   Charles Isdell, Director of Aviation, Philadelphia International Airport, thanked everyone for coming and welcomed them. He said that the Airport made the commitment to conduct this update in the first FAR Part 150 Study, and as a part of the extension to Runway 17/35.

2. Purpose and role of the Study Advisory Committee (SAC)
   Bill Allen reviewed the purpose and role of SAC. All members were urged to be involved in all aspects of the study, and to share their experience and the information gained with their community.

   Calvin Davenger assured the SAC members that a briefing document would be sent to them in advance of each meeting.

3. Airport Noise 101 – Overview of Noise Metrics
   Royce Bassarab, Wyle Laboratories, presented an overview of airport noise and commonly used noise metrics that would be referred to throughout the duration of this study. Included in his presentation were examples of common and familiar situations that generate various
levels of noise measured in decibel levels. He also passed around a sound measurement meter to all of the participants. His presentation reviewed the difference between a single event sound level and an average of sound levels over a specific period of time, including the Day-Night Average Sound Level (DNL). Mr. Bassarab explained how DNL assesses a 10 dB penalty to all nighttime (10:00 pm to 7:00 am) noise events. This is intended to account for the lower background noise levels that occur during the nighttime hours.

Mr. Bassarab used Wyle’s Interactive Sound Information System (ISIS) to review some of the common noise metrics and how they may be used during this study. This demonstration provided actual sound experiences heard through speakers and also displayed on the sound measurement meter. He then reviewed the relationship between noise measurements collected in the field at locations around the Airport and the data that will be used in the FAA’s Integrated Noise Model (INM).

4. What is a FAR Part 150 Study?

Mr. Allen reviewed what a FAR Part 150 Study was, the reason that airports conduct them, and the process that is followed while conducting such a study. He identified that an important purpose of these studies was to establish eligibility for Federal funding for the implementation of approved mitigation measures.

Question: Who is required to have a Part 150 Study?

Answer: No airports are required to conduct a Part 150 Study, it is a voluntary program. However, once an airport participates in the program, it must be updated every five years, or if there is a significant change in activity levels, or if there is a change in the configuration of the airfield.

Mr. Allen pointed out that the use of the Day-Night Average Sound Level (DNL) metric and FAA’s Integrated Noise Model (INM) are required by Federal Aviation Regulations.

Q: L. Stewart, Eastwick PAC representative - We did not think the previous study was well done. Can we look at that again?

A: Yes, that is the purpose of this study; to update the results of the previous study.

Statement: L. Stewart, Eastwick PAC - We have noticed the change in noise level recently; “neighbors are experiencing greater noise at Island and Lindbergh, please do what is right for Eastwick residents.”

Mr. Allen also reviewed the measures of success of a Part 150 Study, which includes that noise impacts are minimized, productive participation by SAC members and meaningful interaction with the public.

5. Why is the existing NCP being updated?

Allan A’Hara, DMJM Aviation, noted again that this update was recommended and approved in the previous study. In addition, growth in flight activity at the airport, changes in airplane types, changes in operations and airfield configurations, and future changes in airspace design mean that there are several new factors that need to be assessed to build an accurate picture of airport noise impacts over the next five years.

This study will take into account the introduction and popularity of regional jets, some of which are able to use Runway 17/35 today, before the completion of construction on this
runway. It will also include evaluation of the FAA’s airspace redesign that was recently approved.

Q: S. Loveless, Congressman Sestak Representative - Do you only use noise models or take measurements?

A: We will be conducting noise measurements, but the Noise Exposure Maps (NEMs) are developed through the INM.

Q: T. Shaffer, Delaware County Planning Department - What is the best guess as to when the FAA Airspace redesign is fully implemented?

A: E. Gabsewics, FAA. - There is no firm date yet.

A: S. Rich, Air Traffic Control Tower - The PHL ATCT has looked at headings but have not yet built routes.

Q: T. Shaffer - Can this study assess these changes?

A: Should these changes be implemented and operational within the next five years, they will be included in our evaluation.

Q - S. Rich, Air Control Tower - How will you take into account all the changes since the last study?

A - We will adjust activity levels and fleet mix within the INM, and make necessary adjustments to runway and flight track utilization. In the previous study the level of RJs that exist today were not accounted for since it was unknown at the time that there would be such a dramatic transition to that type of aircraft. As deemed appropriate and relevant, data from the ongoing Capacity Enhancement Program (CEP) Environmental Impact Statement (EIS); the recently completed Runway 17/35 Extension EIS, and FAA’s Airspace Redesign EIS, will be evaluated and incorporated into this study.

6. Process for updating the Part 150 Study

Mr. Allen indicated that Public Participation and Community Relations will be a major component of this study. The Public Participation components include: the SAC; three rounds of community workshops in five separate locations in New Jersey, Pennsylvania and Delaware; a project website; three newsletters; and individual meetings with local officials.

Mr. Allen then reviewed topics for the next five SAC meetings. At the next meeting draft versions of the Noise Exposure Maps will likely be provided, along with the results from the noise measurement program.

Mr. Allen also reviewed again the components of the Noise Compatibility Program.

The update process will also include an: Inventory of Airport Environs; Developing Noise Exposure Maps, both existing and 5-year forecast; Aircraft Noise Measurement Program (reviewed by Mr. Bassarab); Developing an updated Noise Compatibility Program; and a Public Hearing and submittal to the FAA.

Mr. Allen reiterated that the FAA does not accept the on-site noise measurements. It only accepts the results from the Integrated Noise Model (INM) for determining the level of noise exposure on communities surrounding an airport. He then reviewed the volume of data that will be input into the INM.
Q: W. Irby, Historic Fort Mifflin - Are the funds for mitigation efforts available?

A: Mr. Isdell stated that a request for a grant must be processed. There is money available; however there is a process that must be followed to qualify for that money.

A: Mr. Allen informed the SAC that the DOA had directed our study team to conduct a separate update to the existing NCP to include a mitigation measure to provide sound insulation to Fort Mifflin. This is a follow up to an existing measure to determine the feasibility of providing the treatment given the Fort’s Historic landmark classification. It was determined that it is feasible, and as a result the DOA will seek FAA approval and funding to implement such a program without needing to wait for the current update to be completed.

7. Next Steps

Mr. Allen concluded the meeting by summarizing the next steps, which includes Community Workshops, additional SAC meetings and a Public Hearing. He again urged all SAC members to assist in spreading the word within their community on the workshops and the entire study process.

Mr. Isdell concluded by discussing the issue of which homes will qualify for mitigation programs such as residential sound insulation based on the DNL (Day-Night Level) contour. These contour lines can often bisect a contiguous block or adjacent houses on a block. Sometimes the FAA will allow contiguous blocks within natural boundaries, some of which are outside the DNL contour to qualify for mitigation programs. For these programs the FAA provides 80 percent of the cost and the Airport provides 20 percent. If as a result of this update, similar issues arise, Mr. Isdell said the Airport will advocate for contiguous blocks or houses to be included in mitigation programs and that the Airport will provide the 20 percent funding for those homes immediately outside the DNL 65 dB contour. Mr. Isdell expressed that it is important to the Airport to be a good neighbor.

Distribution:
Attendees
Mark Gale, Division of Aviation

Attachments:
Sign-in Sheet
Updated SAC Membership List

NOTE: If attendees have any suggestions or comments to the content of these minutes, please submit material within three (3) business days.
# Part 150 Noise Compatibility Program Update

SAC MEETING - October 30, 2007
SIGN-IN SHEET

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<thead>
<tr>
<th>Name</th>
<th>Organization Title</th>
<th>Telephone #</th>
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# Part 150 Noise Compatibility Program Update

**SAC MEETING - October 30, 2007**

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<td><a href="mailto:steve.sisneros@wnco.com">steve.sisneros@wnco.com</a></td>
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*Portfolio Associates, Inc. 10/07*
# Part 150 Noise Compatibility Program Update

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<tr>
<td>Stolz, Gary</td>
<td>John Heinz Natl. Wildlife Refuge Deputy</td>
<td>215-365-3118</td>
<td><a href="mailto:Gary_Stolz@fws.gov">Gary_Stolz@fws.gov</a></td>
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<td>Sweeney, Steven</td>
<td>Gloucester County, NJ Freeholder Director</td>
<td>856-853-3390</td>
<td><a href="mailto:ssweeney@co.gloucester.nj.us">ssweeney@co.gloucester.nj.us</a></td>
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<td>Verna, Anna</td>
<td>City of Philadelphia City Council President</td>
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<td><a href="mailto:Maryanne.Mahoney@phila.gov">Maryanne.Mahoney@phila.gov</a></td>
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<td>Maryanne Mahoney</td>
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<td>215-492-4100</td>
<td><a href="mailto:michael.wagner@faa.gov">michael.wagner@faa.gov</a></td>
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<tr>
<td>Wagner, Scott</td>
<td>PENNDOT Bureau of Aviation Director</td>
<td>717-705-1200</td>
<td><a href="mailto:eyewdall@state.pa.us">eyewdall@state.pa.us</a></td>
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<td>Yewdall, Ed</td>
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<tr>
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<td>717-787-4712</td>
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Study Advisory Committee
Meeting #2

Mercy Wellness Center
Conference Room
March 13, 2008 – 1:00 PM

Meeting Agenda

- Welcome
- Update on Status of Project
- Airspace Redesign Update
  - Mike Wagner, Air Traffic Manager, PHL ATCT
- Noise Measurement Program Results
  - Noise Metric Review
  - Airport Operations
  - Noise Measurement Site Characteristics
- Noise Exposure Modeling Overview
- Next Steps
Part 150 Noise Compatibility Program Update

Update on Status of Project

- Noise Measurement Program was completed.
- Airport/aircraft operational data was collected for FY 2007 (Oct. 2006 through Sept. 2007).
- While the 2007 NEM’s were being prepared, the FAA implemented parts of the Airspace Redesign (ARD).
- Part 150 Update process was paused to re-evaluate any potential impacts from the ARD.
- Decision was made to use 2007 calendar year’s data (Jan. 2007 through Dec. 2007) that included ARD alterations to airport operations.

Part 150 Noise Compatibility Program Update

Update on Airspace Redesign

- Mike Wagner, Air Traffic Manager, PHL ATCT
Part 150 Noise Compatibility Program Update

Noise Measurement Program

- Provide an understanding of current community noise exposure.
- Assess the contribution of aircraft noise to overall community noise exposure.
- Measure the sound levels of individual aircraft operations at locations around the airport.
- Evaluate “Slice-in-Time” Noise Environment over a 10-day period (11/7/07 through 11/16/07) at the 28 selected sites.
- Measurements can be used to supplement INM data, but not to take the place of modeling.

Figure 1:
Noise Measurement Locations
Philadelphia International Airport - PHL Part 150 Study Update
Part 150 Noise Compatibility Program Update

Noise Metric Review

Maximum Sound Level ($L_{max}$) - The highest sound level measured during a single event.
Sound Exposure Level (SEL) - The total energy of a noise event to a 1-second duration.

Equivalent Sound Level ($Leq$) - Time-average of the total sound energy over a specified time period.
Day-Night Average Sound Level (DNL) - 24-hour average with a 10-db weighting for nighttime events.
**Part 150 Noise Compatibility Program Update**

### Operational Flow During Noise Measurement Period

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Aircraft DNL was calculated using only the noise events caused by aircraft.

- Aircraft overflights were correlated with noise events based on parameters that included the location of the site, the background noise levels, and the characteristics of a typical aircraft overflight.
- Aircraft DNL values for an average day during the measurement period ranged from 37 dB to 73 dB.

Community DNL for each monitoring location is comprised of all other noise not associated with an aircraft overflight.

Total DNL includes all noise sources, both aircraft and community noise, measured at a noise monitoring location.

- The average Total DNL values at all sites ranged from 51 dB to 79 dB.

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## Part 150 Noise Compatibility Program Update

### Average Aircraft DNL

#### 10-Day Average DNL

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Noise Measurement Results

Number of Events (NA)

- Number of events identifies the number of aircraft overflights that exceed a specified threshold at a location.
- For this analysis, NA was analyzed for aircraft overflights that had a maximum sound level \((L_{\text{max}})\) above 60, 70, 80, & 90 dB.
- Number of Events above 60 dB ranged from less than 10 aircraft overflights to almost 1,000 on an average day during the measurement period.

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Note: The data provided is a partial listing of locations and their respective number of events exceeding specified sound levels. The full dataset includes additional locations and data points not shown here.
Number of Events above 60 dB

The chart shows the number of events above 60 dB at various sites. The y-axis represents the number of events, ranging from 0 to 1200, while the x-axis lists the site numbers (P1, P2, P3, etc.).

Figure 1: Noise Measurement Locations
Philadelphia International Airport - PHL Part 150 Study Update

Legend:
- Solid line: City boundary
- Gray line: Airport property boundary
- Red line: Temporary noise measurement site
- Yellow line: Permanent noise measurement site
- Gray dotted line: Airway boundary

The map highlights the locations of noise measurement sites across the Philadelphia area.
Noise Measurement Site Characteristics

**Western Sites (DE & PA):** P17, P25, P26, P27, P28
- Characterized by aircraft departures (west flow) and arrivals (east flow) from Runways 27L and 27R.
- Most matched aircraft noise events (96%) were between 60 dB and 70 dB.
- Aircraft DNL values ranged from 43 dB to 49 dB.

**Western Sites (Tinicum Township):** P5, P9, P10, P11
- Characterized by aircraft departures (west flow) and arrivals (east flow) from Runways 27L and 27R.
- 38% of matched aircraft noise events exceeded 70 dB.
- Aircraft DNL values ranged from 61 dB to 67 dB.

**Eastern Sites:** P2, P3, P4, P6, P18, P19, P20
- During west flow, sites experience noise from arrival operations to Runways 27L and 27R.
- During east flow, most aircraft departures have turned prior to reaching Sites P18, P19, P20.
- 75% of matched aircraft noise events ranged between 60 dB and 70 dB.
- Aircraft DNL values ranged from 51 dB to 73 dB (Highest DNL values at co-located noise monitoring sites).
Part 150 Noise Compatibility Program Update

Noise Measurement Site Characteristics

- Southern Sites: P21, P22, P23, P24
  - Characterized by Runway 35 arrivals (west flow).
  - Number of events above 60 dB ranged from <10 per day to 130 (directly underneath approach path).
  - Aircraft DNL values ranged from 37 dB to 51 dB.
- North/Northwest Sites: P1, P7, P8, P12, P13, P14, P15, P16
  - Characterized by turboprop departures from Runway 35 (P1, P7, P8, P14, P15), departures from Runways 27L and 27R (P13, P16) and arrivals to Runway 17.
  - 80% of matched aircraft noise events ranged between 60 dB and 70 dB.
  - Aircraft DNL values ranged from 40 dB to 52 dB.

Program Notes

- The data from the Noise Measurement Program displayed the variability of noise levels (community and aircraft) at each site over a random 10-day period.

- Noise at a particular location was dependant on a number of variables, including weather, background noise levels, airport operating configuration, and specifics of each operation (type of aircraft, altitude, speed, etc).

- Results from noise modeling (i.e. noise exposure maps) will be compared to aircraft DNL values at permanent noise monitoring sites. Some variability is expected – but major (over 3 dB) changes will be evaluated further.
Part 150 Noise Compatibility Program Update

Noise Exposure Modeling Overview

- 2007 Existing conditions and 2012 5-Year Forecast
- FAA’s Integrated Noise Model (INM)
  - Utilizes data collected during the airport inventory portion of the study to generate the input files.
    - Airport operations by aircraft type, operation type & time of day
    - Runway Use by aircraft type, operation type & time of day
    - Flight tracks and dispersion to represent flight corridors
    - Flight profiles – User defined to take into account non-standard climb/descent profiles for example
    - Other input data such as average temp & humidity, terrain data

Data Sources and Methodology

Data Sources
- Radar Data
- Air Traffic Control
- TAMIS
- DOT
- FAA TAF
- PHL Records

Analysis & Model Input
- Total Operations By Category
- Flight Tracks & Dispersion
- Fleet Mix Aircraft Types
- Temporal Use (Day vs. Night)
- Runway Use
- Flight Track Use
- Stage Lengths
- Weather (Temp. & Humid.)

Modeling & Presentation
- Noise Modeling
- Noise Exposure Maps
- Grid Point Analysis
- Report
Part 150 Noise Compatibility Program Update

Next Steps

- Complete production and evaluation of the 2007 Existing and 2012 Forecast Noise Exposure Maps
- Drafts of each NEM along with the results of noise impact analyses for each will be available for review and comment.
- The next SAC meeting will tentatively be scheduled for the week of May 12th.
- The second round of Community Workshops will tentatively be scheduled for the weeks of May 12th and May 19th.

Thank You!

Questions??
MEETING MINUTES

Subject: PHL Part 150 Update – Study Advisory Committee Meeting #2
Place: Mercy Wellness Center, 2821 Island Avenue, Philadelphia, PA 19153
Date of Meeting: March 13, 2008
Attendees: See attached sign in sheet
Date Prepared: April 11, 2008
Prepared By: Morgan Barlow, Portfolio Associates, Inc.

Purpose: The purpose of this meeting was to update the Study Advisory Committee on the progress of the Philadelphia International Airport (PHL) Part 150 Noise Compatibility Program Update.

Discussion: The discussion followed the meeting agenda.

1. Welcome and Introductions
Calvin Davenger, Philadelphia International Airport, welcomed the SAC and stated his expectation that attendees would communicate study progress and findings to those they represent and their constituents.

Beverly Harper, Portfolio Associates, reviewed the meeting materials that were provided to all attendees and encouraged participants to complete the evaluation form. The meeting materials consisted of: Meeting Agenda; Evaluation Form; Project Fact Sheet; and a copy of the PowerPoint presentation.

Each of the attendees introduced themselves (see the attached sign in sheet).

2. Update on the Status of the Project
Allan A’Hara, DMJM Aviation, provided a brief status report on the project. Mr. A’Hara noted that development of the updated Noise Exposure Map, which was intended to be presented at this meeting, was delayed due to the implementation of FAA’s Airspace Redesign project which commenced in December 2007. It is expected that the existing and future noise exposure maps will be presented at the next SAC meeting.

3. Update on the Status of the Airspace Redesign
Michael Wagner, FAA Air Traffic Manager at PHL presented on this topic. Mr. Wagner explained that the FAA has a special team working on Airspace Redesign procedures, and that project implementation will take place in 5 to 7 phases and should be complete in 2011.

Mr. Wagner began with a description of the directional headings PHL used for departing flights prior to the Airspace Redesign. The majority of departures use Runway 27L. The aircraft make an immediate left turn to a heading of 255° over the Delaware River.
Part 150 Noise Compatibility Program Update

Aircraft remain on this heading until they reach 3,000 feet in altitude or 6 miles in travel distance before turning north over Delaware County or south over New Jersey, based on their destination. Depending on the atmospheric conditions the aircraft may or may not reach 3,000 feet in altitude before flying six miles. The colder it is, the faster an aircraft will reach altitude, versus in hot humid weather when it will take longer.

Mr. Wagner then detailed the new headings being used in the current phase of the Airspace Redesign. The first phase of the plan provides multiple departure headings including three (3) west flow headings off Runway 27L and four (4) east flow off headings off Runway 9L.

PHL Air Traffic Control can’t implement all of these headings immediately. However, they have implemented two of the west flow headings for Runway 27L including 245° (left turn) or 268° (straight out), both of which still direct aircraft over the Delaware River initially. When departures are in east flow due to a change in wind direction, aircraft depart off of Runway 9L on a heading of 081° (left turn) or 096° (right turn). The primary difference between the common 255° departure and the new 268° heading resulting from Airspace Redesign is the fact that the aircraft fly straight out after take-off as opposed to making the immediate left turn. The aircraft do not make a right turn any sooner under Airspace Redesign procedures than they did prior to Airspace Redesign. Thus, the tracks that the aircraft are flying once they reach 3,000 feet and turn right are very much the same under both procedures. The flight tracks differ primarily in close to the Airport immediately after take-off.

Mr. Tom Shaffer, Delaware County Planning Department, asked, “Is it true that no aircraft turn right over Delaware County below 3,000 feet?” Mr. Wagner said that is correct for jet aircraft, except when there is an incoming thunderstorm which may prompt them to turn the aircraft to avoid the weather. Propeller aircraft will typically turn sooner. Mr. A’Hara pointed out that there are fewer propeller aircraft flown these days as a result of the introduction of Regional Jets.

Mr. Chuck Romick, Gloucester County Planning Department, asked whether a heading of 245° takes a plane over Gloucester County, NJ before 3,000 feet. Mr. Wagner said this could occur in warmer weather conditions when the aircraft climb slower, but is likely not an issue in cold air. In addition, the new Airspace Redesign headings can only be used between 6 a.m. and 10 p.m. At other times Air Traffic Control (ATC) will use the previous heading of 255° to minimize residential impact in Tinicum and New Jersey during the overnight hours.

Mr. Davenger asked a follow up question on the daily decision to use the new or older headings. Mr. Wagner said that he has been instructed to only use the new Airspace Redesign headings between 6 a.m. and 10 p.m. During these hours, ATC’s priority is to continue to use the 255° heading, to be sensitive to the community, until such time that traffic volumes build and he is required to use the new heading to increase the departure rate and reduce delays.

Mr. Wagner pointed out that for the planes that depart over the Delaware River, he estimates that 60 percent turn right and fly over Delaware County in Pennsylvania. The remainder turn left and fly over New Jersey.
Calvin Davenger also asked Mr. Wagner to explain why these new departure headings are important. Mr. Wagner responded that that ATC needs an aircraft to be three miles out before he can have a second plane take off from a runway to maintain the required separation between aircraft. With only one departure heading (255°) ATC can only release departures at a single rate which will cause aircraft back-ups awaiting departure. When all planned Airspace Redesign procedures are implemented, ATC will have 3 headings to send the aircraft to and will allow the release of departures at a faster rate, reducing back-ups.

Mr. Wagner also pointed out that the Airspace Redesign also focuses on changing the arrival locations which are currently over Pottstown, Atlantic City and Delaware. A typical airport has arrivals from four corners and is easier to control. The reason for the current arrivals pattern is conflicting traffic patterns into the New York airports.

Mr. Mike Jeck, PHL Airport Noise Office, said that he has responded to an increased number of calls from Delaware County by analyzing flight data. His study shows that the flight path the planes follow to go north and west from the Airport, with the two new headings, is still the same as before the implementation of Airspace Redesign. The only change in the flight data is that the planes are flying closer to the northern bank of the Delaware River on takeoff. However, the increase in complaint data suggests that there is a significant change in flight paths. One way to characterize the new headings is that the paths that airplanes fly after 3,000 feet and 6 miles has not changed with the new headings. The new headings just provide another route to the ultimate flight path.

Ms. Shirley Loveless, Congressman Sestak’s office, indicated that the increase in phone calls to the noise office can be explained by the fact that some of the complaints are not about the Airspace Redesign but are about flights in the middle of the night. Another contributing factor is that residents didn’t know how to reach the noise office before, but do now as a result of increased publicity.

4. Results from the Noise Measurement Program

Mr. Royce Bassarab, Wyle Laboratories, presented the results of the noise monitoring efforts.

Mr. Bassarab explained that the measurements were taken over a 10 day period at 28 sites. Sound was recorded at each site every 2 seconds. All sounds were measured, not just aircraft noise.

Mr. Basarrab noted that these measurements will not be input into the noise model. The data from this noise measurement program will be used to compare to the results from the computer-generated noise model.

Ms. Loveless asked if the two monitoring locations near Morris Circle were separate addresses. Mr. Bassarab said that they were, and that one was closer to the roadway.
5. **Overview of Noise Exposure Modeling**
   Allan A’Hara described that the project will be developing both existing and future noise exposure maps. In addition, we will be developing graphic depictions of noise dispersion patterns beyond the 65db contours; this type of data representation can and will be used to better present the noise analysis results as part of the public outreach program.

6. **Next Steps**
   Mr. A’Hara noted that the next SAC meeting will be held later in the Spring.

**Distribution:**
   Attendees (see attached sign-in sheet)
   - Mark Gale, Division of Aviation
   - Reiner Pelzer, DVRPC
   - Andrew Reilly, Delaware County Council
   - John Butterworth, Atlantic Aviation
   - Anthony Bucci, Camden County, NJ
   - Letitia Colombi, Haddonfield, NJ
   - Denise Earley, Greater Philadelphia Chamber of Commerce
   - John Minor, Southwest Airlines
   - Steven Sweeney, Gloucester County, NJ
   - Anna Docimo, West Deptford Township, NJ
   - Eric Madden, PennDOT Bureau of Aviation
   - David Woods, Office of Senator Dominic Pileggi

**NOTE:** If attendees have any suggestions, please submit material within three (3) business days.

**Attachment:**
   Sign-in Sheet
# Part 150 Noise Compatibility Program Update

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**SIGN-IN SHEET**

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Study Advisory Committee
Meeting #3

Mercy Wellness Center
Conference Room
June 17, 2008 – 1:00 PM

Meeting Agenda

- Welcome and Introductions
- Status of the Program
- Noise Exposure Map (NEM) Development
  - Draft Existing Baseline Noise Contour – 2007
  - Draft Future Baseline Noise Contour – 2013
  - Contour Review Process
- Community Workshops Overview
- Noise Compatibility Program Update (NCP) Development
  - Overview of Noise Mitigation Alternatives
Where we are in the process

- **Data Collection**: Identify and document existing airport conditions and surrounding land uses. Conduct aircraft noise monitoring.
- **Noise Exposure Maps**: Run the Integrated Noise Model program to develop existing and future noise exposure maps.
- **Mitigation Alternatives**: Revisit existing noise abatement, land use, and program management alternatives. Recommend new alternatives; suggest changes to existing alternatives as needed.
- **Noise Compatibility Program**: Select noise abatement, land use, and program management measures, and develop the Noise Exposure Maps.

= Study Advisory and Community Participation point

---

**Integrated Noise Model Input Data**

- Airport Facilities
- Operations Levels
- Time of Day
- Aircraft Fleet Mix
- Flight Track Location
- Ground Noise
- Weather
Noise Compatibility Program Update

Annual Operations

Temporal Distribution

2007
Daytime Ops = 85%
Nighttime = 15%
Runway Utilization

- **West Flow (80% during 2007)**
  - Runway 27L is the predominant departure runway, followed by Runway 27R.
  - Runways 27R and 35 are the predominant arrival runways.

- **East Flow (20% during 2007)**
  - Primary departure runway is Runway 09L, followed by Runway 35 and Runway 26.
  - Primary arrival runway is Runway 09R, followed by Runway 17.

- In 2007, Runways 09R/27L and 09L/27R served 94% of departure traffic and 67% of arrival traffic.
The regulations (Part 150) require an evaluation of noise exposure for a period five years into the future (2013).

All changes expected to occur at the airport are modeled.

Three important changes may impact noise exposure at PHL:
- Increases in the overall number of operations
- Runway 17/35 Extension
- Implementation of the Airspace Redesign

Operating levels for 2013 are expected to increase by 19% to over 594,000.

Average Annual Day operations are expected to be 1,628.

Extended Runway 17/35 is expected to be fully operational (2009).

To the north, an additional 640 feet will be added, and to the south, an additional 400 feet will be added, for a total length of 6,500 feet.
Incorporation of Airspace Redesign

- Implementation of the Airspace Redesign (begun in late 2007) is expected to be complete by 2013.
- Revised departure headings in both West and East Flows.
- Additional airspace changes not yet implemented:
  - West flow dispersal heading
  - Establishing a new arrival route
  - Third westbound departure fix

Runways 27R & 27L Dispersal Headings

[Map showing dispersal headings for Runways 27R & 27L]

Runways 09R & 09L Dispersal Headings

http://www.faa.gov/airports_airtrafic/air_traffic/nas_redesign/regional_guidance/eastern_reg/nynjphl_redesign/

Dispersal Headings

Existing

081
096

Future

085
112
127

Existing Dispersal

Future Dispersal

http://www.faa.gov/airports_airtrafic/air_traffic/nas_redesign/regional_guidance/eastern_reg/nynjphl_redesign/

DRAFT

2013 Future Baseline Noise Exposure Contour

Noise Compatibility Program Update

DEKALB/AVIATION ACES.COM

04/23/13 DRAFT
Noise Compatibility Program Update

Contour Review Process

- The requirements (Part 150) state that the existing conditions contour be representative of actual conditions at the airport when the study is submitted.
- As the Airspace Redesign is currently being implemented, the Existing Baseline contour for 2007, as presented today, may no longer be representative of operating conditions at the airport.
- As such, as the study progresses, the Airport may elect to prepare a noise contour showing representative 2008 operating conditions.
- It should be noted that neither the 2007 or 2008 noise contours will be the basis for mitigation – each is prepared only to document current conditions.

Community Workshop Schedule

- Second round of Community Workshops
  - June 17, 2008  
    Paulsboro Volunteer Fire Association  Paulsboro, NJ
  - June 18, 2008  
    Tincum School  Essington, PA
  - June 19, 2008  
    Claymont Community Center  Claymont, DE
  - June 24, 2008  
    Cherry Hill Public Library  Cherry Hill, NJ
  - June 25, 2008  
    Mercy Wellness Center  Philadelphia, PA
Community Workshops Overview

- Workshops are in an open house format
- Each workshop is from 6:00 to 8:00 pm
- Study team members will be available to answer questions and take comments
- Present Existing and Future Baseline Noise Exposure Contours
- Solicit comments on contour maps
- Solicit ideas on potential mitigation alternatives

Noise Mitigation Alternatives

Noise Mitigation Alternatives will be based on the Future Contour

Three Types of Noise Mitigation Alternatives:
- Noise Abatement / Operational Measures
- Land Use Measures
- Program Management Measures
Noise Abatement /Operational Measures

These measures address aircraft and airport noise at the source

General Examples of this type include:
- Changes in runway or flight track use
- Changes in flight track location
- Modifications to aircraft performance

PHL Example (from existing Program):
- Aircraft weighing 12,500 pounds or more departing Runways 9L/9R/17/35/8 fly runway heading until reaching 2,000 feet above ground level

Land Use Alternatives

These measures prevent the introduction of additional noise sensitive land uses within existing and future airport noise contours.

Examples of this type include:
- Zoning regulations
- Building codes
- Real estate disclosures
- Sound insulation programs

PHL Example (from existing Program):
- Develop and implement a residential sound insulation program
**Program Management Measures**

- These measures relate to the oversight and management of the Airport’s noise program.
- Examples of this type include:
  - Continued operation of the Noise Office
  - Community interaction (information exchange)
  - Continuation of the noise monitoring system
- PHL Example (from existing Program)
  - Establish full time noise office with staff

**Next Steps**

- Public Workshops
- Contour Review
- Noise Abatement Alternatives Analysis
MEETING MINUTES

Subject: PHL Noise Compatibility Study Update – Study Advisory Committee (SAC) Meeting #3
Place: Mercy Wellness Center, 2821 Island Avenue, Philadelphia, PA 19153
Date of Meeting: June 17, 2008
Attendees: See attached sign in sheet
Date Prepared: June 29, 2008
Prepared By: Morgan Barlow, Portfolio Associates, Inc. & Lynn Keeley, DMJM Aviation

Purpose: The purpose of this meeting was threefold: 1) to update the SAC on the progress of the study; 2) to introduce the preliminary noise contours for existing baseline year 2007 and future baseline year 2013, and 3) to explain the next steps in the process – development of the noise compatibility program.

Discussion: The discussion followed the meeting agenda.

1. Welcome and Introductions
   Mike McCartney (PHL) welcomed the SAC. Each of the attendees introduced themselves (see the attached folder contents). Beverly Harper (Portfolio Associates) reviewed the attendee’s folder contents and encouraged participants to complete the evaluation form.

   Following the introductions, Allan A’Hara (DMJM Aviation) announced a personnel change in the project management. Bill Allen has taken a job with a consultant to the FAA and is no longer with DMJM Aviation. Allan explained that he, Lynn Keeley, and Royce Bassarab will be the leads on the project going forward. Also, the Airport has hired a new noise officer, Jonathan Collette. Mr. Collette is filling the position previously held by Mike Jeck.

2. Noise Exposure Map (NEM) Development
   Mr. A’Hara reviewed the meeting agenda and stated that the most important portion of the presentation would be the noise exposure maps (NEM). He pointed out that the noise contours are a preliminary “work in progress” and that further analysis is needed before these NEMs are finalized.

   Mr. Royce Bassarab (Wyle Labs) provided an overview of the Integrated Noise Model (INM), and explained the input data that is required to generate the noise contours.

   Mr. Michael Bonnette, representing Mayor Colombi of Haddonfield, NJ, introduced himself and his organization: the Haddonfield/South Jersey Noise Abatement Coalition. Mr. Bonnette noted that there are currently no noise abatement arrival procedures at
PHL and that his organization has developed noise abatement arrival procedures which they are willing to share with the Airport. He indicated that these procedures have been discussed with the FAA Air Traffic Control Manager at PHL, but to date no action has been taken on them. Mr. Bassarab noted that the next step in the process is to collect and analyze noise mitigation suggestions. Any suggestions received will be studied to determine their benefits, costs, and implementation feasibility. Mr. Bonnette believes the procedures he’s proposing are implementable today and his Coalition is willing to assist in their implementation.

Ms. Maryanne Mahoney, representing Philadelphia City Council President Anna Verna, asked about the 2013 NEM and how far the 65 DNL contour extends into Eastwick. Mr. A’Hara indicated that it extended north between Bartram Avenue and Lindbergh Boulevard.

Ms. Elvira Stewart, President of the Eastwick PAC noted that planes are frequently flying over the neighborhood on weekends. Ms. Mahoney concurred and asked “why is it noisier on Saturday? It seems that the area at 76th and Buist has had an increase in air traffic, particularly on Saturday.” The project team committed to provide an answer to Ms. Mahoney and Ms. Stewart.

Mr. Bill Erickson, Philadelphia City Planning Commission, asked that if the east flow and west flow contours were combined, would the average reduce the size of the contour. Mr. Bassarab explained that the overall (combined) contour, which averages activity in both directions, does not typically extend as far out as the single direction contour does. Mr. A’Hara noted that the FAA requires the average contour be used in this analysis.

Mr. Erickson asked if an east flow NEM and west flow NEM had been run for 2013. His observation was that the draft 2013 NEM indicated that 80% of the people who were inside the previous DNL contour may be outside of final contour. Mr. A’Hara responded that some of the homes included in the current RSIP program were outside of the 65 DNL contour on the existing NEM and that recommendations on current and potential RSIP program will be assessed after the NEM is finalized.

Ms. Shirley Loveless, representing PA Congressman Joe Sestak, indicated that she expected more of a shift of the 65 DNL contour over Delaware County as a result of the FAA Airspace Redesign. Mr. A’Hara responded that the project team will be seeking an update from FAA on the Airspace Redesign implementation, but the draft 2013 NEM shows a shift of noise more over the Delaware River than Delaware County.

### 3. Contour Overview

Mr. A’Hara explained that the FAA requirements under Part 150 state that the existing conditions contour must be representative of actual conditions at the airport when the study is submitted. As the Airspace Redesign is currently being implemented, the Existing Baseline contour for 2007, as presented, may no longer be representative of existing operating conditions at the airport. As such, as the study progresses, the Airport may elect to prepare a noise contour showing representative 2008 operating conditions.
Mr. Bassarab reminded the SAC that neither the 2007 (or 2008) noise contour will be the basis for mitigation – each is prepared only to document current conditions.

4. Community Workshop Overview
Mr. A’Hara explained that the second round of community workshops are being held over the next several evenings at various locations around PHL. The workshops are an open house forum where team members will be available to answer questions or take comments. The purpose of these meetings is to present the development of the existing and future baseline noise exposure contours; to solicit comments on the contour maps; and to solicit ideas on potential mitigation alternatives.

5. Questions/Next Steps
Dr. Gary Stolz, John Heinz National Wildlife Refuge, asked when the next SAC meeting might be held. Mr. A’Hara said quite likely this fall or before the year is out.

Mr. Steve Rich (FAA Air Traffic Control) and Ms. Sue McDonald (FAA Harrisburg Airports District Office) explained that PHL is a unique airport that is not comparable to other airports in the nation and that implementing operational changes here is complicated and requires extensive coordination with the FAA, Airport, and airport users.

Before the meeting concluded, Ms. Phyllis VanIstendal, PHL’s Government Affairs Manager, reminded the attendees that the SAC was assembled based on the fact that elected officials, PHL stakeholders, and area planning agencies are well suited to disseminate project information to their constituents. The study team relies on the SAC to keep interested parties informed.

Distribution:
Attendees (see attached sign-in sheet) Calvin Davenger, Division of Aviation
Charles Romick, Gloucester Co. Planning
Steven Sweeney, Gloucester County, NJ
David Schreiber, Tincicum Township
Trey Hettinger, UPS
Steve Huff, US Airways
Reiner Pelzer, DVRPC
Ed Yewdall, PennDOT Bureau of Aviation

David Woods, Office of Senator Dominic Pileggi
Lee Patrick Anderson, Ft. Mifflin
Mark Kamp, Paulsboro, NJ
John Butterworth, Atlantic Aviation
Anthony Bucci, Camden County, NJ
Anna Docimo, West Deptford Twp., NJ
Tish Colombi, Haddonfield, NJ
Mike Wagner, FAA ATA

NOTE: If attendees have any suggestions, please submit material within three (3) business days.

Attachment:
Sign-in Sheet
# Noise Compatibility Program Update

**SAC MEETING – June 17, 2008**

**SIGN-IN SHEET**

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Portfolio Associates, Inc. 6/08
# Noise Compatibility Program Update

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Portfolio Associates, Inc. 5/08
# Noise Compatibility Program Update

SAC MEETING – June 17, 2008
SIGN-IN SHEET

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Portfolio Associates, Inc. 6/08
Study Advisory Committee
Meeting #4

Mercy Wellness Center
Conference Room
November 20, 2008 – 1:00 PM

Purpose and Role of the SAC

- Participation in the development of proposed actions and measures
- Provide feedback and suggestions based on your experience and any known concerns of the surrounding communities.
- Two main goals of today’s meeting:
  - Convey the changes in noise exposure between 2007 and 2008, and
  - Solicit this group for ideas/concepts for the alternative analysis.
Summary Community Workshop
Round 2

June 17, 2008 - Paulsboro, NJ  12 attendees
June 18, 2008 - Essington, PA  64 attendees
June 19, 2008 - Claymont, DE  17 attendees
June 24, 2008 - Cherry Hill, NJ  14 attendees
June 25, 2008 - Philadelphia, PA  18 attendees

125 attendees

• 49 meeting evaluations were submitted
• Feedback was generally positive
• Suggestions on noise abatement alternatives and land use measures were submitted
Noise Contour Review Process

- FAA Requirement – That the existing conditions noise contour be representative of actual conditions at the airport and show existing incompatible land uses at the time the study is submitted to the FAA.
- Partial implementation of the Airspace Redesign (ARD) procedures in late 2007 changed the existing conditions at PHL.
- The study team then analyzed data through June 2008 and modeled noise exposure, resulting in the 2008 Existing Conditions Noise Exposure Contour.
- The study team then examined the assumptions previously used to model the 2013 Future Baseline noise contour.
Operations levels, runway use, time of day, and aircraft fleet mix remained relatively constant.

The most notable change was the implementation of the revised departure headings from Runways 09L/27R and 09R/27L.
Runways 27R & 27L Dispersal Headings

http://www.faa.gov/airports_airtraffic/air_traffic/nas_redesign/regional_guidance/eastern_reg/nynjphl_redesign/

Runways 09R & 09L Dispersal Headings

http://www.faa.gov/airports_airtraffic/air_traffic/nas_redesign/regional_guidance/eastern_reg/nynjphl_redesign/
Part 150 regulations require an evaluation of noise exposure for a period five years into the future (2013).

Operating levels for 2013 are expected to increase by 19% to over 594,000 (1,628 AAD Operations).

Extended Runway 17/35 is expected to be fully operational in early 2009 (6,500 feet).

Additional ARD changes not yet implemented:
- Additional east and west flow dispersal headings
- Establishing a new arrival route
- Third westbound departure fix
Two phase process – NEMs and NCP
NEMs (2008 & 2013) will be submitted to the FAA for acceptance.
Prior to FAA submittal – opportunity to comment is required
   - SAC review and comment
     - Via SAC Meeting #3 (June) and SAC Meeting #4 (today)
   - Public review and comment
     - NEM summary document is being prepared for distribution to project mailing list.
     - Document will also be posted on the internet and made available for review at local libraries, noise office etc.,
     - There will be a 45 day comment period
     - The team will review and address comments, then submit the NEMs to the FAA
We are now ready to move forward on identifying and modeling noise abatement, land use management, and program management alternatives designed to reduce the incompatible land uses within the 2013 Future Baseline Noise Exposure Contour.

An airport’s NCP addresses three goals:
- Minimizing noise impacts
- Mitigating remaining noise-sensitive land uses
- Preventing future noise-sensitive development

Who is responsible for addressing noise associated with an airport and aircraft activity?

Responsibility is shared amongst all stakeholders
- The Federal Government
- Aircraft Manufacturers
- Airport Proprietors
- Airlines & Operators
- Local Jurisdictions
- Existing and Prospective Residents
Noise Compatibility Program (NCP)

- Three categories of alternatives
  - Noise Abatement Alternatives
  - Land Use Management Alternatives
  - Program Management Alternatives
- Alternatives are evaluated based on:
  - Safety
  - Noise Benefit
  - Cost of implementation
  - Feasibility of implementation

Range of Alternatives to be Evaluated

Regulations specify many types of alternatives which must be considered. However, initiatives are considered from:

- Suggestions by the SAC/General Public
- DOA Initiatives
- Local or State Jurisdiction Initiatives
- ATCT Initiatives
- Part 150 Requirements

Noise Abatement Alternatives address aircraft noise at its source:

- Flight Path Locations;
- Flight Frequency;
- Flight Management;
- Flight Restrictions;
- Ground Activity Restrictions; and
- Facility Design and Construction.
2003 Noise Abatement Measures

**NA-1** – Aircraft weighing 12,500 pounds or more departing Runways 9L/9R/17/35/8 fly runway heading until reaching 2,000' Above Ground Level.

**NA-2** - Aircraft weighing 12,500 pounds or more departing Runway 27L turn left to a 255 degree heading until reaching 3,000' Above Ground Level.

**NA-3** - Aircraft weighing 12,500 pounds or more departing Runway 27R turn left to a 240 degree heading until reaching 3 DME, thence turn right to a 255 degree heading until reaching 3,000' Above Ground Level.

**NA-4** - Continue existing nighttime runway use program from midnight to 6:00 a.m.

**NA-5** - Continue existing run-up procedures providing for location and orientation preferences with requirements for pre-approval and limitation to 20 minutes or less.

**NA-6** - Support creation of Area Navigation (RNAV) overlay procedures for selected existing and future flight procedures.

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Status of 2003 Part 150 Measures

- **NA-1** – Existing Procedure.
- **NA-2** – Existing Procedure, impacted by ARD changes.
- **NA-3** – Existing Procedure, impacted by ARD changes.
- **NA-4** – Nighttime runway use program still in use.
- **NA-5** – Ground Run Ups are generally limited to two locations on the airfield.
- **NA-6** – Selected RNAV procedures have been implemented, and more are expected to be developed.
What types of alternatives will we be evaluating?

**Flight Path Location Alternatives**
- Build a new runway to move operations
- Extend an existing runway to raise the altitude of aircraft over noise-sensitive locations
- Arrival Procedures (Use of the river corridor)
- Departure Procedures (use of ARD flight tracks)

**Flight Frequency Alternatives**
- Runway Utilization (Overall, Nighttime-specific)
- East Flow/West Flow Operations (tailwind limitations)

**Flight Management Alternatives**
- Use of Continuous Descent Approaches (CDA)
- Advanced Navigation Techniques (RNAV)
- Intercept altitudes (Arrival Operations)
- Fly-Quiet Procedures (Speed, thrust settings, etc)
- Reverse Thrust (Arrival Operations)

**Flight Restrictions**
- Restrict the operation of specific aircraft
- Restrict the hours the airport is in use (curfews)
- Restrict operations based on aircraft noise levels
- Limit the number of operations at PHL (Use other airports)

**Ground Activity Restrictions**
- Limit engine maintenance run-ups
- Construct a ground run-up enclosure
- Restrict aircraft Auxiliary Power Unit (APU) usage
- Build noise berms/walls around the airport

**Facility Construction and Design**
- Encourage Noise Attenuating Standards in Airport Development
Specific SAC Suggestions

Discussion of Potential Noise Abatement Alternatives

Ground Rules for Discussion

Desired Outcome:
A detailed list of alternatives

Evaluation Criteria

At the next SAC meeting, we will present each alternative that has been considered, and the Airport’s preliminary recommendation for inclusion in the NCP. For each alternative, we will provide:

- Description
- Benefits to the Noise Environment
- Drawbacks of the Alternative
- Costs of Implementation
- Party responsible for implementation
- Feasibility of implementation
- Preliminary Recommendation
Noise Compatibility Program Update

Next Steps

- Public Review of NEM maps and documentation
- Comment Period and Response to Comments
- Submission of NEM document to FAA for acceptance
- Noise Abatement, Land Use Management, and Program Management Alternative Analysis

Prior to, and during, the next SAC Meeting:

- Analysis of Alternatives mailed to SAC
- Identification of any additional Alternatives
- Discussion on Preliminary Recommended Noise Compatibility Plan
MEETING MINUTES

Subject: PHL Noise Compatibility Study Update – Study Advisory Committee (SAC) Meeting #4
Place: Mercy Wellness Center, 2821 Island Avenue, Philadelphia, PA 19153
Date of Meeting: November 20, 2008
Attendees: See attached sign in sheet
Date Prepared: December 8, 2008
Prepared By: Morgan Barlow, Portfolio Associates, Inc. / Lynn Keeley, DMJM Aviation

Purpose: The purpose of this meeting was to update the Study Advisory Committee on the status of the Philadelphia International Airport (PHL) Noise Compatibility Program Update, and to solicit comments on the noise abatement measures being developed for this update.

Discussion: The discussion followed the meeting agenda.

1. Welcome and Introductions
Calvin Davenger (PHL) welcomed the SAC. Each of the attendees introduced themselves (see the attached sign in sheet). Beverly Harper (Portfolio Associates) reviewed the meeting agenda, handouts, and the methodology for the discussion portion of the meeting.

Allan A’Hara (DMJM Aviation) explained that the 2007 Existing Baseline and 2013 Future Baseline Noise Exposure Maps (NEM) which were presented at the last SAC Meeting, have been reviewed and some changes have been made, which will be presented at this meeting.

2. Summary of Community Outreach
Lynn Keeley (DMJM Aviation) explained that following the last SAC meeting in June, the project team conducted a series of five community workshops at locations around Pennsylvania, New Jersey and Delaware. Ms. Keeley noted that attendance at these workshops (125) was higher than the first round (75+) held in November 2007. Feedback received from workshop attendees was generally positive and several suggestions for noise abatement, land use management, and program management measures were submitted for consideration. Lynn explained that there will be another round of workshops prior to the completion of the study.

3. Update on the Status of the Project
Lynn also provided a brief summary of where we are in the process. Given the delays associated with the Airspace Redesign project, there is a change in our study process whereby the noise exposure maps will be submitted to the FAA in advance of the noise compatibility program. This is not uncommon in Part 150 Studies. It is anticipated that the NEM’s will be submitted to the FAA for acceptance in January or February.
4. Summary of Contour Review Analysis
Royce Bassarab (Wyle) presented a summary of the noise exposure map review process. Royce explained that the study was initially scoped to evaluate a 2007 existing condition. However, with the Airspace Redesign project commencing in December 2007 the study team and the FAA re-evaluated the suitability of submitting a 2007 contour that would not have included the airspace redesign elements. It was decided that the existing condition contour, that which represents the conditions at the airport at the time of submittal, should be 2008. Thus, the existing noise condition was updated based on the 2008 data and will replace the 2007 contour as the existing condition.

Allan A’Harra noted that the change in aircraft operations at PHL between 2007 and 2008 is nominal. Charles Romick (Gloucester County, NJ) asked if there was an expectation that the growth would be higher. Allan indicated that the operations levels across the country have been relatively constant and that PHL is representative of what is happening across the nation. Mr. Mike McCartney (PHL) noted that 2008 passenger volumes have increased slightly over 2007 even with the operations numbers remaining flat.

Royce referred the attendees to the 11”X17” handouts of the 2008 and 2013 NEMs. Mr. George Loveless (Congressman Sestak’s office) asked if the maps were derived from empirical data readings or noise modeling. Royce explained that the contours were derived from modeling. Mr. Loveless inquired as to whether there has been any empirical data gathered since November 2007. Mr. Jon Collette (PHL) explained that there are a number of permanent noise monitors around PHL which gather data around the clock.

Mr. Steve Rich (FAA ATC) asked for confirmation that the 2008 contour has both pre and post ARD headings, that the volume of traffic hasn't changed, and that there are no apparent eastbound impacts. Allan A’Harra confirmed that these statements are correct.

Mr. Bill Erickson (PCPC) asked if a map has been developed to show 25-30 dB contours? Royce explained that this is not required for the Part 150 study, but gradient maps have been developed which depict the noise exposure beyond 65 dB.

Charles Romick noticed the noise exposure changes beyond the 65dB contour in a populated area of Gloucester County and asked if this is cause for concern. Jon Collette explained that there has not been a noticeable change in the number of complaints from that area.

George Loveless asked if the noise monitor locations have changed because of Airspace Redesign? Jon Collette explained that they have not, and that they are strategically located off the end of the runways.

George Loveless noted that the September 5, 2007 Record of Decision for the Airspace Redesign FEIS stated that areas out through Media will experience 65dB or higher noise levels. However, the noise exposure gradient maps do not show this. Jon Collette explained that there was a flight track in the original ARD studies that may have resulted in that level, but the track
was never implemented. Ms. Susan McDonald (FAA) explained that there was a corrected ROD published on September 28, 2007 which is the document that should be cited. Jon Collette added that only five percent of the complaints he receives are related to ARD changes.

Looking at the 2013 NEM, Ms. Marianne Mahoney (Eastwick) noted that there has been more air traffic over Eastwick and that once Runway 17-35 is extended there is expected to be even more traffic. Royce explained that the Eastwick area is one which the team is looking at closely since the 65 dB contour in 2013 does include some non-compatible land uses in Eastwick.

Also referring to the NEMs Mike McCartney noticed that the 2013 NEM is somewhat smaller that the 2008 NEM in Tinicum. Allan A’Hara explained that dispersing air traffic over an additional New Jersey track is the reason for this reduction.

Mr. David Schreiber (Tinicum Township) asked if the team planned to monitor noise to fact check the results of the model. Allan A’Hara noted that there is a permanent monitor in Tinicum, so noise can be measured and monitored for comparison purposes going forward.

Ms. Shirley Loveless (Congressman Sestak’s office) questioned the applicability of using DNL in the study. Ms. Loveless noted that the model combines flight tracks and uses averages, but in reality there are single event levels which are not represented. Sue McDonald explained that the FAA is bound to use the DNL measure. Sue also noted that SEL is a measure of disturbance and DNL is a measure related to compatible land use and that it is very difficult to assess what noise level constitutes a disturbance as people’s perceptions and tolerances vary so significantly. Mr. Calvin Davenger (PHL) explained that this study is trying to determine what land use measures and zoning changes can be made to reduce the non-compatible land uses in the noise exposure contour. Royce also explained that the study does include several SEL measures.

Sue explained that the FAA is not likely to change DNL as the measure by which future noise is assessed, and noted that the FAA has committees dedicated to ensuring the accuracy of the noise modeling methods. The gradient maps, which depict DNL levels beyond 65dB, were cited as an example of some of the new methods being employed in addition to noise contours.

George Loveless observed that the Part 150 study is a process by which the airport would be eligible for federal funds, but questioned who enforces the noise compatibility program. Allan A’Hara explained that it’s a voluntary process.

6. Noise Compatibility Program Update (NCP) Overview
Royce explained that an airport’s NCP addresses three goals: 1) minimizing noise impacts; 2) mitigating remaining noise-sensitive land uses and 3) preventing future noise-sensitive development.

Royce noted that there is a shared responsibility for addressing noise associated with an airport and aircraft activity. The responsibility is shared among all stakeholders including the Federal government, aircraft manufacturers, airport proprietors, airlines and operators, and local jurisdictions.
7. NCP Working Session

Beverly Harper explained that at this point in the meeting, committee members were encouraged to share their suggestions on noise abatement alternatives that they would like to see addressed in this Update. Study Committee members offered the following ideas which included, but were not limited to, noise abatement procedures:

A. Change/Broaden the noise model
   i. Beyond DNL, such as SEL
   ii. Number of events above a specified level
   iii. Time above a specified level (in minutes)

B. Validate noise model with noise monitoring

C. Utilize other airports in region (i.e. Philadelphia Northeast Airport or Lehigh Valley International Airport)
   i. Most big cities are served by more than one airport
   ii. Spread aircraft around

D. Nighttime runway restrictions on Runway 17-35 for large turbo-jet planes

E. Implementation of timing (i.e. evaluate airline schedules)

F. Limit nighttime departures

G. Have aircraft fly and turn at 4,000 feet rather than 3,000 feet after departure

H. Improve noise information on website, include a blog

I. Provide public access to flight data

J. Buy development rights, (counties need funding to counter predatory developers)

K. Communicate with, and assist, county planning and zoning boards when they deny a developer with plans near an airports. Provide factual information to the counties.

L. Bring to Pennsylvania something similar to the New Jersey disclosure law, so the buyer is aware of nearby airports when purchasing a home.

M. Airport and municipality communication on land use changes

N. Make it easier to mandate noise procedures - now its voluntary cooperation
   i. Enforcement is a muddle
   ii. Clarify jurisdictional overlay
   iii. Specific aircraft “what can we do?”
   iv. Fine on aircraft or airline “pilot judgment”
   v. Step one – a response from airline etc.

O. Existing noise office tracking
   i. Use of metrics to measure compliance
   ii. Process to use metrics
   iii. Pass info to air traffic tower
   iv. Record action by air traffic tower

P. Limit capacity through gate management

Q. Stop early turns

R. Midnight to 6am UPS & FedEx flight limits
i. Nighttime departures most adverse health impact because they interrupt sleep
ii. Impact of sound on populations
iii. Don’t route nighttime cargo to Pottstown Fix
S. Arrival noise abatement measure in New Jersey similar to Delaware changes
T. Cognitive requirements of work and schools under flight path
U. Revisit federal deregulation

8. Next Steps
In conclusion, Allan A’Hara reviewed the next steps. These include a public review of NEM maps and documentation, submission of NEM documents to FAA for acceptance, and initiation of the noise abatement, land use management, and program management alternative analysis.

Distribution:

Attendees (See Sign-in Sheet)
Lee Patrick Anderson, Fort Mifflin
Mark Kamp, Paulsboro, NJ
John Butterworth, Atlantic Aviation
Anthony Bucci, Camden Co., NJ
Letitia Colombi, Haddonfield, NJ
Anna Docimo, West Deptford, NJ
Edward Gabsewics, FAA Harrisburg ADO
Trey Hettinger, UPS

Ed Yewdall, PennDOT Bureau of Aviation
Reiner Pelzer, DVRPC
Elvira Stewart, Eastwick PAC
Steven Sweeney, Gloucester Co., NJ
Mike Wagner, FAA ATC
John Whelan, Delaware County Council
David Woods, Office of Sen. Dominic Pileggi

Attachments:
   Sign-in Sheet
   Presentation

NOTE: If attendees have any suggestions, please submit material within three (3) business days.
## Noise Compatibility Program Update

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<td>717-705-1200, 717-705-1251</td>
<td><a href="mailto:emadden@state.pa.us">emadden@state.pa.us</a>, <a href="mailto:eyewdall@state.pa.us">eyewdall@state.pa.us</a></td>
<td>EY</td>
</tr>
<tr>
<td>Moog, Roger represented by: Pelzer, Reiner</td>
<td>DVRPC Office of Aviation Planning Manager</td>
<td>215-592-1800</td>
<td><a href="mailto:rmoog@dvrpc.org">rmoog@dvrpc.org</a>, <a href="mailto:rpelzer@dvrpc.org">rpelzer@dvrpc.org</a></td>
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<tr>
<td>Pickett, John represented by: Shaffer, Tom</td>
<td>Delaware County Planning Dept. Director</td>
<td>610-891-5210, 610-891-5200</td>
<td><a href="mailto:pickettj@co.delaware.pa.us">pickettj@co.delaware.pa.us</a>, <a href="mailto:shaffert@co.delaware.pa.us">shaffert@co.delaware.pa.us</a></td>
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</table>
# Noise Compatibility Program Update

**SAC MEETING – November 20, 2008**

**SIGN-IN SHEET**

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<tr>
<td>Reeb, Ralph</td>
<td>Delaware Dept of Transportation</td>
<td>302-760-2080</td>
<td><a href="mailto:Ralph.Reeb@state.de.us">Ralph.Reeb@state.de.us</a></td>
<td>386</td>
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<tr>
<td></td>
<td>Director of Planning</td>
<td>302-760-2121</td>
<td><a href="mailto:Roberta.Geier@state.de.us">Roberta.Geier@state.de.us</a></td>
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<td>Geier, Roberta</td>
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<tr>
<td>Rich, Steve</td>
<td>Federal Aviation Administration</td>
<td>215-492-4100</td>
<td><a href="mailto:steve.rich@faa.gov">steve.rich@faa.gov</a></td>
<td>SR</td>
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<tr>
<td></td>
<td>Air Traffic Manager</td>
<td></td>
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<tr>
<td>Romick, Charles</td>
<td>Gloucester County Planning</td>
<td>856-307-6650</td>
<td><a href="mailto:cromick@co.gloucester.nj.us">cromick@co.gloucester.nj.us</a></td>
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<tr>
<td></td>
<td>Department</td>
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<tr>
<td>Schweiker, Mark</td>
<td>Greater Phila. Chamber of Commerce</td>
<td>215-545-1234</td>
<td><a href="mailto:dearley@greaterphilachamber.com">dearley@greaterphilachamber.com</a></td>
<td>SC</td>
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<tr>
<td></td>
<td>President &amp; CEO</td>
<td>215-545-1234</td>
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<td>Earley, Denise</td>
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<tr>
<td>Sestak, Joe</td>
<td>7th District of Pennsylvania</td>
<td>610-892-8623</td>
<td><a href="mailto:shirley.loveless@gmail.com">shirley.loveless@gmail.com</a></td>
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<tr>
<td></td>
<td></td>
<td>610-566-1132</td>
<td><a href="mailto:george.loveless.csq@gmail.com">george.loveless.csq@gmail.com</a></td>
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<td>Sisneros, Steve</td>
<td>Southwest Airlines</td>
<td>214-792-4745</td>
<td><a href="mailto:steve.sisneros@wnco.com">steve.sisneros@wnco.com</a></td>
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<td>John Minor</td>
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<tr>
<td>Stewart, Elvira</td>
<td>Eastwick PAC</td>
<td>215-365-8825</td>
<td><a href="mailto:audreyist@aol.com">audreyist@aol.com</a></td>
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## Noise Compatibility Program Update

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<tr>
<td>Stolz, Gary</td>
<td>John Heinz Natl. Wildlife Refuge</td>
<td>215-365-3118</td>
<td><a href="mailto:Gary_Stolz@fws.gov">Gary_Stolz@fws.gov</a></td>
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<td>Refuge Manager</td>
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<tr>
<td>Sweeney, Steven</td>
<td>Gloucester County, NJ</td>
<td>856-853-3390</td>
<td><a href="mailto:ssweeney@co.gloucester.nj.us">ssweeney@co.gloucester.nj.us</a></td>
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<td>Freeholder Director</td>
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<tr>
<td>Verna, Anna</td>
<td>City of Philadelphia</td>
<td>215-686-3412</td>
<td><a href="mailto:Maryanne.Mahoney@phila.gov">Maryanne.Mahoney@phila.gov</a></td>
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<tr>
<td>represented by</td>
<td>City Council President</td>
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<td>Mahoney, Maryanne</td>
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<td>Wagner, Mike</td>
<td>Federal Aviation Administration</td>
<td>215-492-4100</td>
<td><a href="mailto:michael.wagner@faa.gov">michael.wagner@faa.gov</a></td>
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<td>Air Traffic Manager</td>
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<td>Whelan, John</td>
<td>Delaware County Council</td>
<td>610-891-4265</td>
<td><a href="mailto:delcopr@co.delaware.pa.us">delcopr@co.delaware.pa.us</a></td>
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<tr>
<td>Woods, David</td>
<td>Office of State Senator</td>
<td>717-787-4712</td>
<td><a href="mailto:dwoods@pasen.gov">dwoods@pasen.gov</a></td>
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<td>Dominic F. Pileggi</td>
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<td>Chief of Staff</td>
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<tr>
<td>Bruce, Keith</td>
<td>AIRPORT</td>
<td>215-937-6803</td>
<td><a href="mailto:keith.bruce@penn.gov">keith.bruce@penn.gov</a></td>
<td>K.</td>
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Portfolio Associates, Inc. 11/08
# Noise Compatibility Program Update

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<tr>
<td>Barlow, Morgan</td>
<td>Portfolio Associates, Inc., Marketing Director</td>
<td>215-627-3660</td>
<td><a href="mailto:mbarlow@portfolioassociates.net">mbarlow@portfolioassociates.net</a></td>
<td></td>
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<tr>
<td>Bassarab, Royce</td>
<td>Wyle Labs</td>
<td>512-253-5502</td>
<td><a href="mailto:royce.bassarab@wylelabs.com">royce.bassarab@wylelabs.com</a></td>
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<tr>
<td>Cummings, Fred</td>
<td>Philadelphia International Airport, Airport Planner</td>
<td>215-937-6726</td>
<td><a href="mailto:Fredrinc.Cummings@phl.org">Fredrinc.Cummings@phl.org</a></td>
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<tr>
<td>Collette, Jonathan</td>
<td>Philadelphia International Airport, Noise Officer</td>
<td>215-937-6233</td>
<td><a href="mailto:Jonathan.Collette@phl.org">Jonathan.Collette@phl.org</a></td>
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<td>Davenger, Calvin</td>
<td>Philadelphia International Airport,</td>
<td>215-627-3660</td>
<td>DAVENGC.PHLEXEC.PHLDO <a href="mailto:M1@phl.org">M1@phl.org</a></td>
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<tr>
<td>Harper, Beverly</td>
<td>Portfolio Associates, Inc., President</td>
<td>215-627-3660</td>
<td><a href="mailto:bevharper@portfolioassociates.net">bevharper@portfolioassociates.net</a></td>
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<tr>
<td>Isdell, Charles</td>
<td>Philadelphia International Airport, Acting Director of Aviation</td>
<td>215-937-6800</td>
<td><a href="mailto:Charles.Isdell@phl.org">Charles.Isdell@phl.org</a></td>
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<tr>
<td>Keeley, Lynn</td>
<td>DMJM Aviation, Senior Environmental Planner</td>
<td>215.399.4338</td>
<td><a href="mailto:Lynn.Keeley@dmjmanaviation.com">Lynn.Keeley@dmjmanaviation.com</a></td>
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<tr>
<td>McCartney, Mike</td>
<td>Philadelphia International Airport</td>
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<td><a href="mailto:Mike.McCartney@phl.org">Mike.McCartney@phl.org</a></td>
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<tr>
<td>Vanlstendal, Phyllis</td>
<td>Philadelphia International Airport, Government Affairs Manager</td>
<td>215 937 6946</td>
<td><a href="mailto:Phyllis.Vanlstendal@phl.org">Phyllis.Vanlstendal@phl.org</a></td>
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## Noise Compatibility Program Update

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<td>Ahara, Allan</td>
<td>DMJM Aviation</td>
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<td><a href="mailto:Allan.Ahara@dmjmaaviation.com">Allan.Ahara@dmjmaaviation.com</a></td>
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Study Advisory Committee
Meeting #5

Mercy Wellness Center
Conference Room
September 17, 2009
1:00 PM – 3:00 PM

Purpose and Role of the SAC

- Participate in the development of proposed actions and measures
- Provide feedback and suggestions based on your experience and any known concerns of the surrounding communities

Three main goals of today’s meeting:
- Review and present 2013 Noise Exposure supplemental metrics
- Present the range of Noise Compatibility Program Alternatives expected to be reviewed, and
- Share preliminary findings of Noise Compatibility Program Alternatives
Noise Compatibility Program Update

**Study Initiation**
- Data Collection
  - Airport Operations
  - Aircraft Fleet Mix
  - Runway Utilization
  - Flight Tracks
  - Local Land Use
  - Base Mapping

**Noise Compatibility Program**
- Noise Abatement/Operational Measures
- Land Use Management Measures
- Program Management Measures

**Noise Exposure Maps**
- FAA's Integrated Noise Model
- Existing and Forecasted
- Determine level of impacts

**The Part 150 Process**
- Submittal to FAA
  - NEMs are accepted
  - 180 day NCP review

**Review of Meeting Agenda**
- Update on the Status of the Project
- Supplemental Noise Exposure - 2013
- Noise Compatibility Program - Alternatives Analysis Methodology
- Alternatives Under Consideration
  - Noise Abatement Alternatives
  - Land Use Management Alternatives
  - Program Management Alternatives
- Group Discussion on NCP Goals and Alternatives Analysis
- Next Steps
Supplemental Noise Exposure - 2013

DNL Exposure

- DNL is a measure of noise over a 24-hour average annual day, with a penalty for nighttime operations
- Using DNL, 1 night flight = 10 day flights
- The FAA uses DNL to describe long-term cumulative noise exposure
- DNL 65 dB is the “Significant noise impact” threshold for Part 150 studies, Environmental Assessments and Environmental Impact Statements
- Noise extends beyond the DNL 65 dB noise contour
Number-of-Events Above (NA)

- NA provides the total number of aircraft events, N, that exceed a certain sound level threshold, L, during a 24 hour period.
- Describes how many times per day an aircraft will exceed a specified sound level.
- There is no established criteria for the NA metric or guidance for use of the NA metric.
- The maps depict the number-of-events above 60 dB as a color-shaded contour and as a series of contours indicating the number-of-events (between 100 and 500 events).
Time Above (TA)

- TA analysis indicates the number of minutes that an A-weighted sound level is exceeded in an annual average day.
- There is no established criteria for the TA metric or guidance for use of the TA metric.
- TA above 65 dB is portrayed graphically as noise contours and color-shading on an aerial photo of the study area.
What is the intended outcome of the NCP process?

- A list of measures that are feasible, practical, and able to be implemented at PHL, either by the airport, tenants, or local jurisdictions, and will be approved by FAA within the parameters of FAR Part 150
- A set of strategies that, while outside the scope of a Part 150, may be practical and feasible for implementation at PHL (includes measures aimed to reduce noise beyond the DNL 65 dB noise contour)
- An NCP and noise management plan that the public understands, is transparent, and able to be continuously updated

PHL NCP Goals and Objectives

- Reduce or mitigate Significant Noise Impacts within the DNL 65 dB of the 2013 Noise Exposure Map
- Reduce the possibility of future incompatible land uses within the DNL 65 dB noise contour
- Establish Program Management Measures to support PHL’s ongoing Noise Compatibility Program
- Evaluate and recommend, where appropriate, strategies that reduce noise exposure beyond the DNL 65 dB noise exposure contour
Noise Compatibility Program (NCP)

- Three categories of alternatives
  - Noise Abatement Alternatives
  - Land Use Management Alternatives
  - Program Management Alternatives
- Alternatives are evaluated based on:
  - Safety
  - Noise Benefit
  - Cost of implementation
  - Feasibility of implementation

Range of Alternatives to be Evaluated

Regulations specify many types of alternatives which must be considered. However, initiatives are considered from:

- 2003 Noise Compatibility Program
- Suggestions by the SAC/General Public
- DOA Initiatives
- Local or State Jurisdiction Initiatives
- ATCT Initiatives
- Part 150 Requirements
What types of alternatives are we evaluating?

- Arrival Procedures (Use of the river corridor)
- Departure Procedures (use of ARD flight tracks)
- Runway Utilization (Overall, Nighttime-specific)
- East Flow/West Flow Operations (tailwind limitations)
- Use of Continuous Descent Approaches (CDA)
- Advanced Navigation Techniques (RNAV)
- Intercept altitudes (Arrival Operations)
- Fly-Quiet Procedures (Speed, thrust settings, etc)
- Reverse Thrust (Arrival Operations)
- Limit engine maintenance run-ups
- Construct a ground run-up enclosure
- Restrict aircraft Auxiliary Power Unit (APU) usage
- Encourage Noise Attenuating Standards in Airport Development

Noise Abatement Alternatives
NOISE ABATEMENT ALTERNATIVES BY EXPOSURE AREA

Key Map

Noise Abatement Alternatives by Exposure Area

EASTWICK / EASTERN DELAWARE COUNTY

Issues:

Significant Noise Impacts
(noise-sensitive land uses in areas of DNL 65 dB or greater in 2013)

Arrivals to RW 17
(20% east flow in 2013)

Departures from RW 35
(80% west flow in 2013)

RW 17/35 Extension
(opened February 2009)
### Eastwick / Eastern Delaware County

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<tr>
<th>Potential Strategies</th>
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<th>Strategy Source</th>
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<tr>
<td>Runway extension to the south (to raise the altitude of aircraft departures over Eastwick)</td>
<td>Alternative NA-A (Evaluate the Feasibility of Runway Extensions)</td>
<td>Part 150 Requirements</td>
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<tr>
<td>Displace Runway 17 Arrival threshold (to raise the altitude of aircraft arrivals over Eastwick)</td>
<td>Alternative NA-B (Displace Runway Thresholds)</td>
<td>Part 150 Requirements</td>
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<tr>
<td>Modify departure headings/flight tracks to reduce the overflight of noise-sensitive areas (take advantage of compatible land use corridors)</td>
<td>Alternative NA-C (Evaluate Runway 17 Departure Headings)</td>
<td>SAC, Public Workshop, Part 150 Requirements</td>
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<tr>
<td>Modify runway utilization percentages (to reduce the number of overflights over Eastwick)</td>
<td>Alternative NA-D (Preferential Runway Use)</td>
<td>SAC, Part 150 Requirements, Public Workshop</td>
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<tr>
<td>Continuous Descent Approach to Runway 17</td>
<td>Alternative NA-E (Support the Development of CDA Procedures)</td>
<td>SAC, DOA Staff</td>
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<td>Restrict nighttime operations</td>
<td>Alternative NA-F (Restrict Nighttime operations); Alternative NA-G (Nighttime Runway Use Program)</td>
<td>SAC, Part 150 Requirements, Public Workshop</td>
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<tr>
<td>Restrict operations by aircraft type or noise level</td>
<td>Alternative NA-H (Restrict Operations by aircraft type/Noise certification level)</td>
<td>SAC, Part 150 Requirements, Public Workshop</td>
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### Noise Abatement Alternatives by Exposure Area

**WESTERN DELAWARE COUNTY**

**Issues:**
- North Departures
- West Departures
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<th>Potential Strategies</th>
<th>Proposed Alternative</th>
<th>Strategy Source</th>
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<tr>
<td>Review Flight Tracks</td>
<td>Alternative NA-K (Modify Departure Headings from 27L and 27R); Alternative NA-L (Support the Development of RNAV/RNP departure and arrival procedures)</td>
<td>SAC, Public Workshop, DOA Staff, Noise Office, Part 150 Requirements</td>
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**Noise Abatement Alternatives by Exposure Area**

**TINCUM**

**Issues:**
- Area of historic significant noise impacts
- Aircraft departure noise during west flow
- Recently implemented ARD headings
- Ground Noise Exposure

![Map of Western Delaware County Noise Abatement Alternatives](image)
**TINICUM**

<table>
<thead>
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<th>Potential Strategies</th>
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<td>Build new runway</td>
<td>Alternative NA-I (Evaluate the Feasibility of New Runway Construction)</td>
<td>Part 150 Requirements</td>
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<tr>
<td>Extend Runways 27L and 27R to the east</td>
<td>Alternative NA-A (Evaluate the Feasibility of Runway Extensions)</td>
<td>Part 150 Requirements</td>
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<td>Maximize the use of the river corridor for departures</td>
<td>Alternative NA-J (Maximize use of River Corridor)</td>
<td>SAC, Public Workshops</td>
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<tr>
<td>Review Flight Tracks</td>
<td>Alternative NA-K (Modify Departure Headings from 27L and 27R); Alternative NA-L (Support the Development of RNAV/RNP departure and arrival procedures)</td>
<td>SAC, Public Workshop, DOA Staff, Noise Office, Part 150 Requirements</td>
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<tr>
<td>Maximize the use of Runway 27L (especially during nighttime operations and for heavy aircraft)</td>
<td>Alternative NA-M (Maximize use of Runway 27); Alternative NA-F (Restrict Nighttime Operations); Alternative NA-G (Nighttime Runway Use Program)</td>
<td>SAC, Public Workshop, Part 150 Requirements</td>
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<tr>
<td>Continuous Descent Approach to Runways 9R and 9L</td>
<td>Alternative NA-E (Support the Development of CDA Procedures)</td>
<td>SAC, DOA Staff</td>
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<tr>
<td>Restrict nighttime operations</td>
<td>Alternative NA-F (Restrict Nighttime Operations); Alternative NA-G (Nighttime Runway Use Program)</td>
<td>SAC, Part 150 Requirements. Public Workshop.</td>
</tr>
<tr>
<td>Restrict operations by aircraft type or noise level</td>
<td>Alternative NA-H (Restrict Operations by aircraft type/Noise certification level)</td>
<td>SAC, Part 150 Requirements. Public Workshop.</td>
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<tr>
<td>Minimize the use of reverse thrust</td>
<td>Alternative NA-O (Restrict Use of Reverse Thrust)</td>
<td>DOA Staff, Public</td>
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**Noise Abatement Alternatives by Exposure Area**

**GLOUCESTER NJ**

**Issues:**
- **Future (2013)**
- **230 degree Airspace Redesign Flight Track**
## GLOUCESTER COUNTY

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<td>Review Flight Tracks</td>
<td>Alternative NA-K (Modify Departure Headings from 27L and 27R); Alternative NA-L (Support the Development of RNAV/RNP departure and arrival procedures)</td>
<td>SAC, Public Workshop, DOA Staff, Noise Office, Part 150 Requirements</td>
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### Noise Abatement Alternatives by Exposure Area

**CHERRY HILL/HADDONFIELD NJ**

**Issues:**

- Aircraft arrivals to Runways 27L and 27R
- Aircraft departures from Runways 27L and 27R
## CHERRY HILL / HADDONFIELD NJ

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<td>Continuous Descent Approach to Runways 9R and 9L</td>
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<td><strong>Alternative NA-H</strong> (Restrict Operations by aircraft type/Noise certification level)</td>
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## Noise Abatement Alternatives by Exposure Area

### NORTHERN DELAWARE

**Issues:**
- Aircraft arrivals to Runways 9R and 9L
- Aircraft departures from Runways 27L and 27R
### Potential Strategies

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<td>Maximize the use of the river corridor for departures</td>
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### Land Use Alternatives

- The following are more detailed descriptions of Land Use Management alternatives and their evaluation criteria
  - Expand Sound Insulation Program into Eastwick
  - Compatible land use zoning
Program Management Alternatives

дут The following are more detailed descriptions of Program Management alternatives and their evaluation criteria

дут Expand the airport's existing noise monitoring and flight tracking system

дут Update NEMs when conditions change

Evaluation Criteria

At the next SAC meeting, we will present each alternative that has been considered, and the Airport’s preliminary recommendation for inclusion in the NCP. For each alternative, we will provide:

дут Description

дут Benefits to the Noise Environment

дут Drawbacks of the Alternative

дут Costs of Implementation

дут Party responsible for implementation

дут Feasibility of implementation

дут Preliminary Recommendation
Summary of Alternatives

- Evaluate Runway Extensions
- Displace Runway Thresholds
- Modify Runway 17 Departure Heading
- Preferential Runway Use
- Support the Development of CDA Procedures
- Restrict Nighttime Operations
- Nighttime Runway Use Program
- Restrict Operations by aircraft type/Noise certification level
- Evaluate the Feasibility of New Runway Construction
- Maximize use of River Corridor
- Modify Departure Headings from 27L and 27R
- Support the Development of RNAVRNP departure and arrival procedures
- Maximize use of Runway 27
- Noise Berm/Barrier
- Restrict Use of Reverse Thrust
- Restrict APU Usage
- Raise (KIRDE/BWINE) Intercept Altitude
- Fly all approaches, including visual, above or on an assumed 3.0 degree glide slope.
- Consistent with safety, use thrust/drag configurations compatible with a minimum noise emissions footprint
- Aircraft intercept extended runway centerline at 3,000 feet or above. (Turbo jet and turbo fan aircraft - always; Turbo prop and piston aircraft - 2500 - 0700)
- Runways 9L/9R/17/35/8 fly runway heading until reaching 2,000' AGL
- Runway 27L turn left to a 255 degree heading until reaching 3,000' AGL, thence fly 255 degree heading to 3,000' AGL
- Runway 27R turn left to a 240 degree heading until reaching 3,000' AGL, thence fly 255 degree heading to 3,000' AGL
Next Steps and Schedule of Completion

- Development of the Preliminary Recommended Noise Compatibility Program
- Study Advisory Committee Review of the Preliminary Recommended NCP (mid-November 2009)
- Finalize Recommended NCP
- Study Advisory Committee Meeting and Public Information Hearing
- Public Comment Period
- Submission of NCP to FAA
- 180-Day FAA Review period

THANK YOU!
MEETING MINUTES

Subject: PHL Noise Compatibility Study Update – Study Advisory Committee (SAC) Meeting #5
Place: Mercy Wellness Center, 2821 Island Avenue, Philadelphia, PA 19153
Date of Meeting: September 17, 2009
Attendees: See attached sign in sheet
Date Prepared: October 1, 2009
Prepared By: Morgan Barlow, Portfolio Associates, Inc. / Lynn Keeley, AECOM

Purpose: The purpose of this meeting was to brief the Study Advisory Committee on the status of the Philadelphia International Airport (PHL) Noise Compatibility Program Update and to solicit comments on the noise abatement alternatives being evaluated.

Discussion: The discussion followed the meeting agenda.

1. Welcome and Introductions
Calvin Davenger (PHL) welcomed the SAC. Beverly Harper (Portfolio Associates) reviewed the meeting agenda and handouts which included the presentation, revised SAC #4 Meeting Minutes and copies of the 2nd volume of the project newsletter. Acting Director Mark Gale (PHL) provided opening remarks and thanked the SAC for their participation in this important process.

2. Update on the Status of the Project
Allan A’Hara (AECOM) explained that the purpose of this meeting was threefold:
1) To review and present 2013 noise exposure supplemental metrics
2) To present the range of noise compatibility program alternatives, and
3) To share preliminary findings of noise compatibility program alternatives analysis

Mr. A’Hara noted that the existing baseline and future baseline noise exposure maps were released to the public for a 30 day review and comment period over the summer. Less than ten people provided written comments. The team is currently responding to these comments and the responses will be contained in the final project documentation.

Royce Bassarab (Wyle) reviewed the supplemental noise metrics which were employed to depict noise exposure beyond the DNL 65 dB noise contour. Mr. Bassarab explained that although the FAA uses DNL to describe long-term cumulative noise exposure, and DNL 65 dB is the significant noise impact threshold for EA, EIS, and Part 150 studies, the team realizes that noise does extend beyond the DNL 65 dB noise contour.
Mr. Bassarab presented the results of two supplemental noise analyses, the Number of Events Above (NA) metric and the Time Above (TA) metric, where NA provides the total number of aircraft events that exceed a certain sound level threshold during a 24 hour period, and TA indicates the number of minutes that an A-weighted sound level is exceeded in an annual average day. Supplemental metrics help to identify and communicate noise exposure beyond traditional DNL noise contours by showing noise events at various dB levels, and how much time out of the day those events are present.

4. Summary of Alternative Analysis Methodology
Royce Bassarab reviewed the goals of this noise compatibility program update, which are:

- To reduce or mitigate significant noise impacts within the DNL 65 dB noise contour of the 2013 Noise Exposure Map
- To reduce the possibility of future incompatible land uses within the DNL 65 dB noise contour
- To establish Program Management Measures to support PHL’s ongoing Noise Compatibility Program and
- To evaluate and recommend, where appropriate, strategies that reduce noise exposure beyond the DNL 65 dB noise exposure contour

Allan A’Hara explained that the team has studied the 2008 and 2013 contours along with the supplemental metrics and has identified key areas of interest on which to focus the noise abatement mitigation strategies. These geographic areas surround PHL and are identified as follows:

- Eastwick/Eastern Delaware County
- Western Delaware County
- Tincum
- Northern Delaware
- Gloucester County, NJ
- Cherry Hill/ Haddonfield, NJ

For each area of interest, airport noise issues were presented along with those noise abatement alternatives that could mitigate the airport noise exposure in that area.

Jon Collette (PHL) provided an overview of the types of Land Use Management and Program Management Alternatives that are being evaluated in this Update. The Airport is typically directly involved in implementing and coordinating these types of noise abatement mitigation strategies. Regarding Land Use Management Alternatives, Jon explained that these measures prevent the introduction of additional noise sensitive land uses within existing and future airport noise contours. The two primary types are preventative and mitigative. Preventative measures are those which deal with local planning and zoning issues to avoid noise sensitive facilities being developed in the DNL 65 dB contour. Mitigative measures are those that seek to correct an existing noise condition within a DNL 65 dB noise contour through means such as implementing residential sound insulation programs.
Program Management Alternatives are those that relate to how airport management addresses noise issues or how they can assist in implementing other NCP measures. Examples of Program Management Measures that came out of the initial study include the noise abatement manager position, the noise and community services office on Island Avenue and the noise hotline. Examples of potential future measures include real time flight tracking equipment and pilot awareness (or fly-friendly) programs. Mr. Collette noted that these would be explored further.

Mr. A’Hara explained that the next step for the team is to screen the noise abatement alternatives, land use management alternatives, and program management alternatives against criteria such as:

- benefits to the noise environment
- drawbacks of the alternative
- costs of implementation
- party responsible for implementation
- feasibility of implementation

The formal presentation was concluded and Ms. Harper led the group in an open discussion. Questions and comments discussed by the SAC are summarized here:

Mr. Bill Erickson (PCPC) noted that Eastwick is a residential area and asked if the team has looked into purchasing the homes in the DNL 65 dB contour or providing an energy supplement to offset the anticipated higher energy bills from running air conditioners etc.,

Allan A’Hara explained that the team will certainly study the feasibility of a residential sound insulation program in Eastwick. However, neither the Airport nor the FAA is familiar with monetary supplements for residential energy bills.

Mr. Dave Schrieber (Tinicum) noted that implementing a residential sound insulation program, as is being done in Tinicum, is not the ultimate answer. Residents can’t enjoy outdoor activities in their back yards, parks or playgrounds.

Mr. Erickson compared this to FEMA flood plain regulations that allow for rezoning identified floodplain zones from residential to recreation. Although this sounds like an easy fix, when you change a land use classification there are unanticipated consequences such as future land use restrictions.

Mr. Bassarab noted that residential acquisitions are voluntary and it gets complicated when you have rows of homes such as in Eastwick.

Mr. George Loveless (Congressman Sestak’s Office) noted that it’s important to remember that the NCP Update is based on valid Noise Exposure Maps.
Dr. Shirley Loveless (Congressman Sestak’s Office) emphasized that we should try to encourage municipal land use planning outside of the 65 contour.

Mr. Erickson asked if there is a list of Eastwick properties that are included in the 65 DNL and noted that noise monitors should be installed to assist the City of Philadelphia Health Department (who handles noise complaints and is responsible for enforcing the Noise Ordinance) in issuing fines to planes that fly too low. Jon Collette explained that there are limits on Airport’s ability to fine airlines. The Airport has portable noise monitors in place which are used for data collection but not for enforcement purposes.

Ms. Roberta Geier (DelDOT) asked Jon Collette if the number of complaints from northern Delaware has increased. Jon explained that east flow operations at the Airport are a major cause of complaints and that above average rainfall this summer led to an increase in east flow operations. Any increase in complaints from Delaware residents are attributed to the Airport’s recent operating conditions.

Mr. Erickson noted that when writing land use regulations, the City places a burden on those between the 60 and 65 contours. Mike McCartney (PHL) explained that the Airport could provide maps to Philadelphia City Planning Commission showing the DNL 60 dB which could perhaps assist in their planning efforts.

Calvin Davenger (PHL) noted that the Airport has been coordinating with City Planning for years to depict Airport noise and hazard contours on city planning and zoning documents. Mr. McCartney reminded the SAC that hazardous overlays are dictated by state law and that Pennsylvania has no jurisdiction over New Jersey. Mr. Chuck Romick (Gloucester County Planning) noted that New Jersey has its own hazardous zoning overlays, but they don’t extend into Pennsylvania. Mr. Roger Moog (DVRPC) added that states will not enforce airport hazards.

Mr. Loveless noted that the USEPA identifies schools and hospitals in the 50-55 DNL range as impacted. How the airport guides land use beyond 65 DNL is very important, it provides predictability to local governments. Dr. Loveless agreed and noted that many agencies recommend the use of supplemental metrics.

There were no further questions or comments and the meeting was adjourned.

Distribution:
Attendees (See Sign-in Sheet)
Study Advisory Committee Members and Representatives

Attachments:
Sign-in Sheet

NOTE: If attendees have any suggestions, please submit material within three (3) business days.
# Noise Compatibility Program Update

**SAC MEETING – September 17, 2009**

**SIGN-IN SHEET**

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<td><a href="mailto:steve.huff@usairways.com">steve.huff@usairways.com</a></td>
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</table>
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| McDonald, Sue         | Federal Aviation Admin. Harrisburg Environmental Protection Specialist             | 717-730-2841           | Susan.McDonald@FAA.GOV                 |          |
| Michael Messina       | Tincum Township President-Commissioner                                             | 610-521-3530  
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<td></td>
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<td>McCartney, Mike</td>
<td>Philadelphia International Airport</td>
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<td>2OM</td>
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<td></td>
</tr>
</tbody>
</table>

Portfolio Associates, Inc. 9/09
Study Advisory Committee
Meeting #6

Mercy Wellness Center
Conference Room
November 18, 2009
1:00 PM – 3:00 PM

Goals & Objectives

Have an understanding of:

- the Federal Regulations guiding the Noise Compatibility Program Update
- the Screening Process for the Alternatives Analysis
- the Framework of the Updated Noise Compatibility Program recommendations
Noise Compatibility Program Update

Alternatives Screening Process

→ Would it benefit the noise environment?
  → Primary concern of Part 150 is within the DNL 65 dB noise contour. PHL is analyzing alternatives that could have a noise benefit beyond DNL 65 dB.

→ What are the drawbacks?

→ Whose responsibility is it?

→ Who will pay for it?

→ Can it be implemented?
  → Not impose undue burden on interstate and foreign commerce
  → Not unjustly discriminate
  → To the extent practicable, meet both local needs and the needs of the national air transportation system
  → Be able to be implemented in a manner consistent with all of the powers and duties of the FAA Administrator

Scope of Alternatives Analysis

→ Noise Abatement (25 Conceptual Alternatives)
  → Those that require detailed analysis.
  → Those that don’t meet the stated goals of Part 150, but could be pursued by PHL.
  → Those that do not meet the goals of Part 150 and will not be further pursued.

→ Land Use (8 Conceptual Alternatives)
  → Remedial/Corrective AND Preventive

→ Program Management (8 Conceptual Alternatives)
  → Initiatives spearheaded by the PHL Noise office

Following today’s meeting and remaining analysis, the recommended NCP will be completed and preliminarily reviewed with the FAA.
# Noise Compatibility Program Update

## NA alternatives under consideration

<table>
<thead>
<tr>
<th>NA-A: Extend Runways</th>
<th>NA-N: Construct Noise Barrier</th>
</tr>
</thead>
<tbody>
<tr>
<td>NA-B: Displace Runway Thresholds</td>
<td>NA-O: Restrict use of Reverse Thrust</td>
</tr>
<tr>
<td>NA-C: Runway 35 Departures</td>
<td>NA-P: Restrict use of Auxiliary Power Units</td>
</tr>
<tr>
<td>NA-D: Preferential Runway Use</td>
<td>NA-Q: Raise altitude at KIRDE &amp; BWINE</td>
</tr>
<tr>
<td>NA-E: Continuous Descent Approaches (CDA)</td>
<td>NA-R: Utilize 3.0 degree glide slope on approach</td>
</tr>
<tr>
<td>NA-F: Restrict Nighttime Operations</td>
<td>NA-S: Minimize thrust/drag configurations</td>
</tr>
<tr>
<td>NA-G: Modify NighttimeRunway Use Program</td>
<td>NA-T: Intercept extended centerline at 3,000 feet</td>
</tr>
<tr>
<td>NA-H: Restrict operations by type/Noise level</td>
<td>NA-U: Runways 09L/09R/17/35/08 NA Procedure</td>
</tr>
<tr>
<td>NA-J: Maximize use of River Corridor</td>
<td>NA-W: Runway 27R Noise Abatement Procedure</td>
</tr>
<tr>
<td>NA-K: Runway 27L &amp; 27R Departures</td>
<td>NA-X: Maintenance Run-Up Restrictions</td>
</tr>
<tr>
<td>NA-M: Maximize use of Runway 27L</td>
<td></td>
</tr>
</tbody>
</table>

## Noise Compatibility Program Update

### Alternatives Status

Alternatives identified for further analysis/inclusion in recommended NCP, as they meet the goals of Part 150.
### Noise Compatibility Program Update

#### Alternative NA-C
Runway 35 Departures

<table>
<thead>
<tr>
<th>Description</th>
<th>Area of significant impact in Eastwick, resulting from Runway 35 departures in 2013.</th>
<th>Analysis looked at runway departure headings from Runway 35.</th>
<th>Compatible land use corridor exists to the northeast of Runway 35.</th>
<th>Departures fly runway heading, turn left, or occasionally turn right to reach their first fix.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure Area</td>
<td>Eastwick/Eastern Delaware County</td>
<td>Benefits</td>
<td>Turning aircraft to a northwest heading would overfly a compatible land use corridor.</td>
<td></td>
</tr>
<tr>
<td>Drawbacks</td>
<td>Right-hand traffic turns could cause conflict with the downwind approach to Rwy 35 arrivals.</td>
<td>With additional traffic, some departures would need to be held at lower altitudes, thus increasing noise impacts.</td>
<td>Would result in increases in pilot and ATC workload for coordination.</td>
<td>Increased fuel costs to airlines flying to the west/northwest.</td>
</tr>
<tr>
<td>Analysis</td>
<td>Noise modeling, ongoing discussions with airlines and ATC.</td>
<td>Recommendation/Next steps</td>
<td>Initial analysis indicates potential noise benefit, however, modification to existing flight procedures may result. Continue evaluation with ATCT to refine potential solutions.</td>
<td></td>
</tr>
</tbody>
</table>

#### Alternative NA-D
Preferential Runway Use Program

<table>
<thead>
<tr>
<th>Description</th>
<th>Preferential runway use programs indicate that, when feasible, aircraft should follow ATC instruction using the most noise-compatible runways.</th>
<th>At PHL, use of Runways 09L/27R and 09R/27L maximizes the overflight of compatible land use.</th>
<th>This alternative would limit the use of Runway 17/35 to reduce noise exposure in Eastwick by moving traffic to Runways 09R/27L, 09L/27R, and 08/26 through either a formal or informal runway use program.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure Area</td>
<td>Eastwick (Runway 17/35), New Jersey</td>
<td>Benefits</td>
<td>Reducing aircraft activity on Runway 17/35 would reduce single-event noise levels, and could reduce the area of significant noise exposure (DNL 65 dB).</td>
</tr>
<tr>
<td>Drawbacks</td>
<td>Reducing the number of available runways used by operators has the potential to increase delays.</td>
<td>Analysis</td>
<td>Pursuit of this alternative discounts the recently completed EIS which extended Runway 17/35 to ease capacity constraints.</td>
</tr>
<tr>
<td>Recommendation/Next steps</td>
<td>Because of the need to use Runway 17/35 by various operators, this alternative is not recommended for further evaluation.</td>
<td></td>
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</tr>
</tbody>
</table>
## Alternative NA-G
### Nighttime Runway Use Program

**Description**
- Between 11:00 p.m. and 6:00 a.m., PHL nighttime runway use program is in effect.
- The runway use program is voluntary in nature and was included in the 2003 Part 150.
- West flow: Departures use Runway 27L then Runway 17. Aircraft arrivals use Runways 27L, 27R and 35.
- East flow: Departures use Runways 09L, 09R, 08, and Rwy 17, arrivals use Rwy 09R and Rwy 35.
- Alternative evaluates beginning the nighttime runway use program one hour earlier (10:00 p.m.)

**Exposure Area**
- Eastwick, New Jersey

**Benefits**
- Maximizes the use of the compatible land use corridors around PHL.
- Coincides with the time that ATCT stops using the dispersed headings.
- Beginning the nighttime runway use program at 10:00 p.m. could reduce the number of arrivals to Runway 35.

**Drawbacks**
- No notable drawbacks.

**Analysis**
- Noise modeling analysis adjusting the nighttime runway utilization percentages to be completed.
- May be feasible without use of noise modeling results.

**Recommendation/Next steps**
- Complete noise modeling.
- Preliminary recommendation to modify the existing Letter of Agreement between the City of Philadelphia and the PHL ATCT to operate according to the nighttime runway use program between the hours of 10:00 p.m. and 6:00 a.m.

## Alternative NA-J
### Maximize the Use of the River Corridor

**Description**
- Methods which could increase the use of the River corridor:
  - ARD headings RNAV departure procedures
  - Increased use of the existing visual river approach
  - RNAV river approach
  - Cargo operators to increase their use of the river approach during overnight hours

**Exposure Area**
- Tinicum Township, Northern Delaware, Gloucester County, NJ, Western Delaware County

**Benefits**
- Increased use of the river corridor could bring single-event noise reductions

**Drawbacks**
- No noise benefit within the DNL 65 dB noise exposure contour, therefore may not be approved for Part 150 purposes.

**Analysis**
- Alternatives NA-K evaluates Runway 27L and 27R departures
- Alternative NA-L evaluates RNAV procedures
- Alternative NA-M evaluates maximizing the use of Runway 27L

**Recommendation/Next steps**
- PHL should continue to support the FAA’s continued development of advanced navigation techniques and should continue to work with the airlines and users to take full advantage of these procedures.
## Noise Compatibility Program Update

### Alternatives NA-U, V, W
Existing Noise Abatement Departure Procedures

<table>
<thead>
<tr>
<th>Description</th>
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</table>
| ➤ Existing condition and approved 2003 Part 150 measures.  
➤ Runways 9L/9R/17/35/8 - Fly runway heading until reaching 2,000' Mean Sea Level.  
➤ Runway 27L - Aircraft weighing 12,500 pounds or more departing Runway 27L turn left to a 255 degree heading until reaching 3,000' Mean Sea Level.  
➤ Runway 27R - Aircraft departing Runway 27L turn left to a 240 degree heading until reaching 3 DME, thence fly 255 degree heading to 3,000' Mean Sea Level. |

| Exposure Area | ➤ All areas |
| Benefits      | ➤ Maintains existing compatible land use corridors. |

| Drawbacks | ➤ Applies to jet traffic only.  
➤ Voluntary, deviations may occur due to pilot procedure and ATC instruction.  
➤ With ARD implementations, only in use between 10:00 p.m. – 6:00 a.m. |

| Analysis | ➤ Change language in pilot communications and airport publications from "above ground level (AGL)" to 'Mean Sea Level (MSL)'. |

| Recommendation/Next steps | Recommended for continued implementation between 10:00 p.m. and 6:00 a.m. |

### Alternative NA-X
Maintenance Run-Up Restrictions

| Description | ➤ Engine run-ups are currently restricted to two locations on the airport.  
➤ Engine run-ups require prior approval by Airport Operations and are limited to twenty (20) minutes duration.  
➤ Between 11:00 p.m. and 6:00 a.m., run-ups are restricted unless failure to conduct the run-up will delay the departure of a scheduled flight. In addition, these run-ups are to be conducted at the preferred east location. |

| Exposure Area | ➤ Tinicum Township |

| Benefits | ➤ Limiting the duration and location of ground maintenance run-ups can reduce the transmission of ground noise impacts to noise-sensitive land uses near the airport. |

| Drawbacks | ➤ No notable drawbacks to the continued implementation of this alternative.  
➤ Additional restrictions may not result in reduced noise levels in nearby noise-sensitive areas. |

| Analysis | ➤ The PHL ATCT maintains a log of engine run up activity, and the noise office occasionally monitors noise levels from run up activity.  
➤ The Part 150 is evaluating the potential effectiveness of noise barriers or berms. |

| Recommendation/Next steps | ➤ Existing restrictions are recommended to remain in place. Continue existing run-up procedures providing for location and orientation preferences with requirements for pre-approval and limitation to 20 minutes or less. |
Alternative NA-Y
Noise Attenuation in New Building Construction

Description
- Included in the recommended 2003 NCP.
- PHL should consider the benefits associated with the placement of structures relative to the surrounding land uses.
- Intent was to design and construct facilities to serve as noise barriers between the sources of noise on the airfield and the transmission of that noise to the receivers in the community.

Exposure Area
- Tinicum Township

Benefits
- Could result in reductions of 8 to 10 decibels between the source and receiver depending upon design and location.

Drawbacks
- No notable drawbacks to this alternative.
- Benefits are limited to noise caused by ground activity, rather than aircraft in flight.

Analysis
- None performed for this alternative.

Recommendation/Next steps
- Recommended for continued consideration as new facilities are planned. Encourage noise attenuating standards in airport development.
PHL Noise Management Strategy
Alternatives

- Alternatives that provide a noise benefit, or that should continue to be evaluated even though they do not meet the goals of Part 150.
- These may or may not be included in the Recommended NCP, but they are alternatives that PHL could pursue. A good example of this is to reduce APU usage, or implement CDAs.

Alternative NA-E
Support the Development of CDA Procedures
### Alternative NA-E
Support the Development of CDA Procedures

| Description | Continuous descent at idle power from a high altitude to glide slope intercept on the final approach  
Continuous full test of a CDA procedure at Louisville International Airport, utilizing UPS aircraft in 2002  
Requires onboard Flight Management System (FMS)  
Identified as part of the Airspace Redesign Noise Mitigation Plan |
<table>
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<tbody>
<tr>
<td>Exposure Area</td>
<td>Areas 8-15 miles from PHL. (Eastwick/Eastern Delaware County, Cherry Hill/ Haddonfield NJ, Northern Delaware)</td>
</tr>
</tbody>
</table>
| Benefits | Noise reductions of approximately 30%, or about 6-dBA noise reduction below 6,000 feet  
Most notable reductions in single event noise levels at distances of 7-15 nm from the runway end.  
Other airports report reductions of 4 dB at distances 10-15 nautical miles from the airport. Additional benefit in fuel burn savings. |
| Drawbacks | Benefits beyond the DNL 65 dB noise contour  
Still in the early stages of implementation around the world.  
Requires low levels of traffic, specific equipment on board the aircraft, pilot and ATCT training. |
| Analysis | No benefit within the DNL 65 dB noise contour. |
| Recommendation/Next steps | Since the implementation of CDA procedures is already anticipated to occur, PHL should support the FAA, ATCT, and aircraft operators to quickly implement procedures that may have specific noise benefits. |
## Alternative NA-L
### RNAV Procedures

**Description**
- RNAV utilizes an on-board heads up display system which provides vital navigation information allowing point-to-point flight allows for shorter routes, an increase in safety, reduced controller workload, and the use of less fuel, as well as the potential to reduce noise impacts.
- Aircraft must be equipped with a Flight Management System (FMS) that is capable of RNAV navigation.
- A number of procedures are in place at PHL, and additional procedures are planned to be implemented.

**Exposure Area**
- All areas, but most noise benefit further from the airport.

**Benefits**
- Reducing the dispersion of flight tracks along a flight corridor.

**Drawbacks**
- Instead of a wider distribution of flight tracks along a corridor, flight tracks maintain a very tight path which can focus noise exposure directly underneath the flight path.

**Analysis**
- The FAA is actively implementing RNAV procedures.

**Recommendation/Next steps**
- As a part of the overall PHL Noise Management Strategy, the airport continue to support the development and utilization of RNAV procedures.

## Alternative NA-M
### Maximize Use of Runway 27L

**Description**
- The previous Part 150 evaluated increasing the usage of Runway 27L for arrivals by evaluating instrument approaches that overflew the Delaware River.
- A published visual approach and RNAV approach using the river corridor is in place.

**Exposure Area**
- Tinicum Township (departures), Northern Delaware (arrivals)

**Benefits**
- Segregating louder aircraft on Runway 27L may reduce single event noise levels near the airport.
- Increasing the use of the river approach for arrivals may reduce overflights over Northern Delaware.

**Drawbacks**
- No benefit in the DNL 65 dB noise contour.
- As the airport operates in east flow in periods of bad weather, the use of the river approach is limited, even with visual procedures.
- Segregating aircraft on the ground by runway may only be feasible in periods of low traffic activity.

**Analysis**
- Continued discussion with ATC regarding the use of the river corridor for arrivals and segregating departure traffic by aircraft type.

**Recommendation/Next steps**
- Continued evaluation for potential inclusion in the NCP. Specific program elements may be better suited for inclusion in the Fly Quiet program.
**Noise Compatibility Program Update**

**Alternative NA-N**

**Construct Noise Barrier**

**Description**
- Noise barriers can be earthen berms, constructed walls, trees, vegetation.
- Designed to mitigate the effects of aircraft noise due to taxing operations, departure roll-out, engine maintenance and run-ups, and the use of reverse thrust on arrivals.
- Intent of a noise barrier to is block the line of sight between a source and a receiver.
- Opportunity to evaluate noise berms to the west of the airport.

**Exposure Area**
- Tincum Township

**Benefits**
- Depending on the noise source, berms/walls/barriers could provide 5-10 dB reduction in sound levels in noise-sensitive areas surrounding PHL.

**Drawbacks**
- No direct benefit to areas within the DNL 65 dB noise contour.
- Only effective when the source of the noise is on the ground.
- Costly, would require community and FAA concurrence for design and height.
- As the distance between the source and receiver increases, effectiveness decreases.
- Some studies show that noise barriers do not provide as much mitigation to low frequency aircraft noise.

**Analysis**
- Review potential barrier locations.

**Recommendation/Next steps**
- Continue to evaluate potential noise berm/barrier locations.

---

**Alternative NA-O**

**Minimize Use of Reverse Thrust**

**Description**
- Reverse thrust is used to slow an aircraft to safely turn from the runway upon arrival.
- Noise from reverse thrust can be audible in nearby noise-sensitive areas.
- Eliminating reverse thrust can increase distance on runway by almost 4,000 feet.
- Construction of high speed taxiways allow an aircraft to exit the runway at higher speeds.
- Airlines maintain policies that dictate the use of reverse thrust as a safety precaution.

**Exposure Area**
- Areas near the airport, specifically those impacted by ground noise

**Benefits**
- Reduced single-event noise levels from airport ground operations.

**Drawbacks**
- Shorter runways at PHL require the use of reverse thrust.
- Use of reverse thrust cannot be eliminated or restricted.
- Reduces the overall margin of safety.

**Analysis**
- Not recommended in the 2003 Part 150.
- ATC may be able to request airlines reduce the use of reverse thrust with dry pavement and few aircraft.
- PHL may consider construction of additional high-speed taxiway exits.
- The use of berms or walls can be an effective means of mitigation for reverse thrust noise.

**Recommendation/Next steps**
- Not recommended as a measure, however, PHL should continue evaluation of airfield facilities and the PHL Noise Abatement Manager should continue to evaluate airline and ATC procedures.
### Noise Compatibility Program Update

**Alternative NA-P**
Encourage Reduced Use of Auxiliary Power Units

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| - APU s provide startup power to the aircraft’s main engines and are utilized at the gate or on the ramp to power the aircraft’s electrical, ventilation, and hydraulic systems.  
- PHL has installed gate electrification systems, ground power units (GPU), and preconditioned air systems to provide sufficient power and ventilation requirements for the aircraft to minimize the use of APUs.  
- Notable energy and fuel savings for airlines, but not a noise problem. |  |

<table>
<thead>
<tr>
<th>Exposure Area</th>
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<tbody>
<tr>
<td>- Areas near the airport, specifically those impacted by ground noise.</td>
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<thead>
<tr>
<th>Benefits</th>
<th></th>
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</table>
| - A reduction in the use of aircraft APUs could reduce the cumulative noise environment at an airport.  
- Noise reduction benefits small compared to the overall airport noise exposure footprint. |  |

<table>
<thead>
<tr>
<th>Drawbacks</th>
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<tbody>
<tr>
<td>- No notable noise benefit.</td>
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<table>
<thead>
<tr>
<th>Analysis</th>
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</table>
| - APU usage is generally driven by airline policy.  
- In some cases, the turn-around time for an aircraft may conflict with the time necessary for the utilization of ground power sources.  
- May be more efficient from an airline scheduling perspective to continue to utilize the aircraft’s APU.  
- PHL is working to evaluate other airports’ APU use limitations for potential implementation at PHL. |  |

<table>
<thead>
<tr>
<th>Recommendation/Next steps</th>
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<tbody>
<tr>
<td>- PHL should work with the air carriers to determine their power and air conditioning requirements and develop an implementation plan that will ensure that services are provided to meet those needs.</td>
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**Alternative NA-Q**
Raise Altitude at KIRDE & BWINE

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<thead>
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<th>Description</th>
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</table>
| - BWINE intersection to Runways 09L and 09R, KIRDE used for approaches from the east.  
- Altitude of aircraft at BWINE was raised in 2002 to 4,000 ft MSL.  
- Altitude of aircraft at KIRDE is 3,000 ft MSL. |  |

<table>
<thead>
<tr>
<th>Exposure Area</th>
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<tbody>
<tr>
<td>- Northern Delaware (BWINE), Cherry Hill/Haddonfield NJ (KIRDE)</td>
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<tr>
<th>Benefits</th>
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<tbody>
<tr>
<td>- Increasing the altitude of aircraft by 1,000 feet could reduce single event noise levels by 2 to 4 dB.</td>
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<table>
<thead>
<tr>
<th>Drawbacks</th>
<th></th>
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</thead>
</table>
| - No benefit within the DNL 65 dB noise contour.  
- Altitude at BWINE has been raised.  
- Altitude at KIRDE cannot be raised due to airspace conflict with Rwy 35 arrivals.  
- Would require additional coordination with the ongoing airspace redesign. |  |

<table>
<thead>
<tr>
<th>Analysis</th>
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<tbody>
<tr>
<td>- Qualitative analysis.</td>
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<thead>
<tr>
<th>Recommendation/Next steps</th>
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<tbody>
<tr>
<td>- Not recommended for inclusion in the recommended NCP.</td>
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</table>
### Alternative NA-R
**Utilize 3.0 Degree Glide Slope on Approach**

| Description | ✦ A glide slope provides vertical guidance to aircraft at specific intervals to the runway, measured in degrees. 3.0 degree glide slope is typical.  
✦ A higher glide slope indicates a steeper descent, raising the altitude of the aircraft over noise-sensitive locations, usually required for obstruction clearance.  
✦ Not all aircraft that arrive on PHL runways utilize a glide slope. |
| Exposure Area | ✦ Northern Delaware, Cherry Hill/Haddonfield NJ |
| Benefits | ✦ Use of a standard 3.0 degree glide slope would place aircraft in a predictable angle of descent and altitude over specific noise-sensitive facilities. |
| Drawbacks | ✦ Requires adjustment of procedures through coordination with FAA.  
✦ No noise benefit within the DNL 65 dB noise contour.  
✦ Notable capacity limitations. |
| Recommendation/Next steps | Not recommended for inclusion in the NCP. |

### Alternative NA-S
**Minimize Thrust/Drag Configurations**

| Description | ✦ Aircraft noise is generated not only from aircraft engines, but also by use of flap settings and landing gear  
✦ It may be feasible to standardize, by aircraft type, the configurations that aircraft use on approach. |
| Exposure Area | ✦ Areas under arrivals paths |
| Benefits | ✦ Potential single event noise reductions by reducing the noise footprint of the aircraft. |
| Drawbacks | ✦ No benefit to the DNL 65 dB noise contour.  
✦ Different aircraft require different speed, thrust, and flap settings to maintain speeds on approach as assigned by ATC. |
| Analysis | ✦ Include as part of the Fly Quiet program. |
| Recommendation/Next steps | ✦ Not recommended as a specific measure, however, included as an element of the Fly Quiet program and ongoing noise management efforts at PHL. |
Alternative NA-T
Intercept Extended Centerline at 3,000 Feet

Description
- Alternative calls for aircraft to remain as high as possible, then to intercept KIRDE at an altitude of 3,000 feet, then maintain glide slope to the touchdown point (for arrivals to Runways 27R/27L).
- ATC may need to separate aircraft by altitude prior to arriving at KIRDE.
- Aircraft flying visual approaches generally turn towards the runway at various locations, depending on their origin.

Exposure Area
- Areas within 8-10 nautical miles of PHL

Benefits
- Maintains a predictable flow of arrivals at standardized heights.

Drawbacks
- No benefit to the DNL 65 dB noise contour.
- Notable airspace limitations due to Runway 35 arrivals.

Analysis
- Continued discussions with ATC

Recommendation/Next steps
- Not recommended for inclusion within the NCP.

NA Alts Eliminated from Further Consideration

NA-A: Evaluate Runway Extensions
- Runway 17/35 is fully extended, with operating limitations. The ongoing CEP is evaluating future runway layout options, including extensions to the parallel runways.

NA-B: Displace Runway Thresholds
- Displaced thresholds could increase the altitude of arriving aircraft over noise-sensitive facilities further from the airport, however the noise reduction is minor and beyond the DNL 65 dB.

NA-F: Restrict Nighttime Operations
- Does not meet the goals of Part 150 by reducing significant impacts. Additionally, mandatory restrictions would require a Part 161 analysis.
NA Alts Eliminated from Further Consideration

- NA-H: Restrict Operations by aircraft type/Noise certification level
  - Does not meet the goals of Part 150 by reducing significant impacts. Numerous operators have reduced the number of older, noisier aircraft from their fleet during this period of reduced operations. Additionally, mandatory restrictions would require a Part 161 analysis.

- NA-I: New Runway Construction
  - The ongoing CEP is evaluating future runway layout options, including extensions to the parallel runways and the construction of an additional parallel runway.

LU alternatives under consideration

- LU-A: Continue and expand the Residential Sound Insulation Program
- LU-B: Implement Recommended Sound Attenuation Measures at Fort Mifflin
- LU-C: Develop and implement a purchase and resale program as a supplement to the Residential Sound Insulation Program
- LU-D: Amend comprehensive plans and zoning maps to promote compatible land uses
- LU-E: Support land use development controls program
- LU-F: Encourage Airport noise overlay zoning
- LU-G: Amend building codes to require soundproofing
- LU-H: Disclose noise levels prior to contract for sale or lease
### Alternative LU-A
Continue and Expand the Residential Sound Insulation Program

<table>
<thead>
<tr>
<th>Description</th>
<th>Offer sound insulation to all identified noise-sensitive public facilities or residential homes within or immediately adjacent to the 65 DNL, or higher, 2013 Noise Contour.</th>
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<tbody>
<tr>
<td>Benefits</td>
<td>Reduces interior noise levels.</td>
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<tr>
<td>Drawbacks</td>
<td>Eligibility in the program is not guaranteed.</td>
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<tr>
<td></td>
<td>Eligibility is dependent on federal guidelines, local building codes, etc., so not all noise-sensitive structures may be eligible for sound insulation.</td>
</tr>
<tr>
<td>Recommendation/Next steps</td>
<td>Recommend for inclusion, pending specific program definition.</td>
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</table>
Alternative LU-B
Implement Recommended Sound Attenuation Measures at Fort Mifflin

| Description | Implement sound attenuation measures identified in the Fort Mifflin Sound Insulation Study (October 2007) at three buildings within Fort Mifflin. These buildings serve a specific purpose: 1) Restoration Hospital/Mess Hall 2) the Soldiers Barracks and 3) the Officer's Quarters. |
| Benefits | The proposed acoustical treatments achieve FAA's noise level reduction (NLR) goals of:  
- An interior noise level of not greater than DNL 45 dB  
- Minimum noise level reduction (NLR) of 5 dB  
- The sound attenuation measures will be designed to maintain the historic and architectural integrity of the Fort. |
| Drawbacks | Amount of Federal funding will vary from room to room depending on the room’s purpose and function. |
| Recommendation/Next steps | Recommend for inclusion, pending specific program elements. |
PM alternatives under consideration

- **PM-A**: Establish a Noise Abatement Advisory Committee
- **PM-B1**: Install Additional Permanent Noise Monitors
- **PM-B2**: Enhance the Airport’s existing Noise Monitoring and Flight Tracking System by Acquiring a Multilateration System
- **PM-B3**: Improve and Upgrade Web-Based Noise Information
- **PM-C**: Continue to Develop the PHL Noise Office
- **PM-D**: Continue to Develop an Informal Community Noise Awareness Program
- **PM-E**: Continue to develop and improve the Fly Quiet Program
- **PM-F**: Update the Noise Exposure Maps and Noise Compatibility Program
# Noise Compatibility Program Update

## Alternative PM-A

**Establish a Noise Abatement Advisory Committee**

### Description

The SAC would continue to meet at regular intervals to discuss:

- Ongoing mitigation program;
- Flight procedure developments;
- The status of ongoing studies pertaining to PHL (ARD, CEP);
- Results of temporary and permanent noise monitoring.

### Benefits

- Promotes the continued open dialog between PHL’s Noise Abatement Program Manager and the community, including members of the public, airport tenants, and local and state elected officials and land use planning officials.

### Drawbacks

- Was included in the 2003 NCP but was not implemented.
- Some costs associated with additional PHL staff workload.
- Members of the community must remain interested and engaged.

### Recommendation/Next steps

Preliminarily recommended for inclusion in the Noise Compatibility Program, pending favorable feedback from the SAC. Establish a Noise Abatement Advisory Committee.

## Alternative PM-B1

**Install Additional Permanent Noise Monitors**

### Description

- PHL maintains eight existing permanent noise monitors around PHL and PNE.
- 2003 Measure PM-3 included evaluating additional locations.
- New monitor in Wilmington in 2007 and seasonal monitoring at the deice pad site.
- Potential new locations have been conceptually identified.

### Benefits

- Provides valuable information on aircraft noise at a specific location in the community.
- Can assist in the determination to update noise exposure maps.

### Drawbacks

- Provide noise level measurements only at one specific location.
- Difficult to achieve community consensus on new monitor siting.
- The installation of new monitors can be costly.

### Recommendation/Next steps

Preliminarily recommended for inclusion as: Install Additional Permanent Noise Monitors.
Alternative PM-B2: Update the Airport’s Flight Tracking and Noise Monitoring System

### Description
- PHL utilizes Airscene, an enhanced version of TAMIS.
- Connects directly to the FAA radar at PHL.
- Operates on a 72-hour delay per Memorandum of Agreement with the PHL ATCT.
- PHL wishes to acquire a multilateration system and to reduce the delay in acquiring radar data.

### Benefits
- A multilateration system would allow real-time aircraft location information independent of the FAA radar feed.
- Could be combined with an ASDE-X system to provide seamless analysis for aircraft both in the air and on the ground.
- Reduction in the delay in receiving data would accelerate the noise complaint response process.

### Drawbacks
- Acquisition and installation costs.

### Recommendation/Next steps
- Preliminarily recommended for inclusion as: Enhance the Airport’s existing Noise Monitoring and Flight Tracking System by acquiring a multilateration system to improve system reliability and response rates.
### Alternative PM-B3
**Improve and Upgrade Web-Based Noise Information**

**Description**
- This alternative would improve the content of the PHL website, including:
  - Generic noise information (what it is, how it is measured, etc).
  - Operations data that people can understand (where aircraft fly, what dictates the direction or flow of aircraft, etc).
  - Accessible and informative noise complaint database form.
  - Announcement of temporary operational changes (i.e. upcoming runway closures or weather situations).
  - Contact information for the Airport Noise Office;
  - Links for further research/information;
  - Summary of ongoing and past noise projects at an airport;
  - Links to flight tracking system, if approved.

**Drawbacks**
- Staff cost to develop content and website programming.

**Recommendation/Next steps**
- Preliminarily recommended for inclusion, pending development of specific program elements, as: Improve and Upgrade the airport’s existing web-based information.

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### Alternative PM-C
**Continue to Expand the PHL Noise Office**

**Description**
- Current PHL noise office was established in 1997 and moved to Eastwick in 2007.
- The noise officer became the Airport Noise Abatement Program Manager in 2008.
- Noise Office responsibilities include:
  - Respond to noise complaints.
  - Maintain the noise monitors and flight tracking system.
  - Perform periodic noise monitoring in the community.
  - Coordination with State and local officials on noise issues.
- Future additional responsibilities include:
  - Administering the Noise Abatement Advisory Committee.
  - Coordination with elected officials, chief pilots, and community groups.
  - Managing additional informational tools (website).
  - Administering the Fly Quiet Program.
  - Administering the Community Awareness Program.

**Recommendation/Next steps**
- Preliminarily recommended for inclusion, pending development of specific program elements, as: Continue to Expand the PHL Noise Office.
## Alternative PM-D
### Informal Community Noise Awareness Program

**Description**

Elements of PHL’s existing informal community noise awareness program include:
- Elected Official Briefings on noise issues.
- Noise complaints responses.

Opportunity for expansion of the community awareness program include:
- Enhancing the PHL website with information pertaining to PHL, aviation, and noise terminology;
- Creation of PHL Noise Mailing List database
- Publication of quarterly airport operational and noise monitoring reports;
- Publication of noise complaint data;
- Providing the public with access to flight tracking data (addressed in PM-B);
- Publication of scheduled or unscheduled changes in the Airport’s traditional operating characteristics;
- Providing updates on ongoing airport mitigation programs, such as the implementation of RNAV procedures, the ongoing sound insulation program, and others.

**Recommendation/Next steps**

Preliminarily recommended for inclusion, pending development of specific program elements, as: Continue and expand the Airport’s informal community noise awareness program.

## Alternative PM-E
### Fly Quiet Program

**Description**

A Fly Quiet program at PHL could include:
- Runway end signage (exists on multiple runways at PHL),
- Noise-sensitive land use maps to increase pilot noise-sensitivity awareness.
- Brochures that includes the noise-sensitive land use maps, noise abatement procedures
- Continuation coordination with airline and corporate operators, to include
  - Levels of compliance with noise reduction measures.
  - Encourage best-practices for noise reduction.

**Recommendation/Next steps**

Preliminarily recommended for inclusion, pending development of specific program elements, as: Continue to develop a Fly Quiet Program that increases awareness of noise-sensitive airport neighbors, and promotes the use of procedures and methods that decrease noise exposure.
Alternative PM-E
Fly Quiet Program

**Description**
- Noise Exposure Maps (NEMs) are typically updated at 5-year intervals.
- May be updated sooner if conditions at PHL change.
- Allows for modifications to the boundaries of land use mitigation programs.

**Benefits**
- Helps to reduce existing and future noise-sensitive land uses within the DNL 65 dB contour.
- Assists local land use planners in comprehensive planning and zoning.
- Allows PHL to continue to access AIP funding for noise mitigation efforts, such as the sound insulation program.

**Drawbacks**
- Costs of updating NEMs may range from $150,000 to $350,000.
- Cost of an update to the NCP could range from $300,000 to $800,000

**Recommendation/Next steps**
- Preliminarily recommended for inclusion as: Update the Airport's Noise Exposure Maps and Noise Compatibility Program five years from the date of FAA approval, or as conditions at the airport change.
Summary of NCP Evaluation

- Compared to airports of similar size and operating levels, noise contours at PHL do not significantly impact a large number of noise-sensitive land uses.
  - Limits the flight procedure changes that would potentially be approved by the FAA under Part 150.

- Opportunities exist to expand the RSIP, and continue the development of the roles and responsibilities of the PHL Noise Office.

- Continued development and implementation of the FAA’s Airspace Redesign limits the range of alternatives that could be feasible to reduce noise beyond the DNL 65 dB noise contour.

The Airspace Redesign Noise Mitigation Plan included the development of advanced navigation techniques, such as RNAV and CDA procedures.

- The FAA is actively developing and implementing RNAV procedures.

Future planning studies, including the CEP, continue to be under development.

PHL will continue to pursue mitigation efforts, both within and beyond the DNL 65 dB noise contour, through the Program Management efforts and PHL’s overall Noise Management Strategy.
Noise Compatibility Program Update

Next Steps and Schedule of Completion

- Continue review and analysis of promising alternatives
- Coordination with ATCT, Chief Pilots, Land use planning officials, airport tenants
- Justify the inclusion or exclusion of alternatives not included in NCP
- Prepare Recommended NCP
- Present Recommended NCP to SAC for comment
- Study Advisory Committee Meeting and Public Information Hearing / Publication of the NCP Document
  - Alternatives Analysis
  - Recommended NCP
  - PHL Noise Management Strategy
- Public Comment Period
- Submission of NCP to FAA
- 180-Day FAA Review period
MEETING MINUTES

Subject: PHL Noise Compatibility Study Update – Study Advisory Committee (SAC) Meeting #6
Place: Mercy Wellness Center, 2821 Island Avenue, Philadelphia, PA 19153
Date of Meeting: November 18, 2009
Attendees: See attached sign in sheet
Date Prepared: November 30, 2009
Prepared By: Lynn Keeley, AECOM /Justin DeVose, Portfolio Associates, Inc.

Purpose: The purpose of this meeting was to brief the Study Advisory Committee on the status of the Philadelphia International Airport (PHL) Noise Compatibility Program Update and to solicit comments on the noise abatement alternatives being evaluated.

Discussion: The discussion followed the meeting agenda (attached).

1. Welcome and Introductions
Calvin Davenger (PHL) welcomed the SAC. Beverly Harper (Portfolio Associates) reviewed the meeting agenda and handouts which included the presentation, SAC #5 Meeting Minutes and meeting evaluation forms.

2. Update on the Status of the Project
Allan A’Hara (AECOM) explained that the goals and objectives of this meeting were to have attendees understand 1) the Federal Aviation Regulations (FAR) guiding the Noise Compatibility Program Update, 2) the screening process that has been established for the noise abatement alternatives analysis and 3) how the Noise Compatibility Program recommendations will be structured. Mr. A’Hara explained that there are currently 41 noise abatement alternatives on the list, which are being narrowed down through coordination with the SAC, the FAA and others.

3. Update on the Alternatives Analysis
Royce Basarrab (Wyle) noted that 25 of the 41 alternatives under consideration are noise abatement alternatives. Of those, nine meet the goals of FAR Part 150 and are likely to be studied in detail. Eleven alternatives are categorized as noise management strategies as they do not meet the FAR Part 150 goals but are worthwhile pursuits and generally accepted industry practices. Five noise abatement alternatives are likely to be dismissed from further consideration as they do not meet the goals set forth in FAR Part 150 or are not feasible for technical, legal, or operational reasons. Mr. Bassarab proceeded through the description of each alternative, as depicted in the attached PowerPoint presentation.

Mr. Bill West (FAA Air Traffic Control Tower) explained that the FAA will be implementing two new westbound RNAV (Area Navigation) departure tracks in spring of 2010. Referring to a 3D Google Earth map on which these tracks were overlaid, Mr. West noted that westbound departures are currently cleared to an initial altitude of 5,000 feet but with the new procedure they will be cleared to an initial altitude of 10,000 feet. When aircraft reach the Gardn waypoint
they will be at altitudes between 5,000 and 6,000 feet. When they reach further departure fixes such as Stoen, Modena, and Pottstown they should be at altitudes of 12,000 feet, 11,000 feet and 18,000 feet respectively.

Mr. West noted that implementation of the 230 degree heading proposed under the Airspace Redesign Project is pending based on other airspace changes that are required prerequisites. It is anticipated that the 230 degree track could be implemented within 12-18 months.

Mr. Roger Moog (DVRPC) asked which aircraft can use RNAV, and whether or not RNAV procedures could increase delays. Mr. West noted that it depends upon whether the aircraft are appropriately equipped and whether the aircrew has received RNAV training. RNAV procedures are actually intended to reduce delays under certain circumstances. Mr. Steve Rich (FAA ATCT) noted that currently there are approximately 10 types of aircraft that can use it.

Mr. Charles Romick (Gloucester County Planning) asked how the new RNAV departure tracks would differ from existing conditions, and where would the planes be flying over the Delaware River. Mr. West explained that it is a new procedure on a specific track and that the planes would not start their turns towards New Jersey until they were west of the Commodore Barry Bridge.

The next discussions focused on land use management alternatives. Lynn Keeley (AECOM) explained that there were eight land use management alternatives under consideration. Ms. Keeley noted that as there are limited opportunities to address incompatible land uses from an operational standpoint, we have directed our attention to measures on the ground level.

In general, land-use management alternatives are either preventative or corrective. Of the eight alternatives that are under consideration, six are classified as preventative and may not necessarily meet the requirements of Part 150. However, like the noise management strategies that are industry accepted measures, these land use management alternatives are ones that the local jurisdictions could implement and maintain. The two alternatives that are corrective in nature and that could be eligible for Part 150 inclusion are Alternative LU-A and LU-B. As explained further in the attached presentation these alternatives could accomplish acceptable noise level reductions to residences or noise sensitive public facilities within the 65 DNL contour and would be eligible for funding in whole or in part through the FAR Part 150 program.

Dr. Shirley Loveless (representing Congressman Sestak) inquired about the status of the current residential sound insulation program in Tinicum. Dr. Loveless relayed her understanding that program implementation was very slow and that less than thirty homes have been sound insulated. Ms. Keeley explained that the program is well into the third phase of implementation and that approximately 200 eligible homes have been completed. Mr. Collette offered to provide the specifics of the program status to Dr. Loveless after the meeting. (Note: this information was subsequently provided to Dr. Loveless).

Next, Mr. Collette discussed the Program Management Alternatives under consideration. There are eight Program Management Alternatives currently being studied. These alternatives include establishing a Noise Abatement Advisory Committee, installing additional permanent noise monitors at locations yet to be determined, enhancing the Airport’s existing Noise Monitoring and Flight Tracking System by acquiring a multilateration system, improving and
upgrading web-based noise information, continuing to develop the PHL Noise Office, continuing to develop an informal community noise awareness program, and continuing to develop and improve the Fly Quiet Program. Lastly another alternative would be to update the Noise Exposure Maps and Noise Compatibility Program as conditions warrant.

In conclusion, Mr. Bassarab explained that compared to other airports similar in size and operating levels to PHL, the noise contours do not significantly impact a large number of noise-sensitive land uses. The continued development and implementation of FAA’s Airspace Redesign does limit the range of noise abatement alternatives that could be feasible to reduce noise beyond the DNL 65 dB contour. However, there may be opportunities to expand the RSIP into noise-sensitive areas within the 2013 DNL 65 dB contour, and to continue the development of the roles and responsibilities of the PHL Noise Office.

There were no further questions or comments and the meeting was adjourned.

Distribution:
   Attendees (See Sign-in Sheet)
   Study Advisory Committee Members and Representatives

Attachments:
   Sign-in Sheet
   Agenda
   Meeting Presentation

NOTE: If attendees have any suggestions, please submit material within three (3) business days.
## Noise Compatibility Program Update

**SIGN-IN SHEET**

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# Noise Compatibility Program Update

**SAC MEETING – November 18, 2009**

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<table>
<thead>
<tr>
<th>NAME</th>
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*Portfolio Associates, Inc. 9/09*
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Portfolio Associates, Inc. 9/09
Study Advisory Committee
Meeting #7

Mercy Wellness Center
Conference Room
May 27, 2010
1:00 PM – 3:00 PM

Agenda

- Status of Noise Exposure Maps
- NCP Goals and Objectives
- PHL Recommended NCP Update Measures
  - Noise Abatement Measures
  - Land Use Measures
  - Program Management Measures
- PHL Noise Management Strategy
- Next Steps
PHL NCP Goals and Objectives

- Reduce or mitigate Significant Noise Impacts within the DNL 65 dB of the 2013 Noise Exposure Map
- Reduce the possibility of future incompatible land uses within the DNL 65 dB noise contour
- Establish Program Management Measures to support PHL’s ongoing Noise Compatibility Program
- Evaluate and recommend, where appropriate, strategies that reduce noise exposure beyond the DNL 65 dB noise exposure contour

Noise Compatibility Program Update

DRAFT 2013 NEM
## Noise Compatibility Program Update

**2013 Noise Exposure**

<table>
<thead>
<tr>
<th>Actions to Consider</th>
<th>Type of Measure</th>
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<tbody>
<tr>
<td>Changes in runway length or location</td>
<td>Airport Layout Changes</td>
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<td>Displaced thresholds</td>
<td>Noise Abatement</td>
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<tr>
<td>High seed exit taxiways</td>
<td>Land Use</td>
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<td>Rotating maintenance run-ups or use of noise barriers and acoustical shielding</td>
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<tr>
<td>Preferential or rotational runway use</td>
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<td>Preferential flight track use</td>
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<td>Modification to approach and departure procedures</td>
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<td>Restrictions on ground movement of aircraft</td>
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<td>Restriction of engine run-ups or use of GSE</td>
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<td>Use restrictions</td>
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<td>Raise glide slope angle or intercept</td>
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<td>Comprehensive planning</td>
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<td>Compatible land use/zoning regulations</td>
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<td>Real estate disclosure</td>
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<td>Land acquisition and relocation</td>
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<td>Acquisition of vacant land</td>
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<td>Noise insulation</td>
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<td>Acquisition of easements or development rights</td>
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<td>Purchase assurance/sales assurance/transaction assistance</td>
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<td>Pilot awareness program</td>
<td>Program Mgmt.</td>
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<td>Program monitoring</td>
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<td>Establish a noise abatement/neighbor complaint hotline</td>
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<td>Noise monitoring</td>
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<td>Establish community participation program</td>
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<td>FAA Recommended Measures</td>
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Recommended NCP Measures

- 8 Noise Abatement
- 6 Land Use Management
- 8 Program Management

Noise Abatement Measures

- **NA-1** (Alternative NA-U)
  Runways 09L/27R/17/35/08 Noise Abatement Departure Flight Tracks

- **NA-2** (Alternative NA-V)
  Runways 27L Noise Abatement Departure Flight Track

- **NA-3** (Alternative NA-W)
  Runways 27R Noise Abatement Departure Flight Track
Noise Compatibility Program Update

2013 Departure Flight Tracks

Noise Abatement Measures

- **NA-4** (Alternative NA-F)
  Nighttime Runway Use Program

- **NA-5** (Alternative NA-X)
  Engine Run-up Restrictions
Noise Abatement Measures

- **NA-6** (Alternative NA-E)
  Area Navigation (RNAV) and Required Navigation Performance (RNP)

- **NA-7** (Alternative NA-Y)
  Encourage Noise Attenuating Standards in Airport Development

- **NA-8** (Alternative NA-E)
  Support the Development of Continuous Descent Arrivals
### Land Use Management Measures

#### Preventative Measures – 1
- Support local municipalities in comprehensive planning strategies to reduce non-compatible land use (LU-3)

#### Corrective Measures – 5
- Continue the Residential Sound Insulation Program
- Develop and Implement a Purchase Assurance Program
- Develop and Implement a Voluntary Acquisition Program
Land Use Management Measures

- LU-6 (Alternative LU-A)
  Sound Insulate Educational Facilities and Places of Worship
Land Use Management Measures

LU-4 (Alternative LU-B)
Develop and Implement a Fort Mifflin Sound Insulation Program
Noise Compatibility Program Update

Program Management Measures

- **PM-1** (Alternative PM-A)
  Establish a Noise Abatement Advisory Committee
- **PM-2** (Alternative PM-B-2)
  Enhance the Airport’s existing Noise Monitoring and Flight Tracking System by Acquiring a Multilateration System

- **PM-3** (Alternative PM-B-1)
  Install Additional Permanent Noise Monitors
- **PM-4** (Alternative PM-C)
  Continue to Develop the Responsibilities of the PHL Noise Office
Program Management Measures

- **PM-5** (Alternative PM-D)
  Continue to Develop an Informal Community Awareness Program

- **PM-6** (Alternative PM-F)
  Update the Noise Exposure Maps and Noise Compatibility Program

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Program Management Measures

- **PM-7** (Alternative PM-B-3)
  Improve and Upgrade Web-Based Noise Information

- **PM-8** (Alternative PM-E)
  Fly Quiet Program
PHL Noise Management Strategy

Alternatives that provide a noise benefit, or that should continue to be evaluated even though they do not meet the goals of Part 150.

Examples

Alternative NA-P
Encourage Reduced Use of Auxiliary Power Units

Alternative NA-O
Encourage reduced usage of reverse thrust

Implementation of Recommended Measures

- The FAA will make a determination and document their findings on each recommended measure in a Record of Approval (ROA)
- The ROA finds that the recommended actions would, if implemented, be consistent with the purposes of Part 150 – the ROA does not constitute a decision to implement an action
- Later decisions concerning implementation will be subject to applicable environmental or other procedures or requirements (i.e. availability of FAA funding)
Program Cost Estimate

- Part 150 Programs are Shared Cost Programs
- Total Program Cost could range from $10 million - $15 million
- City of Philadelphia share could range from $2 million to $4 million

Funding of Recommended Measures

- Normally, federally assisted funding for carrying out approved measures comes from one of three sources:
  - Airport Improvement Program (AIP) grant funding
  - Passenger Facility Charges (PFCs) collected by airlines operating at an airport
  - Proceeds from the airport’s disposal of noise land that is no longer needed for noise compatibility purposes (not applicable at PHL)
Noise Compatibility Program Update

Funding of Recommended Measures

Airport Improvement Program (AIP) grants
- The Airport Capital Improvement Plan (ACIP) serves as the primary planning tool for identifying, prioritizing and assigning funds to critical airport projects – it also serves as the basis for distributing AIP grant funds
- The ACIP identifies airport projects and their costs over the ensuing 5 years
- In funding noise impacted areas, the FAA will place a higher priority on funding the more noise impacted areas over those experiencing lower airport noise
- In order for noise compatibility projects in an NCP to be eligible under AIP, the FAA must approve them

Passenger Facility Charge Program (PFC)
- The PFC program provides airport operators with a local source of funding for airport projects by imposing a charge per enplaned passenger
- PFC’s can be used to fund approved NCP measures
- PFC’s can also be used for an airport operators share of implementation costs for AIP projects
- PFC eligibility differs from AIP eligibility. PFC funded projects do not have to be submitted to FAA in an NCP and do not have to receive Part 150 approval
Noise Compatibility Program Update

Implementation Outlook

- **NA Measures**
  - Immediately upon ROA issuance

- **LU Measures**
  - Continuations - immediately upon ROA issuance
  - New measures - phased over three or more years following issuance of the ROA

- **PM Measures**
  - Continuations - immediately after ROA issuance
  - New measures - phased over three or more years following issuance of the ROA

Noise Compatibility Program Update

Next Steps

- Publish the Draft NCP Update for public comment and review
- Conduct Community Workshops and a Public Hearing
- Address comments received during the review period
- Submit the Final NCP Update to the FAA for approval
- Wait the legally mandated 180-Day FAA review period
Questions
MEETING MINUTES

Subject: PHL Noise Compatibility Study Update – Study Advisory Committee (SAC) Meeting #7
Place: Mercy Wellness Center, 2821 Island Avenue, Philadelphia, PA 19153
Date of Meeting: May 27, 2010
Attendees: See attached sign in sheet
Date Prepared: June 8, 2010
Prepared By: Lynn Keeley, AECOM / Justin DeVose, Portfolio Associates, Inc.

Purpose
The purpose of this meeting was to review and discuss the measures being recommended in the Airport's Noise Compatibility Program Update.

Discussion:
The discussion followed the meeting agenda.

1. Welcome and Introductions
Mr. Calvin Davenger (PHL) welcomed the SAC. Mr. Morgan Barlow (Portfolio Associates) reviewed the meeting agenda and handouts, which included a copy of the presentation and meeting evaluation forms. All attendees introduced themselves.

Ms. Lynn Keeley (AECOM) reviewed the goals and objectives of the NCP, which primarily are to reduce or mitigate significant noise impacts within the 65dB DNL noise contour and to reduce the possibility of future incompatible land uses within the 65dB DNL contour.

2. Status of Noise Exposure Maps
Ms. Keeley explained that the Noise Exposure Maps for 2008 and 2013 were submitted to the FAA for acceptance. Mr. Ed Gabsewics (FAA Harrisburg Airports District Office) explained that the NEMS have been accepted and that the formal letter of acceptance would be issued within a week.

Mr. David Schreiber (Tinicum Township) asked if the DNL contour has increased and if so, how is it different from the 2006 contour. Mr. Gabsewics explained that the 2013 contour has increased over some areas and decreased over other areas consistent with the operational changes that the Airport has experienced over the past several years.

Mr. Schreiber asked if there would be any additional Tinicum properties eligible for sound insulation. It was explained that there are no incompatible land uses in Tinicum in the 2013 contour, so there would be no additional mitigation measures proposed for this area. Mr. Schreiber asked if this result was based on modeling and if there would be any additional analysis using noise monitors. Mr. Collette noted that the airport continually monitors noise
and has a permanent noise monitor located in Tinicum Township. In fact, Mr. Jon Collette (PHL) explained that though the contours are based on modeling, the modeled data from the previous Part 150 Study has matched well with the actual data collected from the monitor. (Note: subsequent to the meeting, Mr. Schreiber received a copy of the NEM Summary Report and e-mail correspondence providing details on the noise monitor data.)

3. **PHL Recommended NCP Update Measures**

Ms. Keeley noted that the FAA requires certain actions that need to be considered when developing an NCP. These actions are categorized in the same fashion that the study team has been grouping the alternatives, namely, noise abatement, land use management and program management. The results of the alternatives analysis have resulted in the recommendation of eight noise abatement measures, six land use measures and eight program management measures.

Mr. Royce Bassarab (Wyle) presented the following eight noise abatement measures:

- NA-1: Runways 09L/09R/17/35/08 Noise Abatement Departure Flight Tracks
- NA-2: Runways 27L Noise Abatement Departure Flight Track
- NA-3: Runways 27R Noise Abatement Departure Flight Track
- NA-4: Nighttime Runway Use Program
- NA-5: Engine Run-up Restrictions
- NA-6: Area Navigation (RNAV) and Required Navigation Performance (RNP)
- NA-7: Encourage Noise Attenuating Standards in Airport Development
- NA-8: Support the Development of Continuous Descent Arrivals

The next group of measures is the land use management measures. Ms. Keeley explained that by their nature, land use management measures are either preventative or corrective. Preventative measures are those that attempt to prevent future incompatible uses. Corrective measures are those that attempt to mitigate existing incompatible land uses. Ms. Keeley presented the following six land use management measures; of which one is preventative (LU-3) and five are corrective.

- LU-1: Continue the Residential Sound Insulation Program
- LU-2: Develop and Implement a Purchase Assurance Program
- LU-3: Support local municipalities in comprehensive planning strategies to reduce non-compatible land use
- LU-4: Develop and Implement a Fort Mifflin Sound Insulation Program
- LU-5: Develop and Implement a Voluntary Acquisition Program
- LU-6: Sound Insulate Educational Facilities and Places of Worship

Ms. Roberta Geier (DelDOT) asked if the vacant properties located within the 65dB DNL contour in Eastwick are under control of the Airport. Ms. Keeley noted that they are not. Vacant land in this vicinity is owned by various entities including the Philadelphia Redevelopment Authority. The land is zoned residential.
Ms. Geier asked who would coordinate with the various land use agencies to discuss and implement these measures. Ms. Keeley explained that the Airport provides the outreach to various agencies.

Mr. Schreiber asked about existing neighborhoods outside of city that aren’t in zoning districts. Mr. Reiner Pelzer (DVRPC) noted that the proposed corrective measure (LU-3 support local municipalities in comprehensive planning strategies to reduce non-compatible land use) will assist with addressing zoning issues outside of the city. Mr. Davenger added that the City has intentions of coordinating with any existing Joint Airport Zoning, which is one way to address issues such as zoning.

Mr. Jonathan Collette (PHL) next presented the following eight Program Management Measures:

PM-1: Establish a Noise Abatement Advisory Committee
PM-2: Enhance the Airport’s existing Noise Monitoring and Flight Tracking System by Acquiring a Multilateration System
PM-3: Install Additional Permanent Noise Monitors
PM-4: Continue to Develop the Responsibilities of the PHL Noise Office
PM-5: Continue to Develop an Informal Community Awareness Program
PM-6: Update the Noise Exposure Maps and Noise Compatibility Program
PM-7: Improve and Upgrade Web-Based Noise Information
PM-8: Fly Quiet Program

Mr. Collette also explained that the Airport is interested in pursuing those measures that would provide a noise benefit even though they do not meet the goals of Part 150 through the development of a Noise Management Strategy. Examples of the types of activities included in this strategy include: Airport encouraging reduced use of auxiliary power units, or, Airport/FAA encouraging reduced usage of reverse thrust.

4. Implementation of Recommended Measures

Ms. Keeley explained that the FAA will make a determination on each measure presented in the Noise Compatibility Program and document their findings in a Record of Approval (ROA). It is important to note that the ROA does not constitute a decision to implement an action. Implementation decisions come later after the any and all necessary approvals are received (i.e. environmental assessments) and as funding becomes available.

Funding the implementation of Part 150 Measures typically comes from one of three sources: Airport Improvement Program (AIP) grant funding, Passenger Facility Charges (PFCs) collected by airlines operating at an airport, or proceeds from an airport’s disposal of noise land that is no longer needed for noise compatibility purposes (which is not applicable at PHL).
Ms. Keeley explained that Part 150 Program costs are shared costs: FAA funds 80% and the Airport Sponsor funds 20%. The total PHL Part 150 Update preliminary costs are in the range of $10 million to $15 million. The City share of the Program would be between $2 and $4 million.

Regarding the timing of implementation, it is expected that those NCP noise abatement measures that are currently in use could continue on as defined in the new ROA. Likewise, existing land use management and program management measures that are proposed for continuation can continue on after the ROA is issued. Any new land use management or program management measures will be phased in over the next three years based on funding availability and the results of any future required studies.

In conclusion, Ms. Keeley outlined the next steps that include:

- Publishing the Draft NCP Update for public comment and review
- Conducting Community Workshops and a Public Hearing
- Addressing comments received during the review period
- Submitting the Final NCP Update to the FAA for approval
- Waiting the legally mandated 180-Day FAA review period

5. Questions

Dr. Shirley Loveless noted that the supplemental metric data (that which evaluated conditions beyond the 65 dB DNL contour) would be very helpful for community outreach and discussions with land use agencies. Supplemental data provides additional information on noise exposure in addition to the DNL requirement that the FAA mandates in a Part 150 Study. In the future, with this information, communities would be better suited to discourage non-compatible land uses. Dr. Loveless explained how studies show that noise does affect human health, and that people react to single-events, not DNL.

Ms. Keeley noted that the supplemental noise metrics prepared for this study will be available to the local jurisdictions.

Mr. George Loveless noted that communities and airports need to engage in dialogue. This dialogue could include discussions on how the Airport can communicate aviation impacts to planning commissions and community members. Mr. Loveless noted that the noise abatement alternatives need to be specified in order to provide clarification. Mr. Collette indicated that the noise abatement measures are spelled out in detail in the program that will be available for public review and comment. Furthermore, the measures will ultimately be published on the Airport’s webpage.

Mr. Loveless inquired about how issues such as the redesign of Class B airspace would affect the Noise Compatibility Program. Mr. Bill West (FAA ATCT) explained that any changes to the Class B airspace are still in the planning stages and would not be in place by 2013. Mr. West noted that this airspace does not impact flight patterns to the extent that it would make a noticeable difference in noise.
Mr. Loveless made three requests: 1) that the Airport makes the public aware of the supplemental metrics completed for this study; 2) that the public be informed of any significant airport action that would require a reevaluation of the NEM/NCP and 3) that notification is provided to the public once any new procedures are set. Mr. Bassarab indicated that the proposed noise abatement procedures are very similar, or identical, to the existing procedures, which are already published. In addition, FAA Air Traffic control has the authority to implement these procedures, or not to implement these procedures, for safety reasons.

Mr. Michael McCartney (PHL) added that the airlines are actively monitoring aviation procedures and that PHL is increasingly pro-active in monitoring these activities.

Mr. Roger Quinn (UPS) noted that new technology reduces aircraft noise and CO₂ emissions. This particular effort has great benefit for Philadelphia. Mr. Quinn noted that he is very interested in the idea of establishing a Noise Abatement Committee (Program Management Measure PM-1). Having sat on this type of committee at other airports he has seen the benefits of collaboration among, airport operators, stakeholders, and communities.

There were no further questions or discussions and the meeting was adjourned.

Distribution:
Attendees (See Sign-in Sheet)
Study Advisory Committee Members and Representatives

NOTE: If attendees have any suggestions, please submit material within three (3) business days.

Attachments:
  Sign-in Sheet
  Meeting Presentation

NOTE: If attendees have any suggestions, please submit material within three (3) business days.
## Noise Compatibility Program Update

**SAC MEETING – May 27, 2010**  
**SIGN-IN SHEET**

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# Noise Compatibility Program Update

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<tr>
<td>Sweeney, Steven</td>
<td>Gloucester County, NJ Freeholder Director</td>
<td>856-853-3390</td>
<td><a href="mailto:ssweeney@co.gloucester.nj.us">ssweeney@co.gloucester.nj.us</a></td>
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# Noise Compatibility Program Update

**SAC MEETING – May 27, 2010**

**SIGN-IN SHEET**

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<tr>
<th>NAME</th>
<th>ORGANIZATION TITLE</th>
<th>TELEPHONE #</th>
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<tr>
<td>Verna, Anna</td>
<td>City of Philadelphia</td>
<td>215-686-3412</td>
<td><a href="mailto:Maryanne.Mahoney@phila.gov">Maryanne.Mahoney@phila.gov</a></td>
<td>M</td>
</tr>
<tr>
<td>represented by:</td>
<td>City Council President</td>
<td>215-686-3412</td>
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<tr>
<td>Mahoney, Maryanne</td>
<td>Federal Aviation Administration</td>
<td>215-492-4100</td>
<td><a href="mailto:michael.wagner@faa.gov">michael.wagner@faa.gov</a></td>
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<td>Wagner, Mike</td>
<td>Air Traffic Manager</td>
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<td>West, Bill</td>
<td>Federal Aviation Administration</td>
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<td>Administration, ATCT</td>
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<tr>
<td>Whelan, John</td>
<td>Delaware County Council</td>
<td>610-891-4265</td>
<td><a href="mailto:delcopr@co.delaware.pa.us">delcopr@co.delaware.pa.us</a></td>
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<tr>
<td>Wonderling, Rob</td>
<td>Greater Phila. Chamber of</td>
<td>215-545-1234</td>
<td><a href="mailto:dearley@greaterphilachamber.com">dearley@greaterphilachamber.com</a></td>
<td>L</td>
</tr>
<tr>
<td>represented by:</td>
<td>Commerce</td>
<td>215-545-1234</td>
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<tr>
<td>Ferry, Liz</td>
<td>President &amp; CEO</td>
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<tr>
<td>Woods, David</td>
<td>Office of State Senator</td>
<td>717-787-4712</td>
<td><a href="mailto:dwoods@pasen.gov">dwoods@pasen.gov</a></td>
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<td></td>
<td>Dominic F. Pileggi</td>
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<td></td>
<td>Chief of Staff</td>
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<tr>
<td>Allan, Allan</td>
<td>A/H</td>
<td>DMJM Aviation / AECOM</td>
<td><a href="mailto:Allan.ahara@aecom.com">Allan.ahara@aecom.com</a></td>
<td>215-263-5502</td>
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<tr>
<td>Bassarab, Royce</td>
<td>B/L</td>
<td>Wyle Labs</td>
<td><a href="mailto:royce.bassarab@wylelabs.com">royce.bassarab@wylelabs.com</a></td>
<td>215-937-6726</td>
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<tr>
<td>Cummings, Fred</td>
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<td>Davener, Calvin</td>
<td>D/C</td>
<td>Philadelphia International Airport, Chief Executive Officer</td>
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<td>Gale, Mark</td>
<td>G/M</td>
<td>Portfolio Associates, Inc.</td>
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<td>Keeley, Lynn</td>
<td>K/L</td>
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<td><a href="mailto:Keeley.Lynn@phi.org">Keeley.Lynn@phi.org</a></td>
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<tr>
<td>McCartney, Mike</td>
<td>MC</td>
<td>Philadelphia International Airport</td>
<td><a href="mailto:Mike.McCartney@phi.org">Mike.McCartney@phi.org</a></td>
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**PHL**