Appendix A
Meeting Coordination
Airline Coordination Meetings
MEETING MINUTES

Subject: PHL Noise Compatibility Study Update – Chief Pilots Coordination Meeting
Place: PHL Noise and Community Services Office
2801 Island Ave, Suite 13, Philadelphia, PA 19153
Date of Meeting: January 20, 2009
Attendees: See attached sign in sheet
Date Prepared: February 2, 2009
Prepared By: Lynn Keeley, DMJM Aviation/AECOM

Purpose: The purpose of this meeting was to provide an update of the PHL Part 150 Noise Compatibility Program Update to the chief pilots operating at PHL and to learn about the existing and proposed noise abatement measures these airlines utilize in the US and in Europe.

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

Jon Collette (PHL Noise Abatement Program Manager) opened the meeting and welcomed the attendees. Introductions followed.

Lynn Keeley (DMJM Aviation) provided a brief overview of the Part 150 Noise Compatibility Study Update, noting that we are about halfway through the process. The 2008 and 2013 existing and future baseline noise contours have been developed and will be submitted to the FAA for acceptance within the next few weeks. Incompatible land uses within the DNL 65dB contour have been identified. Basically, the areas west of the primary runways 9R/27L and 9L/27R and north of Runway 17/35 are the areas most impacted by the operational or physical changes expected to occur at PHL, which are reflected in the 2013 future baseline contour.

Incompatible land uses identified within the DNL 65db noise contour under 2013 future baseline are being addressed in the next phase of the study, the Noise Compatibility Program (NCP).

Jon Collette (PHL) explained the types of noise abatement alternatives that the NCP will explore. These include flight management alternatives, flight path location alternatives, flight frequency alternatives, and flight restrictions. Mr. Collette explained that these in-flight alternatives are just one type that the study will evaluate, and noted that not all flight management alternatives are feasible, especially flight restrictions. Land use mitigation alternatives and program management alternatives will also be evaluated.

The next topic of discussion focused on noise complaints at PHL. Mr. Collette presented and summarized what flight activity generates the most complaints. The majority of complaints pertain to standard operations on the east-west runways. Keith Brune (PHL) asked how many noise complaints the airport receives annually.
Jon noted that in 2008 there were approximately 2,300 noise complaints, which far exceeded the typical yearly average of approximately 300 complaints. Mr. Jonathan Bonds (UPS) inquired as to whether the complaints came at a certain time of day. Mr. Collette explained that the calls are received at all times of the day, but that per operation, there are more night complaints. In 2008, approximately 37% of complaints received were related to night flights (as defined by 23:00 to 07:00). However, only about 14% of flights occurred during those hours. Therefore, each night operation generates more complaints on average.

Allan A’Hara (DMJM Aviation) asked Mike Wagner (FAA ATCT) if there have been any changes to the utilization of the dispersal departure headings instituted through the airspace redesign project. Mr. Wagner explained that currently the dispersal headings are used between 8:00 am and 11:00 am and again between 2:00 pm and 8:00 pm daily. However, to provide for a more efficient and safe operation, he plans to apply the headings from 8:00 am to 8:00 pm daily in the near future. Mr. Wagner explained that when the 230° heading comes on line, at some point in the future, it may result in a difference in noise exposure given the addition of a third departure fix.

Mr. Bonds shared a presentation on UPS’s current and planned noise reduction programs in Europe. Mr. Bonds explained that in the US, UPS has approximately 230 airplanes. At PHL, they have 28 airplanes that arrive and depart on a daily basis, 20 of which operate at night. In Europe, UPS operates at five airports, employing a somewhat different fleet mix.

Mr. Bonds noted that Eurocontrol (the European Organization for the Safety of Air Navigation) has mandated that 100 airports establish Continuous Decent Approaches (CDA’s) to reduce noise by 2013. CDA is an arrival approach using low thrust and low drag, from 6,000 feet AGL to touchdown.

Mr. Bonds shared the success rate for UPS utilizing CDA’s at three European airports. These rates are based on the percentage of time that they applied the procedure. East Midlands, UK had an 85% success rate, Stansted, UK had a 90% success rate and Cologne, Germany had a 77% success rate (this one was started in August 2008). Mr. Yarko Stawnychy (US Airways) noted that if an air traffic controller does not give a pilot the distance to touchdown, they don’t expect that pilot to use a CDA.

Mr. Bonds noted that in Warsaw, which is a downtown airport, UPS ran a successful CDA test with an MD-11 at 5:30 am. There was no interference from other flights and the operation worked well, such that it will be a permanent procedure between 10:00 pm and 6:00 am. In Cologne, Germany UPS runs a 24/7 hub operation, similar to PHL. There UPS is using a radar vectored tactical CDA and hopes to utilize area navigation (RNAV) soon.

Mr. Bonds compared a vectored CDA to a choreographed dance between the pilot and the controller. The controller is trying to manage capacity and keep delays to a minimum while the pilot needs to come in a little slower using a CDA.

In regards to using these procedures for noise abatement, UPS saw a noise reduction in all phases of flight. There was a 4-6 dB average reduction at greater than 24 to 12 track miles; with the MD-11 there was a noise reduction of 8dB at greater than 24 to 12 track miles. Mr. Bonds stressed that there needs to be flexibility when applying CDAs and that variables such as weather need to be accounted for.
Mr. Bonds also explained that Eurocontrol wants to make ADS-B (automatic dependent surveillance-broadcast) standard at their airports. ADS-B is a flight deck based spacing method that can provide air traffic controllers and pilots with much more accurate information that will help keep aircraft safely separated in the sky and on the runways. UPS has installed this system on their 757's.

Mr. Bonds opened the floor for questions. Mr. A'Hara asked at what point do pilots intercept and fly the standard ILS on a CDA? Mr. Bonds and Mr. Stawnychy noted that it is at 8 miles and in. Mr. A'Hara noted that public claims insist that aircraft arriving Runway 27R over NJ are descending to an MDA several miles beyond the Final Approach Fix and maintaining level flight prior to intercepting the glide slope and beginning descent. It has been suggested that a CDA could eliminate this and reduce noise impact. Mr. Bonds noted that on arrival to Runway 27R, UPS is in level flight at 12 to 13 miles from the airfield (over NJ) and the pilot then asks ATC how fast to descend.

Mr. Wagner explained that PHL controllers are pushing the arriving Runway 27R traffic down earlier to accommodate the Runway 17/35 traffic downwind. Mr. Bonds noted that most European airports do not have cross-wind runways. Mr. Wagner also noted that there is a wake turbulence issue on the 27L and 27R stagger. Mr. A'Hara asked that in a CDA you can delay your wheel drop, but what about the rest of the landing configuration such as flaps etc., could you delay the point at which you activate these? Mr. Bonds noted that you have to do this at about 6,000 feet to begin slowing the aircraft. He also added that UPS could put the Runway 27R approach into their simulators to trial it.

Mr. A'Hara asked the pilots if they were familiar with the RNP (required navigation performance) approach. Mr. Stawnychy explained that all are getting familiar with it, and that US Airways' Airbuses are capable of using this technology but that the Boeings are not. Mr. A'Hara asked if there was a benefit to using RNP, particularly to use the river for approach to Runway 9R. Mr. Bonds compared it to fanned departure headings where it gives you greater capability for arrivals by spreading the aircraft. However, he was not convinced that RNP would give PHL much in the way of benefit. Mr. Stawnychy concurred, noting that we’d be hard pressed to get any noise benefits from RNP given the populated areas like Cherry Hill or center city Philadelphia. Mr. Bonds added that offset arrivals, offered by use of RNP, could negatively affect capacity by as much as 15%, and for this reason UPS cannot use it at Louisville during peak hours. Mr. Wagner noted that these delays and the need to vector aircraft to a new final approach course could in turn create more noise.

There were no further questions and the meeting was adjourned. Mr. Collette thanked the attendees for their valuable input, noting that on-going pilot and air traffic cooperation will be a significant help to our team as we advance the analysis of the noise abatement alternatives.

Attachments:
  Sign-in Sheet
  Agenda
  PHL Power-point presentation

NOTE: If attendees have any suggestions, please submit material within five (5) business days.
### Philadelphia International Airport - Noise Compatibility Program Update
Pilot Working Group – January 20, 2009– 11:00 am
Philadelphia International Airport Noise and Community Service Office

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Noise Compatibility Program Update

Pilot Working Group Meeting
January 20, 2009
11:00 AM

AGENDA

- Welcome and Introductions

- Overview and Update on Part 150 Process

- Review of suggested Noise Program Measures (in flight)

- Questions & Answers

- UPS Presentation on European NAPs

- Concluding remarks – Scheduling of next meeting
Noise Compatibility Program Update

Pilots / PHL
Noise Abatement Working Group
Meeting #1

Philadelphia International Airport
Community Relations Office
January 20, 2009 – 11:00 AM

AGENDA
- Welcome and Introductions
- Overview and Update on the Part 150 Process
- Review of Suggested Noise Abatement Measures (in-flight)
- UPS Presentation
- Conclusion
- Next Steps

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

DRAFT
2008 Existing Baseline CNL Noise Exposure Contour
What types of alternatives will we be evaluating?

**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 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)
Noise Compatibility Program Update

What types of alternatives will we be evaluating?

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

Complaints About Operations to Primary Runways

- Night Arrivals/Departures (Cargo Ops)
- Arrivals over New Jersey, Delaware (Exp. ILS)
- Departures to PTW Fix
- Departures to MXE, STOEN Fix
- Turboprop Departures from Runway 27L

Flight activity by cause of complaint

Complaints About Operations to Primary Runways

- East Flow – About 30% of Annual Operations
Complaints About Operations to Primary Runways
- West Flow – About 70% of Annual Operations

Complaints About Operations to Runway 17/35
Irregular Operations:
Early Turns by Runway 27L Turbojet Departures

UPS Presentation
Jonathan Bonds
MEETING MINUTES

Subject: PHL Noise Compatibility Study Update – Chief Pilots Coordination Meeting #2
Place: PHL Noise and Community Services Office
2801 Island Ave, Suite 13, Philadelphia, PA 19153
Date of Meeting: November 16, 2009
Attendees: See attached sign in sheet
Date Prepared: November 25, 2009
Prepared By: Lynn Keeley, AECOM

Purpose: The purpose of this meeting was to provide an update of the PHL Part 150 Noise Compatibility Program Update to the chief pilots operating at PHL and to receive their input on the noise abatement alternatives currently under consideration.

Discussion:

Mr. Jon Collette (PHL Noise Abatement Program Manager) opened the meeting and welcomed the attendees. Introductions followed.

Ms. Lynn Keeley (AECOM) provided a brief overview of the Part 150 Noise Compatibility Study Update, noting that the study is about three-fourths of the way complete. The 2008 and 2013 existing and future baseline noise contours have been developed and will be submitted to the FAA for acceptance within the next few weeks. The sixth meeting of the Study Advisory Committee (SAC) is pending; the presentation to the SAC will be viewed at this meeting. The noise compatibility program measures that are likely to be recommended are taking shape and will be the focus of the next SAC.

Mr. Royce Bassarab (Wyle) explained that incompatible land uses within the DNL 65dB contour have been identified; the 65 DNL contour being the threshold of significance per FAR Part 150. Basically, the area north of Runway 17-35 is the area most impacted by any operational or physical changes expected to occur at PHL, as reflected in the 2013 future baseline contour. Capt. Bert Seither (Southwest Airlines) noted that the 2013 65 DNL contour appears larger to the south and asked if climb and decent profiles were accounted for in developing the contour. Mr. Bassarab explained that the contours are developed on an average annual day basis and that the climb and decent profiles used are INM defaults and are not typically one of the variables modeled. Capt. Seither mentioned that if PHL could approve a higher initial climb altitude it would be beneficial from a noise standpoint. For instance, Tampa’s initial climb altitude is 6,000 feet and this has significantly lessened the number of noise complaints received.

Mr. Bill West (FAA ATC) explained that PHL will see new SIDS in February 2010 where an initial climb on almost all RNAV departures will be to 10,000 feet. Planes will be much higher, much quicker off the east-west runways (not 17-35 or 8-26). It is expected that this procedure will be issued to at least 90% of the jets.
Mr. Bassarab explained that there are currently 25 conceptual noise abatement alternatives under consideration. Of those, nine meet the goals of FAR Part 150 and are likely to be studied in detail, eleven are categorized as noise management strategies as they do not meet the FAR Part 150 goals but are worthwhile pursuits, and five are likely to be dismissed from further consideration. Mr. Basarrab proceeded through the description of each alternative. Discussions ensued on the following six alternatives:

**Alternative NA-C-Runway 35 Departures**, Mr. Bassarab explained that this alternative would turn aircraft to a northeast heading after departing Runway 35. This alternative was presented to the ATCT, who indicated that this procedure would be complicated to implement since right-hand turns could conflict with the downwind approach to Runway 35 arrivals. Furthermore, due to traffic into other airports, particularly PNE, some departures would need to be held at lower altitudes, thus increasing noise impacts. Mr. West explained that the Runway 35 departure path could conceivably be raised up but this would require much more work on the part of the pilots and ATCT.

Mr. Stephen Batchelder (FAA ATC) observed that the airport would be well served by some type of entitlement group which would convene airline representatives having the authority to make decisions (i.e. implementing a 220 knot climb speed). He noted that although the concepts in this noise study are good, they would be very hard to put into practice without stakeholder coordination.

Mr. West explained that once the new 230° departure heading is implemented, it is expected that 50% of the departures will go on the 245° heading to STOEN/MODENA, and 50% of the departures will go on the new 230° heading to WOODSTOWN/DITCH. The RNAV departure track will be very tight, resulting in over-flights to the same areas day after day. The 230° heading may likely generate complaints from areas such as Gibbstown, NJ, who are not accustomed to such air traffic.

**Alternative NA-G – Modify Nighttime Runway Use Program**, Mr. Bassarab explained that the tower suggested extending the nighttime use program to start at 10:00 pm rather than 11:00 pm and run through 6:00 am. This will be a recommended measure in the NCP Update if the Airport and City agree to it.

**Alternative NA-L – RNAV (Advanced Navigation) Procedures**, Capt. Bonds noted that all UPS planes can perform RNAV visuals. He noted that RNP Arrivals to Runway 9R and 9L were published in August, but that there isn’t much opportunity to fly these procedures. When the airport is landing on either Runway 9R or 9L it usually means there are delays and there is too much traffic to employ this approach.

**Alternative NA-O – Restrict Use of Reverse Thrust**, Mr. Bassarab explained that the limitation of the use of reverse thrust was evaluated in the previous Part 150 study but was not recommended. Reverse thrust generates noise that is audible by people close to the airport. Capt. Seither noted that Southwest Airlines has very strict language on how to brake and use reverse thrust. Overall, airlines maintain policies that indicate the use of reverse thrust for the safe operation of aircraft and restrictions or limitations to their use are not likely.

**Alternative NA-P– APU Restrictions**, Capt. Seither mentioned that Southwest prefers not to run an APU on the ground at all, as it is 5 times more expensive to operate this way. Capt. Bonds noted that UPS’s policy is to only use the APU 15 minutes prior to start – UPS has a
ground power unit at every aircraft. Capt. Leverton noted that Air Wisconsin struggles at Terminal F where there is no PCAir or eGSE at the gates. Mr. Allan A’Hara explained that PHL is on track to install gate electrification systems, ground power units (GPU), and preconditioned air systems at every gate.

**Alternative NA-Q – Raise BWINE and KIRDE altitudes**, Mr. Bassarab noted that residents in New Jersey had initiated the request to raise KIRDE. The team had discussed this alternative with ATCT, who explained that raising the intercept altitude at KIRDE to 4,000 ft MSL would conflict with arriving flights on the downwind for Runway 35 arrivals which are at 4,000 feet. There needs to be a 1,000-foot separation, which is why KIRDE can’t be increased above 3,000 feet.

Mr. Collette explained that there are eight Program Management alternatives also under consideration. He noted that an element of Alternative PM-B2 - Enhance the Airport’s existing Noise Monitoring and Flight Tracking System by Acquiring a Multilateration System, was previously discussed with the tower. Currently there is a 72-hour hold period for the FAA to release TRACON radar data. In order to improve the flight tracking system, Mr. Collette requested reducing the data hold times for flight tracks. The tower had no objection to this request and this alternative will likely be included as a recommended measure.

There were no further questions and the meeting was adjourned.

Attachments:
- Sign-in Sheet
- Agenda
- Presentation

**NOTE:** If attendees have any suggestions, please submit material within five (5) business days.
Philadelphia International Airport - Noise Compatibility Program Update  
Pilot Working Group Meeting #2 – November 16, 2009– 1:00 pm  
Philadelphia International Airport Noise and Community Service Office

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Welcome and Introductions

Overview and Update on Part 150 Process

Review of suggested Noise Abatement Alternatives

Questions & Answers
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

### 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 unfairly 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 do not meet the stated 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.
NA alternatives under consideration

**NA-A: Extend Runways**
- Description: Extend Runways NA-A: Extend Runways NA-N: Construct Noise Barrier
- Area of significant impact in Eastwick, resulting from Runway 35 departures in 2013.
- Analysis focused on runway departure headings from Runway 35.
- Depature by runway heading, turn left, or occasionally turn right to reach their first fix.

**NA-B: Displace Runway Thresholds**
- Description: Displace Runway Thresholds NA-C: Runway 35 Departures NA-O: Restrict use of Reverse Thrust
- Compatible land use corridor exists to the northeast of Runway 35.
- Departures fly runway heading, turn left, or occasionally turn right to reach their first fix.

**Alternative NA-C**
**Runway 35 Departures**
- **Description**
  - Area of significant impact in Eastwick, resulting from Runway 35 departure in 2013.
  - Analysis focused on runway departure headings from Runway 35.
  - Departures by runway heading, turn left, or occasionally turn right to reach their first fix.
- **Exposure Area**
  - Eastwick/Eastern Delaware County
- **Benefit**
  - Turning aircraft to a northeast heading would avoid a compatible land use corridor.
- **Drawbacks**
  - Right-hand traffic turns could cause conflict with the downwind approach to Runway 35.
  - With additional traffic, some departures would need to be held at lower altitudes, thus increasing noise impacts.
  - Would result in increases in pilot and ATC workload for coordination.
- **Analysis**
  - Noise modeling, ongoing discussions with airlines and ATC.
- **Recommendation/Next steps**
  - Initial analysis indicates potential noise benefits; however, modification to existing flight procedures may result. Continue evaluation with ATC to refine potential solutions.

**Alternative NA-D**
**Preferential Runway Use Program**
- **Description**
  - Preferential runway use programs indicate that, when feasible, aircraft should follow ATC instruction using the most noise-compatible runways.
- At PHL, use of Runways 09L/27R and 09R/27L maximizes the overflight of compatible land use.
- This alternative would limit the use of Runway 17/35 to reduce noise exposure in Eastwick by moving traffic to Runways 09R/27, 09L/27L, and 08/26 through either a formal or informal runway use program.
- **Exposure Area**
  - Eastwick (Runway 17/35), New Jersey
- **Benefit**
  - 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).
- **Drawbacks**
  - Reducing the number of available runways used by operators has the potential to increase delays.
  - Analysis
    - Pursuit of this alternative discount the recently completed EIS which extended Runway 17/35 to ease capacity constraints.
- **Recommendation/Next steps**
  - Because of the need to use Runway 17/35 by various operators, this alternative is not recommended for further evaluation.
**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 27R, then Runway 17. Aircraft arrivals use Runways 27L, 27R and 35.
- East flow: Departures use Runways 8L, 8R, 9L, and 9R. Aircraft arrivals use Runway 27L and Runway 35.
- Alternative evaluations beginning the nighttime runway use program are hour earlier (10:00 p.m.).

**Exposure Area**
- Tinicum, 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.

**Drawbacks**
- No notable drawbacks.

**Analysis**
- Noise modeling and adjusting the nighttime runway utilization percentages to be completed.
- Analysis of exposure area.

**Recommendation/Next steps**
- Complete noise modeling.
- Proposed recommendation to modify the existing Letter of Agreement between the City of Philadelphia and the FAA.

**Noise Compatibility Program Update**

**Alternatives NA-U, V, W**

**Existing Noise Abatement Departure Procedures**

**Description**
- Existing condition and approved 2003 Part 150 measures.
- Runway 27L/27R - Fly runway heading until reaching 3,000' Mean Sea Level.
- Runway 27L - Aircraft departing Runway 27L turn left to a 240 degree heading reaching 3,000' Mean Sea Level.
- Runway 27R - Aircraft departing Runway 27R turn left to a 240 degree heading reaching 2,000' Mean Sea Level.

**Exposure Area**
- All areas

**Benefits**
- Maintains existing compatible land use corridors.

**Drawbacks**
- Applies to specific locations only.

**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 are limited to twenty (20) minutes duration.
- Between 11:00 p.m. and 6:00 a.m., runs are restricted except in unavoidable circumstances.

**Exposure Area**
- Tinicum Township

**Benefits**
- No notable drawbacks to the continued implementation of this alternative.

**Drawbacks**
- Additional restrictions may not result in reduced noise levels in nearby noise sensitive areas.

**Analysis**
- The FAA/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**
- Engine run-ups are to be conducted at the preferred engine run-up location.

**Maximize the Use of the River Corridor**

**Alternative NA-J**

**Noise Compatibility Program Update**

**Description**
- Methods which could increase the use of the river corridor:
  - ARD headings RWY departure procedures.
  - Increased use of the existing visual river approach.
  - RWY river approach.
  - Cargo operations 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 notable drawbacks.

**Analysis**
- Alternative NA-K evaluates Runways 27L and 27R departures.
- Alternative NA-M evaluates RWY river approach.
- Alternative NA-N evaluates maximizing the use of Runway 27L.

**Recommendation/Next steps**
- PHL should continue to work with the FAA to develop and implement these procedures.

**Maximize the Use of the River Corridor**

**Alternative NA-M**

**Noise Compatibility Program Update**

**Description**
- Methods which could increase the use of the river corridor:
  - ARD headings RWY departure procedures.
  - Increased use of the existing visual river approach.
  - RWY river approach.
  - Cargo operations 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 notable drawbacks.

**Analysis**
- Alternative NA-K evaluates Runways 27L and 27R departures.
- Alternative NA-M evaluates RWY river approach.
- Alternative NA-N evaluates maximizing the use of Runway 27L.

**Recommendation/Next steps**
- PHL should continue to work with the FAA to develop and implement these procedures.

**Maximize the Use of the River Corridor**

**Alternative NA-N**

**Noise Compatibility Program Update**

**Description**
- Methods which could increase the use of the river corridor:
  - ARD headings RWY departure procedures.
  - Increased use of the existing visual river approach.
  - RWY river approach.
  - Cargo operations 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 notable drawbacks.

**Analysis**
- Alternative NA-K evaluates Runways 27L and 27R departures.
- Alternative NA-M evaluates RWY river approach.
- Alternative NA-N evaluates maximizing the use of Runway 27L.

**Recommendation/Next steps**
- PHL should continue to work with the FAA to develop and implement these procedures.
### 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**
- Noise performed for this alternative.

**Recommendation/Next steps**
- Recommended for continued consideration as new facilities are planned. Encourage noise attenuating standards in airport development.

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### 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**

- **Description**
  - Continuous descent at idle power from a high altitude to glide slope intercept on the final approach
  - First trial of a CDA procedure at Louisville International Airport, utilizing UPS aircraft in 2002
  - Requires onboard Flight Management System (FMS)
  - Identified as part of the Appalachia Redesign Noise Mitigation Part

- **Exposure Area**
  - Areas 15 miles from PHL (Susquehanna Eastern Delaware County, Cherry Hill Headroom N, Northern Delaware)

- **Benefits**
  - Noise reductions of approximately 30% or about 6-4 dB 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 4-6 dB at distances 10-15 nautical miles from the airport

- **Drawbacks**
  - Requires low levels of traffic, specific equipment on board the aircraft, pilot and ATCT training
  - Still in the early stages of implementation around the world

- **Analysis**
  - Benefits beyond the DNL 65 dB noise contour
  - Noise reductions of approximately 30%, or about 6-4 dB noise reduction below 6,000 feet
  - Most notable reductions in single event noise levels at distances of 7-15 nm from the runway end

- **Recommendation**
  - A published visual approach and RNAV approach using the river corridor is in place.

- **Next steps**
  - A published visual approach and RNAV approach using the river corridor is in place.

**Alternative NA-K**

**Runway 27L & 27R Departures**

- **Description**
  - Maintaining the traditional departure corridor over the compatible Delaware River minimizes noise impacts.
  - Aircraft must be equipped with a Flight Management System (FMS)
  - ATC required to utilize multiple headings.

- **Exposure Area**
  - Tinicum Township, Northern Delaware

- **Benefits**
  - Implementation of additional RNAV procedures will reduce the dispersion of aircraft due to wind and pilot procedure.
  - Traditional departure corridors are utilized from 10:00 p.m. to 6:00 a.m.

- **Drawbacks**
  - No benefit within the DNL 65 dB noise contour

- **Analysis**
  - When remainder of ARD is implemented (230-degree heading), less aircraft would fly the 245- and 268-degree headings
  - Implementation of additional RNAV procedures will reduce the dispersion of aircraft due to wind and pilot procedure
  - No benefit within the DNL 65 dB noise contour

- **Recommendation**
  - Not feasible to revert to the traditional departure headings between 6:00 a.m. and 10:00 p.m. Not recommended as part of the NCP

- **Next steps**
  - When remainder of ARD is implemented (230-degree heading), less aircraft would fly the 245- and 268-degree headings

**Alternative NA-L**

**RNAV Procedures**

- **Description**
  - RNAV utilizes an on-board heads up display system which provides vital navigation information allowing pilots to conduct flight 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 an RNAV system that is capable of RNAV navigation.
  - Continuous descent at idle power from a high altitude to glide slope intercept on the final approach
  - 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.
  - Segregating louder aircraft on Runway 27L may reduce single event noise levels near the airport.
  - Segregating louder aircraft on Runway 27L may reduce single event noise levels near the airport.

- **Drawbacks**
  - No benefit in the DNL 65 dB noise contour
  - When remainder of ARD is implemented (230-degree heading), less aircraft would fly the 245- and 268-degree headings

- **Analysis**
  - A published visual approach and RNAV approach using the river corridor is in place.
  - A published visual approach and RNAV approach using the river corridor is in place.

- **Recommendation**
  - A published visual approach and RNAV approach using the river corridor is in place.

- **Next steps**
  - A published visual approach and RNAV approach using the river corridor is in place.

**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 overfly 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.
  - Segregating louder aircraft on Runway 27L may reduce single event noise levels near the airport.

- **Drawbacks**
  - Increased use of the river corridor over periods of low traffic activity.
  - Segregating aircraft on the ground by runway may only be feasible in periods of low traffic activity.

- **Analysis**
  - Increased use of the river corridor over periods of low traffic activity.
  - Segregating aircraft on the ground by runway may only be feasible in periods of low traffic activity.

- **Recommendation**
  - Segregating aircraft on the ground by runway may only be feasible in periods of low traffic activity.

- **Next steps**
  - Segregating aircraft on the ground by runway may only be feasible in periods of low traffic activity.

**Alternative NA-P**

**Runway 27L & 27R Departures**

- **Description**
  - This alternative evaluates the continued use of the traditional departure corridors from Runways 27L and 27R, as described in Alternatives NA-U, NA-V, and NA-W.
  - Due to airspace redesign, aircraft departures now use multiple headings (268-degree, 245-degree, and eventually 230 degrees).

- **Exposure Area**
  - Tinicum Township, Southern Delaware

- **Benefits**
  - No benefit in the DNL 65 dB noise contour

- **Drawbacks**
  - ATC required to utilize multiple headings.

- **Analysis**
  - When remainder of ARD is implemented (230-degree heading), less aircraft would fly the 245- and 268-degree headings
  - Implementation of additional RNAV procedures will reduce the dispersion of aircraft due to wind and pilot procedure

- **Recommendation**
  - Not feasible to revert to the traditional departure headings between 6:00 a.m. and 10:00 p.m. Not recommended as part of the NCP

- **Next steps**
  - Not feasible to revert to the traditional departure headings between 6:00 a.m. and 10:00 p.m. Not recommended as part of the NCP
### 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 landing operations, runway vacating, engine maintenance and run-ups, and the use of reverse thrust on arrivals.
- Impact of a noise barrier is to block the line of sight between a source and a receiver.
- Opportunity to evaluate noise barriers to the west of the airport.

**Exposure Area**
- Thrush Township

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

**Drawbacks**
- Some studies show that noise barriers do not provide as much mitigation to low frequency aircraft noise.

**Analysis**
- Review potential barrier locations.

**Recommendation**
- Continue to evaluate potential noise barrier locations.

**Next steps**
- Review potential barrier locations.

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### Alternative NA-O
**Minimize Use of Reverse Thrust**

**Description**
- Reverse thrust is used to slow an aircraft to safely exit 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 on arrivals.
- Airline 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.
- Airline maintain policies that dictate the use of reverse thrust as a safety precaution.
- Airline maintain policies that dictate the use of reverse thrust on arrivals.
- 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 on arrivals.
- Airline maintain policies that dictate the use of reverse thrust as a safety precaution.

**Drawbacks**
- Shorter runway at PHL requires the use of reverse thrust.
- Use of reverse thrust is cost-effective or restricted.
- Reduced single event noise levels from airport ground operations.

**Analysis**
- Not recommended in the 2003 Part 150.

**Recommendation**
- 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.

**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.

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

**Description**
- APUs 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 (GPUs), and pre-conditioned air systems to provide sufficient power and ventilation requirements for the aircraft to minimize the use of APUs.
- Noiseful energy and fuel savings for airlines, but not a noise problem.

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

**Benefits**
- A reduction in the use of an airport’s APUs could reduce the cumulative noise environment at an airport.
- Noise reduction benefits small compared to the overall airport noise exposure footprint.
- Noise reduction benefits small compared to the overall airport noise exposure footprint.

**Drawbacks**
- APUs are subject to various design standards.
- In some cases, the turn-around time for an aircraft may conflict with the time necessary for the utilization of ground power systems.
- May be more efficient from an airline scheduling perspective to continue to utilize the aircraft’s APU.

**Analysis**
- APUs are subject to various design standards.
- In some cases, the turn-around time for an aircraft may conflict with the time necessary for the utilization of ground power systems.
- May be more efficient from an airline scheduling perspective to continue to utilize the aircraft’s APU.

**Recommendation**
- 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 these needs.

**Next steps**
- 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 these needs.

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### Alternative NA-Q
**Raise Altitude at KIRDE & BWINE**

**Description**
- BWINE intersection to Runways 36L and 0R, KIRDE used for approaches from the east.
- Altitude of aircraft at BWINE was raised in 1990 to 4,000 ft MSL.
- Altitude of aircraft at KIRDE is 4,000 ft MSL.
- The use of berms or walls can be an effective means of mitigation for reverse thrust noise.
- The use of berms or walls can be an effective means of mitigation for reverse thrust noise.
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- The use of berms or walls can be an effective means of mitigation for reverse thrust noise.

**Exposure Area**
- Northern Delaware (BWINE), Cherry Hill/Haddonfield NJ (KIRDE)

**Benefits**
- Increasing the altitude of aircraft by 1,000 feet could reduce single event noise levels by 2 to 4 dB.
- No benefit within the DNL 65 dB noise contour.
- Altitude at BWINE has been raised.
- Altitude at KIRDE has been raised due to airspace conflict with Rwy 35 arrivals.
- Altitude at KIRDE has been raised due to airspace conflict with Rwy 35 arrivals.
- Altitude at KIRDE has been raised due to airspace conflict with Rwy 35 arrivals.
- Altitude at KIRDE has been raised due to airspace conflict with Rwy 35 arrivals.

**Drawbacks**
- No benefit within the DNL 65 dB noise contour.
- Altitude at BWINE has been raised.
- Altitude at KIRDE has been raised due to airspace conflict with Rwy 35 arrivals.
- Altitude at KIRDE has been raised due to airspace conflict with Rwy 35 arrivals.
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- Altitude at KIRDE has been raised due to airspace conflict with Rwy 35 arrivals.

**Analysis**
- Qualitative analysis.

**Recommendation**
- Removes noise sensitive areas surrounding PHL.

**Next steps**
- No benefit within the DNL 65 dB noise contour.
- Altitude at BWINE has been raised.
- Altitude at KIRDE has been raised due to airspace conflict with Rwy 35 arrivals.
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### Alternative NA-R
**Minimize Use of Reverse Thrust**

**Description**
- Reverse thrust is used to slow an aircraft to safely exit 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 on arrivals.
- Airline 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.
- Airline maintain policies that dictate the use of reverse thrust as a safety precaution.
- Airline maintain policies that dictate the use of reverse thrust on arrivals.
- 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 on arrivals.
- Airline maintain policies that dictate the use of reverse thrust as a safety precaution.

**Drawbacks**
- Shorter runway at PHL requires the use of reverse thrust.
- Use of reverse thrust is cost-effective or restricted.
- Reduced single event noise levels from airport ground operations.

**Analysis**
- Not recommended in the 2003 Part 150.

**Recommendation**
- 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.

**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.
### 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. A 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.

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### 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 configurations.
- 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.

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### 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 05 arrivals.

**Analysis**
- Continued discussions with ATC

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

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### 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.

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**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
  - **Description**: 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.
  - **Benefits**: Reduces interior noise levels.
  - **Drawbacks**: Eligibility in the program is not guaranteed. Eligibility is dependent on federal guidelines, local building codes, etc., so not all noise-sensitive structures may be eligible for sound insulation.
  - **Recommendation/Next steps**: Recommend for inclusion, pending specific program definition.

- **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-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.
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
Acquire a Multilateration System for Flight Tracking

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.

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.
  - 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.
- Opportunity for expansion of the community 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 and 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

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 AP 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.

Summary of NCP Evaluation
- 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