



Chapter Six

LAND USE ALTERNATIVES

Land Use Alternatives

The evaluation of noise abatement alternatives in Chapter Five resulted in tentative proposals to promote aircraft noise abatement measures in the vicinity of Georgetown Municipal Airport. Nevertheless, even if such measures are implemented, land around the airport will continue to be impacted by aircraft noise.

The purpose of this chapter is to present various land use management alternatives that prevent or reduce these future noise impacts. The chapter begins by identifying broad planning issues that will be addressed in the land use management plan. Alternative land use management techniques are then evaluated to determine their effectiveness in the Georgetown Municipal Airport study area. Finally, preliminary recommendations are presented. These recommendations are to be reviewed by the Planning Advisory Committee (PAC) and local citizens. The final land use management and noise abatement recommendations will be



presented in Chapter Seven, Noise Compatibility Plan.

LAND USE ISSUES

Before presenting various land use management techniques that could be used to minimize or mitigate the impacts 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 Georgetown Municipal Airport study area have been identified. These issues are described below and have also been generally located on **Exhibit 6A**.



1. **Aircraft noise impacts on existing homes located in the vicinity of the airport and within the baseline 2003 and 2008 65 DNL and greater noise contours.**

As described in Chapter Four, Noise Impacts, both the current and future 65 DNL noise contours impact homes to the north and south of Georgetown Municipal Airport. In 2003, six homes are contained within the 65-70 DNL noise contour. In 2008, due to the expansion of the contours, 27 existing homes fall within the 65-70 DNL noise contour and two homes are within the 70-75 DNL noise contour.

2. **Aircraft noise impacts on existing noise-sensitive land uses within the approaches to the runways.**

A number of homes and noise-sensitive institutions are within the approach to the runways. These areas are primarily located north, south, and west of the airport.

3. **Aircraft noise impacts on undeveloped land surrounding the airport that is planned or zoned for noise-sensitive land uses.**

Large parcels of undeveloped land are contained within the airport environs. These parcels fall under the jurisdiction of both the City of Georgetown and Williamson County. The objective of this issue is to encourage airport

compatible development to occur within these areas to minimize future impacts of the airport.

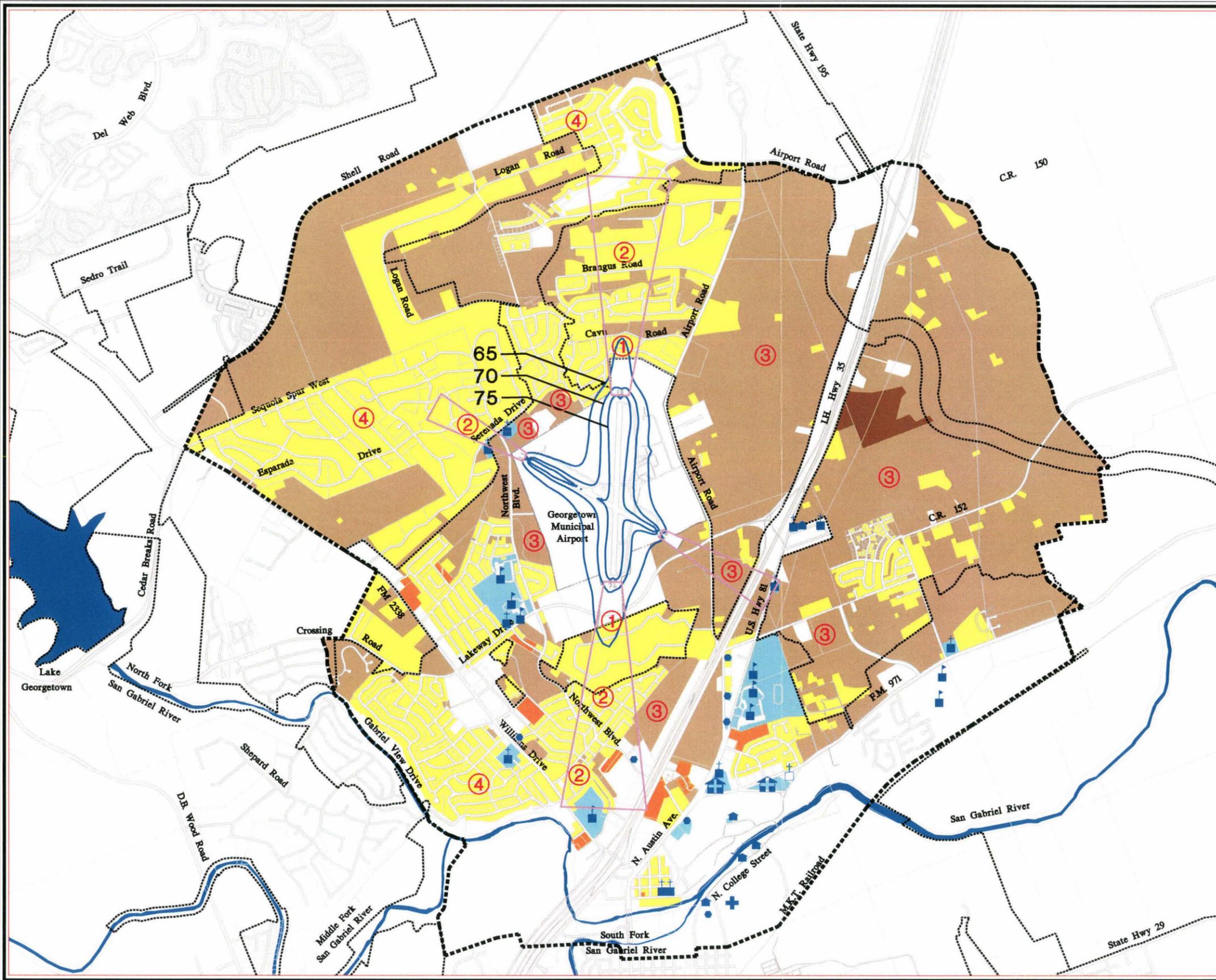
4. **Noise impacts from aircraft overflights over residential areas outside the 65 DNL contour.**

Aircraft overflights typically cause reasonably low cumulative noise levels which may be annoying to some residents; however, 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.

AIRPORT PLANNING AREA

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, an influence on local residents and potentially noise-sensitive land uses. Many factors were considered when determining the boundaries of the airport planning area including noise contours, flight tracks, and the Federal Aviation Regulation (F.A.R.) Part 77 horizontal surface. The resulting area is depicted in **Exhibit 6B** and is referred to as the airport planning area (APA).

While aircraft noise contours are of obvious value in defining an airport planning area, the information they



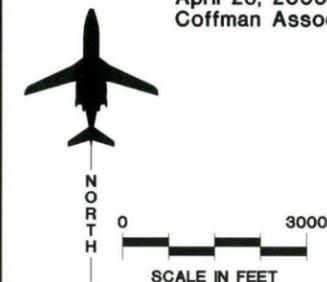
LEGEND

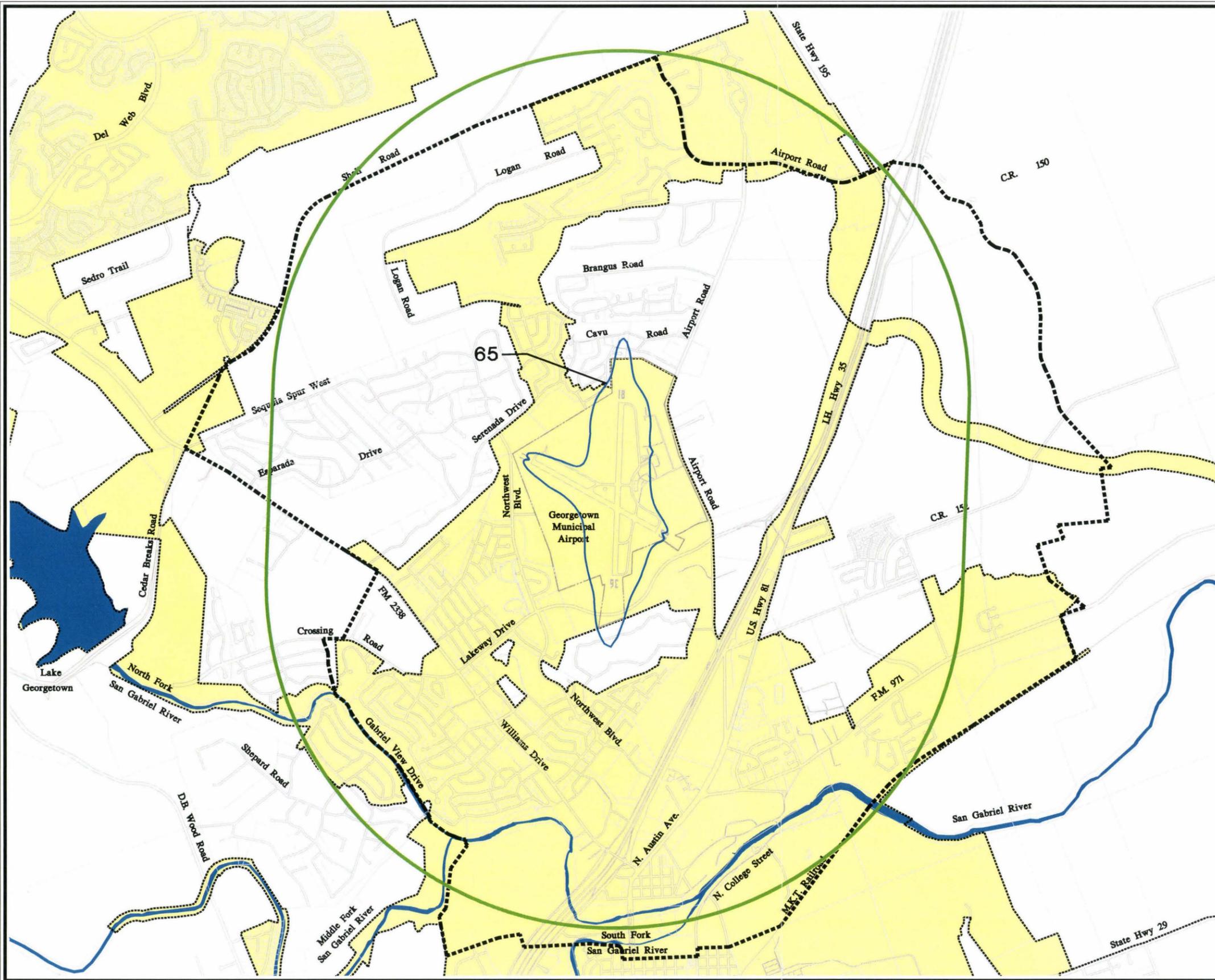
- Detailed Land Use Study Area
- Municipal Boundary
- Airport Property
- 2008 DNL Noise Exposure Contour, Significant Effect
- Residential Low Density
- Residential Medium Density
- Recreational Vehicle Park
- Noise Sensitive Institutions
- Proposed Development Areas
- School
- Day Care Facility
- Community Center
- Residential Care Facility
- Place of Worship
- Cemetery
- Approach Surfaces

LAND USE ISSUES

- ① Aircraft Noise Impacts on Existing Homes by Noise Within the 65 DNL
- ② Existing Noise-Sensitive Land Uses within Runway Approaches
- ③ Potential Noise-Sensitive Development
- ④ Existing Noise-Sensitive Land Uses Impacted by Aircraft Overflight

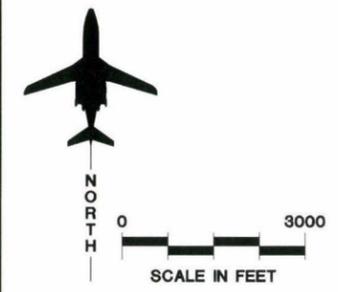
Source: Aerial Photography, dated April 4, 2001
 Corrigan Consulting, Inc.
 City of Georgetown Century Plan, updated 1996.
 City of Georgetown Zoning Ordinance, April 26, 2000.
 Coffman Associates Analysis.





- LEGEND**
- Detailed Land Use Study Area
 - Municipal Boundary
 - - - - - Airport Property
 - Horizontal Surface/Airport Planning Area
 - Unincorporated Williamson County
 - Georgetown Jurisdictional Boundary
 - 65 DNL Contour

Source: City of Georgetown, Department of Geographic Information Systems.
Coffman Associates Analysis



provide is not entirely clear cut. As the noise contours presented in Chapter Three demonstrate, contours may change over time depending on the volume of traffic, the mix of aircraft, and aircraft operating procedures. Keeping in mind that the purpose of defining an airport planning area is to promote compatible land use planning, and recognizing that land development is a high consequence event which is very expensive and often virtually impossible to reverse, it makes sense to use a reasonable "worst case" set of noise contours to help in defining an airport planning area. In this study, the projected noise contours for the year 2008 are the largest contours. They represent a reasonable estimate of the largest area which is at risk of being exposed to aircraft noise above the threshold level of 65 DNL.

Another critical consideration in determining the boundaries of the airport planning area are the locations of the generalized flight tracks in the vicinity of the airport. These flight tracks are illustrated on Exhibits 3E, 3F, and 3G in Chapter Three of the Noise Exposure Maps (NEM) document. From a noise and annoyance perspective, of greatest concern are the departure tracks and the touch-and-go traffic pattern tracks. Aircraft on departure are louder than arriving aircraft and are, therefore, more likely to result in short-term noise impacts. Aircraft in the pattern are implementing a series of arrivals and departures, and, typically, maintain a lower altitude while in the pattern than aircraft performing itinerant operations. These lower altitudes

commonly result in greater annoyance and concern to residents in the area. This has often been referred to as the "racetrack effect." At Georgetown Municipal Airport, the pattern falls on the east side of Runway 18-36 and on either side of Runway 11-29.

The final factor considered during the determination of the boundaries for the airport planning area was the F.A.R. Part 77 horizontal surface. The purpose of F.A.R. Part 77 is to establish standards for determining potential obstructions in navigable airspace. The horizontal surface, as defined in the F.A.R. Part 77 regulations, is essentially a horizontal plane 150 feet above the established airport elevation, which extends 10,000 feet in every direction from the center of each end of the runway surface. The F.A.R. Part 77 horizontal surface is a good indicator of areas that are impacted by aircraft overflights around the airport. It is suggested that the F.A.R. Part 77 horizontal surface be used as the boundary for the airport planning area, as depicted on **Exhibit 6B**. The use of this boundary will allow for land use alternatives to be considered for all impacted properties within the 65 DNL noise contour as well as the large tracts of undeveloped property to the east and west of the airport that are not contained within the contours.

Each "boundary" within the airport planning area will not be considered equally in determining land use management measures for the area. The area within the 65 DNL noise contour will be given the greatest emphasis in obtaining short-term land

use compatibility and the area between the 65 DNL contour and the boundary of the airport planning area will be considered primarily for future land use recommendations.

LAND USE MANAGEMENT TECHNIQUES

This section outlines the land use management techniques that are used to promote noise compatibility. These techniques are grouped under three headings: **policy** and **regulatory** techniques which guide future development, and **expenditure** techniques which involve potential payments for mitigation assistance. Examples of each of these techniques are illustrated in **Exhibit 6C**.

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

The 2008 noise contours will be used during the evaluation of the various techniques. This contour was the largest of the two evaluated in Chapter

Four and allows for the evaluation of a "worst case" scenario.

POLICY TECHNIQUES

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

- The Community's General Plan; and
- Project Review Guidelines.

General Plan

A community's general 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.

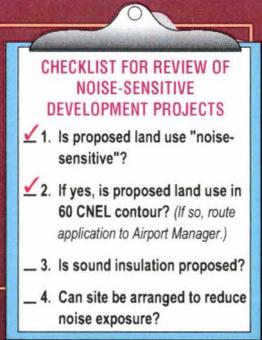
- **EVALUATION**

The City of Georgetown's *Century Plan*, is the only general plan applicable within the study area. Due to the presence of the City of Georgetown's extra-territorial jurisdiction, the city's *Century Plan* is one of few regulatory documents that is capable of regulating land uses outside the city limits of Georgetown.

Undeveloped or agricultural parcels of land within the study area are depicted on **Exhibit 6D**. These parcels of land are of utmost concern as it is assumed that all of these areas will experience development pressure at some point in time. These parcels are of concern as they are either bordering airport

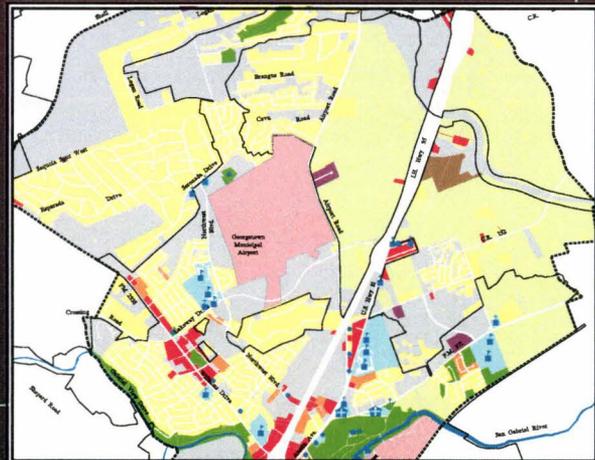
POLICIES

- ▶ Comprehensive / General Plan
- ▶ Project Review Guidelines



REGULATIONS

- ▶ Compatible Use Zoning
- ▶ Zoning Changes - Residential Density
- Large Lots, Planned Unit Development
- ▶ Airport Noise Overlay Zoning
- ▶ Subdivision Regulations
- ▶ Building Codes
- ▶ Transfer of Development Rights
- ▶ Environmental Zoning
- ▶ Fair Disclosure By Sellers



EXPENDITURES

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



TECHNIQUES FOR GUIDING NEW DEVELOPMENT TO PREVENT FUTURE NOISE IMPACTS

POLICY TECHNIQUES - Non-regulatory governmental actions to encourage noise-compatible development near airport.

Comprehensive Planning: Policies supporting land use compatibility near airport. Involves land use plans and policies to guide consideration of rezonings, variances, conditional uses, public projects.

Project Review Guidelines: Adoption of guidelines which ensure that noise compatibility issues are considered during reviews of development proposals.

REGULATORY TECHNIQUES - Local land use regulations requiring compatible development in airport area.

Compatible Use Zoning: Commercial, industrial, agriculture, or open space zoning.

Zoning Changes, Residential Density: Large-lot zoning or planned unit development.

Noise Overlay Zoning: Special regulations within high-noise areas.

Subdivision Regulations: Require dedication of noise and aviation easements, plat notes.

Building Codes: Require sound insulation in new construction.

Transfer of Development Rights: Zoning framework to authorize private sale of development rights to encourage sparse development in high-noise areas.

Environmental Zoning: Environmental protection zoning to support airport land use compatibility.

Fair Disclosure Regulations: Require seller to notify buyer of aircraft noise.

TECHNIQUES FOR MITIGATING EXISTING NOISE IMPACTS

EXPENDITURE TECHNIQUES - Because of high costs, these techniques are usually applied only within 65 DNL contour where Federal funding assistance may be available.

Property Acquisition: Outright purchase of property.

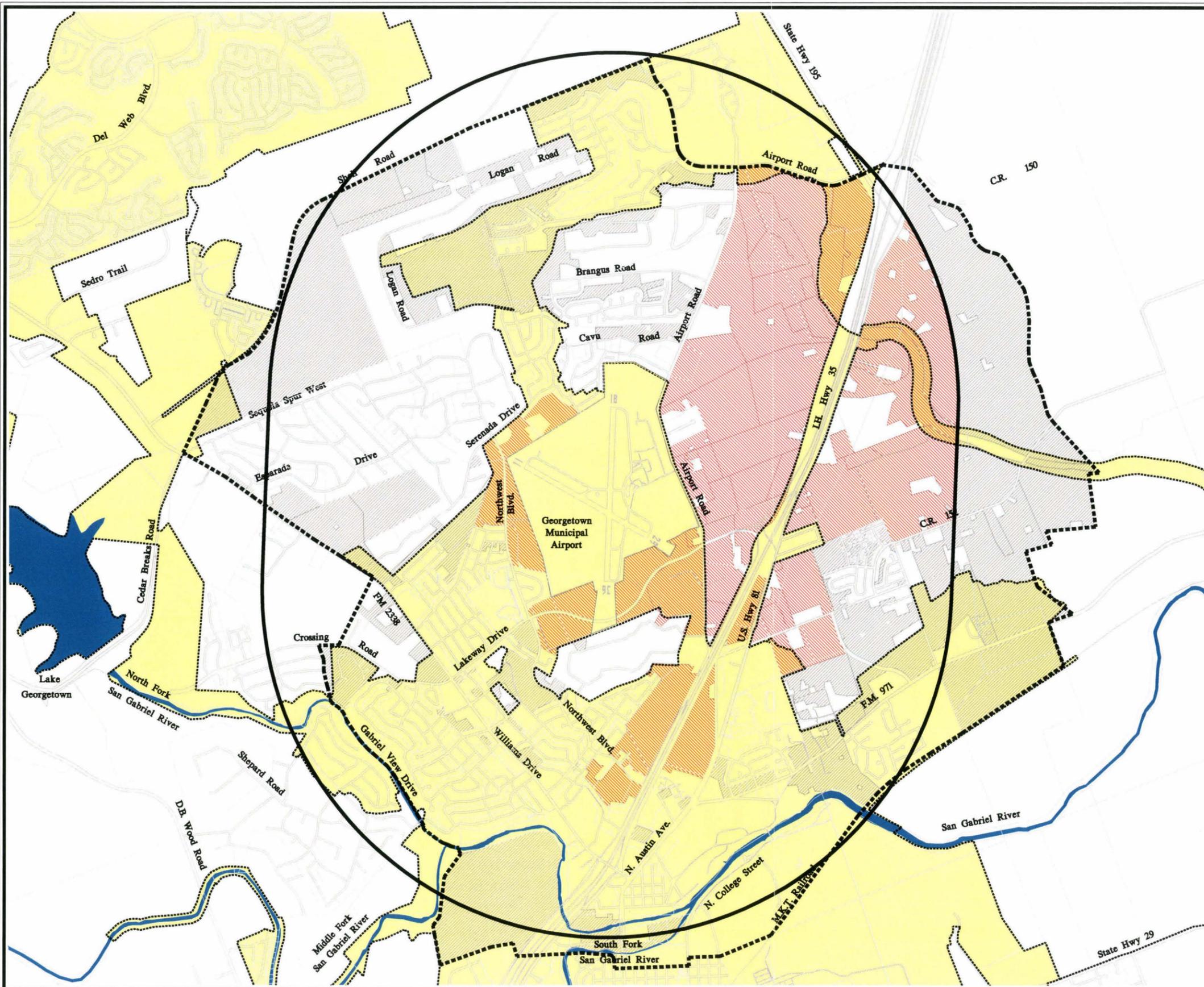
Noise and Aviation Easement Purchase: Purchase of easement only.

Development Rights Purchase: Purchase of rights to develop property.

Purchase Assurance: Airport acts as buyer of last resort, then resells property and retains easements.

Sales Assistance: Provide assistance to property owners in selling homes. Airport retains noise easements.

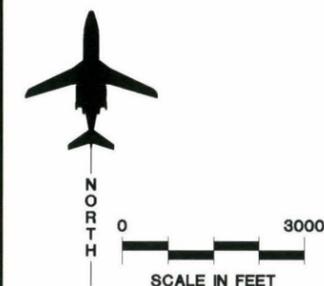
Sound Insulation: Installation of sound insulation in existing homes and noise-sensitive institutions.



LEGEND

- Detailed Land Use Study Area
- Municipal Boundary
- Airport Property
- Horizontal Surface/Airport Planning Area
- Agriculture/Undeveloped
- ▨ Agriculture/Undeveloped Areas of Concern

Source: City of Georgetown, Department of Geographic Information Systems. Coffman Associates Analysis.



property or are found underneath existing and potential flight paths. According to the recently approved and adopted Future Land Use map to the City of Georgetown and its extra-territorial jurisdiction, these areas have been assigned future land use designations of commercial or industry. These land use designations are compatible with airport operations.

- **EVALUATION**

The recent adoption of the Future Land Use map has assigned compatible land uses within the airport environs; therefore, no revisions to the plan are suggested.

Project Review Guidelines

Planning commissions and local governing bodies are often required to use their own discretion and judgement 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**

The City of Georgetown could consider adopting airport land use compatibility guidelines that would allow for discretionary review of development projects within the airport planning area. These guidelines would most appropriately be contained in the general plan. The process would add little cost or administrative burden to the review process. A simple checklist could be prepared listing the important factors to consider in reviewing development proposals within the selected contour. The following criteria are suggested.

- Determine the sensitivity of the subject land use to aircraft noise levels. The F.A.R. Part 150 land use compatibility table can be used for this purpose. (See Exhibit 4A in Chapter Four.)
- Advise the airport management of development proposals involving noise-sensitive land uses within the airport planning area.
- Locate noise-sensitive public facilities outside the 65 DNL contour, if possible, and require the dedication of noise and aviation easements to the City of Georgetown as airport proprietor.
- Discourage the approval of rezonings, exceptions, variances, and conditional uses which introduce noise-sensitive development into areas exposed to noise exceeding 65 DNL.

- Where noise-sensitive development within the 65 DNL 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.

- **CONCLUSION**

The City of Georgetown could consider adopting airport land use compatibility guidelines for review of development projects within the airport planning area. These would be appropriately included in the general plan.

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
- Creation of an Industrial District
- 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.

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

In Chapter One, the zoning ordinance for the City of Georgetown was summarized. Within the city's zoning ordinance, residential and other noise-sensitive development are allowed in all of the commercial zoning districts. No residential uses are allowed in the industrial zoning district; however, other noise-sensitive uses such as schools and churches are allowed after project review and the issuance of a special permit. This type of zoning ordinance is classified as a "cascading ordinance" which means that uses allowed in the most stringent zone cascade into the next, less stringent zone. Therefore, commercial and industrial zoning in the vicinity of the airport cannot guarantee that all noise-sensitive uses will be avoided, although large-scale residential development would be effectively prohibited.

In order to consider this alternative, the City of Georgetown would first need to amend the current zoning ordinance to change the land uses allowed within the commercial zones, primarily by removing residential land uses. Once this is complete, the city could consider

rezoning the parcels of land within the 65 DNL noise contour that are currently zoned for residential to commercial or light industrial uses.

In addition, the airport property itself is zoned R-P, Residential Planned. This zoning designation allows for residential development as well as other noise-sensitive development. This zoning designation could pose problems in the future should portions of the property ever be sold or leased.

- CONCLUSION

Of utmost consideration should be a change of zone for the airport property as it is currently zoned for residential planned development. Consideration should be given to changing the zoning classification to a more suitable zone or a new airport zoning classification should be adopted.

Changing the zoning of undeveloped parcels of land within the study area from residential to a more compatible zone as discussed above may not be suitable in this case as it would require major changes to the city's current zoning ordinance. The changes required would remove the cascading features of the ordinance and would not only affect the areas around the airport, but the entire city. The amount of time and effort that would be required for a change of this magnitude may not be justified; therefore, this alternative is not a viable option.

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 mentioned in the previous section, there are tracts of land within the 65 DNL boundary to the east, southeast, and southwest of the airport that are zoned for non-compatible land uses. As discussed previously, rezoning these areas to a compatible land use is not feasible; however, changing the density of the residential development to low-density could be considered as the undeveloped land is primarily zoned for medium density to high density residential uses. Implementation of this alternative would require major revisions to the current zoning ordinance due to cascading.

- **CONCLUSION**

Due to the cascading feature of the city's zoning ordinance, this alternative would be very hard to implement without major revisions to the zoning ordinance. Therefore, this alternative is not a viable option.

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 requirements 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.

Boundaries of airport compatibility overlay zones are usually determined by the critical noise contours based on local perceptions – often the 65, 70, and 75 DNL contours, but with increasing emphasis on the airport planning area. The boundary may follow the actual contours, or, for the sake of simplified administration, nearby streets, property lines, or natural features.

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. In the case of Georgetown Municipal Airport, only the City of Georgetown has zoning authority as Texas State Law does not yet allow counties to adopt zoning ordinances.

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.

- **EVALUATION
AND CONCLUSION**

Only the portions of the study area which are under the jurisdiction of the City of Georgetown are currently zoned, as Williamson County does not have the authority to zone land which falls under the county's jurisdiction. Most of the undeveloped land within the study area is within Williamson County and would, therefore, not be affected by the addition of overlay zoning to the city's zoning ordinance. Based on this information, implementation of this alternative is not a viable option.

Creation of an Industrial Zone

Texas State Statute §42.044, *Creation of Industrial District in Extraterritorial Jurisdiction*, (contained in **Appendix E**) states that "The governing body of a municipality may designate any part of its extra-territorial jurisdiction as an industrial district and may treat the designated area in a manner considered by the governing body to be in the best interest of the municipality." In creating an industrial zone, the governing body makes written contracts with owners of the land that guarantee the land contained within the industrial district will: (1) remain part of the municipality's extra-territorial jurisdiction (EJT) for a stated period of time, not to exceed 15 years; (2) be developed in a manner consistent with the municipality's goals; and (3) not be overly restrictive of business activities.

The creation of an industrial zone benefits not only the landowner, who gains a source of revenue as businesses locate within the district, but also the municipality. Currently municipalities have little control over what is developed within their EJT. The municipality's general plan has jurisdiction over the EJT; however, the municipality's zoning ordinance, which is based on the contents of the general plan, does not apply within the EJT. Essentially the municipality can prescribe land uses within the EJT through the general plan, but there are no regulatory "teeth" to enforce the recommendations. The creation of an industrial zone within the EJT would give the municipality the ability to regulate what is developed in designated areas.

The benefits of placing an industrial zone in the EJT near an airport are immense as it would allow the city to ensure that noise-sensitive development does not occur in areas of critical concern (i.e., at the end of a runway, under aircraft approach or departure routes, or under flight paths).

- EVALUATION

As depicted on **Exhibit 6E**, there is a large amount of undeveloped land to the east of Georgetown Municipal Airport. The areas shaded in red on the exhibit experience high levels of aircraft noise, as they are under existing concentrated arrival and departure paths. This land is currently regulated by the city's general plan; however, since it is part of Williamson County, the city's zoning ordinance does not apply within this

area. These parcels of land are of great concern because they are located under the traffic pattern for Runway 18-36. Currently, there are no regulations in place that would ensure that noise-sensitive development does not occur. Consideration could be given to the formation of an industrial zone within these areas. Should this occur, the City of Georgetown would have some control over the type of land use developed in this area.

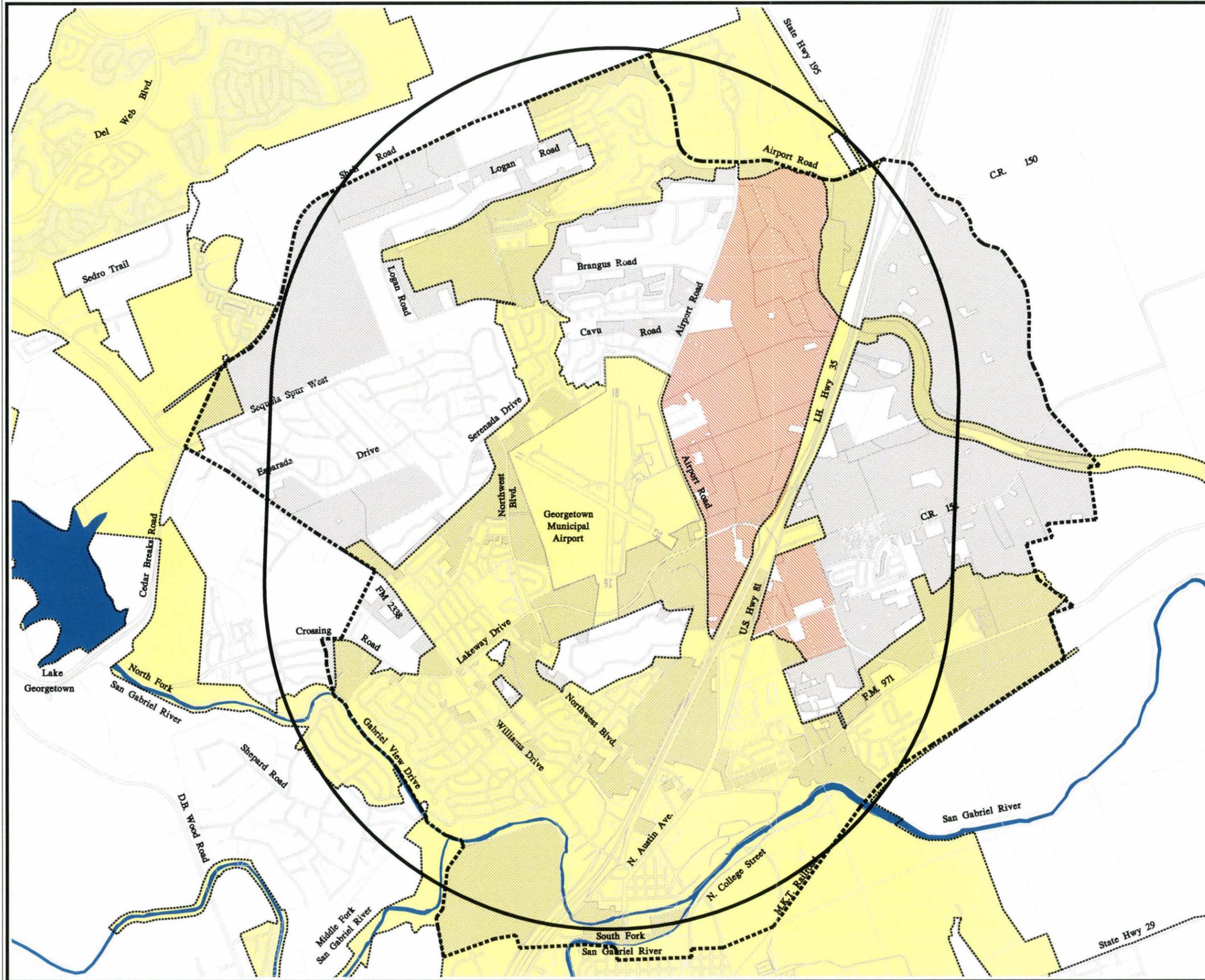
An amendment to the zoning ordinance would be required for implementation of this alternative.

- CONCLUSION

The City of Georgetown could consider the creation of an industrial zone within undeveloped areas east of the airport as depicted on **Exhibit 6E**. Land use in these areas is currently regulated only by the city's general plan as Williamson County has not been granted the authority to zone the unincorporated portions of the county. This is a viable alternative that should be carried forward.

Airport Zoning Ordinance

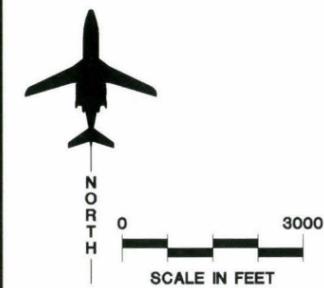
The State of Texas, through the *Airport Zoning Act* (contained in Subchapter A of Chapter 241 of Subtitle C of the Texas State Statutes), has granted municipalities and counties the power to adopt two types of airport zoning regulations - Airport Hazard Area Zoning Regulations and Airport Compatible Land Use Zoning Regulations. The purpose of these



LEGEND

- Detailed Land Use Study Area
- Municipal Boundary
- Airport Property
- Horizontal Surface/Airport Planning Area
- Agriculture/Undeveloped
- Industrial Districts

Source: City of Georgetown, Department of Geographic Information Systems. Coffman Associates Analysis.



regulations is to: (1) prevent the creation of an airport hazard; and (2) ensure that compatible land uses are developed around the airport. The zoning regulations can specify the land uses permitted, regulate the type of structures, and restrict the height of structures and objects of natural growth to prevent the creation of an obstruction to flight operations or air navigation.

This type of zoning ordinance would be very beneficial to protect airports that are not entirely located within one jurisdiction or are located on the edge of a jurisdiction, as is the case with Georgetown Municipal Airport. The Georgetown Municipal Airport, while located within the city limits, is bounded by Williamson County on three sides. Williamson County has not been granted zoning powers by the State of Texas; therefore, regulating the types of development around the airport can be guided only by the City of Georgetown's general plan which, as discussed previously, can not ensure that noise-sensitive development does not occur.

In instances where two jurisdictions are affected, the statutes allow the following. "A political subdivision to whose benefit an airport is used in the interest of the public may create a joint airport zoning board with another political subdivision in which an airport hazard area or a controlled compatible land use area relating to the airport is located. The political subdivisions must act by resolution or ordinance in creating the joint board." The purpose of such a zoning board would be to not only adopt the airport zoning ordinance, but also to administer and enforce the various regulations.

A number of steps need to be taken to adopt an airport zoning ordinance. A copy of the *Airport Zoning Act*, which explains the requirements in detail, is contained in **Appendix E**. Also contained in the appendix is a copy of airport zoning ordinance guidance provided by the Texas Department of Transportation. This document provides guidance for successful implementation of the various zoning ordinances allowed under the *Airport Zoning Act*.

• EVALUATION

The City of Georgetown and Williamson County have established the Georgetown-Williamson County Joint Airport Zoning Board. This board is charged with administering and enforcing the *Georgetown Airport Zoning Ordinance*, which contains height and hazard provisions for development within the airport hazard area. Four zones, described below and depicted on **Exhibit 6F**, have been established within the ordinance to protect the safety and welfare of citizens and pilots.

Approach Zone. The approach zone is established beneath the approach surface at each end of all runways on Georgetown Municipal Airport for non-precision instrument landings and take-offs. The approach zone shall have a width of 500 feet at a distance of 200 feet beyond each end of the runway, widening thereafter uniformly to a width of 3,500 feet at a horizontal distance of 10,200 feet beyond each end of the runway, its centerline being the

continuation of the centerline of the runway.

Within the approach zone, no structure or tree shall be erected to a height in excess of one foot in height for every 34 feet in horizontal distance, beginning at a point 200 feet from, and at the elevation of, the end of the runway, and extending to a point 10,200 feet from the end of the runway.

Transition Zones. Transition zones are established beneath the transition surface adjacent to each runway and approach surface as indicated on the zoning map. Transition surfaces, symmetrically located on either side of runways, have variable widths. Transition surfaces extend outward from a line 250 feet on either side of the centerline of the runway, for the length of such runway plus 200 feet on each end. The line is parallel to and level with the runway centerlines. The transition surfaces along such runways slope upward and outward one foot vertically for each seven feet horizontally to the point where they intersect the horizontal surface. Further, transition surfaces are established adjacent to approach surfaces for the entire length of the approach surfaces. These transition surfaces have variable widths. Such transition surfaces flare symmetrically with either side of the runway approach surfaces from the base of such surfaces and slope upward and outward at the rate of one foot vertically for each seven feet horizontally to the points where they intersect the horizontal and conical surfaces.

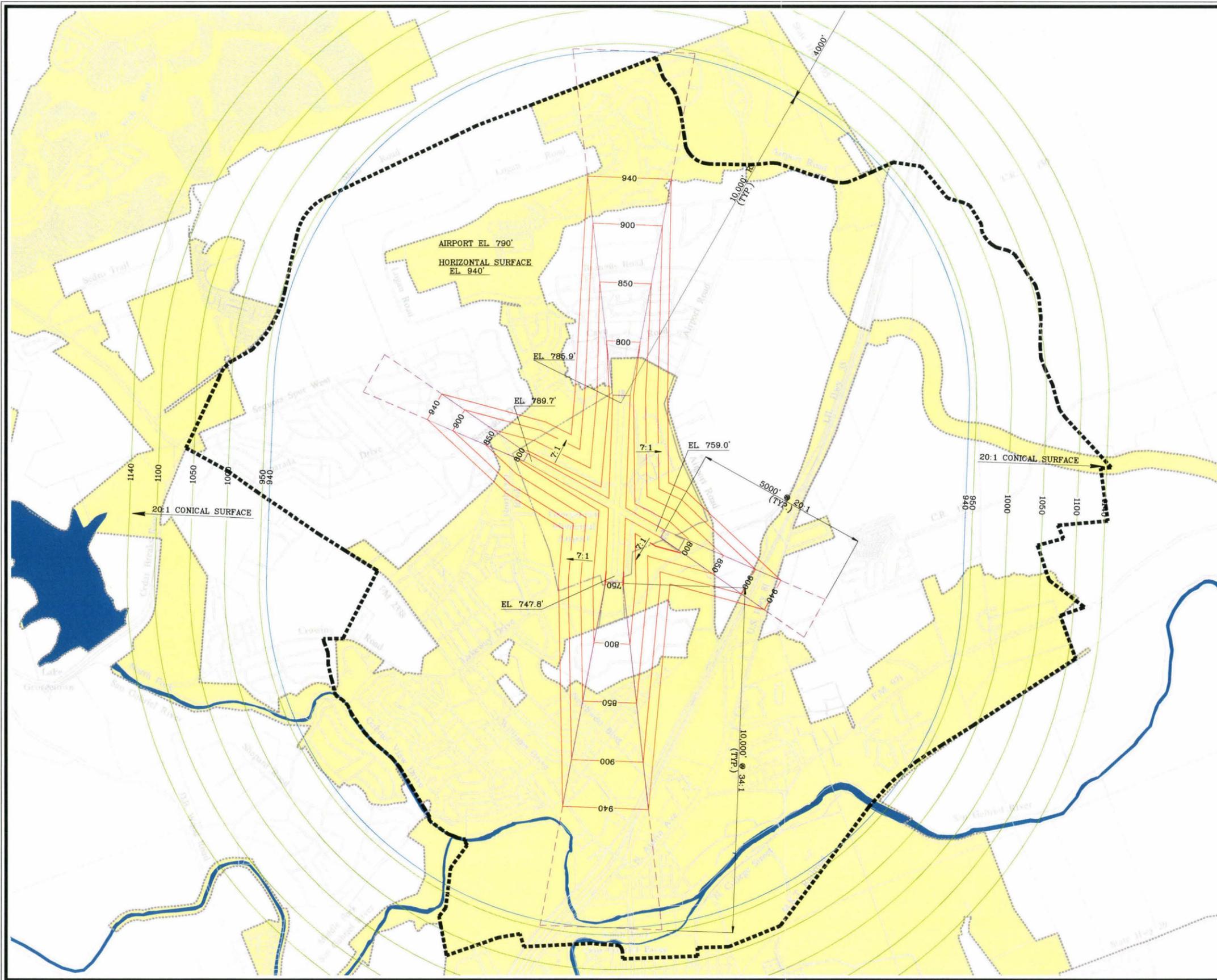
Within the transition zone, no structure or tree shall be erected to a height in excess of one foot in height for each seven feet in horizontal distance, beginning at any point 250 feet to, and at the elevation of, the centerline of runways extending 200 feet beyond each end, extending to height of 150 feet above the airport elevation or a height of 937 feet above mean sea level (MSL). In addition, there are established height limits of one foot vertical height for each seven feet horizontal distance measured from the edges of all approach zones for the entire length of the approach zones and extending upward and outward to the points where they intersect the horizontal or conical surfaces.

Horizontal Zones. The area beneath a horizontal plane 150 feet above the established airport elevation, the perimeter of which is constructed by swinging arcs of 10,000 feet radii from the center of each end of the primary surface of each runway and connecting the adjacent arcs by lines tangent to those arcs.

Within the horizontal zone, no structure or tree shall be erected to a height in excess of that area beneath the horizontal surface which is located 150 feet above the airport elevation, or a height of 937 feet above MSL.

Conical Zone. The area beneath the conical surface extending outward and upward from the periphery of the horizontal surface at a slope of 20:1 for a horizontal distance of 4,000 feet.

Within the conical zone, no structure or tree shall be erected to a height in



LEGEND

- Detailed Land Use Study Area
- Municipal Boundary
- - - - - Airport Property
- Unincorporated Williamson County
- Georgetown Jurisdictional Boundary
- Transitional Surface
- Approach Zones
- Horizontal Surface
- Conical Surface

NOTE: THIS ISOMETRIC IS FOR ILLUSTRATION PURPOSES ONLY AND IS NOT AN ACTUAL REPRESENTATION OF THE RUNWAY(S) DEPICTED ON THIS PART 77 AIRSPACE DRAWING.

ISOMETRIC VIEW OF SECTION THRU CENTERLINE OF RUNWAYS
N.T.S.

V_A = DIMENSION VARIES ACCORDING TO TYPE OF RUNWAY APPROACH (e.g., PRECISION, NONPRECISION, VISUAL)

Source: City of Georgetown, Department of Geographic Information Systems.
Coffman Associates Analysis

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GEORGETOWN
MUNICIPAL AIRPORT

excess of that area beneath the conical surface which is one foot in height for each 20 feet of horizontal distance beginning at the periphery of the horizontal surface extending to a height of 350 feet above the airport elevation.

As described above, the current Airport Zoning Ordinance establishes zones relating only to the height and potential hazard of structures. Airport Compatible Land Use Zoning Regulations have not yet been incorporated into the zoning ordinance. If the current airport zoning board was to adopt land use regulations, they would be effective not only within the city limits of Georgetown, but also within Williamson County. **Exhibit 6G** presents three suggested noise overlay zones, which could be included in an amendment to the current Airport Zoning Ordinance.

Noise overlay zone 1 could contain the areas within the squared-off 65 DNL contour. Development within this overlay zone would be limited to non-noise sensitive development such as open space, commercial, or industrial uses. Consideration could be given to requiring avigation easements for new development within this zone. Noise overlay zone 2 could encompass the airport approach zone. The purpose of this zone would be primarily for public disclosure of potential aircraft noise and overflight impacts. Avigation easements could be required prior to the development of any noise-sensitive land uses within the zone. Noise overlay zone 3 could contain the areas within the airport influence area (AIA). The

purpose of this zone would be primarily for fair disclosure. This exhibit incorporates the existing Airport Zoning Ordinance, as well as three noise overlay zones.

Table 6A outlines the land uses allowed in each of the zones. The existing four hazard zones, combined with the land use compatibility zones, would restrict not only the type of development that could occur in the area but also the height of any structures.

In addition to the implementation of the overlay zones, the areas contained within Williamson County would be assigned specific zoning classifications. This tier of land use designation could ensure that undeveloped areas east of the airport, not contained within a noise contour, are protected from the development of noise-sensitive land uses. The parcels could be zoned as industrial or commercial which would ensure that noise-sensitive development wouldn't occur in this sensitive area. As discussed in previous sections, these parcels of land are under the traffic pattern for Runway 18-36. It must be noted that residential land uses north, west, and south of the airport would most likely be zoned for residential uses in order to ensure cohesive development, as many of these areas contain residential development. Requirements contained within the overlay zoning would ensure that future landowners are aware of airport noise and will require sound insulation for noise-sensitive developments.

TABLE 6A
Airport Compatibility Overlay Zoning Matrix
Georgetown Municipal Airport

| | <i>Uses Allowed Within Each Zone</i> | | |
|---------------------------------------------------------------------------------------------------------------------------|--------------------------------------|-----------------------------|-----------------------------|
| | <i>Noise Overlay Zone 1</i> | <i>Noise Overlay Zone 2</i> | <i>Noise Overlay Zone 3</i> |
| RESIDENTIAL | | | |
| Single-family, duplex, multi-family, manufactured housing | N | Y[1,2,4,7] | Y[1,2] |
| Recreational vehicle parks | N | Y[1,2,4,7] | Y[1,2] |
| Other residential | N | Y[1,2,4,7] | Y[1,2] |
| PUBLIC FACILITIES | | | |
| Education facilities | N | N | Y[1] |
| Religious facilities, libraries, museums, galleries, clubs and lodges | N | Y[1,4] | Y[1] |
| Outdoor sport events, entertainment and public assembly, except amphitheatres | N | N | Y[1] |
| Indoor recreation, amusements, athletic clubs, gyms and spectator events | Y[1,5] | Y[1,4] | Y[1] |
| Neighborhood parks | Y[1] | Y[1] | Y[1] |
| Community and regional parks | Y[1] | Y[1] | Y[1] |
| Outdoor recreation: tennis, golf courses, riding trails, etc. | Y[1] | Y[1] | Y[1] |
| Cemeteries | Y[1] | Y[1] | Y[1] |
| COMMERCIAL | | | |
| Hotels/motels | Y[1,5] | Y[1,4] | Y[1] |
| Hospitals and other health care services | N | N | Y[1] |
| Services: finance, real estate, insurance, professional and government offices | Y[1,4] | Y[1,3] | Y[1] |
| Retail sales: building materials, farm equipment, automotive, marine, mobile homes, recreational vehicles and accessories | Y[1,4] | Y[1,3] | Y[1] |
| Restaurants, eating and drinking establishments | Y[1,4] | Y[1,3] | Y[1] |
| Retail sales: general merchandise, food, drugs, apparel, etc. | Y[1,4] | Y[1,3] | Y[1] |
| Personal services: barber and beauty shops, laundry and dry cleaning, etc. | Y[1,4] | Y[1,3] | Y[1] |
| Automobile service stations | Y[1] | Y[1] | Y[1] |
| Repair services | Y[1] | Y[1] | Y[1] |
| INDUSTRIAL | | | |
| Processing of food, wood and paper products; printing and publishing, warehouses, wholesale and storage activities | Y[1,6] | Y[1,6] | Y[1] |

TABLE 6A (Continued)
Airport Compatibility Overlay Zoning Matrix
Georgetown Municipal Airport

| | <i>Uses Allowed Within Each Zone</i> | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|-----------------------------|-----------------------------|
| | <i>Noise Overlay Zone 1</i> | <i>Noise Overlay Zone 2</i> | <i>Noise Overlay Zone 3</i> |
| Refining, manufacturing and storage of chemicals, petroleum and related products, manufacturing and assembly of electronic components, etc. | Y[1,6] | Y[1,6] | Y[1] |
| Manufacturing of stone, clay, glass, leather, gravel and metal products; construction and salvage yards; natural resource extraction and processing, agricultural, mills and gins | Y[1,6] | Y[1,6] | Y[1] |
| AGRICULTURE | | | |
| Animal husbandry; livestock farming, breeding and feeding; plant nurseries (excluding retail sales) | Y[1] | Y[1] | Y[1] |
| Farming (except livestock) | Y | Y | Y |
| MISCELLANEOUS | | | |
| Transportation terminals, utility and communication facilities | Y[1] | Y[1] | Y[1] |
| Vehicle parking | Y[1] | Y[1] | Y[1] |
| Signs | 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 A fair disclosure agreement and covenant shall be recorded as a condition of development approval for all permitted uses in the APA Zoning Overlay District.
- 2 All new plats recorded shall be inscribed with the following: *"These properties, due to their proximity to Georgetown Municipal Airport, are likely to experience aircraft overflights, which could generate noise levels that may be of concern to some individuals."*
- 3 The land use or activity is permitted. The developer shall be encouraged to incorporate features into the design and construction of buildings where people live, work, or are otherwise received to achieve an outdoor-to-indoor noise level reduction (NLR) of 25 decibels.
- 4 The land use or activity is permitted; however, an outdoor-to-indoor noise level reduction (NLR) of 25 decibels must be incorporated into the design and construction of those buildings where people live, work, or are otherwise received.
- 5 The land use or activity is permitted; however, an outdoor-to-indoor noise level reduction (NLR) of 30 decibels must be incorporated into the design and construction of those buildings where people live, work, or are otherwise received.
- 6 Uses which produce air pollutants that may obscure vision in any way, or which involve raw materials, products or by-products that pose a potential explosive hazard, are not permitted.
- 7 Avigation easements are required which acknowledge that an airport is located nearby and aircraft to/from the airport have a right to fly over the property.

Implementation of the suggested amendment to the current *Georgetown Airport Zoning Ordinance* would be the responsibility of the Georgetown-Williamson County Joint Airport Zoning Board. Development proposals would need to be reviewed by the board to ensure consistency with the revised Airport Zoning Ordinance. If implemented properly, the amended zoning ordinance would help to ensure that only compatible development would occur within the airport planning area.

- CONCLUSION

Due to the lapse of time since the establishment of the Georgetown-Williamson County Joint Airport Zoning Board, this is not considered a viable alternative. This board does not meet on a regular basis, and the membership of the board has not been updated since its inception.

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 advising 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