



Chapter 6

LAND USE ALTERNATIVES



LAND USE ALTERNATIVES

The evaluation of noise abatement alternatives in Chapter Five resulted in tentative proposals to continue promoting aircraft noise abatement measures in the vicinity of Scottsdale Airport. Nevertheless, even if such measures are implemented, aircraft will continue to operate at Scottsdale Airport and areas around the airport will continue to be impacted by aircraft noise.

The purpose of this chapter is to evaluate various land use management alternatives that prevent or reduce these future noise impacts. **Exhibit 6A** contains a list of techniques that have been used to promote land use compatibility at airports around the country. The Federal Aviation Administration (FAA) requires most of these to be considered in Part 150 studies. The techniques can be grouped

into three categories: **policy** and **regulatory** techniques which address existing and guide future development, and **expenditure** techniques which involve potential payments for mitigation assistance. Examples of each of these techniques are illustrated in **Exhibit 6A**.

The potential suitability of each technique is discussed in this chapter and evaluated by two factors: effectiveness and feasibility. The criteria used for judging effectiveness include near and long term suitability to address the land use issues discussed at the beginning of this chapter. If a technique appears to be effective, and does not create undesirable side effects, the feasibility of implementing it is evaluated. Feasibility criteria include cost of local governments and citizens,



eligibility for FAA financial aid, political acceptability, state statutory authorization, and administrative ease or complexity.

Many of these alternatives were explored within the previous Part 150 studies prepared for Scottsdale Airport. In order to refine this alternatives analysis, an update on the status of the land use measures recommended within the previous Part 150 Noise Compatibility Plan is provided. This update is followed by the identification of broad planning issues that have arisen since the previous Part 150 Study. To address these issues, alternative land use management techniques are evaluated to determine their effectiveness in the Scottsdale Airport study area. Finally, preliminary recommendations are presented. These recommendations are to be reviewed by the Technical Advisory Team (TAT) and local citizens. The final land use management and noise abatement recommendations will be presented in Chapter Seven, Noise Compatibility Plan.

STATUS OF PREVIOUS NOISE COMPATIBILITY PROGRAM LAND USE RECOMMENDATIONS

The previous Noise Compatibility Program for Scottsdale Airport was completed in March 1997. The primary objective of the Plan was to improve

the compatibility between Scottsdale Airport operations and the noise-sensitive land uses within the airport environs, while allowing the airport to continue to serve its role in the national air transportation network.

Eleven land use management strategies were recommended in the Plan. A brief description of these measures, as well as their status, is contained within **Table 6A**. As described within the table, many of the alternatives have not been formally implemented. Since the completion of the previous study, the City of Scottsdale's Department of Planning and Development has undertaken a number of large projects, including the adoption of the general plan update. The airport staff felt very strongly regarding the recommendations contained within the previous plan and reached an agreement with the city planning department to implement the measures on an informal basis. Staff from Scottsdale Airport prepared development guidelines for those areas contained within the previously recommended Airport Influence Area (AIA). The requirements of these guidelines are implemented through an "Airport Area Development Communication Form" which is forwarded to airport staff by the city planning department whenever a rezoning or development proposal is submitted to the city. The following section summarizes the contents of these existing informal development guidelines.

TABLE 6A Previous Noise Compatibility Program Land Use Recommendations Scottsdale Airport	
Land Use Alternative (1997)	Status
LU 1: Establish an Airport Influence Area (AIA) for Scottsdale Airport.	The City of Scottsdale attempted to establish a formal AIA for Scottsdale Airport; however, the establishment of such an area was strongly opposed by residents. Current property owners felt they should not be required to disclose the existence of the airport to potential buyers since the existence of the airport was not disclosed to them when they purchased the property. An informal AIA has, in cooperation with the City of Scottsdale, been implemented for land use planning purposes.
LU 2: Preserve existing General Plan designations for compatible land uses in the AIA.	This alternative was implemented by the cities of Scottsdale and Phoenix.
LU 3: Retain existing compatible use zoning with in the AIA.	This alternative was implemented by the cities of Scottsdale and Phoenix with the exception of a large parcel located directly north of the airport. This parcel is zoned in a manner which would allow low-density residential development; however, it is fully developed as a golf course.
LU 4: Amend the <i>City of Scottsdale General Plan</i> to provide for compatible land use on the northeast corner of Bell and Hayden Roads.	This alternative has been implemented. The area is planned for mixed use development.
LU 5: Rezone areas north and east of the airport for compatible uses consistent with the <i>City of Scottsdale General Plan</i> .	This alternative has been partially implemented. The large parcel north of the airport, which is developed as a golf course, has not been re-zoned.
LU 6: The City of Scottsdale should adopt airport noise overlay zoning within the AIA.	This alternative has not been formally implemented. However, the airport has, in cooperation with the City of Scottsdale, implemented project review guidelines which contain a form of overlay zoning. These guidelines are described in the following section.
LU 7: Through the rezoning process, prohibit new noise-sensitive uses within the 65 DNL contour, require sound insulation between 55 and 65 DNL, and require fair disclosure agreements and covenants in the AIA within the City of Scottsdale.	This alternative has not been formally implemented. However, the airport has, in cooperation with the City of Scottsdale, implemented project review guidelines which contain development requirements within the airport environs. These requirements are described in the following section.
LU 8: Amend subdivision regulations to require dedication of avigation easements and recording of fair disclosure agreements for new subdivisions in the AIA within the City of Scottsdale.	This alternative has not been formally implemented. However, the airport has, in cooperation with the City of Scottsdale, implemented project review guidelines which contain requirements for easements and disclosure. These guidelines are described within the following section.

TABLE 6A (Continued)	
Land Use Alternative (1997)	Status
LU 9: Adopt local building code amendments setting sound insulation standards for noise-sensitive buildings within noise overlay zones (City of Scottsdale).	This alternative has not been formally implemented. However, the airport has, in cooperation with the City of Scottsdale, implemented project review guidelines which contain sound insulation requirements. These guidelines are described within the following section.
LU 10: Adopt project review guidelines for rezoning, special use, conditional use, planned development, and variance applications within the AIA (cities of Scottsdale and Phoenix).	This alternative has not been formally implemented. However, the airport has, in cooperation with the City of Scottsdale, implemented project review guidelines. These guidelines are described within the following section and pertain only to development within the City of Scottsdale. Guidelines have not been established for the portions of the study area contained within Phoenix.
LU 11: Encourage fair disclosure of airport impacts to potential future property owners.	This alternative is being implemented on an ongoing basis.

INFORMAL AIRPORT VICINITY DEVELOPMENT GUIDELINES

The informal development guidelines prepared by Scottsdale Airport pertain to both Part 77 height and hazard requirements and noise created as a result of airport operations. A copy of these guidelines is contained within **Appendix F**. This section provides an overview of the guidelines as they pertain to noise.

In considering potential land use compatibility measures, it is necessary to define the areas within which those policies should apply. The challenge is to define the area within which the airport now exerts, and in the future may exert, a significant influence on noise-sensitive land uses. Scottsdale Airport has defined this area with the use of various overlay zones. These zones, depicted on **Exhibit 6B**, are based on the recommendations of the

previous Part 150 Study prepared for the airport. Currently, only development within the City of Scottsdale is impacted by the various zones which are as follows:

- **AC-1: Airport Influence Area (AIA).** Development within this area requires disclosure to prospective lessees and/or purchasers of property. See the sample disclosure notice contained within **Appendix F**.
- **AC-2: 55+ DNL Noise Contour.** Development within this area requires the issuance of an avigation easement as well as the incorporation of sound attenuation into noise-sensitive developments. Buildings with noise-sensitive uses shall reduce interior to exterior noise levels by at least 25 decibels. The sample easement is contained within **Appendix F**.

- **AC-3: 65+ DNL Noise Contour.** Residential and other noise-sensitive development is not allowed to occur within this zone.

Prior to development approval within the AIA for Scottsdale Airport, an “Airport Area Development Communication Form” must be submitted to Scottsdale Airport for approval. As described within **Table 6A**, many of the recommendations of the previous Part 150 Study have been incorporated into this form and its associated guidelines. A review of these development guidelines and suggestions to reflect the current development trends will be done later in this chapter.

CURRENT AND ANTICIPATED FUTURE LAND USE ISSUES

Before presenting various land use management techniques that could be used to minimize or mitigate the impact of noise created by the airport on residents, the land use issues surrounding the airport must be identified. Four broad noise compatibility planning issues and their mitigation objectives for the Scottsdale Airport study area have been identified. These issues are described below and have also been generally located on **Exhibit 6C**.

- 1. Maintain, to the fullest extent possible, the compatible corridor to the north of the airport and the planned com-**

patible development within the immediate airport environs.

An existing compatible corridor currently exists to the northeast of the airport. This area is planned for commercial and industrial land uses close in to the airport.

- 2. Implement land use policies for areas subject to aircraft overflight.**

As previously described, a number of informal procedures are currently in place for land use planning within the study area. Incorporating these policies into the various land use planning tools would help to ensure compatible development in the future. Undeveloped areas northeast of the airport are planned for residential land uses and would be subject to aircraft overflights.

- 3. Overflight of existing residential development north and south of the airport.**

Aircraft overflights typically cause low cumulative noise levels which can be annoying to residents which are located in otherwise quiet environments. Overflights can also cause loud, annoying single events. The impacts of overflights on residential areas will be addressed primarily through noise abatement techniques discussed in Chapter Five.

4. **Enhance the fair disclosure policies currently in place at Scottsdale Airport.**

Fair disclosure policies are very important to airports that are located in rapidly developing areas, as they help to ensure that future residents are made aware of the airport's presence. Areas north of the airport are developing at a very fast pace, which will result in a large population under the flight tracks of Scottsdale Airport. Consideration of fair disclosure policies beyond what is currently required by Arizona State Law is warranted. This is due to the amount of development occurring within the airport environs and the large number of noise complaints received by the airport that are a result of aircraft overflights.

LAND USE MANAGEMENT ALTERNATIVES

As described previously, the purpose of this chapter is to evaluate alternative techniques which can be utilized to prevent or reduce current and future noise impacts. These alternatives are grouped into three categories: policy, regulatory, and expenditure techniques.

POLICY TECHNIQUES

Policy techniques which can be used to guide future development include:

- The community's comprehensive plan; and
- Project review guidelines.

Comprehensive Plan

A community's Comprehensive Plan establishes policies for the development and improvement of the community. It provides the basis for the local zoning ordinance, which contains the regulations that govern the use and development of land.

- **EVALUATION**

The cities of Scottsdale and Phoenix have both adopted general plans which are applicable within their respective jurisdictions within the study area. The various components of these plans were discussed in detail in Chapter One.

Many individuals reference the respective general plan when considering the purchase of property; therefore incorporating an exhibit that depicts the areas impacted by aircraft operations into the general plan would allow for further fair disclosure. Within the *City of Scottsdale General Plan 2001*, compatible land uses have been planned for the areas immediately surrounding Scottsdale Airport. However, no reference is made to the noise impacts which result from aircraft operations. Therefore, consideration could be given to incorporating an exhibit which depicts the 2009 noise contours prepared as part of this study. These contours are larger than both the 2004 and 2025 contours. This alternative could be pursued even if the suggested general plan amendments contained within the Project Review Guidelines discussion are not implemented.

Planned land uses and development guidelines contained within the *City of Phoenix's General Plan* and *General Plan Land Use Map* are compatible with airport activities since most of the undeveloped areas in close proximity to the airport are planned for commercial land uses. The general plan contains an exhibit which depicts the noise contours prepared during the previous Part 150 Study for Scottsdale Airport. Policies contained within the Land Use Element of the general plan state that noise-sensitive development is not permitted within the 65 DNL noise contour. Due to the amount of time and effort required to amend the contents of the general plan, incorporating the revised noise contours for Scottsdale Airport into the *City of Phoenix's General Plan* is not feasible at this time. The areas contained within the 65 DNL noise contour are currently developed in a manner which is compatible with airport activities. Development is a high consequence event.

- CONCLUSION

The cities of Scottsdale and Phoenix have options that could help maintain and protect the planned compatible land uses within the Scottsdale Airport environs.

Additionally, for fair disclosure purposes, the City of Scottsdale may consider incorporating the 2009 noise contours into the *City of Scottsdale General Plan 2001*. This alternative could be pursued along or in conjunction with the suggested general plan amendments contained within the Project Review Guidelines discussion.

This is a viable alternative which will require the City of Scottsdale to amend its general plan. This type of action typically requires city council approval.

Project Review Guidelines

Planning commissions and local governing bodies are often required to use their own discretion and judgment in making recommendations and decisions on community development issues such as general plan amendments, rezonings, variances, conditional use applications, subdivision applications, and proposed public improvement projects. The exercise of this discretion is constrained by the legal requirements of the applicable ordinances. Where opportunities remain for planning commissions and governing bodies to use their own discretion in the review of development proposals, it may be appropriate to adopt procedures ensuring the consideration of noise compatibility issues in their deliberations.

- EVALUATION

As described previously, Scottsdale Airport, in cooperation with the City of Scottsdale, has established informal Project Review Guidelines. With the use of these guidelines, the airport has been successful in implementing fair disclosure policies and obtaining aviation easements as a condition of development approval. However, in order to ensure the continued success of the development review guidelines, it is suggested the guidelines become formal policies which would be re-

flected within the various regulatory policies for the city. The first step in formalizing the process would be to refer to the review guidelines within the *City of Scottsdale General Plan 2001* and the *City of Phoenix General Plan*. This reference would set the stage for enacting development review guidelines, as well as a formal overlay zoning ordinance for the City of Scottsdale and amendments to the city's building code. It should be stated within the general plans that the development review guidelines would be utilized prior to the approval of zoning changes or subdivision plats and, for existing structures, prior to the issuance of building permits when modifications to existing noise-sensitive development is being pursued.

A review of the existing guidelines outlined on page 6-4 indicated that some modifications to the overlay zone boundaries may be beneficial to ensure compatible development within the airport environs. **Exhibit 6D** depicts the proposed overlay zone changes and **Table 6B** outlines the suggested and permitted uses within each zone described below.

- **AC-1.** The proposed boundaries for this overlay have been expanded to the north and east to capture areas which are currently undergoing development. This would help to ensure that future residents are aware of the existence of the airport. The recommended development requirements of this overlay mirror what is currently being utilized in an informal manner. Within this overlay zone, fair disclosure to

prospective lessees and/or property purchasers would be required. This disclosure would be in the form of a brief statement which would be provided to the potential property residents, and included within the covenants and restrictions of the property. The existing "Notice of Prospective Purchasers of Proximity to the Scottsdale Airport" contained in **Appendix F** would be suitable for disclosure purposes. The installation of signage, indicating the location of the airport, could also be included as a requirement of subdivision approval. This signage could be located within the developer or realtor's onsite offices. Finally, consideration could be given for the issuance of aviation easements prior to the development of noise-sensitive land uses in this zone.

- **AC-2.** The proposed boundaries of AC-2 would be a hybrid boundary consisting of the 55 DNL noise contour prepared as part of the previous Part 150 Study and the 2009 and 2025 55 DNL noise contour. This hybrid contour would be limited to the Scottsdale city limits and provides for a "worst case" noise scenario. The areas contained within the 55 DNL noise contour in the City of Phoenix, are for the most part, built-out; therefore, the requirements of this overlay would not be necessary within the City of Phoenix. This overlay would provide a similar level of protection to what is outlined within the informal development regulations. The boundaries of this noise con-

tour have been squared-off to match streets or property lines. This would allow for easier boundary translation and regulation implementation. Consideration could be given to removing the reference to the 60 DNL noise contour from the boundary description. Many times, when new contours are prepared for an airport as part of a master plan, the public perception is that the overlay zones would also change to reflect the new contour. Removing the contour reference from the overlay boundary would help to alleviate this potential concern.

The existing requirement for sound insulation of noise-sensitive development and the issuance of an aviation easement prior to development within this overlay would remain under this alternative. Amendments to the City of Scottsdale's building code would help to ensure the incorporation of sound insulation measures upon the issuance of a building permit within AC-2. This amendment is described later on in this chapter.

- **AC-3.** The proposed boundaries of AC-3 could also be a hybrid boundary consisting of the 65 DNL noise contour prepared as part of the previous Part 150 Study and the 2009 and 2025 65 DNL noise contour. The boundary would be squared-off to allow for easy interpretation and im-

plementation. Noise-sensitive development would not be allowed within this overlay and an aviation easement could be required prior to development approval.

- **AC-P.** This zone would apply only within the City of Phoenix. The development requirements for this boundary would mirror the requirements contained within AC-1. The purpose of the overlay would be to ensure fair disclosure of airport operations. Consideration could be given to expanding the boundaries of this overlay to encompass the undeveloped parcels located north of the CAP canal. Residential development is planned for these areas which assist in justifying the need for fair disclosure. This overlay boundary would be the only boundary incorporated into the *City of Phoenix General Plan*. Once the boundary is reflected within the plan, an overlay zoning district could be adopted within the Phoenix Zoning Ordinance. The City of Phoenix Planning Department would need to coordinate with Scottsdale Airport staff whenever a development proposal is submitted within AC-P. Airport staff would provide comments on the proposed development and provide a fair disclosure statement which would be provided to the applicant upon development approval.

TABLE 6B Airport Overlay Zone Matrix Scottsdale Airport				
	Uses Allowed Within Each Zone			
	City of Scottsdale			City of Phoenix
	AC-1	AC-2	AC-3	AC-P
RESIDENTIAL				
Single-family, duplex, multi-family, manufactured housing	Y[1,3]	Y[1,3,4]	N	Y[1]
Recreational vehicle parks	Y[1,3]	Y[1,3]	N	Y[1]
Other residential	Y[1,3]	Y[1,3,4]	N	Y[1]
PUBLIC FACILITIES				
Education facilities	Y[1,3]	Y[1,3,4]	N	Y[1]
Religious facilities, libraries, museums, galleries, clubs and lodges	Y[1,2,3]	Y[1,3,4]	N	Y[1,2]
Outdoor sport events, entertainment and public assembly except amphitheaters	Y[1,2]	Y[1,3]	N	Y[1,2]
Indoor recreation, amusements, athletic clubs, gyms and spectator events	Y[1,2]	Y[1,3]	Y[1,3]	Y[1,2]
Neighborhood parks	Y[1,2]	Y[1,3]	Y[1,3]	Y[1,2]
Community and regional parks	Y[1,2]	Y[1,3]	Y[1,3]	Y[1,2]
Outdoor recreation: tennis, golf courses, riding trails, etc.	Y[1,2]	Y[1,3]	Y[1,3]	Y[1,2]
Cemeteries	Y[1]	Y[1,3]	Y[1,3]	Y[1]
COMMERCIAL				
Hotels/motels	Y[1,2]	Y[1,2,3,4]	Y[1,2,3,4]	Y[1,2]
Hospitals and other health care services	Y[1,2]	Y[1,2,3,4]	N	Y[1,2]
Services: finance, real estate, insurance, professional and government offices	Y[1,2]	Y[1,2,3]	Y[1,2,3]	Y[1,2]
Retail sales: building materials, farm equipment, automotive, marine, mobile homes, recreational vehicles and accessories	Y[1]	Y[1,3]	Y[1,3]	Y[1]
Restaurants, eating and drinking establishments	Y[1,2]	Y[1,2,3]	Y[1,2,3]	Y[1,2]
Retail sales: general merchandise, food, drugs, apparel, etc.	Y[1]	Y[1,3]	Y[1,3]	Y[1]
Personal services: barber and beauty shops, laundry and dry cleaning, etc.	Y[1]	Y[1,3]	Y[1,3]	Y[1]
Automobile service stations	Y[1,2]	Y[1,2,3]	Y[1,2,3]	Y[1,2]
Repair services	Y[1]	Y[1,3]	Y[1,3]	Y[1]
INDUSTRIAL				
Processing of food, wood and paper products; printing and publishing; warehouses, wholesale and storage activities	Y[1,2]	Y[1,2,3]	Y[1,2,3]	Y[1,2]

TABLE 6B (Continued)	Uses Allowed Within Each Zone			
	City of Scottsdale			City of Phoenix
	AC-1	AC-2	AC-3	AC-P
Refining, manufacturing and storage of chemicals, petroleum and related products, manufacturing and assembly of electronic components, etc.	Y[1,2]	Y[1,2,3]	Y[1,2,3]	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[1,2,3]	Y[1,2,3]	Y[1,2]
AGRICULTURE				
Animal husbandry, livestock farming, breeding and feeding; plant nurseries (excluding retail sales)	Y[1]	Y[1]	Y[1]	Y[1]
Farming (except livestock)	Y[1]	Y[1,3]	Y[1,3]	Y[1]
MISCELLANEOUS				
Transportation terminals, utility and communication facilities	Y[1]	Y[1,2,3]	Y[1,2,3]	Y[1]
Vehicle parking	Y[1]	Y[1]	Y[1]	Y[1]
Signs	Y[1]	Y[1]	Y[1]	Y[1]
1	Fair disclosure statement required as a condition of development approval or building permit issuance.			
2	Use is permitted as long as it complies with the requirements of the Airport Height and Hazard Overlay District.			
3	Avigation easement required as a condition of development approval or building permit issuance.			
4	Sound insulation required to reduce interior to exterior noise levels by at least 25dB.			

- **CONCLUSION**

The cities of Scottsdale and Phoenix could consider incorporating airport land use compatibility guidelines into their respective general plans' review of development projects within the various overlay zones.

This is a viable alternative which will require the cities of Scottsdale and Phoenix to amend their respective general plans. This type of action typically requires city council approval.

- **REGULATORY TECHNIQUES**

Regulatory techniques are land use and development controls established through local legislation. These techniques include:

- Compatible Use Zoning
- Zoning Changes/Residential Density
- Airport Compatibility Overlay Zoning
- Subdivision Regulations
- Building Codes
- Transfer of Development Rights
- Environmental Zoning
- Fair Disclosure Regulations

Compatible Use Zoning

The most common zoning technique in noise compatibility planning is to eliminate residential zoning from the noise-impacted area and replace it with a commercial, industrial, open space, or other compatible zoning designation.

A potential limitation of compatible use zoning is the need to balance the supply of industrial and commercial-zoned land with demand. If the market for commercial or industrial land is weak, and if the property owners perceive that they are unable to develop or use their land, they can exert political pressure or, in extreme cases, sue in court to force rezoning of their land. This could occur if the total supply of commercial and industrial land vastly exceeds demand, or if the land which has been zoned for commercial and industrial use is not suited for that use because of site problems, such as poor access or inadequate water and sewer service.

Another limitation relates to the rights and privileges given to property owners. In most cases a property owner needs to be in support of a zoning change, otherwise a taking could occur.

In making rezoning decisions, the impact of the proposed zoning on the neighboring area must also be recognized. Problems can occur where the vacant land being considered for commercial or industrial zoning is near an established residential area. The residents may strongly object to the intrusion of non-residential uses into their neighborhood.

• EVALUATION

An evaluation of the zoning classification assigned to the various undeveloped parcels within the study area indicates that, for the most part, as depicted on **Exhibit 6E**, properties within the 65 DNL noise contour are zoned for compatible land uses. Areas which are not zoned compatibly in these areas are located within infill areas.

As depicted on **Exhibit 6E**, there is one area within the 65 DNL noise contour in the City of Scottsdale which is zoned for residential land uses. This area is located directly north of the airport and is zoned in a manner which allows low-density residential development (R1-35). Portions of this parcel are located within the 65 DNL noise contour. While this area is currently developed as a golf course, consideration could be given to rezoning the property to ensure compatible development in the future.

Within the City of Phoenix, a number of parcels north of the CAP Canal are zoned in a manner that does not mirror the planned land uses from the city's general plan. These parcels are depicted on **Exhibit 6E**. Consideration could be given to rezoning these parcels in a manner which would be consistent with the general plan. This would make certain the properties are developed in a manner consistent with airport operations.

When possible, the areas that are zoned for compatible uses should be maintained.

- CONCLUSION

The cities of Scottsdale and Phoenix could consider maintaining the compatible zoning designations for those areas contained within the 2009 65 DNL noise contour, as depicted on **Exhibit 6E**. The City of Scottsdale could consider rezoning the parcel of land located directly north of the airport to a compatible land use. This parcel is currently developed as a golf course and is partially contained within the 65 DNL noise contour. The City of Phoenix could consider rezoning the parcels depicted on **Exhibit 6E** to be consistent with the city's general plan. This would ensure compatible development within the airport environs.

These are viable alternatives.

Change in Residential Density

Another way of using conventional zoning to promote noise compatibility is to reduce the potential number of future residents in the high noise area, rather than preventing residential development altogether. This can be done by reducing the permitted housing densities in the noise-impacted areas.

- EVALUATION

As depicted on **Exhibit 6E**, the undeveloped areas within the 65 DNL contour are already zoned in a manner which is compatible with airport operations.

- CONCLUSION

This alternative need not be considered further.

Airport Compatibility Overlay Zoning

Airport compatibility overlay zoning (sometimes called "combining zoning") is intended to provide a layer of special purpose regulations to address special environmental constraints, or problems, by setting performance standards to protect the public. Overlay zoning involves the creation of one or more special zoning districts that supplement or combine with the regulations of the general purpose zoning districts. These controls are often used, for example, to regulate the height of structures within runway approach areas and in other areas near the airport, or to promote development which is compatible with aircraft noise levels. Airport compatibility overlay zoning is used around many airports in the country to establish special land use controls whose purpose is to protect the public's health, safety, and welfare from conflicts that may arise between aviation and urban development.

Airport compatibility overlay zoning regulations are usually established as "combining" regulations in that the underlying zoning (i.e., residential, commercial, industrial, etc.) remains in place and is supplemented by the overlay zone. The land within the overlay zone is subject to the require-

ments of two zoning districts – the underlying zone and the overlay zone. The strictest requirements of both zones apply to the affected property.

The intention of airport compatibility overlay zoning is to avoid the problems associated with incompatible development in high noise areas. Regulations in airport compatibility overlay zones can prohibit noise-sensitive uses, as long as the underlying zone permits enough other land uses to provide an opportunity for the economically viable use of the land. The regulations can also require sound insulation in the construction of noise-sensitive uses.

Airport compatibility overlay zoning is administered by the local land use regulatory agency. In areas where noise crosses jurisdictional boundary lines, it is helpful to local developers if the jurisdictions cooperate with a unified approach to overlay zoning. The boundary may follow the actual contours, or, for the sake of simplified administration, nearby streets, property lines, or natural features.

Among the advantages of airport compatibility overlay zoning are the simplicity of the required amendments, the simplicity of administration, the clear relationship of the regulations to their purpose, and the minimal impact of the regulations on the application of the zoning ordinance in other parts of the community.

Boundaries of airport compatibility overlay zones can be determined in a number of ways, based on local perception. Boundaries such as the air-

port's noise contours, approach zones, or common overflight areas are often used.

- EVALUATION

Within the Project Review Guidelines discussion, a series of overlay zones were proposed for the portions of the study area contained within the City of Scottsdale. These overlay zones were based on the existing informal development review guidelines utilized by the city when reviewing development approvals. Consideration could be given to incorporating these overlay zones into the City of Scottsdale Zoning Ordinance. This would provide regulatory support for the proposed Project Review Guidelines and would help ensure compatible development within the airport environs.

The City of Phoenix could consider adopting overlay AC-P. The requirements of this overlay zone would include notifying airport staff of proposed development and attaching a fair disclosure notice to all development approvals.

- CONCLUSION

The City of Scottsdale could consider adopting Airport Noise Overlay Zoning based on the overlay zones and land use matrix contained within the Project Review Guidelines discussion. Additionally, the City of Phoenix could consider incorporating overlay zone AC-P into their respective zoning ordinance.

Subdivision Regulations

Subdivision regulations control the platting of land by setting standards for site planning, lot layout, and the design of utilities and public improvements. They can encourage compatible development around an airport by requiring the consideration of aircraft noise during the plat review by public officials. This might take the form of requiring further noise attenuation features in the site plan or a decrease or shift in the density of portions of the development.

Subdivision regulations are not well-suited to addressing needs for noise attenuation, although they can be used to inform prospective future property owners of the risk of aircraft noise. In some communities, noise levels are shown on the final subdivision plats, either by drawing the noise contours on the plats or by assigning noise levels to the lots. This makes the noise information a matter of public record. An important disadvantage is that, while the plat is recorded and on file forever, noise levels can change.

Another approach is to write a note on the plat, or record a covenant with the plat, stating that the property is subject to potentially disruptive aircraft noise and advise consultation with local planning officials and the airport proprietor to get current information about the noise situation. As a practical matter, however, buyers of property rarely look at the plats.

Subdivision regulations can help protect the airport from the risk of noise damage suits while providing for notice to potential buyers of property by

requiring, as a condition of subdivision approval, the dedication of noise and aviation easements and non-suit covenants in high-noise areas. This is similar to requirements for the dedication of street right-of-way or utility easements usually found in subdivision regulations.

An easement is a limited right to use property owned by another. A noise and aviation easement gives the airport, as owner of the easement, the right to direct aircraft over the property and, thus, to make noise. These easements serve notice that the property is subject to aircraft noise which may, at times, infringe on a resident's enjoyment of property and may, depending on the degree of acoustical treatment of the dwelling and the individual's sensitivity to noise, affect his or her well-being. The easement should state clearly that noise levels might increase in the future and that flight patterns or operating times might change. A noise and aviation easement often includes a covenant waiving the property owner's right to sue the airport proprietor for disturbances caused by aircraft noise.

The subdivision review process is an ideal time to secure easements and require the recording of covenants. In this way, subdivision regulations could be used in support of airport compatibility overlay zoning.

- **EVALUATION**

The cities of Scottsdale and Phoenix have both adopted subdivision regulations. Within the previous Part 150 Study for Scottsdale Airport, it was

recommended that the subdivision regulations be amended to require dedication of aviation easements and recording of fair disclosure agreements for new subdivisions in the AIA. The aviation easement would grant the City the right to use the airspace above the property and the right to make noise inherent in the operation of aircraft. This element has not been implemented and the City of Scottsdale is utilizing other means for obtaining noise and aviation easements for development within the city limits. Planned land uses within the City of Phoenix are compatible with airport operations. If the recommended zoning changes are undertaken, a revision to the city's subdivision regulations would not be warranted.

- **CONCLUSION**

The City of Scottsdale is utilizing other means for obtaining aviation easements for the airport; therefore, changes to the subdivision regulations may not be warranted. However, if implementation of the Project Review Guidelines and Overlay Zoning alternatives does not occur, consideration could be given to revision of the subdivision regulations within the City of Scottsdale. The revised regulations could require aviation easements for development within the areas contained within the revised AP-1, AP-2, or AP-3 overlay zones.

Because the City of Phoenix has been built-out in the noise impacted area, changes to their subdivision regulations are also not warranted.

This is a viable alternative for the City of Scottsdale should the Project Review Guidelines or Overlay Zoning alternatives not be implemented.

Building Codes

Building codes regulate the construction of buildings, setting standards for materials and construction techniques to protect the health, welfare, and safety of residents. Codes address structural concerns, ventilation, and insulation, each of which influences the noise attenuation capabilities of a building. Building codes commonly apply to both new construction and major alterations.

Building codes can require sound insulation in the construction of noise-sensitive uses in areas subject to high aircraft noise levels. Requirements for sound insulation customarily are applied within the 65 DNL contour with increasingly stringent standards in the 70 and 75 DNL contours. Most sound insulation code standards describe in detail the required improvements needed to achieve a given level of noise reduction.

- **EVALUATION**

Building codes have been adopted in each of the jurisdictions within the study area. Additional regulations, related to noise in the vicinity of Scottsdale Airport, have not been adopted by either the City of Scottsdale or Phoenix.

While the zoning alternatives discussed previously would reduce the risk of future noise-sensitive development in the study area, special sound insulation measures may be appropriate in case infill noise-sensitive development should occur. Sound insulation standards would be an effective way to enhance land use compatibility in the airport area, especially if used as part of a comprehensive land use management approach. The Airport Overlay Zoning could declare which noise-sensitive uses should be sound-insulated within each overlay zone. The specific construction standards would be described in the building code and it would be the duty of the local building inspectors to ensure that sound insulation is properly installed.

The additional administrative burdens posed by sound insulation standards are not necessarily costly, as most local communities already have a building inspection process. It is possible that a need for additional inspections could increase the costs to local regulatory agencies; however, these costs should be covered through inspection fees. Proper administration of these requirements is critical and would require careful inspections and special training for building inspectors.

Sound insulation may cost local builders more than conventional construction; however, most of the additional cost results from the need for acoustical windows. Other sound insulation construction techniques should result in only very minor, if any, cost increase, as they involve primarily special installation techniques with a minimum of unusual or expensive ma-

terials. The additional cost of a sound-insulated home is of real value for the future homeowner, as a properly sound-insulated home is not only quieter, but also highly energy-efficient. Therefore, the additional costs of sound insulation may be recouped through the marketing process.

At least three approaches may be taken to setting specific sound insulation standards. These are the utilization of: (1) prescriptive standards; (2) flexible standards; or (3) performance standards. These standards are discussed in the following sections. **Table 6B** could be used to determine which noise-sensitive land uses should be sound-insulated within each overlay zone.

Prescriptive Standards: These are perhaps the most commonly used approach to sound insulation standards. The existing building code could be amended to set forth specific construction standards intended to achieve a given level of noise reduction. It would be the duty of the local building inspectors to ensure that the correct materials are used and construction is done properly. After installation and a successful inspection, the building is presumed to be able to achieve the targeted level of noise reduction.

Flexible Code Standards: These standards would describe the required "sound transmission class" (STC) rating of all building components. STC is a system for rating the effectiveness of partitions, floors, ceilings, windows, and doors in attenuating the transmission of sound. The ratings are determined through standardized laboratory tests of sound transmission at

various frequencies. The higher the STC rating, the better the sound reduction. A builder would be free to use any materials desired, as long as evidence is provided that the required STC rating has been met.

Jurisdictions desiring to undertake such an approach should retain the assistance of a qualified acoustical engineer in developing the standards. The objective of the regulations should be to specify the STC ratings of various building components needed to achieve an overall noise level reduction of up to 25 decibels, depending on the noise contour where the proposed development is located.

Performance Standards: A performance-based standard would focus on the final result to be achieved by the construction. The standard would describe the required outdoor-to-indoor noise reduction. The builder could use any materials or techniques he desires, as long as he can certify that the plans and final construction meet the standard. This would require the assistance of an acoustical engineer in designing the building and checking construction. It would also require testing the building after construction.

The performance standards could be set in the zoning ordinance and would be particularly easy to administer in the case of conditional uses, special uses, and planned developments. These kinds of developments are already subject to special reviews and performance standards.

The advantage of this approach is that the builder has the flexibility to design the building as he deems best. It also avoids the complexity of drafting, adopting, and administering special sound insulation building code amendments. In addition, verification of compliance with the requirements is the responsibility of the builder and his engineer. The disadvantage is that the cities would have to verify the certifications made by the builder and the engineer. Builders also may lack confidence in regulations which are subject to case-by-case verification and approval.

- CONCLUSION

Building code amendments incorporating prescriptive noise standards could be considered by the City of Scottsdale. Implementation of this alternative would not only protect future noise-sensitive development within the 60 DNL noise contour, but would also protect structures that undergo extensive remodeling or reconstruction, as these types of construction typically require a building permit and inspections. A sample building code is contained within **Appendix F**. This alternative was also recommended within the previous Part 150 Study.

Because the portions of the City of Phoenix contained within the 60 DNL noise contour are already built out, an amendment to the city's building codes is not warranted.

This is a viable alternative for the City of Scottsdale.

Transfer of Development Rights

Land ownership actually includes a bundle of rights to the use of that land. These include rights of access, mineral rights, limited rights to the airspace above the land, and rights to develop the land. Transfer of development rights (TDR) is based on the idea that each right has a market value which can be separated and sold without selling the entire property.

TDR was developed as a way to preserve environmentally important areas without having to buy them with public funds. The technique begins by dividing the municipality into sending and receiving zones. The sending zones are areas where environmental preservation and minimal development are desired, and the receiving zones are areas where additional development is preferred. Development rights, measured in terms of development density, are assigned through the zoning ordinance. If developers in the receiving areas can get additional development rights, they are allowed to build to higher densities than normally allowed by the zoning ordinance. They would buy these rights from landowners in the sending zones. In this way, the public can benefit from preserving environmentally valuable land, the owner of that land can be paid for preserving it, and developers can reap higher profits.

Based on experience with these programs around the country, several conditions for the successful use of TDR have been identified. The receiving districts must be capable of imme-

diately developable; the regulatory process must have integrity and be trusted by developers; the regulatory agency must be able to inform and help property owners and developers; and programs must be as simple as possible and facilitate the self-interest of all involved parties. (See "Making TDR Work," by Peter J. Pizor, in the *Journal of the American Planning Association*, Vol. 52, No. 2, Spring 1986.) A variation of TDR is density transfer zoning. This allows developers of several large tracts of land to move their allotted densities among tracts to reduce densities in areas worthy of preservation. This differs from TDR because only one owner is involved in the transfer, and a system for sale and purchase of development rights is not required. Density transfer zoning often can be achieved through creative use of the planned unit development process.

In rapidly growing areas with large amounts of vacant land, TDR can be an effective tool for airport land use compatibility planning. At no cost to the taxpayers, it can neatly deal with the problem of what to do with land in high noise zones when there are no practical alternatives to residential development.

TDR is a very complicated technique that is difficult to justify solely for the purposes of airport land use compatibility. If a local jurisdiction is already using or considering TDR, airport compatibility criteria could be included with other environmental criteria in the design of the program.

- EVALUATION

Because the City of Phoenix is primarily developed within the noise impacted areas of the study area, TDR would not have a real benefit. Current land use planning within the City of Scottsdale, in addition to potential revisions to the Project Review Guidelines, can adequately meet the need for compatible development in the airport area.

This is not a viable alternative.

- CONCLUSION

This option need not be considered further.

Environmental Zoning

Special zoning regulations to preserve environmentally-sensitive areas or protect development from environmental hazards can also promote land use compatibility near airports. Floodplain overlay zoning, which restricts or prohibits development in all or part of the floodplain, is the most common form of environmental zoning. Other environmental zoning regulations may include steep slope zoning, requiring low development densities and special construction standards, wetland preservation zoning limiting densities and the design of drainage facilities, and groundwater recharge zones limiting building density and lot coverage. All can be used to restrict the development of noise-sensitive uses in environmentally-sensitive areas that are also impacted by aircraft noise.

- EVALUATION

Both jurisdictions within the study area utilize some form of environmental zoning to protect sensitive land areas. For example, both Scottsdale and Phoenix utilize hillside development standards. These regulations tend to have the effect of discouraging development in these sensitive areas. To the extent that areas covered by these regulations coincide with noise-impacted areas, the regulations tend to support airport compatibility.

While these forms of environmental zoning are already being utilized within the study area, further use of this method will not be considered in this study because of the limited benefit. The City of Phoenix is, for the most part, built out and the City of Scottsdale has appropriately planned for compatible land uses within the study area.

This is not a viable alternative.

- CONCLUSION

This option need not be considered further.

Fair Disclosure Regulations

Fair disclosure regulations are not actually land use regulations. They are intended to ensure that prospective buyers of property are informed that the property is or will be exposed to potentially disruptive aircraft noise. It is not uncommon around even major airports for newcomers to report having bought property without having

been informed about airport noise levels.

At the most formal level, fair disclosure can be implemented through regulations requiring the seller or his agent to provide a notice of aircraft noise exposure on the real estate listing sheet and at the time that a sales contract is executed. In addition, any easements should be revealed at the time of closing. Although these measures are intended to protect buyers of property from being unaware of aircraft noise, a potential problem is that they can be difficult to enforce.

Fair disclosure regulations can place a serious responsibility on real estate agents and lenders. If the regulations are properly drafted, however, the responsibilities of real estate agents and sellers are clearly defined and should be limited simply to disclosing the airport noise levels or overlay districts affecting the property, and directing buyers to airport officials for more information.

Another approach to fair disclosure is to require the recording of a fair disclosure agreement and covenant at the time of rezoning or subdivision plat approval. The agreement would require the property owner to disclose the airport noise situation to prospective buyers. As a covenant running with the land, this requirement would bind all future property owners.

- EVALUATION

As described in Chapter One, the State of Arizona has adopted legisla-

tion that requires the disclosure of aviation activities to prospective buyers of real estate through the preparation of a Traffic Pattern Airspace map. The requirements of this legislation will help to ensure that future residents of the area are aware of the potential impact the airport may have on their property.

The City of Scottsdale has taken fair disclosure to an additional level with the installation of signage indicating the location of the airport. The purpose of this signage is to help ensure the public's awareness of the existence of the airport and the proximity of the airport to various areas throughout the city.

Additional means of fair disclosure which are feasible are discussed within the Project Review Guidelines and Airport Noise Overlay sections of this chapter.

- CONCLUSION

Due to the existing fair disclosure policies and procedures currently in place, refinement under this alternative is not warranted. The level of fair disclosure regulation put into place by the City of Scottsdale and the State of Arizona is above and beyond what exists at other airports. Additional means of fair disclosure are previously discussed within the Project Review Guidelines and Airport Noise Overlay zone sections.

EXPENDITURE TECHNIQUES

Land use management techniques involving direct expenditures include the following:

- Property Acquisition
- Sound Insulation
- Noise and Avigation Easement Purchase
- Purchase Assurance
- Sales Assurance
- Development Rights Acquisition

These measures are usually considered as a last resort because they are expensive, often disruptive, and sometimes controversial. They are most often justified when noise impacts are severe and cannot be mitigated through aircraft noise abatement alone. These measures are potentially eligible for FAA funding assistance through the noise set-aside of the Federal Airport Improvement Program (AIP), if they are part of an FAA-approved Part 150 Noise Compatibility Program. In general, to be eligible for FAA approval, these programs can apply only to areas within the 65 DNL contour based on existing conditions or the five-year forecast conditions, whichever is greater. Historically, properties within noise contours exceeding 65 DNL have received much higher priority for mitigation funding than properties located within lesser contours (i.e., 55 and 60 DNL noise contours).

Within the previous Part 150 Study prepared for Scottsdale Airport, the

noise analysis indicated the presence of two homes within the 2000 65 DNL noise contour. The purchase or sound insulation of these homes was not pursued as part of the study, as they were considered part of a cohesive neighborhood. Analysis of the noise contours prepared for the existing (2004) and five-year (2009) noise condition indicates that these homes are no longer contained within the 65 DNL noise contour. This is likely due to the presence of a quieter fleet mix at the airport. Based on this analysis, no properties would be eligible for funding assistance through the AIP. Therefore, because of the lack of noise-sensitive development within the 65 DNL noise contour, an evaluation of expenditure techniques is not warranted as part of this Part 150 Study Update.

PRELIMINARY LAND USE ALTERNATIVES

Table 6C presents the preliminary list of land use management alternatives which deserve consideration. These are to be reviewed by the Technical Advisory Team (TAT), airport management, and the public. Refinements to these preliminary measures may be necessary before the final plan is developed. In addition, more detailed consideration for the implementation of these recommendations is necessary.

TABLE 6C Land Use Management Deserving Further Consideration Scottsdale Airport		
Description	Cost	Implementing Agency
1. <i>General Plan.</i> The cities of Scottsdale and Phoenix could consider maintaining the compatibly planned areas within the 65 DNL contour.	Administrative	City of Scottsdale City of Phoenix
2. <i>General Plan Update.</i> Should the Project Review Guidelines alternative not be implemented, the City of Scottsdale could consider incorporating the 2009 noise contours into its general plan. This would allow for an additional level of fair disclosure.	Administrative	City of Scottsdale
3. <i>Project Review Guidelines.</i> The cities of Scottsdale and Phoenix could consider enacting Project Review Guidelines for those areas impacted by airport operations.	Administrative	City of Scottsdale City of Phoenix
4. <i>Compatible Use Zoning.</i> The cities of Scottsdale and Phoenix could consider maintaining the compatibly zoned areas within the 65 DNL noise contour.	Administrative	City of Scottsdale City of Phoenix
5. <i>Compatible Use Zoning.</i> The City of Scottsdale could consider rezoning the parcel located directly north of the airport within the 65 DNL noise contour, to a compatible land use. The parcel is currently utilized as a golf course.	Administrative	City of Scottsdale
6. <i>Compatible Use Zoning.</i> The city of Phoenix could consider rezoning the areas located north of the CAP canal which are currently zoned for residential land uses and planned for industrial or commercial land uses.	Administrative	City of Phoenix
7. <i>Airport Compatibility Overlay Zoning.</i> The cities of Scottsdale and Phoenix could consider adopting the overlay zones contained within the proposed Project Review Guidelines.	Administrative	City of Scottsdale City of Phoenix
8. <i>Amend Subdivision Regulations.</i> If the Project Review Guidelines and Overlay Zoning Alternatives are not implemented, the City of Scottsdale could consider amending their subdivision regulations to require the issuance of avigation easements and fair disclosure notices for the areas contained within AP-1, AP-2, and AP-3 of the overlay zoning.	Administrative	City of Scottsdale
9. <i>Amend Building Codes.</i> Amend current building codes to incorporate prescriptive noise standards.	Administrative	City of Scottsdale