Appendix F

Land Use Management Alternatives Analysis
Appendix F

Land Use Management Alternatives

F.1 Introduction

Aircraft noise has the potential to affect the quality of life on people living and working in communities surrounding an airport. By preventing noise sensitive development, an airport can continue to operate effectively without interfering with the health and welfare of local residents. By addressing incompatible land uses related to noise, an airport may be able to foster greater public acceptance and reduce the incidence of impacts associated with aircraft noise.

Since the Federal Aviation Administration (FAA) does not have jurisdiction of land uses near airports, it is the responsibility of airport sponsors to suggest, and local governments to implement and enforce, land use compatibility measures near airports. It is very important to the planning process that effective communication and coordination occur between Federal, state, regional and local agencies, airports and the communities they serve for an airport land use compatibility program to succeed.

Generally, land use is considered compatible with an airport, if the users can coexist without either constraining the safe and efficient operation of the airport or exposing people living or working nearby to unacceptable levels of aircraft noise or hazards.

More specifically, the FAA defines land use compatibility in 14 CFR 150, Airport Noise Compatibility Planning (Part 150), as the “use of land that is identified as normally compatible with the outdoor noise environment or an adequately attenuated noise reduction level for the indoor activities at the location.” The goal of the FAA’s noise compatibility guidelines is to discourage the development of incompatible land uses around airports. The FAA guidelines specify that DNL is the noise metric used in defining land-use compatibility. Both the U.S. Department of Housing and Urban Development (HUD) and the FAA define a DNL value of 65 dB as the threshold of incompatibility with residential land uses.

F.1 Federal Land Use Regulations and Guidance

Federal and state agencies provide guidelines and recommendations to assist in maintaining compatible land uses within proximity to airports. The FAA has published guidelines which include a table describing compatible land use information for several land uses as a function of yearly DNL values and a matrix that identifies what types of land uses are incompatible with certain levels of noise exposure; for example, residences, schools, and outdoor music shells or amphitheaters are incompatible land uses where noise exposure levels are greater than DNL 65 dB (see Table F.1). While noise from airport operations may be experienced in areas beyond the DNL 65 dB noise contour, only those areas with noise levels of DNL 65 dB or higher are considered to be significantly impacted, as defined by Part 150 of the Federal Aviation Regulations.

It is the intent of both FAR Part 150 and PHL’s Noise Compatibility Study Update to find ways to reduce existing incompatible land uses and to prevent future incompatible land uses within the 65 db DNL contour while still addressing noise exposure and evaluating methods to reduce noise exposure in all areas surrounding the airport.
**Table F.1 Land Use Compatibility* With Yearly Day-Night Average Sound Levels**

<table>
<thead>
<tr>
<th>Land use</th>
<th>Yearly day-night average sound level (L_{dn}) in decibels</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Below 65</td>
</tr>
<tr>
<td><strong>Residential</strong></td>
<td></td>
</tr>
<tr>
<td>Residential, other than mobile homes and transient lodgings</td>
<td>Y</td>
</tr>
<tr>
<td>Mobile home parks</td>
<td>Y</td>
</tr>
<tr>
<td>Transient lodgings</td>
<td>Y</td>
</tr>
<tr>
<td><strong>Public Use</strong></td>
<td></td>
</tr>
<tr>
<td>Schools</td>
<td>Y</td>
</tr>
<tr>
<td>Hospitals and nursing homes</td>
<td>Y</td>
</tr>
<tr>
<td>Churches, auditoriums, and concert halls</td>
<td>Y</td>
</tr>
<tr>
<td>Governmental services</td>
<td>Y</td>
</tr>
<tr>
<td>Transportation</td>
<td>Y</td>
</tr>
<tr>
<td>Parking</td>
<td>Y</td>
</tr>
<tr>
<td><strong>Commercial Use</strong></td>
<td></td>
</tr>
<tr>
<td>Offices, business and professional</td>
<td>Y</td>
</tr>
<tr>
<td>Wholesale and retail—building materials, hardware and farm equipment</td>
<td>Y</td>
</tr>
<tr>
<td>Retail trade—general</td>
<td>Y</td>
</tr>
<tr>
<td>Utilities</td>
<td>Y</td>
</tr>
<tr>
<td>Communication</td>
<td>Y</td>
</tr>
<tr>
<td><strong>Manufacturing and Production</strong></td>
<td></td>
</tr>
<tr>
<td>Manufacturing, general</td>
<td>Y</td>
</tr>
<tr>
<td>Photographic and optical</td>
<td>Y</td>
</tr>
<tr>
<td>Agriculture (except livestock) and forestry</td>
<td>Y</td>
</tr>
<tr>
<td>Livestock farming and breeding</td>
<td>Y</td>
</tr>
<tr>
<td>Mining and fishing, resource production and extraction</td>
<td>Y</td>
</tr>
<tr>
<td><strong>Recreational</strong></td>
<td></td>
</tr>
<tr>
<td>Outdoor sports arenas and spectator sports</td>
<td>Y</td>
</tr>
<tr>
<td>Outdoor music shells, amphitheaters</td>
<td>Y</td>
</tr>
<tr>
<td>Nature exhibits and zoos</td>
<td>Y</td>
</tr>
<tr>
<td>Amusements, parks, resorts and camps</td>
<td>Y</td>
</tr>
<tr>
<td>Golf courses, riding stables and water recreation</td>
<td>Y</td>
</tr>
</tbody>
</table>

Source: FAR Part 150

Numbers in parentheses refer to notes.

*The designations contained in this table do not constitute a Federal determination that any use of land covered by the program is acceptable or unacceptable under Federal, State, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.
Philadelphia International Airport
Noise Compatibility Program Update

Key to Table F-1


Y (Yes)=Land Use and related structures compatible without restrictions.

N (No)=Land Use and related structures are not compatible and should be prohibited.

NLR=Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.

25, 30, or 35=Land use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 dB must be incorporated into design and construction of structure.

Notes for Table F-1

(1) Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as 5, 10 or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.

(2) Measures to achieve NLR 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.

(3) Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.

(4) Measures to achieve NLR 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal level is low.

(5) Land use compatible provided special sound reinforcement systems are installed.

(6) Residential buildings require an NLR of 25.

(7) Residential buildings require an NLR of 30.

(8) Residential buildings not permitted.
F.3 Local Land Use

Understanding airport land use compatibility issues at the local level is critical because most land use decisions are vested with local governments. The coordination and communication among local government officials and airport sponsors is vital to effectively implement and enforce land use compatibility initiatives.

Regionally, land use is guided by the Delaware Valley Regional Planning Commission (DVRPC). The DVRPC was created by the Pennsylvania and New Jersey Legislatures in 1965 as the federally designated Metropolitan Planning Organization (MPO) for the Philadelphia-Camden-Trenton Metropolitan Area. Counties served by the DVRPC that are located within the PHL study area include Delaware and Philadelphia in Pennsylvania; and Burlington, Camden, and Gloucester in New Jersey. DVRPC is an interstate, inter-county, and intercity agency. As such, it is advisory in nature for planning issues such as regional policy and capital funding concerning transportation, economic development, the environment, and land use. Land use for New Castle County in Delaware was collected through the Research Data Management Service at the University of Delaware.

In the area located nearest to the airport (Southwest Philadelphia and Tinicum Township), land use planning is undertaken by the Philadelphia City Planning Commission and the Tinicum Township Board of Commissioners.

F.3.1 Philadelphia City Planning Commission

A nine member Philadelphia City Planning Commission (PCPC) is responsible for guiding the orderly growth and development of the City of Philadelphia. The powers and duties of the Commission include proposing zoning ordinances and amendments, administering the regulations concerning the subdivision of land, preparing a Comprehensive Plan, and maintaining the capital program and budget. Zoning and planning falls under Title 14 of the Philadelphia City Code and Home Rule Charter. Specifically, the airport is contained in Title 14-1601.

F.3.2 Tinicum Township and the Delaware County Planning Department

The mission of the Delaware County Planning Department (DCPD) is to promote sound development and redevelopment of the County through the application of contemporary planning principles and growth management concepts. It is organized into seven sections: Community Assistance, County and Regional Planning, Environmental Planning, GIS and Information Services, Historic Preservation, Plan and Ordinance Review, and Transportation Planning.

Tinicum Township officials are responsible for zoning and land use development within the township. Tinicum Township is responsible for implementing and adhering to their zoning, but any changes to the zoning ordinance must be approved by the DCPD and made available for public comment.

F.3.3 Local Land Use Planning Initiatives

There are few vacant land parcels west of the Airport in Tinicum Township; research indicates that four parcels are available totaling approximately 84 acres. Two of the parcels are available on a build-to-suit basis, including 49 acres of land at the former Westinghouse complex (also known as the Airport Business Complex). This tract could support another 780,000 SF of building area mixed between office and industrial uses. A second parcel contains 12 acres at Mack-Cali Class A office park at the Airport Business Complex. This parcel could support another 130,000 SF of office space.
The area directly north of the end of Runway 17 is located in the Eastwick neighborhood of the City of Philadelphia. The neighborhood was largely rural until the 1920s when swampy land was dredged to create room for an airport and other large-scale uses within city limits.

During the late 1940s, city planners began to view Eastwick's vast and relatively open spaces as a potential solution to the problem of residential displacement from redevelopment projects in low-income sections of North and West Philadelphia. In 1949, the Philadelphia Redevelopment Authority argued that low-income residents in these areas could be relocated to a new, planned community in Eastwick.

An Eastwick Redevelopment Area Plan was originally approved by the Philadelphia City Planning Commission on November 5, 1954. The Eastwick Redevelopment Area occupied 3,200 acres in the southwest section of the city. In 1958, Eastwick was declared the largest urban renewal project in the country, with the Korman Company making plans to replace the "poorly-maintained and blighted homes" with newer, suburban-style construction in the 1960s and 70s.

The project required the removal of the area's unique existing community. Though much of the planned housing was never built, wide scale removal of existing homes was implemented and many residents were forced to relocate. At a later date, a limited amount of new housing was constructed, but the Korman Company had little involvement and the reason for which the neighborhood was disrupted was never fulfilled in any meaningful manner.

Eastwick currently contains a large industrial area where manufacturing and distributing uses take advantage of proximity to Philadelphia International Airport, Interstate 95, and center city Philadelphia.
Figure F-1: Eastwick Redevelopment Area
F.2 Land Use Management Alternatives

FAA AC 150/5020-1 Sec B150.7 par (b)(1) and par (b)(2) states that the range of alternatives must include soundproofing of public buildings, land purchases, rights, easements and/or development rights.

The Land Use Management Alternatives that were included in the 2003 Part 150 Study included:

- LU A: Develop and implement a residential sound insulation program (Became LU-1).
- LU-B: Offer a Purchase and Resell Program (Became LU-2)
- LU-C: Encourage Local Land Use Controls (Became LU-3)
- LU-D: Encourage Local Development Controls (Became LU-4)
- LU-E: Purchase Avigation Easements
- LU-F: Establish Acquisition Program within 65 DNL
- LU-G: Establish Guaranteed Purchase Assurance Program
- LU-H: Conduct Study to Determine Feasibility to Sound Insulate Portions of the Historic Fort Mifflin (Became LU-5)

Although in the previous 2003 Noise Compatibility Study, significant impacts were anticipated to occur in Tinicum Township, the 2013 noise contour has receded in this area due to changes in the aircraft fleet mix and the implementation of the dispersed departure headings from Runways 27L and 27R. As a result, no incompatible land uses in Tinicum Township remain impacted by the DNL 65 dB noise exposure contour in the 2013 Future Baseline NEM. However, in Eastwick, due to the extension of Runway 17/35 and the forecasted increase in operations on this runway, the noise contour does overlay incompatible land uses including approximately 34 homes, two schools, and one church. Impacts within the DNL 70 dB noise contour are attributed to the caretaker residence located at Fort Mifflin, to the east of PHL. Reducing the incompatibility of these land uses is the goal of this study. To meet this goal, the alternatives listed in Table F-2 were evaluated.

<table>
<thead>
<tr>
<th>Table F-2: Land Use Management Alternatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>LU-A</td>
</tr>
<tr>
<td>LU-B</td>
</tr>
<tr>
<td>LU-C</td>
</tr>
<tr>
<td>LU-D</td>
</tr>
<tr>
<td>LU-E</td>
</tr>
<tr>
<td>LU-F</td>
</tr>
<tr>
<td>LU-G</td>
</tr>
<tr>
<td>LU-H</td>
</tr>
<tr>
<td>LU-I</td>
</tr>
<tr>
<td>LU-J</td>
</tr>
<tr>
<td>LU-K</td>
</tr>
</tbody>
</table>
Land Use Measures may include remedial measures and preventative measures. Remedial measures are those intended to reduce existing non-compatible land uses, typically through purchasing a home and relocating the residents, or through providing an adequate level of sound insulation that reduces interior noise exposure to more acceptable levels. Preventative measures are those intended to prevent the introduction of additional non-compatible land uses, and include planning and land use controls that are implemented under the authority of local jurisdictions. These controls could include zoning code modifications, subdivision regulations, comprehensive plans and/or building code requirements. Since neither the City of Philadelphia Division of Aviation nor the Federal government can direct local land use policy, the Part 150 process is intended to recommend and suggest that local jurisdictions attempt to prevent incompatible development within the 65 DNL noise contour, or to ensure that minimum standards of sound attenuation are met. The range of Land Use Management alternatives has been divided into remedial alternatives or preventative alternatives as follows:

**Remedial Alternatives:**
- LU-A Residential Sound Insulation Program
- LU-B Implement Recommended Sound Attenuation Measures a Fort Mifflin
- LU-C Develop and Implement a Purchase and Resale Program
- LU-J Sound Insulate Educational Facilities and Places of Worship
- LU-K Voluntary Acquisition Program

**Preventative Alternatives:**
- LU-D Amend Comprehensive Plans and Zoning Maps to Promote Compatible Land Uses
- LU-E Support Land Use and Land Use Development Controls
- 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
- LU-I Purchase Avigation Easements
Residential Sound Insulation Program (Alternative LU-A)

The purpose of sound insulation is to reduce airport noise impacts on occupants inside a building. This is accomplished by achieving a noise level reduction (NLR) of 25 to 35 dB from exterior to interior noise levels. The NLR is the difference between the noise measured outside the structure and within each major room of the home. The target noise level for the interior habitable area is DNL 45 dB. Since it takes an improvement of at least 5 dB in NLR to be perceptible to the average person, any sound insulation project should be designated to provide at least that increase in NLR. In fact, to be eligible for federal aid, a sound insulation project must provide at least a 5 dB benefit and the interior noise level prior to sound attenuation must be greater than 45dB.

The Philadelphia International Airport has an on-going residential sound insulation program that was initiated after the 2003 Part 150 Record of Approval (ROA) was issued. Over 287 homes have been sound insulated or are currently being sound insulated through the program at a total cost of approximately $27,000,000, of which $21,500,000 was with FAA Airport Improvement Program (AIP) funds.

Results of the INM noise modeling for the 2013 Future Baseline noise exposure contour concluded that the area exposed to DNL levels of 65 dB or greater is expected to cover 7.7 square miles. This is an increase of 0.9 square miles over the 2008 existing baseline noise contour. Under the 2013 future condition, the airport operates in west-flow on average 70% of the time and in east flow 30% of the time. Notable changes in noise exposure between the 2008 and 2013 baseline contours are attributed to the partial implementation of the Airspace Redesign Project and the extension of Runway 17/35. This is most evident to the west of PHL, where the implementation of the southernmost (230°) dispersed departure heading from Runways 27L and 27R results in a noticeable change to the contour. To the east of the airport, along the Runway 9R/27L and 9L/27R extended centerlines, the noise contour has receded by approximately 3,500 feet. This is likely due to the fact the Runways 27L and 27R are used less in 2013 given the amount of time in west flow (70%) versus east flow (30%), as opposed to a 80% / 20% west flow /east flow utilization in 2008. North of Runway 17/35, a notable area of noise exposure increase exists, resulting from the increase in operations associated with additional traffic (regional jets and some narrowbody aircraft) departing from Runway 35.

Using the standard census data methodology, the DNL 65 dB noise exposure contour in 2013 includes an estimated population of approximately 319 people and 168 housing units, with one unit and an estimated population of two people residing within the DNL 70+ dB noise contour. Since the 2013 condition includes incompatible land uses, further land use assessments within the DNL 65 dB noise contour were undertaken. Field surveys indicate that much of the area within the 2013 DNL 65 dB contour consists of vacant parcels. However, there are 34 residential parcels and three noise sensitive-public facilities including two schools and one church. Given this area of noise exposure, the continuation of the residential sound insulation program has been evaluated.

For structures within the DNL 75 dB or greater contour, changing the land use is preferred to sound insulation. However, there are no residences within the 70 dB DNL contour, only historic Ft. Mifflin’s caregiver’s quarters. Since changing the use of this facility is not an option, sound insulating the Fort was evaluated as an independent alternative (LU-B).

Footnote: The FAA ARD schedule indicates that implementation of this heading is anticipated to begin prior to 2013.
A standard mitigation package for residential sound insulation would include new windows (prime/storm), new doors (prime/storm) and mechanical systems, (usually central air/heating or wall mounted ductless systems, based on pre-existing heating and cooling systems in the home). In some locations of the home (e.g. a finished porch) additional sheetrock may be required to achieve the desired acoustical effects.

Guidance for the implementation of a sound insulation program is found in the AIP Handbook, published by the FAA for use in implementing various AIP programs. Sound insulation, as well as other types of remedial mitigation, is generally only applicable to structures that have been found to be adversely affected by aircraft noise through the completion and approval of an NCP. Generally, only those structures within the DNL 65 dB noise exposure contour are eligible; however, the FAA allows for a ‘humanizing’ of the sound insulation boundaries to avoid the disruption of contiguous neighborhoods.

Participation in the sound insulation program is voluntary, but only those structures able to achieve the minimum NLR would be eligible for participation in the federally funded mitigation program. In order for a homeowner to participate in the sound insulation program, all eligibility requirements would need to be met. According to FAA Order 5100.38, Airport Improvement Program (AIP) Handbook, an airport project cannot provide funding to compensate for inadequate maintenance, to bring nonconforming structures up to building code standards, or to improve the comfort or attractiveness of a building. If the property is valued at less than the cost of sound insulation, voluntary acquisition may be offered in lieu of sound insulation. Houses that are in violation of the local building code would not be eligible, until such time that all code violations are addressed by the homeowner. Additionally, sound insulation is contingent upon the homeowner signing an avigation easement.

Properties that comprise a contiguous residential area are also included as potentially eligible. Though this area is not a densely developed residential neighborhood, there are six additional residences located just beyond the 2013 65dB DNL contour, shown in red on Figure F-2. Given that the FAA allows for maintaining block continuity, an argument could be made to include these parcels in the proposed residential sound insulation program.

A majority of the residences are two story buildings with flat roofs; the size of the homes range from 600 square feet to 1,500 square feet. The conditions of the properties vary significantly with some homes still maintaining the original wood windows and doors. The homes in this area were mostly constructed between 1930 and 1950. All of the identified properties are currently non-compatible under Part 150 guidelines.

Figure F-2 identifies the residential parcels located within (shown in blue) or immediately adjacent to (shown in red) the 2013 65 dB DNL Contour.
Figure F-2: Residential Parcels within or adjacent to the DNL 2013 65dB Noise Contour
A search of public tax records was undertaken through the Philadelphia Bureau of Revision of Taxes (BRT) website to obtain more detailed information on the properties in the affected area. Property facts relevant to the sound insulation program are summarized in Table F-3.

<table>
<thead>
<tr>
<th>Address</th>
<th>Type of Structure</th>
<th>Total Square Feet</th>
<th>Total Land Area (sq. ft.)</th>
<th>Philadelphia Real Estate Taxes 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 8107 Suffolk Avenue</td>
<td>2 story row home</td>
<td>1140</td>
<td>1537.0</td>
<td>$560.30</td>
</tr>
<tr>
<td>2 8109 Suffolk Avenue</td>
<td>2 story row home</td>
<td>1140</td>
<td>1491.0</td>
<td>$560.30</td>
</tr>
<tr>
<td>3 8111 Suffolk Avenue</td>
<td>2 story row home</td>
<td>1140</td>
<td>1485.4</td>
<td>$560.30</td>
</tr>
<tr>
<td>4 8113 Suffolk Avenue</td>
<td>2 story row home</td>
<td>1140</td>
<td>1497.0</td>
<td>$544.76</td>
</tr>
<tr>
<td>5 8115 Suffolk Avenue</td>
<td>2 story row home</td>
<td>1140</td>
<td>1500.0</td>
<td>$544.76</td>
</tr>
<tr>
<td>6 8117 Suffolk Avenue</td>
<td>2 story row home</td>
<td>1140</td>
<td>1495.6</td>
<td>$560.30</td>
</tr>
<tr>
<td>7 8119 Suffolk Avenue</td>
<td>2 story row home</td>
<td>1140</td>
<td>1495.8</td>
<td>$544.76</td>
</tr>
<tr>
<td>8 8121 Suffolk Avenue</td>
<td>2 story row home</td>
<td>1140</td>
<td>1495.6</td>
<td>$560.30</td>
</tr>
<tr>
<td>9 8123 Suffolk Avenue</td>
<td>2 story row home</td>
<td>1140</td>
<td>1500</td>
<td>$560.30</td>
</tr>
<tr>
<td>10 8125-27 Suffolk Avenue</td>
<td>2 story row home</td>
<td>1200</td>
<td>2962.5</td>
<td>$579.14</td>
</tr>
<tr>
<td>11 8020 Brunswick Avenue</td>
<td>2 story semi-detached</td>
<td>1152</td>
<td>5000</td>
<td>$618.81</td>
</tr>
<tr>
<td>12 8022 Brunswick Avenue</td>
<td>2 story semi-detached</td>
<td>1152</td>
<td>2500</td>
<td>$576.50</td>
</tr>
<tr>
<td>13 8024 Brunswick Avenue</td>
<td>2 story semi-detached</td>
<td>1152</td>
<td>2487</td>
<td>$547.41</td>
</tr>
<tr>
<td>14 8026 Brunswick Avenue</td>
<td>2 story semi-detached</td>
<td>1152</td>
<td>2500</td>
<td>$547.41</td>
</tr>
<tr>
<td>15 8028 Brunswick Avenue</td>
<td>Vacant land</td>
<td>0</td>
<td>5000</td>
<td>0</td>
</tr>
<tr>
<td>16 8030-8032 Brunswick Avenue</td>
<td>Vacant land</td>
<td>0</td>
<td>2500</td>
<td>0</td>
</tr>
<tr>
<td>17 8034 Brunswick Avenue</td>
<td>2 story semi-detached</td>
<td>1152</td>
<td>2500</td>
<td>$547.41</td>
</tr>
<tr>
<td>18 8036 Brunswick Avenue</td>
<td>2 story semi-detached</td>
<td>1152</td>
<td>2500</td>
<td>$526.25</td>
</tr>
<tr>
<td>19 8038 Brunswick Avenue</td>
<td>2 story semi-detached</td>
<td>1296</td>
<td>2500</td>
<td>$528.90</td>
</tr>
<tr>
<td>20 3109 S. 82nd Street</td>
<td>2 story semi-detached</td>
<td>1208</td>
<td>2500</td>
<td>$803.92</td>
</tr>
<tr>
<td>21 3111 S. 82nd Street</td>
<td>2 story semi-detached</td>
<td>1216</td>
<td>2500</td>
<td>$803.92</td>
</tr>
<tr>
<td>22 3113 S. 82nd Street</td>
<td>2 story semi-detached</td>
<td>1152</td>
<td>2500</td>
<td>$756.32</td>
</tr>
<tr>
<td>23 3115 S. 82nd Street</td>
<td>2 story semi-detached</td>
<td>1344</td>
<td>2500</td>
<td>$798.63</td>
</tr>
<tr>
<td>24 8107 Harley Avenue</td>
<td>1 story detached</td>
<td>684</td>
<td>2500</td>
<td>$425.76</td>
</tr>
<tr>
<td>25 8109 Harley Avenue</td>
<td>1 story detached</td>
<td>684</td>
<td>2500</td>
<td>$211.56</td>
</tr>
<tr>
<td>26 8111 Harley Avenue</td>
<td>1 story detached</td>
<td>684</td>
<td>2500</td>
<td>$449.56</td>
</tr>
<tr>
<td>27 8113 Harley Avenue</td>
<td>1 story detached</td>
<td>684</td>
<td>2500</td>
<td>$438.98</td>
</tr>
<tr>
<td>28 8102 Pontiac Avenue</td>
<td>2 story semi-detached</td>
<td>1372</td>
<td>2500</td>
<td>$158.67</td>
</tr>
<tr>
<td>29 8104 Pontiac Avenue</td>
<td>2 story semi-detached</td>
<td>1492</td>
<td>2500</td>
<td>$565.92</td>
</tr>
<tr>
<td>30 8112 Pontiac Avenue</td>
<td>Vacant land</td>
<td>0</td>
<td>5000</td>
<td>$132.22</td>
</tr>
<tr>
<td>31 8114/16 Pontiac Avenue</td>
<td>2 story semi-detached</td>
<td>1260</td>
<td>10,000</td>
<td>$370.23</td>
</tr>
<tr>
<td>32 8118 Pontiac Avenue</td>
<td>2 story semi-detached</td>
<td>1380</td>
<td>5000</td>
<td>$801.28</td>
</tr>
<tr>
<td>33 8122 Pontiac Avenue</td>
<td>2 story semi-detached</td>
<td>1500</td>
<td>3760</td>
<td>$343.78</td>
</tr>
<tr>
<td>34 8124-28 Pontiac Avenue</td>
<td>2 story semi-detached</td>
<td>1500</td>
<td>6239</td>
<td>$502.45</td>
</tr>
</tbody>
</table>

Source: http://brtweb.phila.gov

According to the BRT, twelve of these property owners have mailing addresses different from the subject property. Two of the properties have been sealed and are currently bank owned. The vacant parcels are owned by the City of Philadelphia Redevelopment Authority.
There has been little in the way of real-estate transactions in this area over the past several years. Two of the thirty-four properties listed in Table F-2 are actively listed for sale with asking prices between $44,000 and $80,000.

Though the conditions of the homes do vary in the Eastwick neighborhood, each home would need to meet AIP eligibility requirements to receive Federal funding. Therefore, further detailed noise, environmental and economic studies would need to be completed and approved prior to implementation.

Continuing the Residential Sound Insulation Program is recommended for inclusion in the NCP. As with the current RSIP, the party responsible for implementing this measure would be the City of Philadelphia.
Implement Recommended Sound Attenuation Measures at Fort Mifflin (Alternative LU-B)

Following the 2003 FAA approval of Measure LU-5, a Fort Mifflin Sound Insulation Feasibility Study was initiated.\(^2\) This comprehensive feasibility study identified facilities within historic Fort Mifflin that were likely to benefit from noise attenuation measures. The facilities identified were: 1) the Restoration Hospital/Mess Hall; 2) the Soldiers’ Barracks; and 3) the Officers’ Quarters. These facilities serve specific purposes and roles at Fort Mifflin, such as a caretaker residence, business offices and educational facilities, and are considered sensitive uses.

Various options and combinations of door, window, and HVAC treatments developed to attenuate noise were contained in the Feasibility Study and shared with the appropriate regulators for review and comment. A site visit was conducted on August 2, 2006 so that the agencies could witness, first-hand, the existing conditions and understand the proposed noise attenuation treatments.

Results of the comprehensive study, inclusive of acoustical testing, modeling and agency comments, determined that it is feasible to provide sound attenuation treatments to the Restoration Hospital/Mess Hall, Soldiers’ Barracks, and Officers’ Quarters at Fort Mifflin to reduce the interior noise levels, while maintaining the historic and architectural integrity of the buildings.

In designing the proposed acoustical treatment options and sound attenuation alternatives, focus was placed on those elements of each building that would have the greatest influence on their acoustical performance, i.e., walls, doors, windows, vent openings, chimneys, and roof/ceiling noise paths. Additionally, since the effectiveness of the acoustical treatments requires keeping doors and windows closed, recommendations were also developed to ensure the effectiveness of the buildings’ mechanical and electrical systems in order to heat, cool and ventilate all habitable spaces.

Each of the buildings was acoustically tested and modeled to take into account its unique combination of elements that contribute to its acoustical performance and create its current noise environment. The existing buildings were modeled and the various elements that represent noise paths into habitable spaces were manipulated to test various ways to reduce noise. This process produced a list of acoustical treatment recommendations that represent the most efficient way to improve the acoustical performance of the buildings while meeting FAA’s requirements.

The proposed acoustical treatment alternatives summarized below achieve FAA’s goals that require sound insulation of habitable spaces to result in:

- An interior noise level of not greater than DNL 45 dB
- Minimum noise level reduction (NLR) of 5 dB

In addition, the sound attenuation measures were developed to maintain the historic and architectural integrity of Fort Mifflin, and in consideration of the fact that the proposed treatments and products must be durable over time.

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Restoration Hospital/Mess Hall

The acoustical testing and modeling revealed that most of the noise reduction in the Restoration Hospital/Mess Hall would be achieved through treatment to its doors and windows. This is because the predominant acoustical path into this room is currently through the doors, caused by the large gaps around the perimeter of the doors (refer to Figure F-3).

The interior noise level for the multi-purpose space located on the first floor was measured as DNL 53 dB, while office space located on the second floor was measured as DNL 46 dB. In order to meet the minimum FAA requirements for NLR, interior DNL levels must not be greater than DNL 45 dB and a minimum 5 dB improvement must be achieved. This requires that the multi-purpose room located on the first floor must achieve an 8 dB NLR, and the offices on the second floor must achieve a 5 dB NLR.

Feasible Sound Attenuation Treatments

The following treatment features are proposed to meet the identified NLR goals. To achieve the expected results, the window treatment needs to be done in conjunction with the door treatment.

Doors – Replace the existing interior and exterior doors with new wooden doors made of pine. Exterior doors should be 1-3/4” thick and the interior door should be 1-3/8” thick.

Windows – Install new single glazed double hung wooden (pine) window units with true divided lites, each with a new single pane interior glazed storm window in eligible areas. The glazing should not be tinted. To meet the required NLR there must be a 7” air space between the main window and the storm window.

HVAC – Replace window units with split HVAC system.
Figure F-3: Restoration Hospital/ Mess Hall

Land Use Management Alternatives
The acoustical testing and modeling revealed that most of the noise reduction in the Soldiers’ Barracks will be achieved through treatment to its doors and windows. Therefore, both door and window treatments are needed to achieve FAA noise reduction goals.

The interior noise level for the first floor exhibit rooms and conference room was measured as DNL 51 dB. This requires that the first floor achieve a 6 dB NLR. Treating only the doors, without treating the windows would only result in a 3 dB improvement. Together, the treatment would provide a NLR of 13 dB on the first floor for an expected interior noise level of DNL 38 dB.

The second floor attic/work shop space is not being acoustically treated since it is not a habitable space used for educational purposes. Non-acoustical replacement windows have been recommended for this space in order to create a consistent finished appearance to the building. Refer to Figure F-4 for the Soldiers Barracks floor plan.

Feasible Sound Attenuation Treatments

The following treatment features are proposed to meet the identified NLR goals:

**Doors** – Weather strip gaps that exist in the interior and exterior doors to prevent noise from traveling between these gaps and/or replace eligible doors with similar materials and style and re-use the original hardware (hinges and latches).

**Windows** – Install new single glazed double hung wooden (pine) window units with true divided lites, each with a new single pane interior glazed storm window. The glazing should not be tinted. To meet the required NLR there must be a 7” air space between the main window and the storm window.

**HVAC** – Replace the existing ductless split units with two (2) split package systems, with condensing units in the back of the building, mounted on appropriate dunnage, and two (2) indoor fan coil sections located in the attic.
Figure F-4: Soldiers’ Barracks

Land Use Management Alternatives
Officers’ Quarters

Much the same as the other buildings, the acoustical testing and modeling revealed that most of the noise reduction in the Officers’ Quarters will also be achieved through treatment to its windows and doors.

The interior noise level on the first floor was measured as DNL 49 dB, which would require a 5 dB NLR. To meet the expected NLR results, the window treatment described below need to be done in conjunction with the recommended door treatment, to provide a NLR of 10 dB on the first floor for an expected interior noise level of DNL 39 dB. The three storage rooms at the rear of the building will not be acoustically treated since they are not habitable spaces or used for educational purposes (refer to Figure F-5 for the Officers’ Quarters floor plan). Non-acoustical replacement windows have, however, been recommended for these spaces in order to create a consistent finished appearance to the building.

Feasible Sound Attenuation Treatments

The following treatment features are proposed to meet the identified NLR goals.

**Doors** – Replace the existing interior and exterior eligible doors at each with new wooden doors made of pine. Exterior doors should be 1-3/4” thick and the interior door should be 1-3/8” thick.

**Windows** – Install new single glazed double hung wooden (pine) window units with true divided lites, each with a new single pane interior glazed storm window. The glazing should not be tinted. To meet the required NLR there must be a 7” air space between the main window and the storm window.

**HVAC** – All of the attic ducts and the current HVAC equipment would be completely replaced with two smaller fan-coils in two zones.
Figure F-5: Officers Quarters
This action would represent a land use compatibility improvement in that effective sound attenuation would mitigate the adverse effects of noise on the elements of the Fort that are considered sensitive uses.

Implementing the recommended sound attenuation measures would not affect the approved NEM or any of the other approved measures in the NCP.

Preliminary cost estimates were prepared in the Feasibility Report that included architectural, mechanical, electrical, and plumbing elements, as well as labor and material costs for acoustic doors and windows. Depending on which features were to be implemented, the overall cost estimates ranged from $561,000 to $606,000. However, the actual costs to implement the sound attenuation treatments will be based upon further detailed architectural and engineering studies and are subject to current economic conditions.

Implementing the recommended sound attenuation measures at Fort Mifflin was recommended for further evaluation. The party responsible for implementing this measure would be the City of Philadelphia.
Develop and Implement a Purchase Assurance Program (Alternative LU-C)

A purchase assurance program would be offered as an alternative or supplement to Measure LU-1 (Residential Sound Insulation Program) for those eligible homes that do not qualify for the sound insulation program. Airports frequently elect to combine a purchase assurance program with a sound insulation or voluntary acquisition program. These types of transaction assistance programs are designed to assist a homeowner in the sale of their property should they decline participation in another program measure.

The goal of this program is to facilitate the transfer of a property from an owner who does not desire to be located in a noise sensitive area to one which willingly accepts the airport and associated noise. Purchase assurance provides the purchase of the property by an airport in the event that a homeowner is unable to sell the residence on their own within a specified period of time. In some cases, an airport will purchase a home, attach an easement, perform sound insulation measures, and resell the home. This does not create a compatible use; however, with the dedication of an easement, it does provide limited protection to an airport.

This type of program would require a property management and/or sales effort on the part of the airport operator that may be contracted with consultants and/or realtors. Some list price premium may be desirable to secure the market price of the airport’s sale of the property.

The results of the program are that:

- The existing occupant is able to sell the property and move away from the noise sensitive area
- The new occupant acquires the property with full disclosure of the noise environment and
- The airport operator retains an avigation easement over the property to permit continued over flights

This program may be offered independently or in conjunction with a sound insulation and/or voluntary acquisition program. When these options are offered together to those residents in the 2013 65dB noise contour, the variety of options may appeal to homeowners that wish to move as well as those who prefer to remain. Therefore, this alternative is recommended for inclusion in the NCP.

Amend Comprehensive Plans and Zoning Maps to Promote Compatible Land Uses (Alternative LU-D)

A comprehensive plan is a guide for the development of a community, which provides both short-range and long-range policy recommendations regarding how the land use around an airport should be developed. It is an effective way to ensure land use compatibility around airports. Since aviation is a factor in a region’s transportation system, the goal of airport development should be established in the framework of the area’s comprehensive plan. In some cases, like PHL, more than one jurisdiction is affected by an airport’s noise contours and flight path. This should be taken into consideration in each respective comprehensive plan.

The City of Philadelphia is currently embarking on a comprehensive plan entitled “Philadelphia 2035: The Comprehensive Plan.” This plan focuses on the physical development of the City over a 25-year timeframe. Part of this effort includes a plan for comprehensive re-zoning of the city, something that has not been attempted in over 50 years. Airport officials have been directly involved in the zoning updates to ensure that the City properly accounts for airport activity. Similarly, Philadelphia city planners have been directly involved in the PHL Part 150 Update and can use the approved Noise Exposure Maps for advising developers or other land use planners interested in developing in areas surrounding PHL of the noise-sensitive areas.

Tinicum Township has recently updated their Zoning Ordinance. As part of this update, the township has designated airport-dependent and airport-related zoning districts.
Since both the City of Philadelphia and Tinicum Township are working with airport officials to prevent the introduction of new noncompatible land uses around the airport, this alternative is recommended for inclusion in the NCP.

The parties responsible for implementing this measure would be the City of Philadelphia and Tinicum Township.

**Support Land Use and Development Controls Program (Alternative LU-E)**

Zoning is the exercise of a state or local government that enables the government to designate the uses that are permitted for each parcel of land. It normally consists of a zoning ordinance that specifies land development and use controls. Zoning may be use-based (regulating the uses to which land may be put on it) or it may regulate building height, lot coverage, and similar characteristics or some combination of these.

The use of zoning to control development in and around airport facilities has experienced varying degrees of success. If established early enough, prior to the setting of development patterns and before a substantial subdivision of properties for instance, zoning can be an effective tool to help eliminate or reduce noncompatible development and land uses around airports.

Zoning is the preferred method of preventing noncompatible land use in noise impacted areas. For zoning to work effectively, it should be based on a comprehensive plan that considers the total needs of the community and the specific needs of the airport, recognizing its value to the local economy.

The Federal government has no authority to control local land use and development, so the successful implementation of this alternative would be solely within the authority of the governing land use jurisdictions, in this case the City of Philadelphia and Tinicum Township. Since both jurisdictions have been involved in the Noise Compatibility Program Update and are working independently with airport staff, it is recommended that PHL continue to support these and other neighboring municipalities as they develop or amend their land use and development controls program, and therefore recommends this element of the alternative for inclusion in the NCP.

The transfer of development rights is a provision in a zoning law that provides for the purchase of the right to develop land located in one area (the sending area) at the cost of the transfer of these same rights to land located in a second (the receiving area). A sending zone is an area, identified by a jurisdictional authority, where a reduced amount of development is desired, and a receiving zone is an area where additional development is desired.

A transfer of development rights program can only be established by a governing jurisdiction with the authority to trade higher density development in specified areas with lower density development in another area, generally providing either economic, environmental benefits, or both. At this time, given the size of the 2013 NEM 65 dB DNL contour and the density of the land uses within and adjacent to the contour as well as the lack of precedence in Philadelphia and Delaware Counties, transfer of development rights is not recommended in the NCP.

**Encourage Airport Noise Overlay Zoning (Alternative LU-F)**

In land use planning and zoning, airport noise overlay districts have become a popular tool to supplement other land use planning controls that facilitate compatible development in the vicinity of airports. Airport Noise Overlay Districts typically require noise-level disclosure and require new structures in noise-sensitive areas to achieve a specified noise level reduction. Many prohibit noncompatible development within a specified boundary, and some establish “buffer zones” that impose restrictions on noise-sensitive development in the area between the non-compatible area and the fully compatible areas beyond. Typical elements of an airport noise overlay district include a statement of purpose and intent, definitions of
common terms, applicability, permitted uses as well as exemptions and nonconforming structures, a permitted use table, and NLR requirements.

A number of jurisdictions around the country have adopted various types of overlay districts relating to aircraft noise and compatible land uses, usually as a result of a Part 150 recommendation. These districts address many common themes, including most importantly the specification of restrictions or outright prohibition of specific types of land uses within defined districts. A number of sample overlay districts were evaluated for this study to identify common themes, requirements for notification or easements, or variations from standard practices.

Wayne County, Michigan - In order to address noise impacts surrounding Detroit Metropolitan Wayne County Airport, Wayne County in 2005 adopted an Airport Overlay District. The district is divided into seven sub-districts corresponding to the DNL 65, 70, 75, and 80 dB noise contours, Airport Protection Zones I and II, and an area within one half mile of the DNL 65 dB noise exposure contour. Residential land uses are permitted within both the DNL 65 and DNL 70 dB zones, provided specific NLR standards are met and plans are certified by an acoustical engineer.

Additional maximum population density requirements are set forth for differing uses within the district. Public notification by way of deed notices, site plan notes, and other standard methods are required for development within the district.

High Point, North Carolina - The City of High Point, in anticipation of increased operations at Piedmont-Triad International Airport, revised its existing zoning ordinance to incorporate significant changes to further protect both the airport and sensitive land uses. Four zones were identified. The intent of Zone 1, based on the DNL 65 dB noise exposure contour, is to prevent the development of land uses sensitive to objectionable noise. Additional zones are based on Number of Events contours over specific levels (85 and 90 dB). Similar to other ordinances, the NLR design standards apply only to new uses of land; expansion of existing uses or alterations/additions to structures are not addressed. The ordinance includes a table which specifies the mitigation requirements for each zone, which include public notification, Waivers of Claim, prohibited uses, and design standards.

Unique to High Point is the inclusion for provisions to address NLR standards for a Windows Closed Environment.

Orlando, Florida - In Orlando, five districts have been established with varying degrees of restrictions. Avigation easements, waivers of claim, and public notification are required elements of the program. Prohibited uses for residential and non-residential, including NLR requirements, are outlined in tables. Unique elements of this ordinance include a detailed description of the testing methodology that is required to verify proper design and construction, as well as provisions related to zone boundaries which split lot sizes.

Fairfax County, Virginia - In Fairfax County, Virginia, an Airport Noise Impact Overlay District exists to assist in controlling conflicts between land uses and noise generated by aircraft. Three boundaries are established based on the noise exposure contours. The least restrictive boundary is development within the DNL 65 dB noise exposure contour, while the most restrictive is development within the DNL 75 dB noise exposure contour. Many uses are permitted only if a required acoustic treatment measure is achieved in each area. The ordinance defines three Interior Noise Level Standards, which address the methodology required for noise reduction. The ordinance also provides minimum specifications for the Sound Transmission Class (STC) for specific products, including roof and exterior wall assemblies, as well as doors and windows. The noise level standards require interior noise levels ranging from 45 to 50 dB. A noise compatibility table sets forth the permitted uses for each boundary.

Overall, a great degree of variation can be seen in different airport noise overlay districts. In some cases, boundaries are defined specifically by noise contours, while in other cases the boundaries are defined by geographic features that correspond to general noise exposure. Other examples include areas beyond noise exposure contour boundaries as an additional zone or buffer area. Overall, many ordinances include requirements for avigation easements, public disclosure, and NLR design guidelines. Most also limit the application of the ordinance to new development, precluding guidelines that address modification or alteration of existing structures.
In Philadelphia, Chapter 14-1500 of the City’s existing Zoning Ordinance entitled “Area Surrounding Airports” deals almost exclusively with height restrictions adjacent to PHL. However, the City is undergoing a comprehensive overhaul of the zoning ordinance with direct involvement of airport planning staff. As this rezoning effort evolves, the outcome will likely be an Airport Compatibility Overlay District. The new ordinance would regulate land use and development patterns in areas surrounding airports that are prone to noise from aviation operations, particularly those of landing and take-off procedures, and navigation flight tracks. These regulations are to ensure land use compatibility between aviation flight patterns from airports within the City of Philadelphia and those land uses that would be adversely impacted by aviation operations. Therefore, this alternative is included in recommended Land Use Management Measure LU-3.

Amend Building Codes to Require Soundproofing (Alternative LU-G)

Building codes primarily address the functional and structural aspects of buildings and structures. Building code revisions only address new construction and significant modifications to existing structures. Modifications to building codes can include elements to address the inclusion of sound insulation materials, such as windows and doors with higher Sound Transmission Class (STC) ratings and other elements designed to reduce the transmission of sound from the exterior environment to the interior of a structure.

Pennsylvania has adopted a statewide uniform building code, generally known as the Pennsylvania Uniform Construction Code (PA UCC). Over 90% of Pennsylvania’s 2,562 municipalities have elected to administer the UCC locally, including the City of Philadelphia and Tinicum Township. Municipalities use their own employees or certified third party agencies to enforce the code. In Philadelphia, the construction or renovation of detached one and two family homes is regulated by the City of Philadelphia, Division of Licenses and Inspections. In Tinicum Township, the building codes are administered by the Code Enforcement Officer.

The 2007 Philadelphia Building, Electrical, Administrative Provisions, Energy Conservation, Existing Building, Fire, Fuel Gas, Mechanical, Performance, and Residential codes are based on the corresponding 2006 International Code Council (ICC) model codes with local modifications, in accordance with the PA UCC. The 2007 Philadelphia Code does not account for noise or sound attenuation in areas surrounding airports. Tinicum Township codes also lack specificity to airport related noise or sound attenuation. As such, any changes designed to address airport noise would require modifications to the State code. However, the Airport’s on-going coordination with the City of Philadelphia Planning Commission indicated that amending the state’s building codes would not be very effective for the noise-sensitive area within the 2013 65dB DNL contour given the number, age, and condition of these homes and the level of effort needed to achieve approval to amend the codes. Therefore, this alternative is not recommended for inclusion as a Land Use Management Measure.

Disclose Noise Levels Prior to Contract for Sale or Lease (Alternative LU-H)

The basic disclosure of airport noise is handled in some jurisdictions through ordinances that require the seller of a parcel of land to reveal to a purchaser that they are in a high noise impact zone. Real estate agents would also be instructed about these zones and ordinance requirements.

Real estate notices are an effective means of acknowledgement to perspective property owners the potential impacts from aircraft overflights in an area surrounding an airport. Real estate disclosure notices, if implemented by local or state real estate associations, can effectively incorporate information about aircraft overflights, the location of the property in relation to the airport or flight patterns, and potential effects in either a legal document (through an easement) or in real estate marketing materials.

In Pennsylvania, real-estate disclosures are revealed on a standard form. Currently, no aircraft noise real estate disclosures are included in Pennsylvania State law, and no specific voluntary disclosure practices are in place in the City of Philadelphia.
Realtor associations in the greater Philadelphia region are professional organizations that real estate professionals may join to obtain current industry information and articles of interest. The Airport Noise Abatement Manager may elect to reach out to each of these organizations to promote the Airport’s noise abatement planning efforts, including the publication of the current Noise Exposure Maps. This would include:

- The Suburban West REALTORS® Association, including Chester and Delaware counties in PA;
- The Greater Philadelphia Association of REALTORS®, covering Philadelphia;
- The Burlington Camden County Association of REALTORS® (BCCAR), including Burlington and Camden counties in New Jersey.

Existing property owners and realtors frequently oppose disclosure of noise sensitive areas as it may make it more difficult to sell a property in such an area.

This alternative does not reduce noise impact or noncompliant land uses. However, it would inform buyers who wish to purchase a noise impacted property so they are less likely to become noise complainants or noise litigants in the future. At this time real estate disclosure is not recommended in the NCP.

**Purchase Avigation Easements (Alternative LU-I)**

An easement conveys a defined property interest for a specified area. With the signing of an avigation easement, a property owner gives the airport the right of flight over the property, and also, in some cases, agrees to a restriction of future modifications or changes of land use. The easement remains attached to the deed of the property in perpetuity. The avigation easement, as a legal document, would be attached to the property deed and, in the case of sale of the property, would be transferred to any future owners.

Under an approved NCP a property owner who conveys an easement is compensated for the encumbrance placed on the noise impacted property. Compensation for the easement conveyed as a remedial measure on noise impacted properties is properly appraised based on the loss in value to the noise impacted property due to the additional encumbrances.

An easement acquisition may be proposed where sound insulation is not feasible (i.e. the structure may need significant code upgrades that are not eligible for Federal aid, and the homeowner may not be able to bring the structure up to code; or the structure may be constructed of materials that cannot be sound attenuated such as glass walls). Easement acquisition may be an effective remedial measure when offered as an option to property owners who do not wish to move from a project area or when conveyed under the sales/purchase assurance or transaction assistance measures.

The primary drawback to avigation easements is that they do nothing to provide mitigation or improve the compatibility of the land use. Additionally, should a current homeowner elect to decline participation but accept a fee for an avigation easement, it is unlikely that future homeowners of that property would be able to participate in other remedial programs, such as land acquisition or sound insulation.

The procedure for acquiring avigation easements involves an airport or consultant preparing an appraisal and review, and evaluating title documentation to determine ownership and any mortgages or liens that may affect the property. The purchase of avigation easements as a stand-alone land use management measure is not recommended in this NCP update.
Sound Insulate Schools and Churches (Alternative LU-J)

Three noise-sensitive public facilities have been identified as potential candidates for sound insulation, based on their location within the Future (2013) DNL 65 dB Noise Exposure Contour: the George Pepper Middle School, Communications Technology High School, and the Kingdom Hall of Jehovah's Witnesses. These facilities are shown on Figure F-6.

The Airport would first, for each facility, perform acoustic testing in order to determine each building’s eligibility for sound insulation. Proposals to sound insulate each facility will be coordinated closely with both the City of Philadelphia and the FAA. The first step in the process would be to perform a feasibility study, which would identify the building noise level reduction (NLR) and the impacts of aircraft noise, and also identify the times the facility is open and use of the facility by the community. Eligibility for sound insulation of noise sensitive facilities is determined not only by the building’s NLR, but also on the use of the facility. For example, a facility that is only in use during evening hours when aircraft activity is low may not be deemed eligible. Pending the results of the feasibility study, and ultimately, City of Philadelphia and FAA approval of the proposal, the design phase, which identifies the type of modifications needed to meet FAA guidelines, would begin, followed by construction and a post modification evaluation.

Sound insulation materials for schools and places of worship could provide relief from single-event overflights during hours that the facilities are operational. Though a feasibility study would not guarantee the eligibility of the facility for sound insulation, this alternative is recommended as a Land Use Management Measure LU-6.

Figure F-6: Noise Sensitive Public Facilities in the DNL 65db Noise Contour
Develop and Implement a Voluntary Acquisition Program (Alternative LU-K)

Voluntary Acquisition Programs are generally instituted in higher noise impacted areas around an airport, usually defined as those within the DNL 70 dB DNL noise exposure contour. The programs are voluntary, and are subject to the provisions set forth in the Uniform Relocation Assistance and Real Property Acquisition Policies Act (49 CFR Part 24) (Uniform Act).

At PHL, this measure entails establishing a Voluntary Acquisition Program, offering to purchase residential property located within the 2013 DNL 65 dB noise exposure contour. Acquired land would then be assembled for reuse as an airport compatible land use. Should a homeowner decide not to participate in the Voluntary Acquisition Program, there is still the option to participate in the Residential Sound Insulation Program (LU-1). Or, should a home be in a condition such that it is incapable of accepting the improvements necessary to achieve the required noise level reductions in the RSIP without significant improvements, the option of a Purchase Assurance Program is still available (Measure LU-2).

Approximately 34 parcels would be affected by this measure, all located in the residential area north of Runway 17/35. The area is bounded by Bartram Avenue to the south, Brunswick Avenue to the north, 84th Street to the west, and Mario Lanza Boulevard to the east. The area is affected by both aircraft takeoff and landing operations on Runway 17/35.

Located in the Eastwick neighborhood in the City of Philadelphia, the subject area is zoned R9A – Single Family Residential. The condition of the homes range in quality from below average to average condition. The majority of the dwellings are two story buildings with flat roofs. A majority of the homes are owner-occupied.

Based on available public information, the square footage of the homes range from 640 square feet to 1500 square feet. Within the affected blocks there are at least three vacant parcels and two dwellings that have been sealed and are presently vacated. Additionally, at least two properties are actively for sale.

Participation in the acquisition program as offered in this NCP would be voluntary, and participation in the program will qualify a homeowner for the benefits outlined in the Uniform Act and implementing regulations (49 CFR Part 24). The Uniform Act addresses both land acquisition and the relocation of displaced persons as a result. Two types of relocation costs may be offered: moving and relocation expenses and/or relocation assistance. The types of payments that may be offered are related to both the owner/occupancy or tenant classification as well as the period of occupancy, which ranges from one to 180 days. The length of time of occupancy time periods determine the level of payments involved. Both owners and tenants are eligible for relocation costs under the Uniform Act.

An important consideration in the Uniform Act is the requirement that comparable replacement housing exist. The acquisition and relocation program offered by the Airport will include assistance in finding sufficient replacement dwellings.

Airports who utilize AIP grants for the funding of acquisition of land for noise compatibility purposes must prepare a written plan documenting a reuse plan for acquired land. Once the procedure is completed and the City is in possession of the property, it is compelled to convert the property to a compatible land use, or maintain it for continued noise compatibility purposes. Funds earned in the sale, lease, or exchange of the property would then be returned to the AIP program or maintained for use in further approved noise compatibility projects.

This alternative is recommended for inclusion in the NCP.