Chapter Six
NOISE COMPATIBILITY PLAN

Noise Compatibility Plan

The Noise Compatibility Program (NCP) for Lincoln Airport includes measures to abate aircraft noise, guide land development, and implement and update the program. F.A.R. Part 150 requires that the plan apply to a period of no less than five years into the future, although it may apply to a longer period if the sponsor so desires. This NCP has been developed based on a 10-year planning period.

The objective of the noise compatibility planning process has been to improve the compatibility between aircraft operations and noise-sensitive land uses in the area, while allowing the airport to continue to serve its role in the community, state, and nation. The NCP includes three elements that are aimed at satisfying this objective.

- The **Noise Abatement Element** includes noise abatement measures selected from the alternatives evaluated in Chapter Four, Noise Abatement Alternatives.

- The **Land Use Management Element** includes measures to mitigate or prevent noise impact on existing noise-impacted land uses and future land use development in the airport environs. Potential land use management techniques were evaluated in Chapter Five, Land Use Alternatives.

- The **Program Management Element** includes procedures and documents for implementing the recommended noise abatement and land use measures, monitoring the progress of the program, and updating the Noise Compatibility Program.

Each measure of the NCP is summarized in **Table 6C** at the end of this chapter. Included in the table is a brief description of each recommended measure, the entity responsible for implementing each measure, cost of each measure, proposed timing of measure implementation, and potential sources of funding.

This chapter begins with a discussion of alternatives eliminated from further consideration followed by an evaluation of those alternatives considered to be viable.

NOISE ABATEMENT AND LAND USE MEASURES ELIMINATED FROM CONSIDERATION

Several noise abatement and land use alternatives were evaluated in this study. These were discussed with the Planning Advisory Committee (PAC), local citizens, and government officials. The following paragraphs summarize those alternatives, presented for further discussion within Chapters Four and Five, which were eliminated from further consideration after additional study.

Three noise abatement alternatives were presented for further detailed evaluation within Chapter Four. Further evaluation of these alternatives resulted in the elimination of two of these alternatives. The first alternative, utilizing Runway 17R-35L during nighttime hours (10:00 p.m. to 7:00 a.m.) was eliminated as it increased the number of individuals impacted by noise in excess of 65 DNL.

The second alternative addressed the construction of a run-up enclosure at the airport. This alternative was eliminated at this time because a more cost-effective alternative existed. Their current run-up policy has remedied the noise issues at this time. This run-up policy is discussed within the following section of this chapter.

Within Chapter Five, nine alternatives are recommended for further analysis. Of these nine alternatives, one, Environmental Zoning, was eliminated from further consideration after additional study. This alternative recommended restricting residential development within the 100-year floodplain contained within the Airport Environs Noise District. Further coordination with the City of Lincoln planning department indicated that the city is currently in the process of developing regulations regarding construction within the 100-year floodplain on a city/county-wide basis; therefore, the development of a zoning regulation within the Airport Environs Noise District is not necessary.

The remaining eight alternatives recommended for consideration are further discussed within the Land Use Management Element of this chapter.

NOISE ABATEMENT ELEMENT

Recommended noise abatement measures are described within this

section and summarized in **Table 6C** at the end of this chapter.

1. Continuation of Airport's existing run-up noise abatement procedures.

Description. In recent months, the airport has changed its policy regarding run-ups performed at the airport. To date, these changes have alleviated the noise problems resulting from aircraft run-up activity.

The airport's current run-up policy, enacted in March 2002, requests that aircraft maintenance activity which occurs between the hours of 7:00 p.m. to 7:00 a.m. occur on the west side of the airport on the run-up pad located on Taxiway E between Runway 17R-35L and the west apron. Run-ups conducted from 7:00 a.m. to 7:00 p.m. are allowed on the east apron. Both of these locations are depicted on **Exhibit 6A.**

Should run-up activity become an issue in the future, consideration could be given to either moving all run-ups to the west side run-up pad. Until that time, it would be beneficial if maintenance operators would continue to keep detailed logs recording pertinent details of the run-up procedures. This would help in investigating complaints regarding engine maintenance run-ups and analyzing the success of the current run-up policy.

Additional measures that could be undertaken to reinforce the existing run-up policies include pavement marking (**Exhibit 6B** depicts the suggested pavement markings) and signage which would communicate appropriate aircraft run-up locations.

Implementation Actions. Since this is an existing policy, no specific implementation actions are necessary. The Airport Authority could consider pavement markings and signage on the eastern run-up pad. Maintenance operators should continue to keep detailed logs recording the details of pertinent run-up procedures.

Cost and Funding. As an existing policy, no additional costs would be borne by the airport users. The Airport Authority will incur normal administrative costs for informational efforts. A minimal cost would be incurred for signage and pavement markings should the Airport choose to undertake these activities. For budgeting purposes, this cost is estimated at $5,000.

Timing. This is an existing policy which is recommended to continue.

2. Continuation of existing military aircraft training procedures and publication of these procedures within the Department of Defense's flight information publication AP/1, *Arca Planning - North and South America* as well as the IFR Supplement.

Description. Informal aircraft training procedures have been established for local military aircraft as well as aircraft from Offutt Air Force

Base (AFB). It is recommended that these procedures, summarized below, be continued.

In a memo dated August 16, 1996, a number of noise procedures for aircraft arriving from the Offutt Air Force Base are outlined. These procedures were developed with input from the airport, airport traffic control tower (ATCT), and Offutt AFB representatives and are solely recommendations, as no specific formal or informal procedures have been adopted. The procedures are summarized as follows.

- Circling approaches by Offutt AFB aircraft will only be conducted between the hours of 0800 and 1600 local time (8:00 a.m. to 4:00 p.m.).

- Offutt AFB pilots will be asked to fly their VFR patterns downwind, just west of the Airpark.

- Lincoln Airport Authority will permit Offutt AFB aircraft to transition at the airport between 2200 and 2400 local time (10:00 p.m. to 12:00 a.m.). The following procedures are to be used by Offutt AFB pilots during this time frame:

    - Upon completion of the approach, the aircraft are issued standard corridor headings (i.e., 300 or 210).

    - The aircraft are assigned an altitude of 4,000 feet mean sea level (MSL).

    - Crosswind turns should be started no sooner than two miles from the departure end of the runway to which the approach had been conducted, no lower than 3,000 feet MSL.

    - Downwind turns should be commenced four and six miles from the airport.

    - Descent from 4,000 feet MSL will be issued on the base turn.

The Nebraska Air National Guard (NANG) has made efforts to develop a noise abatement procedure to be used by their aircraft during practice operations. This procedure is outlined within their operations notes and is as follows, "Use CAT (Category) E minimums for practice circling approaches and try to avoid direct overflight of west housing area." The use of CAT E minimums places the aircraft at an altitude of 800 feet above ground level (AGL) versus the typical 500-foot AGL altitude utilized by the types of aircraft operated by NANG.

The military utilizes the AP/1 and the IFR Supplement for publishing approach and departure procedures at various airports across the United States. It would be beneficial if those procedures utilized by Offutt AFB and NANG pilots were published within these guides. This would allow transient pilots to lessen the impact of their training on surrounding neighborhoods.

Implementation Actions. The NANG unit's training procedures should be published within the military AP/1 and IFR Supplement. This would provide

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Lincoln Airport

Exhibit 6A
RUN-UP LOCATIONS

6050
6010
6100
6060
6000
5801
5800
5640
106
BRL
GROUP III
GROUP III
GROUP III
200'
200'
118'
118'
193.5'
Service Road
ZOA-1
Magnetic Variance
6° 57' East (July 1998)
Annual Rate of Change
0.0° West (July 1998)
0
50
100
SCALE IN FEET
Object Free Area

Lincoln Airport

Exhibit 6B

SUGGESTED RUN-UP RAMP LAYOUT

transient military aircraft information on the noise-sensitive areas around Lincoln Airport and provide the proper procedures for training at the Airport.

Cost and Funding. As an existing policy, no additional costs would be borne by the airport users. The Airport Authority will incur normal administrative costs for informational efforts.

Timing. This is an existing policy which is recommended to continue.

3. Encourage the use of Advisory Circular 91-53A, *Noise Abatement Departure Procedures for Large Jets.*

Description. The Airport Authority should actively encourage large jet operators to use the procedures outlined within Advisory Circular (AC) 91-53A. This AC provides for two standard thrust cutback procedures. One focuses on noise abatement near the airport (the close-in procedure), while the other abates noise further away from the airport (the distant procedure). The intent of the AC is to provide guidelines for aircraft operators to establish safe and effective procedures that are used at all airports across the country. (A complete description of AC 91-53A is included in **Appendix D**.)

Implementation Actions. Since this is an existing policy, no specific implementation actions are necessary. The Airport Authority should reflect this policy on pilot guides, signs, pilot mailings, and on the Lincoln Airport Internet Web Site.

Cost and Funding. As an existing policy, no additional costs would be borne by the airport users. The Airport Authority will incur normal administrative costs for informational efforts.

Timing. This is an existing policy which is recommended to continue.

4. Encourage use of NBAA Noise Abatement Procedures.

Description. The Airport Authority should actively encourage business jet operators to use the National Business Aviation Association (NBAA) Approach and Landing Procedure and Standard Noise Abatement Departure Procedures, or equivalent quiet-flying procedures developed by aircraft manufacturers. The NBAA standard procedure involves the management of thrust, flap settings, speed, and climb rate to reduce noise quickly after takeoff. (A complete description of the procedure is in **Appendix D**.)

The NBAA has also published noise abatement approach procedures for jet aircraft. These include using minimum approach flap settings, maintaining minimum speed, and minimizing the use of reverse thrust after landing, consistent with safety. These procedures are also included in **Appendix D**.

Implementation Actions. Since this is an existing policy, no specific implementation actions are necessary. The Airport Authority should reflect this policy on pilot guides, signs, pilot mailings, and on the Lincoln Airport Internet Web Site.

Cost and Funding. As an existing policy, no additional costs would be borne by the airport users. The Airport Authority will incur normal administrative costs for informational efforts.

Timing. This is an existing policy which is recommended to continue.

5. Promote use of AOPA Noise Awareness Steps by light single and twin-engine aircraft.

Description. The Aircraft Owners and Pilots Association (AOPA) encourages quiet and neighborly flying by distributing generalized noise abatement procedures for use by propeller aircraft. These "Noise Awareness Steps" have recommendations on how to fly the aircraft, as well as where to fly. Most of the steps provide guidance on pilot technique when maneuvering near noise-sensitive areas. The steps also encourage cooperation with the airport staff on noise abatement issues. These procedures are listed in **Appendix D** of this document.

It is not possible to predict how often these procedures would be used, so it is not possible to quantify their effects on noise. Nevertheless, any use of these procedures will help the overall noise conditions around the airport. Consequently, the airport staff should continue to encourage their use.

Implementation Actions. Since this is an existing policy, no specific implementation actions are necessary. The Airport Authority should reflect this policy on future published pilot guides, signs, pilot mailings, and on the Lincoln Airport Internet Web Site.

Cost and Funding. As an existing policy, no additional costs would be borne by the airport users. The Airport Authority will incur normal administrative costs for informational efforts.

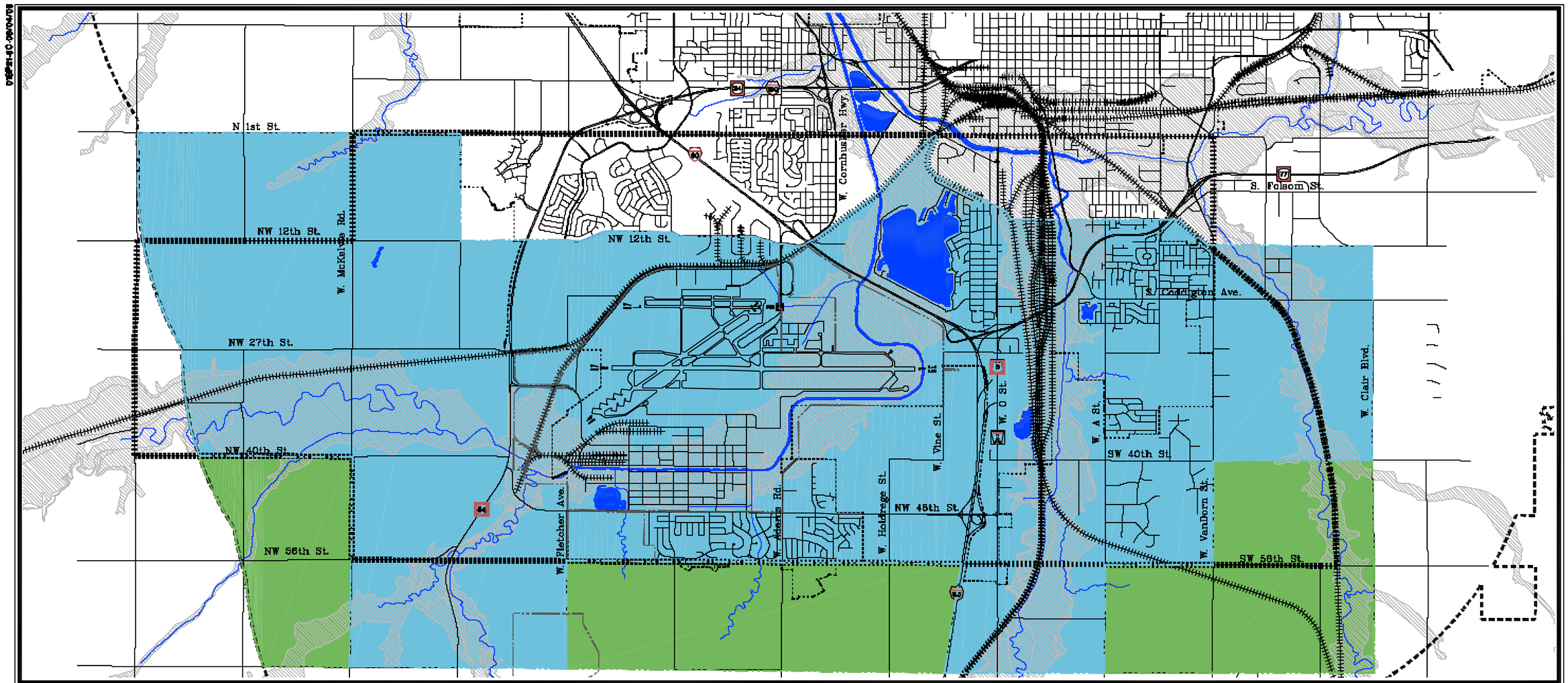
Timing. This is an existing policy which is recommended to continue.

LAND USE MANAGEMENT ELEMENT

The recommended land use mitigation measures for the vicinity of Lincoln Airport are presented on the following pages and summarized within **Table 6C**.

1. Change the boundaries of the Airport Environs Noise District to encompass developing areas which receive military training overflight activity.

Description. Consideration should be given to expanding the existing boundaries of the Airport Environs



LEGEND

- Airport Property
- Municipal Boundaries
- Extra-territorial Jurisdiction
- Railroad Tracks
- Study Area
- Floodplains
- Airport Environs Noise District
- Recommended Airport Environs Noise District Boundary Adjustments

Source: Base Information and Map:
City of Lincoln Geographic
Information System, May 2002.
Coffman Associates Analysis.

NORTH

0 6000
SCALE IN FEET

Lincoln Airport

Exhibit 6C
RECOMMENDED AIRPORT ENVIRONS
NOISE DISTRICT BOUNDARY

Noise District to the west to capture the areas impacted by touch-and-go activity west of the airport. The recommended boundaries are depicted on **Exhibit 6C.** Military training activities impact the areas which are suggested for inclusion.

Implementation Actions. The revision of the Airport Environs Noise District boundary would require an amendment to the City of Lincoln's zoning ordinance.

Cost and Funding. Adoption of this measure would involve administrative expenses for the City of Lincoln. These expenses would have to be paid out of the City of Lincoln's operating budget.

Timing. Amendments to zoning ordinances take time to prepare and process. The required amendments for this measure are projected for 2004.

2. Update the General Plan to reflect the Airport Environs Noise District boundary.

Description. Within the City of Lincoln and Lancaster County's comprehensive plan, reference is made to the city's Airport Environs Noise District and Airport Zoning Regulations. Consideration should be given to incorporating an exhibit depicting the boundaries of the various districts into the plan. Many individuals utilize comprehensive or general plans when considering the purchase of property. Incorporating an exhibit depicting the areas impacted by airport operations into the General Plan would allow for further fair disclosure of the impact of the airport on its environs.

Implementation Actions. This policy can be established by amending the *2025 Lincoln and Lancaster County Comprehensive Plan*.

Cost and Funding. Adoption of this measure would involve administrative expenses for the City of Lincoln/ Lancaster County Planning Department. These expenses would have to be paid out of operating budgets.

Timing. Amendments to general plans take time to prepare and process. The required amendments for this measure are projected for 2004.

3. Update the General Plan to reflect the 2002 noise contours prepared as part of this F.A.R. Part 150 Study.

Description. Within the City of Lincoln and Lancaster County's comprehensive plan, consideration should be given to incorporating an exhibit depicting the boundaries of the noise contours prepared as part of this F.A.R Part 150 Study. The 2002 60, 65, 70, and 75 DNL noise contours would be appropriate for adoption as they represent the "worst case" noise scenario.

Implementation Actions. This policy can be established by amending the *2025 Lincoln and Lancaster County Comprehensive Plan*.

Cost and Funding. Adoption of this measure would involve administrative expenses for the City of Lincoln/

Lancaster County Planning Department. These expenses would have to be paid out of operating budgets.

Timing. Amendments to general plans take time to prepare and process. The required amendments for this measure are projected for 2004.

4. Modify the existing Airport Environs Noise District regulations to reflect the 2002 noise contours and incorporate the 60 DNL noise contour into the regulations.

Description. Based on the military training activity which occurs at the airport, as well as the size and shape of the new noise contours for the airport, consideration should be given to modifying the regulations contained within the Airport Environs Noise District. These changes primarily relate to the district boundary and the uses allowed within the various noise contours. Additional supporting information is contained in **Appendix E**.

As discussed previously in this chapter, consideration could be given to expanding the boundary of the noise district to the west as depicted on **Exhibit 6C**. This area is planned for residential land uses within the comprehensive plan. Should the boundary be extended, avigation easements would be required prior to the development of this area which would help to ensure that future property owners are aware of the impact of the airport.

The previously prepared 65 DNL noise contour is very similar in shape to the 2002 60 DNL noise contour. During the preparation of the ANCLUC study in 1980, the 60 DNL noise contour was recommended to be incorporated into the land use regulations for the City and County. However, due to the large size of the 60 DNL noise contour at the time and the amount of land contained within the contour, it was determined that land use regulation within the 60 DNL noise contour was not feasible. Changes in the fleet mix utilizing the airport and a decrease in the noise levels produced by the airport, however, make it reasonable to regulate land uses within the 60 DNL noise contour.

Due to the similarity in shape of the previously prepared 65 DNL noise contour and the 2002 60 DNL noise contour, it is recommended that the 60 DNL noise contour be incorporated into the Airport Environs Noise District. This change to the regulations would have a minimal effect on land uses as the area is currently regulated by the land use regulations. The recommended change to the regulations would ensure that noise-sensitive dwellings are sound-insulated to minimize the impact of aircraft operations on residents. Development could be allowed to occur within this noise contour; however, a requirement for the incorporation of sound attenuation standards into the design and construction could be incorporated. Additionally, the incorporation of some form of fair disclosure should be required. The fair disclosure could take the form of maps illustrating the various boundaries of the Airport

Environs Noise District within the sales office of the new subdivision.

It is also recommended that the land uses allowed within the 2002 65 DNL noise contour be modified to not allow the development of noise-sensitive development within this contour. The FAA strongly discourages the construction of noise-sensitive developments within the 65 DNL noise contour. The construction of residences, schools, churches, and libraries should not be allowed within the 65 DNL noise contour.

The current requirements of development within the 70 and 75 DNL noise contours should remain as currently stated within the Airport Environs Noise District.

Exhibit 6D depicts the recommended boundaries of the various zones and **Table 6A** outlines a potential noise compatibility overlay matrix which could be included within the modified Airport Environs Noise District.

Implementation Actions. The City of Lincoln should amend its existing zoning ordinance to reflect the changes to the Airport Environs Noise District regulations.

Cost and Funding. This measure would involve administrative expenses. Funding would come from the operating budget of the City.

Timing. For planning purposes, this is projected for 2004.

TABLE 6A
Airport Environs Noise District Overlay Matrix
Lincoln Airport

	Uses Allowed Within Each Zone			
	Airport Environs Noise District	***60-65 DNL***	***65-70 DNL***	***70-75 DNL***
RESIDENTIAL				
Single-family, duplex, multi-family, manufactured housing	Y[1,2]	Y[1,2,3]	N	N
Recreational vehicle parks	Y[1,2]	Y[1,2,3]	N	N
Other residential	Y[1,2]	Y[1,2,3]	N	N
PUBLIC FACILITIES				
Education facilities	Y[1,2]	Y[1,2,3]	N	N
Religious facilities, libraries, museums, galleries, clubs and lodges	Y[1,2]	Y[1,2,3]	N	***N***
Outdoor sport events, entertainment and public assembly, except amphitheaters	Y[1,2]	N	N	N
Indoor recreation, amusements, athletic clubs, gyms and spectator events	Y[1,2]	Y[1,2]	Y[1]	N
Community and neighborhood parks	Y[1]	Y[1]	Y[1]	N
Extensive natural recreational areas	Y[1]	Y[1]	Y[1]	Y[1]
Outdoor recreation: tennis, golf courses, riding trails, etc.	Y[1,2]	Y[1]	Y[1]	Y[1]
Cemeteries	Y	Y	Y	N
COMMERCIAL				
Hotels/motels	Y[1,2]	Y[1,2]	Y[1,2]	N
Hospitals and other health care services	Y[1,2]	Y[1,2,3]	N	N
Services: finance, real estate, insurance, professional and government offices	Y[1,2]	Y[1,2,3]	Y[1,2,3]	Y[1,2,3]
Retail sales: building materials, farm equipment, automotive, marine, mobile homes, recreational vehicles and accessories	Y[1,2]	Y[1,2,3]	Y[1,2,3]	Y[1,2,3]
Restaurants, eating and drinking establishments	Y[1,2]	Y[1,2,3]	Y[1,2,3]	Y[1,2,3]
Retail sales: general merchandise, food, drugs, apparel, etc.	Y[1,2]	Y[1,2,3]	Y[1,2,3]	Y[1,2,3]
Personal services: barber and beauty shops, laundry and dry cleaning, etc.	Y[1,2]	Y[1,2,3]	Y[1,2,3]	Y[1,2,3]

TABLE 6A (Continued)
Airport Environs Noise District Overlay Matrix
Lincoln Airport

	Uses Allowed Within Each Zone			
	Airport Environs Noise District	***60-65 DNL***	***65-70 DNL***	***70-75 DNL***
COMMERCIAL (Continued)				
Automobile service stations	Y[1,2]	Y[1,2]	Y[1,2]	Y[1,2]
Repair services	Y[1,2]	Y[1,2]	Y[1,2]	Y[1,2]
INDUSTRIAL				
Processing of food, wood and paper products; printing and publishing, warehouses, wholesale and storage activities	Y[1,2]	Y[1,2]	Y[1,2]	Y[1,2]
Refining, manufacturing and storage of chemicals, petroleum and related products, manufacturing and assembly of electronic components, etc.	Y[1,2]	Y[1,2]	Y[1,2]	Y[1,2]
Manufacturing of stone, clay, glass, leather, gravel and metal products; construction and salvage yards; natural resource extraction and processing, agricultural, mills and gins	Y[1,2]	Y[1,2]	Y[1,2]	Y[1,2]
AGRICULTURE				
Animal husbandry; livestock farming, breeding and feeding; plant nurseries (excluding retail sales)	Y[1,2]	Y[1,2]	Y[1,2]	Y[1,2]
Farming (except livestock)	Y[1,2]	Y[1,2]	Y[1,2]	Y[1,2]
MISCELLANEOUS				
Transportation terminals, utility and communication facilities	Y[1,2]	Y[1,2]	Y[1,2]	Y[1,2]
Vehicle parking	Y[1]	Y[1]	Y[1]	Y[1]
Signs	Y	Y	Y	Y

KEY TO TABLE 6A

Y Land use is compatible and is permitted.

N Land use is incompatible and is not permitted.

1 Development requires an avigation easement be issued as a condition of, and prior to, the authorization for development.

2 A fair disclosure agreement and covenant shall be recorded as a condition of development approval for all permitted uses in the Airport Environs Noise District. All new plats recorded shall be inscribed with the following: "*These properties, due to their proximity to Lincoln Airport, are likely to experience aircraft overflights, which could generate noise levels that may be of concern to some individuals.*"

3 Development is required to incorporate acoustical features as a condition of building permit issuance. Acoustical features include a solid core or metal-clad door, equipped with a wood or metal storm door, storm or multiple-glazed windows, and mechanical ventilation to provide adequate environmental comfort with all windows and doors closed. Through-the-door mailboxes, skylights, or other direct openings to the outside are prohibited.

Note: Where property is undeveloped, only such portion of it as is actually within the DNL lines shall be considered at or within that DNL line. However, at such time as said property shall be subdivided or platted, any platted build-able lots intersected by an DNL line shall be deemed to be wholly within the highest DNL line.

5. Incorporate into the Airport Environs Noise District regulations airport land use compatibility guidelines for review of development projects within the noise district.

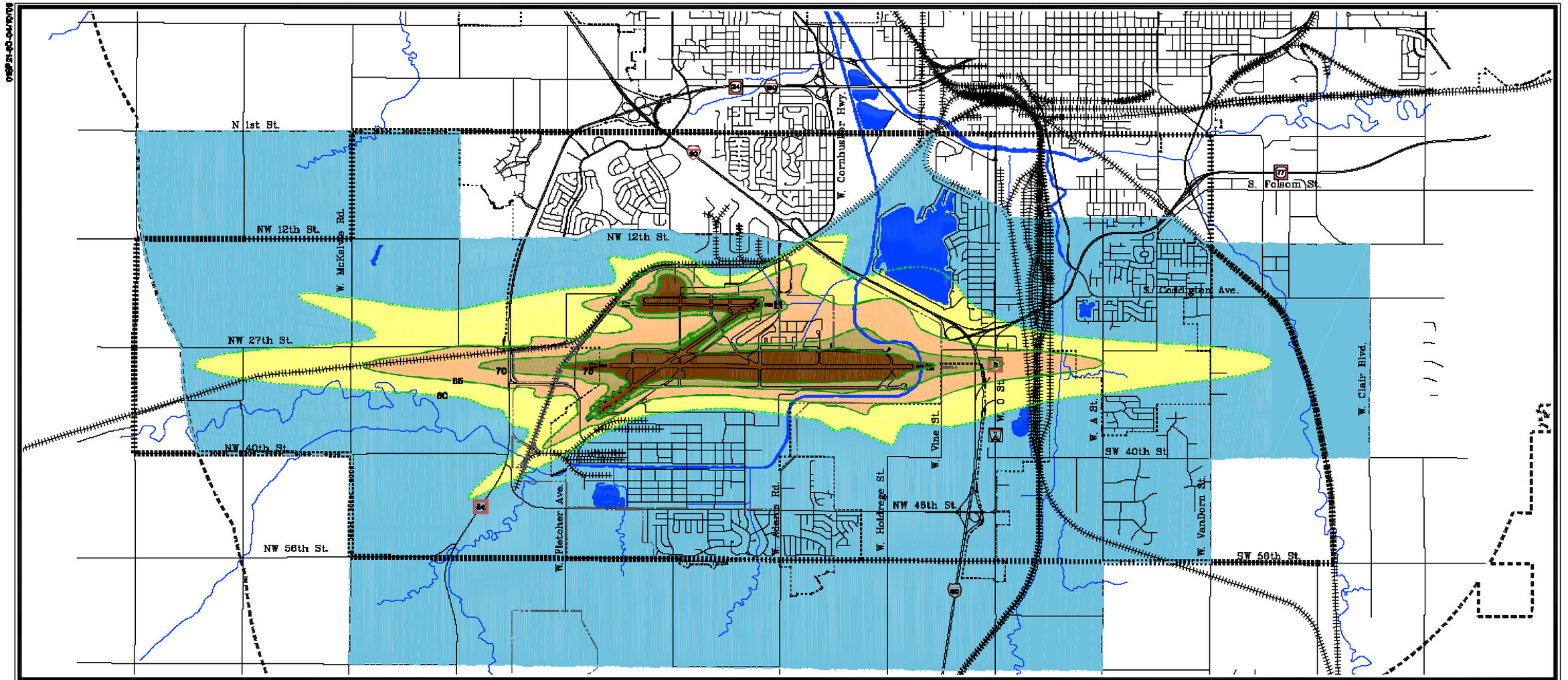
Description. This policy is proposed to apply throughout the Airport Environs Noise District. The adoption of special project review criteria, specifically addressing airport land use compatibility needs, would provide guidance to land use decision-makers as they review project proposals.

The following project review criteria should be included in the local general plans or as checklists for consideration by local planners, planning commissions, and governing bodies. These criteria are specifically suggested for use in reviewing planned development, rezoning, special use, conditional use, and variance applications within the Airport Environs Noise District. The following criteria are suggested:

- Determine the sensitivity of the subject land use to aircraft noise levels. **Table 6A**, if adopted, can be used for this purpose.

- Advise the airport management of development proposals involving noise-sensitive land uses within the 2002 60 DNL noise contour.

- Locate noise-sensitive public facilities outside the 2002 60 DNL contour and away from the primary aircraft traffic pattern, if possible.



LEGEND

- Airport Property
- Municipal Boundaries
- Extra-territorial Jurisdiction
- Railroad Tracks
- Study Area
- Airport Environs Noise District
- 2002 60 DNL Noise Contour
- 2002 65 DNL Noise Contour
- 2002 70 DNL Noise Contour
- 2002 75 DNL Noise Contour

Source: Base Information and Map:
City of Lincoln Geographic
Information System, May 2002.
Coffman Associates Analysis.

NORTH

0 6000
SCALE IN FEET

Lincoln Airport

Exhibit 6D
RECOMMENDED REVISED AIRPORT
ENVIRONS NOISE DISTRICT BOUNDARIES

- Discourage the approval of rezonings, exceptions, variances, and conditional uses which introduce noise-sensitive development into areas exposed to noise exceeding 60 DNL.

- Where noise-sensitive development within the 60 DNL noise contour must be permitted, encourage developers to incorporate the following measures into their site designs:

  (1) Where noise-sensitive uses will be inside a larger, mixed-use building, locate noise-sensitive activities on the side of the building opposite the prevailing direction of aircraft flight.

  (2) Where noise-sensitive uses are part of a larger mixed-use development, use the height and orientation of compatible uses, and the height and orientation of landscape features such as natural hills, ravines, and man-made berms, to shield noise-sensitive uses from ground noise generated at the airport.

Implementation Actions. The City of Lincoln should adopt these project guidelines as part of the Airport Environs Noise District regulations.

Cost and Funding. This measure would involve administrative expenses. Funding would come from the operating budget of the City.

Timing. For planning purposes, this is projected for 2004.

6. Maintain compatibly-zoned areas within the 2002 60 DNL noise contour when possible.

Description. The majority of the area contained within the 2002 60 DNL noise contour is currently zoned for compatible land uses. When possible, the areas that are zoned for compatible use should be maintained.

Implementation Actions. This measure would be implemented by the City of Lincoln.

Cost and Funding. This measure would involve administrative expenses. Funding would come from the operating budget of the City.

Timing. This is an on-going measure with no implementation time frame.

7. Lobby state legislature to modify fair disclosure regulation to incorporate clauses regarding the impacts of aircraft operation on property.

Description. State legislature should be lobbied to clarify or revise the *Nebraska Real Estate Commission Seller Property Condition Disclosure Statement* to enhance the fair disclosure of aircraft noise impacts. Portions of Section C, Title Conditions, on the current statement would be modified to notify buyers of the existence of avigation easements on the property. Realtors would need to be educated on the existence and potential effects of

transportation noise as well as the intent of avigation easements. The *Property Condition Disclosure Statement* could also be modified to include a special category for the disclosure of transportation noise and avigation easements.

Implementation Actions. This requires adoption of legislature by the State of Nebraska.

Cost and Funding. This measure will involve administrative and lobbying expenses that will have to be paid through the operating budget of the Airport Authority and the State of Nebraska.

Timing. For planning purposes, this is projected for 2004.

8. Utilize fair disclosure covenants and signage in new developments within the Airport Environs Noise District to notify prospective landowners of the presence of aircraft operations.

Description. A fair disclosure covenant should be required prior to the approval of a subdivision plat. Since large portions of undeveloped land are contained within the various noise contours, establishment of fair disclosure policies would have an affect on a large number of potential property owners.

Additionally, discussions with the Planning Advisory Committee (PAC), local officials, and landowners indicated that the use of signage within development areas would be beneficial in making prospective buyers aware of the impact of the airport on areas within the Airport Environs Noise District. New developers within the Airport Environs Noise District will be required to post the noise contours within the sales office of the development. This would help to ensure that future property owners are aware of the noise produced by the airport prior to purchasing property in the area.

Implementation Actions. These conditions would be required as part of a plat approval. The current subdivision regulations and plat approval process would need to be amended.

Cost and Funding. This measure would involve administrative expenses. Funding would come from the City of Lincoln's operating budget

Timing. For planning purposes, this is projected for 2004.

PROGRAM MANAGEMENT ELEMENT

The success of the Noise Compatibility Program requires a continuing effort to monitor compliance and identify new or unanticipated problems and changing conditions. Five program management measures are recommended at Lincoln Airport. The Airport Authority, as airport operator, is responsible for implementing these measures. They are discussed below and summarized in **Table 6C**.

1. Establish a Geographic Information System (GIS) for receiving, analyzing, and responding to noise complaints; publishing the prepared noise contours; and community outreach.

Description. The airport currently has a system of recording and responding to noise complaints, as well as pro-active community outreach efforts. In addition to recording and filing complaints, it is important for the airport management to respond to complaints, even if it is not possible to take remedial action. As part of this effort, it is recommended that the Airport Authority update the current noise complaint monitoring system. The Airport Authority should develop a computerized GIS system to map the noise complaints to better identify geographic patterns and trends that emerge which may deserve special attention. The system could also be utilized to track and publish avigation easements in the Airport vicinity.

Complaints are an imperfect indicator of noise problems. The tendency of an individual to file a complaint depends on many personal variables including socioeconomic status, housing tenure, sensitivity to noise, feelings about the aviation industry, and expectations about overall neighborhood livability. Recognizing that complaints are limited in their ability to clearly reveal the existence and scope of noise problems, the staff should nevertheless periodically analyze the complaint records. If the geographic pattern of complaints, or the causes of complaints, indicate that consistent problems exist, the airport management should investigate and, if possible, seek corrective action.

The GIS system could also be utilized to publish the airport's noise contours on its Web Site; thereby, allowing for an additional level of fair disclosure for those who choose to locate within the areas impacted by airport operations. For example, an interface could be developed which would allow a prospective owner to type in an address to determine the location of the property as it relates to the noise contours and the Airport itself.

Implementation Actions. When the Airport Authority has the funding to buy the geographical information system, it should request cost proposals from qualified software suppliers and consultants for installation and training.

Cost and Funding. This will involve administrative costs, purchasing of a geographic information system, setup of the system, and training. This is estimated at $50,000.

Acquisition of the geographical information system would be eligible for Federal funding through the noise set-aside of the Airport Improvement Program (AIP). This would cover up to 90 percent of the costs. The balance would be funded by the airport capital budget.

Timing. Implementation is dependent upon Airport Improvement Program funding and, therefore, the timing for this recommendation is not predictable. For planning purposes, however,

implementation is projected for 2004-2005.

2. Prepare military and civilian pilot guides to make transient pilots aware of the noise abatement procedures which have been established for military training activities.

Description. Pilot guides describing civilian and military airport noise abatement information should be prepared for wide distribution to pilots using Lincoln Airport. The guide should include an aerial photo showing the airport and the surrounding area, pointing out noise-sensitive land uses, and preferred noise abatement procedures. It could also include other information about the airport that pilots would find useful. The guide should be suitable for insertion into a Jeppesen manual so that pilots will be able to conveniently use it.

Airport management should distribute copies to all owners of aircraft based at the airport and to the fixed base operators so they can offer them to transient pilots.

Additionally, the Airport currently receives a large amount of transient military training activity which is the source of many of the noise complaints at the airport. The informal procedures developed by Offutt Air Force Base and the NANG have lessened the impact of their respective training activities on the Airport environs. It would be beneficial to create a pilot guide utilizing the procedures created by Offutt AFB and NANG pilots for those transient military pilots which utilize the airport for training activities. Making these pilots aware of the informal procedures would help to lessen the impact of military training activity on surrounding neighborhoods.

Implementation. The Airport Authority is responsible for arranging for publication of a pilot guide.

Cost and Funding. The cost of pilot guides is estimated at $10,000. It is currently budgeted as part of this F.A.R. Part 150 Study. The pilot guides should be revised and reissued as needed. For planning purposes, it is estimated that it will need to be republished every three years at a cost of approximately $5,000.

Timing. Publication of pilot guides is planned for 2004.

3. Review Noise Compatibility Program implementation.

Description. The airport management must monitor compliance with the Noise Abatement Element. This will involve checking periodically with airport users and the local Tower Manager regarding compliance with the informal military and civilian procedures. Additionally, the run-up policy and noise complaint information should be reviewed periodically to evaluate the success of the program.

It may be necessary from time to time to arrange for noise monitoring, noise modeling, or flight track analysis to study issues that may arise in the future.

The Airport Authority should also maintain communications with the Lincoln/Lancaster County Planning Department to follow progress in implementing the relevant measures of the Land Use Management Element. When needed, consultants will be utilized to assist with the preparation and adopting of revisions to the City's zoning ordinance to ensure compatible development within the Airport environs.

Implementation Actions. The administrative actions discussed above in the "Description" will be necessary.

Cost and Funding. This measure will require administrative time and staff support. Expenditures for special noise monitoring, modeling studies, or consultant service could be necessary from time to time. For budgeting purposes, this cost is estimated at $20,000 every three years. This would be covered through the airport operating budget.

Timing. This is an ongoing activity that should begin as soon as the Noise Compatibility Program is approved.

4. Update Noise Exposure Maps and Noise Compatibility Program.

Description. The airport management should review the Noise Compatibility Program (NCP) and consider revisions and refinements as necessary. A complete plan update will be needed periodically to respond to changing conditions in the local area and in the aviation industry. This can be anticipated every five to ten years. An update may be needed sooner, however, if major changes occur. An update may not be needed until later if conditions at the airport and in the surrounding area remain stable or do not change as anticipated in the Plan.

Proposed changes to the NCP should be reviewed by the FAA and all affected aircraft operators and local agencies. Proposed changes should be submitted to the FAA for approval after local consultation and a public hearing to comply with F.A.R. Part 150.

Even if the NCP does not need to be updated, it may become necessary to update the Noise Exposure Maps (NEM). F.A.R. Part 150 requires the NEM to be updated if any change in the operation of the airport would create a substantial, new non-compatible use. The FAA interprets this to mean an increase in noise levels of 1.5 DNL or more, above 65 DNL, over non-compatible areas that had formerly been compatible.

As a rule of thumb, the trigger for determining the need for contour updating is a 17 percent change in equivalent operations by the loudest aircraft regularly using the airport. To calculate "equivalent operations," any nighttime operations (between 10:00 p.m. and 7:00 a.m.) must be multiplied by ten and added to daytime operations.

Implementation Actions. No specific implementation actions, other than those discussed above, are required.

Cost and Funding. Costs of a complete update of the Noise Compatibility Program are estimated at $300,000. This would be eligible for up to 90 percent funding from the FAA. The Lincoln Airport Authority would be responsible for the remainder which would come from the airport capital budget.

Timing. This should be done as necessary. Updates are typically needed every five to ten years, depending on how much change occurs at the airport and in the local area. For planning purposes, two updates can be expected over the next 20 years.

RESIDUAL NOISE IMPACTS

The recommended noise abatement measures are all continuations of existing measures and do not involve any changes that would alter the existing (2002) or future (2007 and 2022) noise contours presented in Chapter Two. The 2002, 2007, and 2022 noise exposure contours are depicted on **Exhibits 6E, 6F**, and **6G.** A summary of the noise-sensitive impacts is contained within **Table 6B**.

SUMMARY

The Noise Compatibility Program for Lincoln Airport is summarized in **Table 6C** on the next page. The total cost of the program is estimated at **$440,000**. Most of the costs are related to the preparation and printing of pilot guides ($25,000) and the establishment of a GIS system ($50,000). Other significant costs include future updates of the Program ($300,000) and miscellaneous special studies that may be needed to assist with monitoring Program implementation ($60,000).

Eighty-nine percent of the cost ($391,500) would be eligible for FAA funding through the reliever and noise set-asides of the Federal Airport Improvement Program. The remaining 11 percent of the cost ($48,500) would be paid through the airport operating and capital budgets.

The recommended noise abatement measures can reduce disturbing aircraft noise in the area. The land use planning measures can also help to limit the potential for future noise-sensitive development in the airport area. Continuing program management will provide for a timely response to conditions that may change over time and require a re-evaluation of future noise conditions. While the airport management must provide leadership and coordination of the entire program, success hinges on the cooperation of all involved parties.