

# H H Coffield Regional Airport

Rockdale, Texas



## *Airport Action/Business Development Plan with Airport Layout Plan*

**H.H. COFFIELD**  
**REGIONAL AIRPORT**

PHONE  
**446-2511**



NIGHT  
**446-3436**



RCK1400M

April 19, 2013

**Mr. Kelvin Knauf**  
**City Manager**  
**City of Rockdale**  
505 West Cameron Avenue  
Rockdale, Texas 76567

**Subject: H.H. Coffield Regional Airport (RCK)**  
**Draft Airport Action/Business Plan with ALP Update**

Dear Mr. Knauf:

Please find enclosed Draft Airport Action/Business Plan with ALP Update for your review. The following summarizes the chapters and appendices found within.

Volume One contains a traditional airport planning effort, the ALP Update:

Chapter One - Introduction. This portion of the deliverable introduces the reader to the project, while describing objectives, issues, the conduct of the project and its processes.

Chapter Two - Inventory. This portion of the deliverable describes the Rockdale community, the H.H. Coffield Regional Airport and the aviation environment within which they operate.

Chapter Three Forecasts. This portion of the deliverable projects aviation activity into the future (5, 10, 20 year periods) and provides some justification for the selected forecast.

Chapter Four - Facility Requirements. This portion of the deliverable describes the future aviation requirements derived as a consequence of the previous two sections.

Chapter Five - Alternatives. This portion of the deliverable identifies and evaluates three aviation alternatives deemed to be potentially suitable.

Chapter Six - Phased Development. This portion of the deliverable narrates and depicts proposed improvements as a consequence of our meeting with TxDOT.

Chapter Seven - Airport Layout Plan and Drawings. This portion of the deliverable depicts existing facilities along with proposed improvements as a consequence of our meeting with TxDOT, with content and appearance specified by TxDOT.

Volume Two contains the Airport Action/Business Development Plan:

Section One – Situation Analysis. This portion of the deliverable introduces the reader to the community from an aviation business perspective.

Section Two – New Business Analysis. This portion of the deliverable describes the current marketplace, provides target markets as it relates to the aviation and non-aviation environment and estimates economic impacts.

Section Three – Marketing Plan. This portion of the deliverable identifies potential next step to more meaningfully insert the airport in the Rockdale community into the aviation marketplace.

Section Four – Financial Feasibility. This portion of the deliverable describes revenues and expenses, both historical and potential.



Section Five – Recommendations and Next Steps. This portion of the deliverable identifies solid recommendations and next steps for this plan.

Three appendices conclude the document:

Appendix A. This appendix documents our initial project meeting followed the previous meeting's presentation materials.

Appendix B. This portion of the deliverable contains template TxDOT compatible land use guidance for City and County consideration.

Appendix C. This appendix contains draft plan presentation materials.

Overall, this Draft Plan, particularly the ALP Update, reflects TxDOT perspective for your airport. If you will recall from our meeting with TxDOT, the general consensus was that a constrained financial environment for airport improvements persists and improvement funds are scarce. RCK is categorized by the TxDOT airport system plan as a basic service airport. This level of airport classification does not compete as well as other classifications for state aviation funding.

In essence, this plan endeavors to bring the existing facility up to standards for small, Cessna 172 type aircraft and provides for rehabilitation. No relocation of any airport facilities are contemplated, nor are any business-class airport capabilities.

We look forward to seeing you on May 2 to present these materials.

We are appreciative of your time, look forward to addressing your comments and working with TxDOT to make sure we have fielded a responsive project. We would be happy to discuss any aspect of this deliverable or this project at your convenience.

Electronic versions (.pdf, .dwg) of these materials have been transmitted to TxDOT for their review, comment and approval.

Sincerely,

A handwritten signature in blue ink, appearing to read "Steve Marshall", is written over a light blue horizontal line.

Steve Marshall  
Planning Project Manager

Enclosures (2)

Cc: Mr. Matthew Felton, TxDOT Project Manager (w/enclosure)

# **AIRPORT ACTION/BUSINESS DEVELOPMENT PLAN WITH AIRPORT LAYOUT PLAN**

**H.H. Coffield Regional Airport (RCK)**

**DRAFT**  
**April 2012**

*Prepared for the:*

**State of Texas, Department of Transportation, Aviation Division**

*And the:*

**City of Rockdale, State of Texas**

**Larry Don Jones**

Mayor

**Doug Calame**

Mayor Pro-Term

**Melody Dawson**

Council Member

**Joyce Dalley**

Council Member

**Willie Phillips**

Council Member

**Toby Johnson**

Council Member

**Colby Fisher**

Council Member

*And the City of Rockdale Airport Development Plan Committee*

*And City Manager, Mr. Kelvin Knauf*

*Prepared by:*



Airport Development Group, Inc.  
Airport Consultants, Engineers and Planners  
3900 Lakeland Drive, Suite 501c  
Jackson, Mississippi 39232  
(601) 932-6920

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# H H Coffield Regional Airport

Rockdale, Texas



## *Update Airport Layout Plan Volume One*

**H.H. COFFIELD**  
**REGIONAL AIRPORT**

PHONE  
**446-2511**



NIGHT  
**446-3436**

# Update Airport Layout Plan Chapter One

## *Introduction*



# **Chapter One – Introduction to the Plan**

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## **1.0 Introduction**

The City of Rockdale as owner, operator and sponsor of the H.H. Coffield Regional Airport has initiated this update of its Airport Plan to assess the Airport's existing and future role and to provide direction and guidance related to short- and long-term development. This study will recommend a course of action over a period of 20 years and beyond. This course of action will be advanced to meet existing and anticipated aviation demand and to provide compliance with current Federal Aviation Administration (FAA) airport design standards. This project and its process will be shepherded through the City of Rockdale's Airport Development Plan Committee (Committee).

This planning is created to be both a forward-looking and flexible document. Resolutions and solutions are proposed well in advance of the likely need; and the plan is flexible enough to change with the need. Federal and state agencies are then similarly able to effectively program funding and be responsive to financing needs, should that be necessary.

The remainder of this chapter describes plan purpose, objectives and issues and identifies the four-phase planning process created specifically for this planning effort.

## **1.1 Purpose**

The purpose of the planning effort is to use developed methods to objectively evaluate and assess the needs of the H.H. Coffield Regional

Airport from an aviation use, development, and implementation perspective. Further, the planning will assist City leadership to sort through the difficult questions and then, use that information to guide local decisions regarding airport infrastructure investment.

Development at the H.H. Coffield Regional Airport has plateaued in past years, but this may not continue. The potential need for infrastructure and additional facilities will be analyzed while looking to the future to determine what the Airport can do to improve the local and regional economy.

The product of this effort will provide the City with a development program to meet aviation needs in the short- intermediate- and long-range planning periods. Aviation demand associated with the Airport makes it important to plan for aviation safety, capacity, proper facilities and land use compatibility. It is anticipated that benefits derived from the plan will positively affect the Airport, its users, City and County residents and the surrounding area.

## **1.2 Objectives and Issues**

Assessing airport needs and filing a new plan is often a complex and difficult, but beneficial task. Some basic questions are:

1. Which airport services are the most attractive to new business and existing users and why?
2. What will it cost to get additional airport infrastructure in place?

3. What kinds of visitors or companies are likely to be interested in the airport?
4. What will the basic needs for the airport be, now and in the future?
5. How does an airport benefit the community by attracting businesses that provide higher income jobs and quality goods and services?

Answers to the above questions will help guide the community to establishing an airport plan and program that contributes to achieving this goal. It usually boils down to economic development efforts, and how a community or region uses its resources, including the airport, to achieve its community and economic development goals.

City and regional economic conditions and increased competition have changed the airport services playing field in recent years. Some communities do not have a firm understanding of their airport's capabilities and potential.

A primary aim of this effort is to evaluate and develop concepts and overall recommendations for the H.H. Coffield Regional Airport that will facilitate implementation and are workable.

### **1.2.1 Objectives**

The Airport and this planning process are intended to be an integral part of the community's overall plan. Coordinated planning that enhances the Airport, the City, Milam County and the area is the overall aim. Specifically, the objectives of this study are as follows:

Objective Number One:

Airport Planning for the H.H. Coffield Regional Airport and its surrounding properties should be integral to the existing operations and facilities.

Objective Number Two:

Airport Planning should minimize off-site impacts, particularly those affecting neighboring areas.

Objective Number Three:

Airport Planning should be developed to cater to designated business markets and regional industries.

Objective Number Four:

Development of the Airport and its properties should occur in a coordinated and comprehensive manner taking maximum advantage of the areas public-use assets.

Objective Number Five:

Airport Planning and development should be conducted to achieve the *highest and best* use of the site. Specific users and uses should be evaluated on a case-by-case basis for general conformity. *Highest and best use* should be interpreted in terms of the following factors: use of physical site assets, economic benefit, jobs created and salaries, fiscal impact and contribution to overall City objectives.

Objective Number Six:

The Airport Planning process and project deliverables should be flexible enough to accommodate a range of potential aviation and non-aviation users.

Objective Number Seven:

City and regional economic goals should be an important consideration in conducting Airport Planning and preparing a development strategy for the H.H. Coffield Regional Airport.

Objective Number Eight:

Planned airport development should be evaluated relative to both long- and short-term costs and benefits.

Objective Number Nine:

The development of the Airport should contribute to the positive image and commercial activity of the City and Milam County.

The aviation situation at the H.H. Coffield Regional Airport is unique and has opportunity in a number of aviation industry segments.

### **1.2.2 Issues**

The City has not yet completed a formal airport planning process or narrative. Both the City and the Texas Department of Transportation (TXDOT)

determined that an overall Airport Plan is necessary given existing and anticipated existing activity and economic conditions. Some of those changes follow and will be given particular attention through the process.

#### Issue Number One:

##### Capital Plan and Long-Term Needs

The longer-term needs of the Airport are in flux and not currently well defined. Many informal projects identified in the previous planning, and particularly their costs, are outdated. A plan is required that looks down the road and points toward future needs. While the Capital Improvement Plan (CIP) is a flexible document, a good baseline makes City needs transparent to everyone with an interest in the Airport.

#### Issue Number Two:

##### Airport Design Standards

Several revisions have been made to advisory circulars/orders over the years and some of these changes affect the Airport in ways which will have an impact on the CIP and other more long-term planning.

#### Issue Number Three:

##### Airspace and Land Use Compatibility

Some of the property surrounding the H.H. Coffield Regional Airport is not compatible with aviation purposes per FAA guidelines. Several industrial parks have been considered over the years and several more could be formalized. Given the scope and size of the Airport, several nearby power lines, encroaching trees and residential land use, additional land use concerns should be addressed in future land use planning processes.

## 1.3 Planning Process

A planning process accompanies this narrative. More to the point, this planning process and participation through the process from those with

interests in the overall aviation community is important to creation of this narrative.

The planning process begins with preparation of the necessary data and mapping to be used in the study to prepare this narrative along with its Airport Layout Plan (ALP) drawings for the H.H. Coffield Regional Airport.

The narrative and ALP drawings will be prepared in accordance with TXDOT guidelines, policies and procedures and applicable federal and state laws and standards. Previous reports and associated work will be reviewed, as necessary.

The project process will be engaged in full coordination with the Committee, federal, state and local planning agencies, the representatives of which will be consulted for input and invited to attend progress meetings, public meetings or other meetings associated with the process. The end result will provide a planning document that recommends a responsive course of action and a scheduled plan, complete with current cost estimates for facility improvements.

Prior to initiation of this project, the prerequisite project scope of services, budget and schedule were approved. The planning process and its project workflow consist of four project phases, described as below.

### 1.3.1 Phase One

The planning process benefits from public participation and as such, a project initiation meeting, **Public Meeting No. 1**, is a first step. This meeting described the contents of this chapter and solicited comments from the Committee.

Project activities may then continue with Inventory, **Chapter Two**. This portion of the project involves information acquisition not limited to; facilities and improvements, land uses,

airspace and navigational aids, along with socioeconomic, environmental and financial data. The Forecasts of Aviation Demand, **Chapter Three**, can then be created for the first five-year period; 2013-2017, the second five-year period 2018-2022, and the final 10-year period; 2023-2032, of the 20-year planning horizon.

Facility Requirements, **Chapter Four**, can then be generated based upon previous work. **Chapter Five**, Alternatives Analysis will consider two airfield alternatives which may suit demand over the three planning periods for Committee consideration.

**Working Paper No. 1** consisting of the first five chapters will be printed and comments solicited from the Committee, TXDOT and any necessary changes are made pursuant to the next project phase.

Prior to Phase Two, Phase One activities are summarized at **Public Meeting No. 2**.

The first project milestone is Committee selection of preferred alternative for the Draft Narrative Report. Selection and concurrence will likely be obtained through informal meetings, designed to present the technical aspects of the alternatives in a meaningful, but easy to understand way.

### **1.3.3 Phase Two**

The second project milestone is Committee and TXDOT review of the Draft Narrative Report. The draft narrative will describe and illustrate the recommended course of action, over the next 20 years, per Committee direction.

Phase Two work begins with incorporation of City and TXDOT comment and prerogative for Working Paper No. 1.

Phase Two work also includes **Chapter Six**, Phased Development and Cost Estimates which sequences and provides cost estimates for airport improvements pursuant to the preferred alternative and **Chapter Seven**, Airport Layout Plan and Drawings which depict existing and future airport features.

Phase Two project activities are summarized in the draft narrative and at **Public Meeting No. 3**.

The third project milestone is Committee concurrence with the **Draft Narrative Report**.

### **1.3.4 Phase Three**

Multiple copies of the draft narrative consisting of all chapters and ALP drawings are transmitted to TXDOT for coordination. Coordination generally consists of a TXDOT internal review process wherein draft documents are reviewed for continuity and conformity to TXDOT standards and specifications.

Then the overall project shifts gears somewhat. While TXDOT is reviewing the draft narrative and ALP drawings, other economic development project activities are finalized including the:

1. Business Financing Plan
2. Regional Business Analysis
3. Rates and Charges, Minimum Standards and Leasing, and Operational Structure Analysis
4. TRIZ Sensitivity Analysis
5. Airport Marketing and Promotion.

Finally, Phase Three work concludes with incorporation of City and TXDOT comment and prerogative for the Draft Narrative, leading to the fourth and final project milestone, the **Final Narrative Report**.

Upon coordination completion, a number of final documents will be printed, signed by all parties and the project consummated.

## 1.4 Consultant Agreement and Study Documentation

The City entered into an agreement with Airport Development Group, Inc., in August 2012 to conduct the planning effort and to prepare this document. The narrative report and ALP drawings are submitted for approval to the Committee as Airport Sponsor, who then, in turn submits to TXDOT.

### 1.4.1 Reference Documents

This study is prepared in accordance with these FAA advisory documents:

- Previous Airport Documents (Various Years)
- TXDOT Airport System Plan
- 150/5060-5 *Airport Capacity and Delay*
- 150/5190-4 *A Model Zoning Ordinance to Limit Height of Objects around Airports*
- 150/5070-6 *Airport Master Plans*
- 150/5190-5 *Exclusive Rights and Minimum Standards for Commercial Aeronautical Activities*
- 150/5300-13 *Airport Design*
- 150/5340-1 *Standards for Airport Markings*
- 150/5340-18 *Airport Sign System Standards*
- 150/5300-16 *General Guidance and Specifications for Aeronautical Surveys*
- 150/5300-17 *General Guidance and Specifications for Aeronautical Survey Airport Imagery Acquisition and Submission to NGS*
- 150/5300-18 *General Guidance and Specifications for Submission of Aeronautical Surveys to NGS; Field Data and Collection and GIS Standards*
- 150/5360-9 *Planning and Design Guidelines for Airport Terminal Facilities at Non-Hubs*
- 150/5360-13 *Planning and Design Guidelines for Airport Terminal Facilities*
- 150/5020-1 *Noise Control and Compatibility Planning for Airports*
- 150/5320-14 *Airport Landscaping for Noise Control*

- 150/5320-5 *Airport Drainage*
- 150/5050-4 *Citizen Participation in Airport Planning*
- 150/5230-4 *Aircraft Fuel Storage, Handling and Dispensing on Airports*
- 5100.38C *Airport Improvement Program Handbook*
- 5050.4B *NEPA Implementing Instruction for Airport Actions*
- 1050.1E *Environmental Impacts; Policies and Procedures*
- Environmental Desk Reference for Airport Actions*

### 1.4.2 Narrative Report Content

This narrative report presents these chapters:

- Chapter 1 Introduction
- Chapter 2 Inventory
- Chapter 3 Forecasts of Aviation Demand
- Chapter 4 Facility Requirements and Capacity Analysis
- Chapter 5 Alternatives Analysis
- Chapter 6 Airport Layout Plan and Drawings
- Chapter 7 Phased Development and Cost Estimates
- Chapter 8 Airport Business Analysis

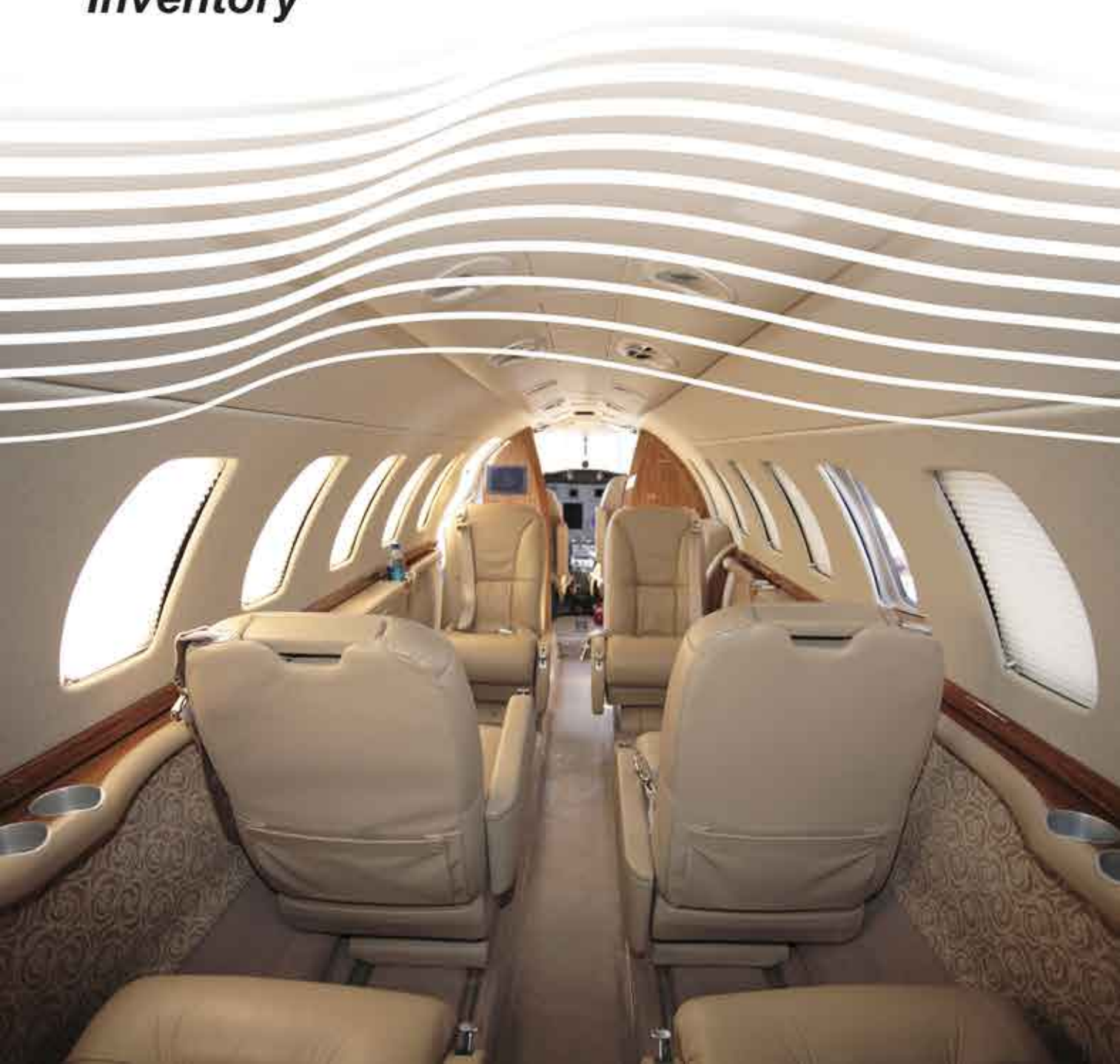
These ALP Drawings are found in Chapter Seven:

- Exhibit I Airport Layout Plan
- Exhibit II Terminal Area Plan
- Exhibit III Runway 17 Approach Surface Plan and Profile
- Exhibit IV Runway 35 Approach Surface Plan and Profile
- Exhibit V Land Use Plan
- Exhibit VI Airport Property Map

# Update Airport Layout Plan

## Chapter Two

### *Inventory*



## **Chapter Two – Inventory**

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### **2.0 Introduction**

This chapter is intended to provide background information and an inventory of the H.H. Coffield Regional Airport and its environs. Quality, relevant baseline information in this regard is necessary for plan integrity.

Data herein was obtained from investigation and interviews, consulting firm experience with the Airport and its projects and TXDOT consultation, along with various other governmental agencies and websites.

The Airport is owned, operated, and sponsored by the City of Rockdale, Texas, managed and guided by Mr. Kelvin Knauf, City Manager.

### **2.1 Brief Area History**

The area around the central Texas region that came to be known as Rockdale is part of the Post Oak Belt, a rectangular strip of land composed of clay, sand, and sandstone and covered with post oak trees that extends from down near present day Bastrop up through Lee, Milam, and Robertson counties.

By the 1500's, the Rockdale region was home to several nomadic Indian tribes including the Yeagues, the Huecos, the Caddos, the Apaches, and Tonkawas. A popular San Gabriel River crossing just a few miles northwest of Rockdale is now open to the public through a business venture known as Apache Pass.

European exploration near what would become the town of Rockdale began in the early 1700's. Father Isidro Felix de Espinosa and Domingo Ramón crossed the San Gabriel and Little Rivers in 1716, when the Spanish sent expeditions to hold Texas against the possibility of French settlement.

In the 1820's through the 1870's, small numbers of hearty settlers found their way to the region that was to become Rockdale. However, until the coming of the railroad in 1873, population in the Rockdale area was sparse. A few settlements sprang up in what is now Milam County before the Civil War era. Lexington was the largest of the pre-civil war settlements with some 150 inhabitants. There were no improved roads and the major public road in the area ran from Lexington to Davilla and northward to Belton.

The only available transportation in the Rockdale region prior to 1870 was horse/oxen drawn. The country was unfenced wilderness, with the exception of a few small farms, and for the most part was fertile. The country was sparsely settled, with a few farmers along the streams, who had modest houses, usually log and sometimes lumber, hauled by ox wagon from Bryan, then the nearest railroad town.

In 1873, the International - Great Northern Railroad acquired right-of-way in Milam County and a 400 acre town site that would later be named Rockdale was surveyed out into thirty-five blocks of lots. Specific strips of land on both sides

of the rail were marked off for a passenger depot, warehouses and holding pens for freight, supply and livestock transport. The business section of the new town went on sale in late 1873 and the town was booming the following year.

In May of 1874, Rockdale had enough citizens to call for incorporation as authorized per the Texas election code, and on May 8 of that month and year, the vote passed by a majority. While the new frontier town in Milam County was known as Rockdale it was not officially dedicated by the Railroad until July 15, 1874. The first mayor of Rockdale was Alfred A. Burck.

## **2.2 Brief Airport History**

In July, 1987 Episcopal Bishop Maurice Benitez was joined by Mayor Bill Avrett and Councilmen Fred Marshall and Wallace Jones to officially present the city of Rockdale with a gift of the then privately-owned H.H. Coffield Municipal Airport. A businessman and entrepreneur, H.H. Pete Coffield, upon his passing named the Episcopal Foundation of Texas, a private not-for-profit foundation, the property recipient with the intention of creating a community airport. The news of that day indicated that community was gratefully proud of one of their own and that one of the primary purposes for the gift was to collocate a business/industrial park with the airport, assisting with overall economic development activities.

## **2.3 Airport Role**

This planning effort is intended to instruct and supplement state and federal airport planning efforts. This plan is a more detailed look at the Airport, while national and state planning step back and generally consider the role the Airport plays in the overall system of airports.

## **Federal Planning**

The H.H. Coffield Airport (RCK) is part of the U.S. national transportation system, but is not part of the Federal Aviation Administration's National Plan of Integrated Airport Systems (NPIAS). Of the nation's nearly 5,200 public-use airports, the NPIAS comprises nearly 3,400 airports which are considered significant to the capacity of the national airspace system.

Because of NPIAS non-participation, the City as sponsor is ineligible to receive federal funding for airport improvements under the Airport Improvement Program (AIP).

Funds to pay for NPIAS improvements originate with the AIP program. AIP is a user-fee based program, funded through the Airport and Airways Trust Fund and originated through the Airport and Airway Improvement Act of 1982, as amended. This grant-in-aid program provides the funding to execute most federal, state and local airport planning. This planning effort, along with planning done by TXDOT may be used to consider RCK participation in the NPIAS.

## **State Planning**

RCK is eligible to receive funding through TXDOT and other state agencies. The *Texas Airport System Plan Update* (revised 2010) identifies RCK as a Basic Service Airport in the Texas system of airports. Table 2-2 notes system plan objectives for RCK as *Basic Service* per TXDOT's *Policies and Standards*. Explanation of the terms used in the table and analysis for compliance will be conducted throughout the remainder of this planning effort.

TXDOT finalized its *Economic Impact of General Aviation in Texas* in 2011 which quantifies the following airport-related direct and indirect economic impact:

- Economic Activity: \$187,293
- Salaries, Wages and Benefits: \$82,958
- Employment: 2.

## 2.4 Airport Inventory

RCK is located within city limits of the City of Rockdale, Milam County, in east-central Texas. The Airport is found at the confluence of Farm to Market Road 908 and Texas State Highway 77.

RCK is approximately 66 miles northeast from Austin, Texas, and 52/132 miles due west from College Station and Houston, respectively. The nearest airports are:

- Cameron Municipal (T35; 16 miles, 20 min)
- Caldwell Municipal (RWV; 26 miles, 37 min)
- Taylor Municipal (T74; 25 miles, 32 min)
- Hearne Municipal (LHB; 28 miles, 38 min).

The field is located near 30°57' 54" North, 96°59' 22" West. RCK properties approximate 70 acres.

RCK is not equipped with a rotating beacon near the terminal area. A rotating beacon alternates green and white, indicating nighttime availability

of a public-use, civilian airport. RCK is not equipped with an Automated Weather Observing System (AWOS). An AWOS provides real-time local weather information for the flying public. The Airport has a segmented circle, but in a non-standard configuration and location. The segmented circle sometimes indicates traffic pattern, and found within the circle is a lighted windcone displaying wind vector information. Supplemental windcones are not found near either runway end.

### Runway 17-35

Runway 17-35 is ±2,967 feet long and 50 feet wide. It is constructed of asphalt with an unknown single-wheel gear (SWG) pavement strength. The wheel-gear (single, double, dual-double) nomenclature refers to a pavement design methodology which produces a pavement strength referenced to the number of wheels on a given aircraft strut. Design inputs in this regard include soil type and other soil characteristics, sub grade/base soil improvements, loading, frequency and mix of aircraft which are expected to use the pavement, pavement type and composition, planned pavement life, and other design criteria. In short, pavements were

Table 2-1  
Texas State System Plan (2010)  
Basic Airport Objectives

Objective/Feature	Minimum	Compliance	Current (Runway 17-35)
Airport Reference Code	A/B-I	No	No; Various Non-Standards
Runway Length/Width	3,200/60 feet	No	2,967/50 feet
Runway Strength	12,500 pounds SWG	No	Unknown (likely not sufficient)
Taxiway	Ramp/Ends	No	Apron abuts runway
Apron (Based)	300 Sq. Yards/Per	No	Apron wholly within ROFA
Apron (Itinerant)	300 Sq. Yards/Per	No	Apron wholly within ROFA
Approach	Visual	Yes	Visual
Lighting	MIRL/MIRL at Turns	No	Non-Standard LIRL
Visual Aid (Beacon)	Existing	No	Not in Place
Visual Aid (Windsock)	Existing	No	Not in Place
Visual Aid (Seg. Circle)	Existing	No	Not in Place
Facilities/Services	--	Yes	Fuel, Lounge

designed to accommodate a limited number of aircraft operations, over time without substantial surface rehabilitation. It is worth noting that the design allows for a limited number of aircraft operations with weights greater than 30,000 pounds.

The effective runway longitudinal gradient is 0.7 percent. The Runway 17 elevation is 474.0 feet above mean sea level (msl) and Runway 35 is 453.8 msl. FAA design standards require that the effective and the maximum runway longitudinal gradients not exceed certain percentages to ensure a runway is not too steep overall or within a shorter distance. Runway longitudinal line of sight is met. Line of sight provides that any two points five feet above runway centerline shall be mutually visible along the entire runway length.

Left traffic is established to both runway ends. Aircraft generally use all or portions of a rectangular flight pattern, of which the runway constitutes one side. Left turns are prescribed along this flight path.

The runway is equipped with a non-standard Low Intensity Runway Lighting (LIRL) system. The LIRL consists of a series of edge lights, generally located 10 feet from the edge of pavements for the length of the runway. The lights are spaced at regular 200-foot intervals, and along specific radii at taxiway intersections. Lights are frangibly-mounted (breakable) at the base to avoid substantial damage to the aircraft in the event of a deviation from the runway. The last 2,000 feet in either direction are directionally-lighted amber to indicate runway limits. Runway threshold lights are part of LIRL and are directionally lighted red and green to indicate runway limits.

Neither runway end is equipped with VGSI (Visual Glide Slope Indicator) lighting. The Precision Approach Path Indicator (PAPI) is a type of VGSI

used to provide lighted, visual information to the pilot as descent toward a runway end is made. The PAPI indicates a red and a white light when on the correct glideslope to either runway end, two red lights when below the glideslope and two white lights when above. Neither runway end is equipped with Runway End Identifier Lighting Systems (REILs). REILs are frangibly-mounted strobe lights situated near each runway end. This lighting system facilitates day or night runway end identification, in clear or semi-obscured weather conditions.

Each runway end is marked with elements appropriate for visual aircraft operation excluding aiming points, and including runway threshold bars. Runway marking elements include designation (the numbers), centerline, aiming point, touchdown zone and side markings. Runway markings are generally white.

Runway 17-35 exceeds FAA's recommended 95 percent coverage of wind in an all-weather, VFR and IFR conditions. FAA details the objectives of a wind coverage noting that the desirable wind coverage is 95 percent. That is; a runway, or runways, at a given alignment should have a crosswind component less than a given threshold 95 percent of the time. These thresholds are: 10.5 knots for small aircraft, 13 knots for larger general aviation aircraft, and 16 knots for larger turbo-prop and some jet aircraft and 20 knots for the largest turbine commercial and general aviation turbine aircraft. Data gathered from the weather reporting equipment at AUS was used to create the wind roses for the Airport. The roses are found in Chapter Seven.

No instrument approach procedures (IAPs) are written for either runway end. IAPs are FAA designed and prescribed three-dimensional paths in the sky for safe aircraft landing. These paths

necessarily avoid terrain, tall towers and other obstructions to allow safe aircraft operation.

### **Taxiways and Apron**

No parallel or connecting taxiways associate with the runway with the exception of one connecting taxiway. This taxiway starts approximately 65 feet from the Runway 35 end is approximately 220 feet long, perpendicular to runway centerline, and terminates in front of the north-most hangar on the field. Both runway ends have circular non-standard turn pavements just beyond the marked runway ends. These pavements are marked unusable with yellow blast pad markings.

The apron approximates 3,000 square yards of asphalt with no marked tiedown positions. This apron abuts the runway and aircraft parking is no closer than 65 feet from runway centerline. The apron holdline located no closer than 65 feet from runway centerline. Taxiway and apron markings are generally yellow. This apron area includes fronting pavements for the two east-side hangars and the self-serve fueling location.

A depiction of the described facilities follows on Page 6.

### **Airport Services, Access and Utilities**

An informal general aviation terminal, within the larger east-side hangar, fronts the western apron edge approximately 250 feet from runway centerline. This facility ( $\pm 200$  square feet) is sub-optimal to suit the aviation traveler and local pilot with aged facilities and equipment and no restroom.

The hangar accommodating the general aviation terminal function noted above approximates 170 feet by 130 feet (22,100 total square feet) and is  $\pm 30$  feet tall. The hangar has likely reached the end of its useful live, as unsafe conditions have

been noted within. The hangar is approximately 130 feet from runway centerline.

South from this hangar and between the southern-most hangar of the field is the self-service fueling location, with a 10,000 gallon capacity, currently used with 100LL fuel. The pump is approximately 130 feet from runway centerline.

South from fueling is the third and final hangar approximating 60 feet by 50 feet (3,000 total square feet) and is  $\pm 20$  feet tall. The hangar has likely reached the end of its useful life, as unsafe conditions have been noted within. The hangar is approximately 105 feet from runway centerline.

The east-side terminal area described above is accessed via a 10 foot wide, 370 foot long paved, gated road from Farm to Market Road 908 to the northern apron extent. No formal auto parking exists. Buildings and facilities in this area are city-owned and maintained.



North from the main terminal area on the west side of the runway is a single, newer hangar. It is privately-owned, approximating 55 feet by 65 feet (3,575 square feet), located 220 feet from runway centerline. The hangar is accessed via a ±330 foot long unimproved road from Highway 77. No formal auto parking exists in this area. A 60 foot by 50 foot ramp fronts this hangar.

Found near mid-field is a segmented/windcone and a city well. Both of these facilities are in non-standards locations.

City staff and volunteers provide for routine airfield safety and security inspections along with routine and preventive maintenance. The City Police Department and Volunteer Fire Department provide law enforcement and fire protection services for the Airport and its environs.

Electric, water and wastewater service is provided by the City. Landline telephone and broadband service are provided by CenturyLink.

Chain-link and three-strand barbed perimeter fencing partially surround the Airport. The eastern terminal area is equipped with a non-automatic gate and partial chain link fencing.

## **2.5 Environmental**

Milam County covers approximately 1,021 square miles of east-central Texas ground. Farming, ranching and natural resources extraction are the primary means of economic subsistence. Cotton, corn, grain sorghum, oat, wheat, peanut, melon and pecan are primary agricultural products. Oil/gas extraction, lignite mining, aluminum smelting and the manufacture of clothing, furniture, wood, metal and plastics products are also primary.

County topography is nearly level to rolling hills. Elevation ranges from 306 to 648 feet. The

Brazos, Little River, San Gabriel Rivers, along with numerous other watershed creeks drain Milam County. The western part of the county is in the Northern Blackland Prairie and the eastern within the Southern Claypan Area. High terraces have formed along most large streams within the Northern Blackland Prairie, containing the more productive soils. Soils range from deep clays in the western portion of the county to deep sandy loams and sands in the eastern part.

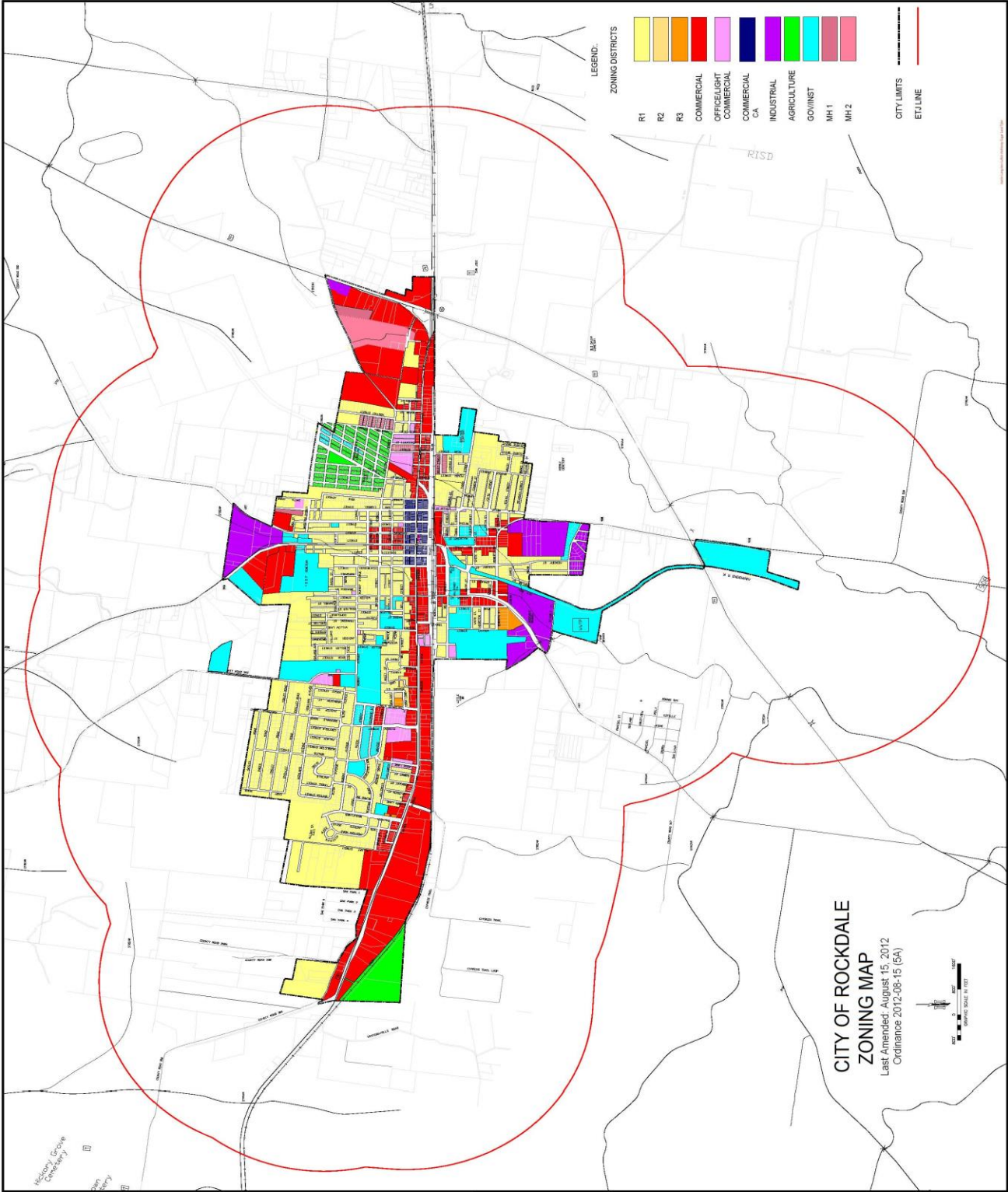
The average winter temperature is 51 degrees Fahrenheit (°F) and the average daily minimum temperature is 40°F. The lowest recorded temperature (at Cameron, TX) occurred on January 17, 1930, was minus 7°F. In summer, the average temperature is 84°F. Annual precipitation totals 34 inches, of which 52 percent or 18 inches, falls between the months of April to September.

The state climatologist notes that the mean maximum temperature during the hottest month (August) is 95.9°F.

### **Land Use and Zoning**

The City of Rockdale has established *GOV/INST* zoning for airport properties and Milam County agricultural land uses (no zoning) with sparsely scattered residential surround Airport property as depicted on Figure 2-1. The City has accepted TXDOT funds, and as such is obligated to grant assurance compliance with respect to compatible land use and height restriction around the airport. TXDOT and FAA recommend that the City codify airport-related land use and height zoning or other compatible land use controls, as reasonable per City purview, around the airport to ensure mitigation of airport operations and neighboring sensitivities. Recommendation, template forms and ordinance and overlay district discussion in this regard is found in Appendix B.

Figure 2-1  
Existing Area Land Use



## National Environmental Policy Act (NEPA)

The 1969 National Environmental Policy Act (NEPA) established a U.S. National environmental policy and the Council on Environmental Quality (CEQ). The primary result of this legislation as it relates to the City as sponsor, is the requirement to prepare for FAA, as lead agency, environmental clearance documents for an AIP project, generally termed the: *Proposed Federal Action*.

Because the City is obligated to comply with grant assurances, federal and state environmental agencies have jurisdiction, and compliance mandates conformity to NEPA in this regard.

FAA promulgated the *Environmental Desk Reference for Airport Actions* along with other guidance documents to ensure conformity with NEPA. Implementation conformity in this regard results in an FAA-generated environmental finding through one or more of these processes and documents. (1) a Categorical Exclusion (CE), (2) an Environmental Assessment (EA) or (3) an Environmental Impact Statement (EIS).

Twenty-three environmental impact categories are subject to analysis based upon the specific proposed project's stated purpose and need, along with reasonable project alternatives. Impact category significance is characterized in terms of threshold impacts; that is, a record of decision or a finding of a no significant impact is given if the quality or quantity of impacts does not reach an identified threshold.

A review and description of each environmental impact category along with a limited baseline data gathering effort constitutes the remainder of this section.

The first impact category is Air Quality.

### 1. Air Quality

Pursuant to the Clear Air Act (CAA), the U.S. Environmental Protection Agency (EPA) established six criteria pollutants into the National Ambient Air Quality Standards (NAAQS):

1. Carbon Monoxide (CO)
2. Lead (Pb)
3. Nitrogen Dioxide (NO<sub>2</sub>)
4. Ozone (O<sub>3</sub>)
5. Particulate Matter (PM<sub>10</sub>, PM<sub>2.5</sub>)
6. Sulfur Dioxide (SO<sub>2</sub>).

Sampling and monitoring for these criteria pollutants is occasionally performed statewide, and any quantity of pollutant which exceeds the threshold specified per CAA and its derivatives, results in a geographic area being placed into Non-attainment, with CAA. Non-attainment areas are managed by the state of Texas through their State Implementation Plan (SIP). The SIP is essentially an EPA-approved remediation plan, which specifies actions that the state will take to reach future attainment with CAA. CAA mandates that no federal agency will participate in a project that does not conform to the SIP, within a non-attainment area.

Air quality in the Rockdale area is generally excellent with ambient concentrations of NAAQS pollutants well below established standards. In accordance with FAA Order 5050.4A *Airport Environmental Handbook*, no air quality analysis is required for general aviation or small commercial service airports with less than 180,000 annual forecast operations.

Based on the above, it is assumed that there will not be any significant adverse impacts to baseline air quality.

Fugitive dust control during earthmoving activities is often noted as a best practice for construction activities.

## 2. Biotic Resources

For NEPA environmental analysis purposes, biotic resources refer to area flora and fauna, including their habitat. This impact category instructs reference to state-listed unique or rare species of concern and their habitat(s). Should consultation reveal potential for impact, species-specific mitigation is often required.

Current query to the Texas Parks and Wildlife specific to Milam County reveals several species of concern, per Table 2-2. These species may or may not be found within the area of concern. Field visits by a qualified biologist, possibly through a biological or ecological assessment or other investigation may be required to make positive identification of reference species and/or habitat.

## 3. Coastal Barriers

Barrier islands and landforms often provide protection from wind-driven weather and surf and effectively protect coastal areas from damage. As a result the Coastal Barrier Act of 1982 provided protections for the Coastal Barrier Resource System. Given that the Airport is at a distance

from any coastal areas, no analysis in this regard has been completed, nor is any anticipated.

## 4. Coastal Zone Management

Coastal areas consist of waters and land which are: nationally designated as important resources, effectively protected via the Coastal Zone Management Act of 1972, and are provided protections by the Coastal Zone Management Program. Given that the Airport is at a distance from coastal areas, no analysis in this regard has been completed, nor is any anticipated.

## 5. Compatible Land Use

The compatible land use impact category primarily relates to aviation noise; and, if the determining analysis for noise not does not rise to the threshold level to substantiate mitigation, then category impacts for compatible land use will likely reach similar conclusions. Important to the determining analysis are:

1. Community disruption
2. Business relocations
3. Induced socioeconomic impacts
4. Wetland or floodplain impacts
5. Critical habitat alternations.

Table 2-2  
State of Texas Threatened or Endangered Species in Milam County, Texas

Species (Common Name)	Taxon	State Status
Houston Toad	Amphibian	Endangered
Peregrine Falcon	Bird	Threatened
American Peregrine Falcon	Bird	Threatened
Whooping Crane	Bird	Endangered
Bald Eagle	Bird	Threatened
Wood Stork	Bird	Threatened
Interior Least Tern	Bird	Endangered
Blue Sucker	Fishes	Threatened
Red Wolf	Mammals	Endangered
Smooth Pimpleback	Mollusks	Threatened
False Spike Mussel	Mollusks	Threatened
Texas Fawnsfoot	Mollusks	Threatened
Navasota Ladies'-Tresses	Plants	Endangered
Timber/Canebrake Rattlesnake	Reptiles	Threatened
Alligator Snapping Turtle	Reptiles	Threatened
Texas Horned Lizard	Reptiles	Threatened

As discussed in the upcoming noise impact category portion of this section, existing or proposed noise sensitive land uses surrounding airports is generally a sub-optimal condition, without mitigation.

Noise impacts notwithstanding, other land use concerns are important. Given that the federal government is not provided the constitutional authority to make local or regional land use decisions, FAA/TXDOT relies upon sponsors to provide reasonable protections. FAA/TXDOT provides advisory guidance and mandates grant assurance compliance. Grant assurances specify that the City will take reasonable steps to protect the H.H. Coffield Regional Airport from incompatible land uses. As described earlier, these steps usually involve development of land use plans and zoning which keeps incompatible land uses, like some kinds of residential use, at a distance from RCK. This coupled with height restriction zoning to protect an airport's airspace are the two relevant grant assurances in this regard.

Potential wildlife attractants such as landfills, sewage treatment facilities and such, should be located more than 10,000 feet from any airfield pavements.

This document and its process will provide land use compatibility recommendations as specified by the City.

#### 6. Construction

Airport construction impacts may consist of dust, aircraft and equipment emissions, modified storm water discharges, spills and noise.

A National Pollution Discharge Elimination System (NPDES) permit is generally required based upon the amount of area (no more than one, or five acres) disturbed. The permit specifies actions

taken to manage quantities and rates of storm water runoff and sediment control measures.

In addition to the NPDES permit, the state may require a general permit for discharges, pursuant to an overall Storm Water Pollution and Prevention Plan (SWPPP). Not all state requirements above apply and a determination may be solicited upon specific project identification.

#### 7. Section 4(f) Resources

Section 4(f) refers to that section within the Department of Transportation Act of 1966, and its derivatives, stating that if a given project requires use of a publicly-owned park, recreational area or wildlife or waterfowl refuge of national, state, or local significance, or land of an historic site of national, state, or local significance, is approvable if (1) there is no other prudent or feasible alternative which would avoid use, and (2) project planning includes all possible mitigation to minimize harm.

Consultation with the U.S. Environmental Protection Agency (EPA), the U.S. National Park Service (NPS), the U.S. Fish and Wildlife Service (FWS), and the Texas State Historic Preservation Officer (SHPO) may be necessary to determine appropriateness and proximity of any Section 4(f) lands and potential project impact as they may substantiate threshold impacts.

There are no state parks within Milam County. The nearest state park is Lake Somerville State Park, some 40 miles due southeast of RCK. At its closest point, the nearest federal lands of subject, the Balcones Canyonlands National Wildlife Refuge northwest of Austin, is approximately 65 miles due west of RCK. Several smaller city parks dot Rockdale proper.

## 8. Federal Endangered/Threatened Species

While the Biotic Resources portion of this section identified the relevant state species, this portion deals exclusively with Federal endangered, threatened or candidate species along with critical habitat, all pursuant to the Endangered Species Act. Table 2-3 identifies these species in Natchitoches Parish.

Field visits by a qualified biologist, through a biological or ecological assessment or other investigation, may be required to make positive identification of the reference species and/or habitat. Consultation with FWS is prerequisite to project impact category threshold determination.

## 10. Farmlands

Farmlands of prime, unique or of state or local importance, so designated through scoring via Farmland Conversion Impact Rating Form (AD1006) with the United States Department of Agriculture (USDA) National Resources Conservation Service (NRCS) may require mitigation. Farmland has historically been identified in the area and project specific threshold category impacts should be considered through NRCS consultation.

## 11. Floodplains

Executive Order (U.S.) 11988 and DOT Order 5650.2 specify that airport development should

Table 2-3

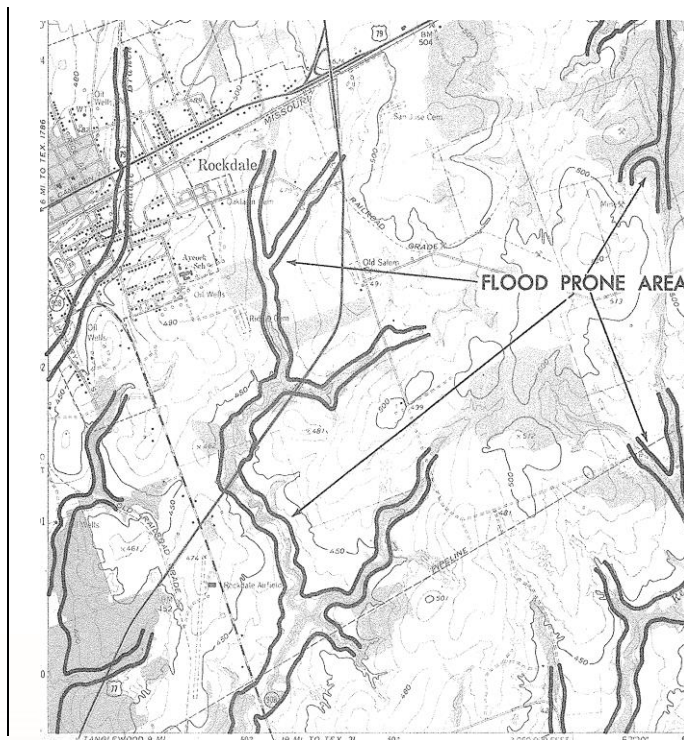
US Threatened or Endangered Species in Milam County, Texas

Species (Common Name)	Taxon	State Status
Houston toad	Amphibian	Endangered
Whooping Crane	Bird	Endangered
Bald Eagle	Bird	Threatened
Interior Least Tern	Bird	Endangered
Navasota Ladies'-Tresses	Plants	Endangered
Navasota Ladies'-Tresses	Plants	Endangered

## 9. Environmental Justice

Analysis to determine potential disproportionate and/or adverse effects on low-income or minority populations is prerequisite to project impact category threshold determination per (U.S.) Executive Order 12898 and DOT Order 5610.2. Demographic, Census or state and local population, ethnicity and employment data, along with public outreach are used to determine threshold impact significance.

Given that the Airport has relatively low activity, baseline category impacts may not reach thresholds of significance, providing that there is no comment of relevance during a project public consultation process.



remain outside the base, 100-year floodplain. Zones A, AE and/or V on a Flood Insurance Rate Map (FIRM) produced the Federal Emergency Management Agency (FEMA).

A FIRM does not exist for Milam County, but the County has supplemental quadrangle-based mapping with general areas of flooding concern identified as shown on the previous page.

## 12. Hazardous Materials

Hazardous, for purposes herein, refers to industrial wastes, petroleum products, dangerous goods and other contaminants. EPA maintains online databases to search known contaminated sites in accordance with the following legislation:

1. Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
2. Resource Conservation and Recovery Act (RCRA)
3. Toxic Substances Control Act
4. Oil Pollution Act
5. Community Environmental Response Facilitation Act (CERFA).

Impact category significance relates primarily to the number of hazardous materials, substances and wastes storage, handling and spills and the quantity of subject material. Should investigation reveal sufficient hazardous materials, substance or wastes, permitted remediation or mitigation may be necessary.

Project specific consultation with the state may be necessary to determine threshold impact significance. EPA's *EnviroMapper* revealed several instances of reporting associated with the Alcoa facilities at Alcoa Lake, some 5 miles due south of RCK.

An Environmental Site Assessment (Phase I) should precede purchase of land with AIP funds. This effort provides field reconnaissance, inventories environmental data and provides

limited assurance that the site is free of hazardous materials. Should a recognized environmental condition be noted, progression to Phase II sampling work, and potentially Phase III remediation may be necessary.

## 13. Historic Properties

An historic property for purposes herein is defined as any prehistoric or historic district, site, building, structure or object included in, or eligible for inclusion in the National Register of Historic Places (NHRP). Section 106 of the National Historic Preservation Act (NHPA) provides for a consultative process with the Louisiana State Historic Preservation Officer (SHPO) to determine effect and impact category significance. Also, analysis pursuant to the Archaeological Resources Protection Act (ARPA), Archaeological and Historic Preservation Act and the Native American Graves Repatriation Act may be necessary.

Potential for a historic site may require execution of a phased (classed) Cultural Resource Survey or other archaeological/historic investigation to I: Identify, II: Evaluate, and III: Mitigate cultural, historical or archaeological sites of significance.

The nearest historic site, the International and Great Northern Railroad Passenger Depot at 11 North Main Street in Rockdale is noteworthy, as is the San Xavier Mission Complex Archeological District.

This district is (1) listed, (2) on privately-owned land, (3) likely accommodated three missions and one presidio within the 1740-50's time periods; its location is not publicly available.

## 14. Induced Socioeconomic Impacts

A given project's potential to cause induced or secondary socioeconomic impacts on the community via these factors should be identified:

1. Shifts in patterns of population movement or growth
2. Public service demands
3. Changes in business and economic activities
4. Other factors identified by the public.

Given that the Airport has relatively low activity, baseline category impacts are not expected to reach thresholds of significance, provided that there is no public comment of relevance during project specific consultation.

#### 15. Light Emissions and Visual Effects

Disturbance of area sensitive land uses due to airport lights or activities is of primary concern for this impact category. Given that the Airport has relatively low activity, baseline category impacts are not expected to reach thresholds of significance, providing that there is no public comment of relevance during project specific consultation.

#### 16. Noise

Aircraft noise is often one of the most concerning or objectionable environmental impact for a given project or airport environ. Existing and future noise impacts should be evaluated based upon industry standards, as related to the human environment and potentially sensitive species and historic properties, with mitigation provided as appropriate.

FAA has adopted and prescribes use of the Day-Night average sound Level) DNL noise metric as the cumulative metric of choice for baseline analysis and/or for a given proposed federal action. The DNL noise metric uses the amount of aircraft noise, measured in decibels (db) over a 24-hour period, with an increase of 10 db for each aircraft operation occurring between the hours of 10:00 p.m. to 7:00 a.m.

FAA's Integrated Noise Model (INM) is the noise modeling software of choice for depiction of the geographic distribution of aircraft noise. INM is designed to show the geographic distribution of an average day's aircraft noise about the landing area or runway. Noise, in this regard, is louder and more intense closer to the landing area or runway and diminished with distance. Db value increments typically produced for simple analysis by INM are 75, 65 and 55 db.

Using INM, the area around the runway within which 65 db modeled noise occurs using the DNL methodology can be depicted in plan view. The limits of this 65 db area are inscribed with a line noted as 65 DNL.

FAA has selected 65 DNL as the threshold impact category value of noise significance for most general aviation airports, including RCK. Noise sensitive land uses within the modeled 65 DNL are potentially of environmental consequence.

FAA environmental guidance notes that a noise modeling effort is generally not required when the 65 DNL is not expected to extend past airport property limits. And, the 65 DNL generally does not extend past airport property limits when no more than 90,000 average yearly operations and/or 700 annual jet-powered operations occur.

700 annual jet-powered operations may occur within the 20-year time frame of this planning process; however, noise contours will be not be produced for this planning. Given that the airport has relatively low activity, baseline category impacts are not expected to reach thresholds of significance; however, noise sensitive land uses surround the airport and mitigation measures and techniques will be recommended, as necessary.

## 17. Social Impacts

Health and safety risks to children and other socioeconomic impacts including residential relocation, division or disruption of established communities, change of surface transportation patterns, disrupting orderly and planned development along with creation of a notable change in employment levels are all related to social impact analysis to the human environment.

Given that the Airport has relatively low activity, baseline category impacts are not expected to reach thresholds of significance, providing that there is no public comment of relevance during project specific consultation.

## 18. Solid Waste

The Solid Waste Disposal Act of 1965 defines solid waste as garbage, refuse or sludge from a waste treatment facility, water supply treatment facility, or an air pollution control facility including solid, liquid, semisolid or contained gaseous material resulting from industrial, commercial, mining, and agricultural or community activities.

Airport construction activities produce solid wastes and consultation with appropriate area agencies should reveal the ability of local disposal or transfer facilities to accommodate expected loads and load types. Project specific analysis, pursuant to the proposed federal action, should be undertaken to ensure that solid wastes related to airport construction activities can be locally accommodated and should describe transport, containment and control to the final destination.

## 19. Water Quality

Point source discharges of water into the environment, such as from sanitary sewer systems or collection basin drainage along with non-point discharges such as storm water runoff from airfield surfaces may drain pollutants such as oils and pesticides into the natural

environment and be cause for consequential water quality impacts. U.S. EPA, FWS and state agencies should be consulted on a project-specific basis in accordance with the following legislation:

1. Federal Water Pollution Control Act as amended by the Clean Water Act (CWA)
2. Clean Water Act (CWA)
3. Safe Drinking Water Act (SDWA)
4. Fish and Wildlife Coordination Act.

A Water Quality Certificate from EPA, and NPDES and LPDES Permit from the State may be necessary on a project-specific basis along with an EPA determination for any drinking water impacts. Documentation related to an airport-specific spill response plan, often maintained through airport certification may be necessary.

Water quality analysis in this regard may require supplemental analysis related to wetlands, floodplains, aquatic species impacts and other NEPA impact categories along with ground water protection.

## 20. Wetlands

A wetland is defined by a qualified wetland delineation specialist as having all three of the necessary components, (1) hydrology (2) vegetation and (3) soil type. A wetland system may be defined as jurisdictional or non jurisdictional by the U.S. Army Corps of Engineers (USACE) depending upon whether it is connected or adjacent to U.S. navigable waters.

In the event impacts to jurisdictional wetland by a proposed federal action are apparent, USACE may issue a Section 404 permit pursuant to CWA. This permit, along with other necessary environmental clearances allows construction activities to proceed. Wetland banking is often a suitable compensatory mitigation technique, involving purchase and protection of nearby, suitable wetlands as replacement.

EPA, FWS, the National Marine Fisheries Service (NMFS) and equivalent state and local agencies should also be consulted regarding wetland habitat and species impacts.

#### 21. Wild and Scenic Rivers

Rivers or sections thereof, designated Wild and Scenic per the Wild and Scenic Rivers Act of 1968 are those designed by the Departments of Interior or Agriculture, which exhibit remarkable scenic, recreational, geologic, fish, wildlife, historic or cultural value.

A portion of the Rio Grande River in west Texas is the only river in the state of Texas so designated.

#### 22. Cumulative Effects

Any resource-specific impacts from a proposed federal action (as individually described in the previous 22 impact categories) added to the past, present and other reasonably foreseeable actions within a defined time period and geographic area for that resource should be described in a cumulative impacts analysis. These analyses should include federal and non-federal participation and be specific to each of the impact categories, as appropriate.

### **2.6 Area Airspace, Airports and Navigational Aids**

The operating airspace environment surrounding RCK is important given that the Airport is part of the state and national system. A description of the local airspace surrounding the Airport along with nearby public-use airports and navigational aids follows.

#### **Airspace**

FAA is charged with oversight of the nation's civil navigable airspace and has established various regulatory and non-regulatory airspace classes and areas, endeavoring to create a safe operating environment for all types of aviation users.

U.S. airspace classifications are shown in Figure 2-2. Regional airspace surrounding the Airport is shown on Figure 2-3; Class E airspace surrounds RCK down to 1,200 feet above ground level (agl). RCK is an uncontrolled facility; that is, no local air traffic control tower is available.

Victor Airway 583 originates from a nearby navigational facility and overflies RCK. This and other victor airways constitute FAA-predefined paths established between navigational aids for ease of aircraft operation at altitudes between 1,200 and 17,999 feet agl.

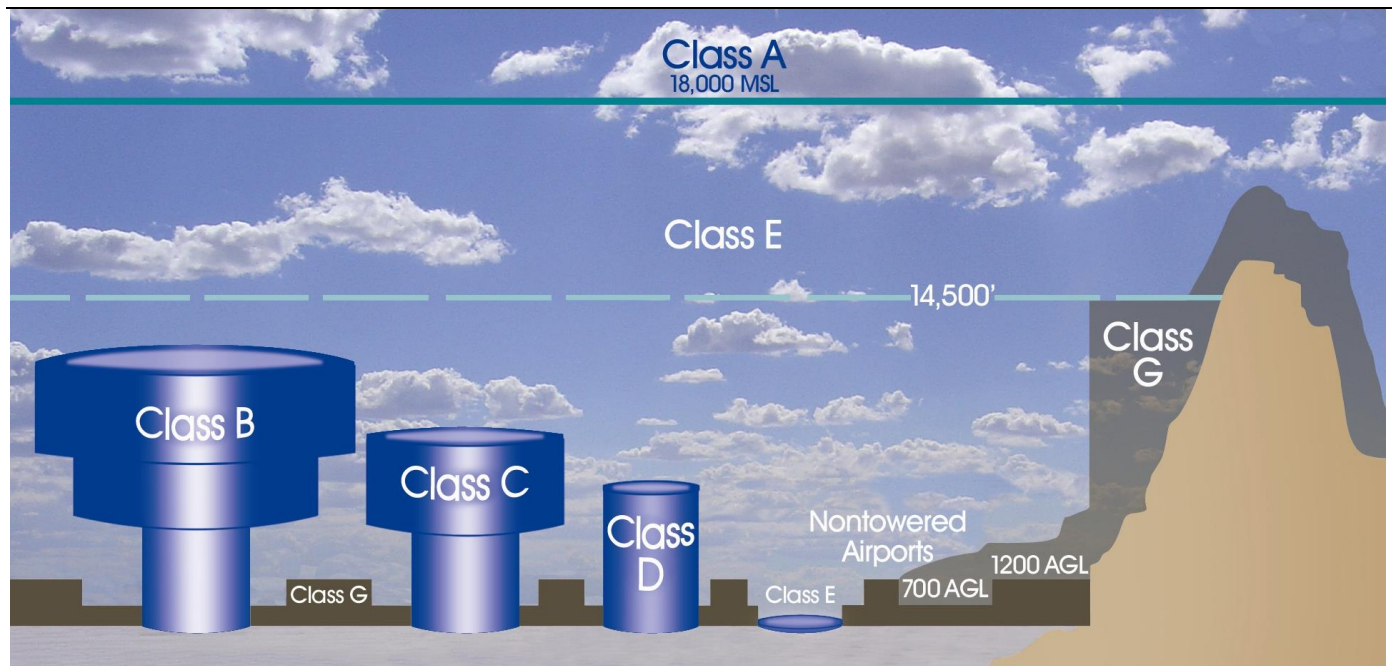
In order to land an aircraft at the H.H. Coffield Regional Airport under general aviation, visual flight rules, the aircraft operator must have a flight visibility of greater than 3 miles and at a minimum, maintain clouds 500 feet below, 1,000 feet above and 2,000 horizontal of the aircraft. However, below 1,200 feet agl, the aircraft operator must have a flight visibility of greater than 1 mile and maintain the aircraft clear of clouds during the day, or during nighttime operations, must have a flight visibility of greater than three miles and at a minimum, maintain clouds 500 feet below, 1,000 feet above and 2,000 horizontal of the aircraft.

Aircraft operators may remotely control airfield lighting systems via the Common Traffic Advisory Frequency (CTAF) of 122.9 MHz. This frequency is assigned to RCK and select other nearby airports by FAA as the frequency from which a pilot may elect to announce location and intentions.

#### **Area Airports and Navigational Aids**

RCK is near a number of general aviation and commercial service airports along with enroute and local navigational facilities.

Figure 2-2  
US National Airspace Classifications



Austin-Bergstrom International Airport (KAUS) celebrated its groundbreaking in November 1994 following closure of the former Bergstrom Air Force Base the previous year. The first passengers used the facility in May 1999. AirTran, Alaska, American, Delta, Frontier, JetBlue, Southwest, United and US Airways and their various commuter code-shares provide non-stop service across the country. KAUS is the region's commercial and cargo service airport.

Georgetown Municipal Airport (GTU) is a NPIAS reliever to KAUS and accommodates a good portion of the Austin area's general aviation activity. GTU is home to several Fixed Base Operators (FBO) and Specialty Aviation Shops. GTU is frequented by corporate aircraft and is somewhat operationally limited by its 5,000 foot runway length.

Similarly, the Austin Executive Airport (EDC) is a privately-owned, public-use business corporate non-NPIAS airport accommodating an increasing portion of the Austin area's general aviation

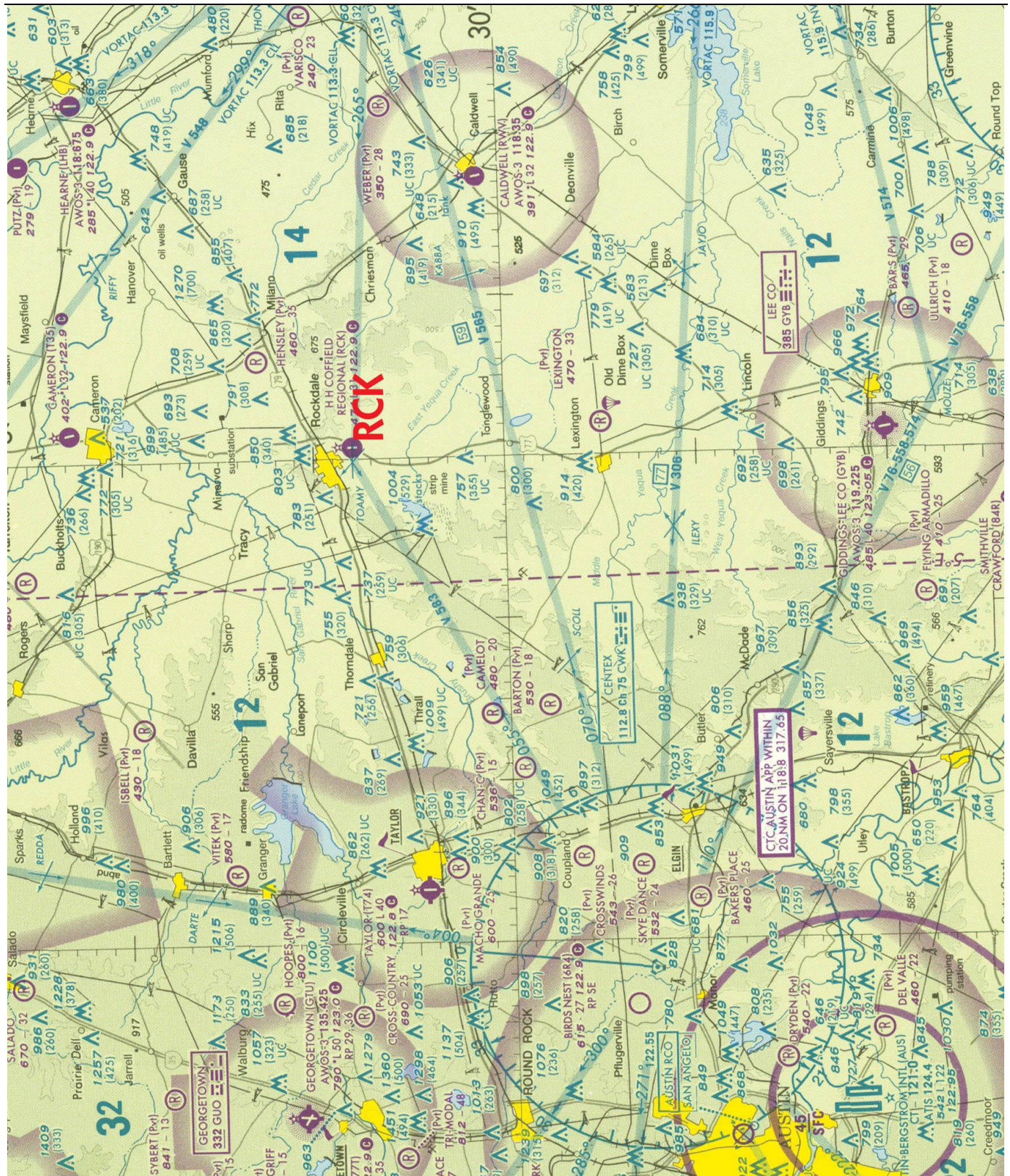
activity. EDC was recently constructed at the Bird's Nest (6R4) Airport and is somewhat frequented by larger corporate aircraft.

Closer to RCK from Austin proper is the community of Taylor and its Taylor Municipal Airport (T74). T74 is a NPIAS Community Service Airport with increasing operations and based aircraft counts.

There are three NPIAS basic service airports in the Rockdale vicinity; Cameron Municipal Airpark (T35), Hearne Municipal Airport (LHB) and Giddings-Lee County Airport (GYB), Texas. Caldwell Municipal Airport (RWV) is a non-NPIAS basic service facility and the closest to RCK. These facilities are smaller general aviation airports with service accommodations for smaller aircraft and limited approach capability.

The Centex and College Station Very-High Frequency Omni-Directional Range with Tactical Aircraft Control (VORTAC) navigational facilities are near EDC and College Station, respectively.

Figure 2-3  
Area Airspace from Sectional Chart



These navigational facilities provide 360-degree radio interrogation capability for aircraft navigation and are shown as compass roses on the following page. The Georgetown and Lee County Non Directional Beacons (NDBs) are near their respective communities. These facilities enable properly-equipped aircraft to 'home' to a location.

Table 2-4 lists the page 17 area public-use airports navigational aids.

Table 2-4

Area Airports and Navigational Aids

<b>Airport</b>	<b>Runway(s) Description Approach Procedure</b>	<b>Services</b>	<b>Distance Direction</b>
Austin-Bergstrom Int'l (KAUS), Austin, TX	Runway 17R/35L; 12,248' x 150' Runway 17L/35R 9,000' x 150'; ILS Precision Instrument	All Fuel, Repair Controlled Field	44 Miles Due Southwest
Georgetown Muni. (GTU) Georgetown, TX	Runway 18/36 5,000' x 100' Runway 11/29 4,100' x 75' GPS-RNAV Non Precision	Fuel, Major Repair Controlled Field	36 Miles Due West
Austin Executive (EDC) Austin, TX	Runway 13/31; 6,025' x 100' Runway 16/34 1,550' x 25' GPS-RNAV Non Precision	Fuel, Major Repair Uncontrolled Field	33 Miles Due Southwest
Taylor Municipal (T74) Taylor, TX	Runway 17/35; 4,000' x 75' VOR-DME Non Precision	Fuel, Major Repair Uncontrolled Field	24 Miles Due West
Cameron Muni. Airpark (T35) Cameron, TX	Runway 16/34; 3,200' x 50' Visual	Fuel, Major Repair Uncontrolled Field	15 Miles Due North
Hearne Municipal (LHB) Hearne, TX	Runway 18/36; 4,001' x 75' GPS-RNAV Non Precision	No Fuel, No Repair Uncontrolled Field	24 Miles Due Northeast
Caldwell Municipal (RWV) Caldwell, TX	Runway 15/33; 3,252' x 50' RNAV/VOR-DME Non Precision	100LL, No Repair Uncontrolled Field	16 Miles Due Southeast
Giddings-Lee County (GYB) Giddings, TX	Runway 17/35; 4,000' x 75' RNAV/VOR-DME Non Precision	Fuel, Major Uncontrolled Field	28 Miles Due South
<b>Navigational Aid</b>	<b>Facility Frequency</b>	<b>Distance</b>	<b>Direction</b>
Centex VORTAC	112.8 MHz	32 Miles	Due Southwest
College Station VORTAC	113.3 MHz	30 Miles	Due East
Georgetown NDB	332 kHz	36 Miles	Due West
Lee Co NDB	385 kHz	28 Miles	Due South

## 2.7 Based Aircraft and Operations

TXDOT inspects the airport on an annual basis to assess facilities and activity. Data from the annual airport inspection for the year ended September 16, 2011 indicates that the Airport accommodates **2,400 total annual aircraft operations**, including 800 itinerant general aviation operations and 1,600 local general aviation operations. Investigation for this planning document and consultation with the City and airport users concurs that approximately 2,400 annual operations are occurring. The inspection notes and on-site airport management confirms that approximately 70 percent of aircraft operations are locally-executed and 30 percent are itinerant. **8 aircraft currently base** at the airport, all of which are single-engine.

The H.H. Coffield Regional Airport has historically been an underutilized general aviation airport and current year operations approximate past year operations, with no known activity spikes. This aircraft activity information is sub-optimal, in that better estimates would be helpful. Unfortunately, costs to monitor aircraft activity do not compete well with other projects from a cost/benefit perspective. Acoustical noise counters are

available, but this equipment has operational weaknesses, which again lead to educated estimates.

This lack-of-accurate-counts-circumstance is not limited to the H.H. Coffield Regional Airport, as reasonable estimates of aviation activity at low-activity, non-towered airports have historically been lacking nationwide.

## 2.8 Airfield Design Standards

FAA specifies a runway coding system for airport design that relates airport design criteria to the operational and physical characteristics of aircraft using the airport, termed the Airport Reference Code (ARC).

The code has two designators. The first designator, represented by a letter, is the Aircraft Approach Category. It relates to aircraft approach speed, an aircraft operational characteristic ( $1.3 \times V_{so}/V_{ref}$  {the speed of an aircraft in the landing configuration}). The second designator, Airplane Design Group, is represented by a roman numeral. It is related to aircraft wingspan and aircraft tail height; physical characteristics. The ARC is associated with a particular runway; a field with multiple runways may have multiple codes.

Table 2-5  
Aircraft Approach Category and Airplane Design Group

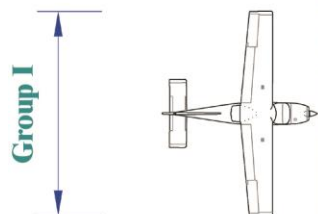
Approach Category	Aircraft Speed Range (Knots)	
A	Less than 91	
B	More than 91, but less than 121	
C	More than 121, but less than 141	
D	More than 141, but less than 166	
E	More than 166	
Airplane Design Group	Aircraft Wingspan Range	Aircraft Tail Height Range
I	Up to but not including 49'	Up to but not including 20'
II	49' up to but not including 79'	20', up to but not including 30'
III	79' up to but not including 118'	30', up to but not including 45'
IV	118' up to but not including 171'	45', up to but not including 60'
V	171' up to but not including 214'	57', up to but not including 60'
VI	214' up to but not including 262'	66', up to but not including 80'

Table 2-5 presents ARC components and Figure 2-6 presents aircraft representative of each a given ARC. The most demanding aircraft or group

of aircraft with similar approach speed and wingspan characteristics that use the airport regularly, generally conducting at least 500

Figure 2-6  
Representative ARC Aircraft

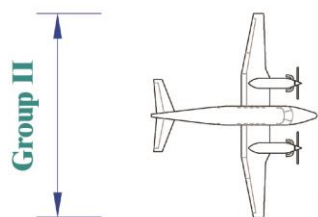
### Personal Aircraft



### Representative Aircraft

Beechcraft Bonanza 35, 36  
Cessna 150, 172, 402, 414  
Beechcraft Baron  
Beechcraft King Air 90, 200  
Cessna 182, 206, 401, 421  
Cessna Citation I, CJI  
Piper Navajo-34, Cheyenne-42

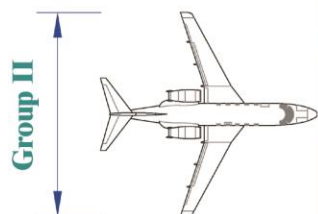
### Business Aircraft



### Representative Aircraft

DHC Twin Otter  
Beechcraft 1900  
Cessna Citation II, III, V  
Dassault Falcon 50, 200  
Embraer 145 RJ; ATR 42, 72  
Rockwell Aero Commander 560, 680  
DeHavilland Dash-7, 8

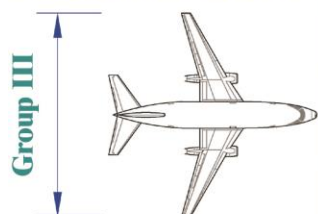
### Corporate Aircraft



### Representative Aircraft

Gates Lear 24, 25  
IAI Westwind 1124  
Bombardier 600, 601  
Gulfstream III  
Starship 1  
Cessna Citation X  
Gates Lear 35

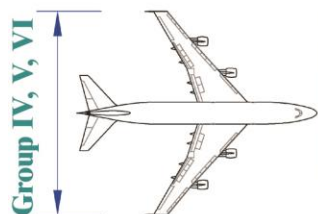
### Commercial Aircraft



### Representative Aircraft

Airbus 318-321  
Boeing 727, 737  
McDonnell Douglas DC-9  
MD-82; MD-83  
Gulfstream II, IV, V

### Transport Aircraft



### Representative Aircraft

Airbus 300, 310  
Boeing 757, 767  
Lockheed Hercules C-130  
Airbus 330, 340, 380  
Boeing 747; Boeing 777  
Antonov 124, 225  
Lockheed Galaxy C-5

annual takeoffs and landings, is termed the design aircraft. Runway 17-35's design aircraft is **ARC A/B-I**.

In addition to ARC, aircraft weight is another design criterion. Runway 17-35's pavement strength is currently unknown, but presumed to be less than 12,500 pounds SWG. Aircraft which weigh less than 12,500 pounds are termed utility aircraft. Those aircraft weighting more than 12,500 pounds are termed non-utility aircraft. Therefore, the **utility** designation applies in both instances.

The final design criterion necessary to apply the appropriate design standards at the Airport is instrument approach capability. Instrument approach capability is defined for purposes herein as the ability of an aircraft to land using an approved IAP with visibilities either greater than or equal to  $\frac{3}{4}$  mile, or less than  $\frac{3}{4}$  mile. No runway ends currently have an instrument approach procedure with less than or equal to  $\frac{3}{4}$  mile visibility; therefore, **greater than or equal to  $\frac{3}{4}$  or mile** design standards applies.

Design standards encompass various areas, zones, surface gradients and separations standards; select standards are described and tabulated within Table 2-7: (Note that these are the minimum specification and exceeding the specification is generally acceptable.)

1. A Runway Protection Zone (**RPZ**) is a trapezoidal area off each runway end, established to enhance protection of people and property.
2. The Runway Safety Area (**RSA**) and Taxiway Safety Area (**TSA**) are established to ensure that the ground surface adjacent to runways and taxiways is suitably prepared to reduce the risk of damage in the event of an aircraft deviation from paved surfaces. Safety area specifications are dimensional, grade-specific and material-specific.
3. The Runway Object Free Area (**ROFA**) and Taxiway Object Free Area (**TOFA**) are established to ensure the safety of aircraft operations by having an area free of objects, except those frangibly-mounted objects, necessary for air navigation or ground maneuvering purposes. The Obstacle Free Zone (**OFZ**) is a volume of

Table 2-7  
Select Airport Design Standards

Standard/Specification	Standard	Existing
Runway Width	60 Feet	50 Feet
Effective Runway Longitudinal Grade	Within $\pm 2\%$ Maximum	Within $\pm 2\%$ Maximum
Runway Pavement Strength (Pounds)	Recommended 12,500 SWG	Less than 12,500 SWG
Runway Protection Zones	250' x 450' x 1,000'	250' x 450' x 1,000'
Runway Safety Area Width/Beyond End	120'/240'	120'/240'
Runway Object Free Area Width/Beyond End	250'/240'	250'/240'
Taxiway Safety Area Width	49'	49'
Taxiway/Taxilane Object Free Area Width	89'/79'	89'/79'
Runway to Parallel Taxiway	150'	N/A
Runway to Aircraft Holdline	125'	65'
Runway to Aircraft Parking	125'	65'
Obstacle Free Zone Width/Beyond End	250'/200'	250'/200'
Runway AOCS (20:1) (Approximate)	250'x700' x 5,000'	250' x 700' x 5,000'
Part 77 Primary Surface Width/Beyond End	250'/200'	250'/200'
Part 77 Approach Surfaces Dimension/Slope	250'x1,250 x 5,000'; 20:1	250'x1,250 x 5,000' 20:1

airspace up to 150 feet above airport elevation, centered on runway centerline, primarily established to preclude taxiing and parked aircraft. The runway holdline is typically located to coincide with limits of the OFZ.

4. The purpose of the Approach and Departure Clearance Surfaces (**AOCS/DOCS**) is to provide obstacle clearance for visual approaches and for instrument approach procedures. These surfaces are three-dimensional trapezoids with 20:1 or 34:1 surfaces extending upward and outward near the end of each runway.

### **FAR Part 77 and TERPS**

Title 14 Part 77 of the Code of Federal Regulations, termed FAR Part 77 *Objects Affecting Navigable Airspace*, specifies various imaginary surfaces designed to protect the airspace around the Airport from objects of natural growth or man-made features, termed obstructions. These surfaces are the primary, approach, transitional, horizontal and conical as described in Section 77.25 and as follows:

1. The primary surface is longitudinally centered on the runway. The elevation of any point on the primary surface is the same as the elevation of the nearest point on centerline. The width of the primary surface is based on the type of approach available or planned for each runway.
2. The approach surface is a surface longitudinally centered on the extended runway centerline and extending outward and upward from each end of the primary surface. An approach surface is applied to each end of each runway based on the type of approach available or planned for that runway end.
3. The transitional surfaces extend outward and upward at right angles to the runway centerline and runway centerline extended at a slope of 7:1 ( $\pm 8.13$  degrees) from the sides of the primary surface and from the sides of the approach surfaces.

4. The horizontal surface is a level horizontal plane 150 feet above the established airport elevation, the perimeter of which is constructed by swinging arcs of 10,000 feet from the center of each end of the primary surface of each runway and connecting the adjacent arcs with lines of tangency.
5. The conical surface extends outward and upward from the periphery of the horizontal surface at a slope of 20 to 1 ( $\pm 2.86$  degrees) for a horizontal distance of 4,000 feet.

Upcoming chapters contain a depiction of these surfaces and the table on the previous page contains dimensional information for the primary and approach surfaces.

In addition to these surfaces, parts of Section 77.23 provide for additional obstruction identification guidance; an object with a height of 500 feet above the ground surface, an object with a height of 200 feet above the ground surface within three nautical miles of the airport reference point (approximate geometrical center of the field) and other objects within terminal instrument airspace are considered obstructions. A determination in this regard is made by FAA via proponent filing of FAA Form 7460 *Notice of Proposed Construction or Alteration*.

## **2.9 Socioeconomics**

A review of historical socioeconomics can provide insights into the future use of the airport. Socioeconomic data was gathered from the U.S. Bureau of the Census, U.S. Department of Labor, and Bureau of Economic Analysis. The following paragraphs summarize population, employment, income and other appropriate data often important in providing correlation to utilization of the Airport. The majority of existing and new airport users reside in Natchitoches

Parish, the airport service area for purposes herein.

Following is an overview of various economic influences which may affect the utility of the H.H. Coffield Regional Airport.

### **A History of Coal and Lignite**

Coal was discovered in the Rockdale area in the late 1860's but the first mine wasn't opened until long after the arrival of the second railroad line in Rockdale in the 1890's.

By the early 1900's, there were some 12 different mines operating in Milam County including The Black Diamond (later called the Vogel and Lorenz mine), the Santa Fe Mine, the Texas Coal Company and others. These mines employed hundreds of Mexican nationals who came seeking work. Using hand-cranked winches, coal was hauled up and loaded into a wagon pulled to the surface by a mule. This was hard work and cave-ins were common in those days.

For the most part, the mine workers were Hispanics fleeing the revolution in their homelands. These coal miners named their settlement, just north of the International - Great Northern Railroad tracks, La Recluta or 'Recruitment.'

In 1913, Rockdale experienced a mine cave-in that trapped several men in the International Mine. Eight men and one mule awaited rescue for six days. All except one man were rescued alive.

In 1952, after the development of a process by which lignite could be dried and carbonized to produce a cheap fuel, the Aluminum Company of America (Alcoa) constructed a four-potline smelter and three-unit power plant on a 7,000-acre site near Rockdale that ushered in another period of rapid growth. The sleepy little town of

around a 1,000 residents swelled to over 5,000 people in just a few short months.

Under an agreement with McAlester Fuel Company and Texas Power & Light Company (TU Electric), Alcoa purchased the mine site to build the world's first aluminum-producing plant to use lignite as a fuel to generate electrical power.

At the Rockdale plant, Alcoa produced a 1,500 pound "pig" of aluminum as well as sheet ingot used by various other companies to produce aluminum plate, sheet and foil. Alcoa also produced atomized aluminum powder used in making rocket propellants for the NASA Space program.

The Rockdale Alcoa site included a 914-acre, man-made lake which was one of the premier fishing lakes until its closure to the public. Alcoa also developed a large plant near Sandow (the Sandow Power Plant) using lignite to generate electricity for Alcoa.

Sandow is a mining community on Farm Road 1786 eight miles southwest of Rockdale in southern Milam County. At one time the site was a stop for mule drivers hauling freight from Matagorda. Freezeout, as the drivers named the community, had a trading post, a quarter-mile racetrack, and several saloons. A post office opened there in 1873 and was named Millerton in honor of Emil Miller, who had given land for a school. Millerton became a voting precinct in 1874. Its post office closed in 1876, reopened in 1889, and was finally discontinued in 1891, when mail was routed through Rockdale.

For 25 years, the Sandow mine provided lignite to several plants in Texas, including the central heating plants at the University of Texas and Texas A&M University, the San Antonio Public Service plant at New Braunfels, and the Texas

Power & Light plant at Trinidad. The abundance of cheap natural gas, however, undermined the lignite industry during the 1930's and 1940's, and in 1950 the mine at Sandow closed. Though the new business brought a much-needed economic boost to the region, Sandow did not develop as a commercial or residential center. Most of the employees of the Alcoa plant lived and shopped in Rockdale.

The Alcoa facilities are all that remain of Sandow on the 1988 county highway map.

### **Oil Exploration and Production**

In the early 1920's, oil was discovered near Cattail Creek in nearby Minerva by Sam Whonstein that led to the Minerva oil boom. During its peak production years, the Minerva oil fields produced over 450,000 barrels per year supporting a local oil refinery.

Other wells were drilled south and east of Rockdale. Thousands of wellbores were drilled in the Rockdale region over a period of some 50 years. With the rapid growth of the oil and gas industry in Milam County (and throughout the state of Texas), a new energy source was available driving down the demand for lignite coal. This soon led to the closing of all of the lignite coal mines in Milam County. The oil industry of Milam County peaked in a few short years and is down significantly but still produces oil. Substantial oil reserves are known to exist in the region.

In 1999, the United Heritage Corp. acquired an option for over 3,200 acres in Minerva-Rockdale field, Milam County, Texas, to evaluate the field's 200 wellbores and 33 producing wells and update the 1995 estimate of 56 million bbl of oil-in-place reserves.

Exploration and production continue present day on acreage adjacent to the H.H. Coffield Regional Airport.

An added benefit for Rockdale and Milam County is the generation of aviation activity at the H.H. Coffield Regional Airport. Exploration and production companies, as well as other commercial enterprises, have sought and will continue to utilize local airports that offer all the amenities necessary for business aircraft operations – hangar rental, fuel sales, aircraft repairs, charter operations, etc.

### **Birthplace of Rodeo Bulldogging**

Rockdale can also lay claim as the birthplace of bulldogging. It happened in 1903 when Bill Pickett, a famous African-American rodeo star, got the idea for bulldogging a steer as he watched bulldogs working alongside cowboys. When a stubborn Texas Longhorn refused to enter a corral and was panicking the rest of the herd, Pickett rode his horse at full speed alongside the troublesome steer, jumped off his horse and grabbed the steer by its horns. As the longhorn continued to fight him, Pickett bit it on its lower lip and tossed the animal to the ground. All early bulldoggers at rodeos used the lip-biting tactic, but it has been gradually phased out of the bulldogging event at modern rodeos.

### **Home of the First Motel in Texas**

Rainbow Courts was created in 1918 and has been owned by members of the Bullock family since its opening day. It is officially recognized as the first motel in Texas. The original owner was Monroe Bullock, who was later joined by his brother Ira Benjamin Bullock. The property was passed to Marjorie Bullock, and in keeping with family tradition, was purchased by her daughter Joan and her husband Dan Ratliff in the 1990's. A Register from the 30's and 40's reflects room

prices from \$1.00 to \$4.50 alongside signatures of guests from all over the nation including playwright Tennessee Williams, who visited during 1934-36.

### **Education**

The Rockdale Independent School District (ISD) includes an elementary, intermediate, junior and high school campuses. There are 1,700 students in the public school system. The schools have comprehensive programs to encourage activities in athletics; gifted/talented programs; music, art and band; physical education; pre-advanced/advanced placement courses and robotics.

Rockdale ISD creates a strong academic environment through:

- \$7,719 spent per pupil in current expenditures. The district spends 63 percent on instruction, 32 percent on support services, and 5 percent on other elementary and secondary expenditures;
- 15 students for every full-time equivalent teacher, matching the Texas state average of 15 students per full-time equivalent teacher;
- a dropout rate of 3 percent for grades 9-12 in 2009. The national grades 9-12 dropout rate in 2007 was 4.4 percent; and
- providing English Language Learners (ELL) to 5 percent of the student body. ELL students are in the process of acquiring and learning English Language skills.

The Texas Education Agency (TEA) awarded Rockdale High School (9-12) and Rockdale Elementary School (PK-5) with its second highest evaluation award – 'Recognized' – for the 2009 academic year, the most recent recording period.

Within the geographic triangle of Bryan/College Station, Austin and Houston, Rockdale high school graduates have a wide selection of post-

secondary educational opportunities to explore for technical or baccalaureate degrees such as Austin Community College, Baylor University, Blinn College, Mary Hardin-Baylor University, Saint Edward's University, Temple College, Texas A&M University, and the University of Texas at Austin.

### **Recreation**

Rockdale has three diverse parks and a skateboard park in addition to five area lakes to offer residents and visitors outdoor recreation opportunities. Also, the city offers a community center, nine-hole golf course, swimming pool, rodeo arena and lighted tennis courts.

The state of Texas Parks and Wildlife offers outdoor enthusiasts nearby state parks at Bastrop, Buescher and Somerville. Each facility offers a diverse menu of camping, hiking and fishing activities – and more.

Apache Pass, less than 10 minutes northwest of Rockdale on FM Road 908, is a diverse dining, lodging and entertainment venue that spans the San Gabriel River, including a privately-owned 3,000-foot turf runway for residents of the adjacent airpark or to fly in for dinner or experience an outdoor concert.

Rockdale is host to the International and Great Northern Railroad Depot and Heritage Museum, located at 11 N. Main St., on the south side of the business district on the way to the H.H. Coffield Regional Airport. The Museum promotes the origins of the I&GN Railroad dating back to Rockdale's origins in the late 1870's.

### **Population**

Milam County, Texas, mirrors the state of Texas in population growth for the state. The county has experienced and is projected to have steady growth into the next two decades. However, the

segment of the population in Milam County that forms the region's workforce has declined over the last five years - with the age 65 and over segment representing the largest percentage segment of the local population.

### Employment

Rockdale is located on the intersection of U.S. Highways 77 and 79. This strategic location places the city in the middle of a commerce triangle 164 miles SE of Dallas; 132 miles NW of Houston; 140 Miles NE of San Antonio; 66 miles NE of Austin.

Within this commerce triangle reside almost 17,000,000 Texas residents and employers. The population center within a 30-mile radius of Rockdale is more than 87,000 people. It is a strategic location from which to recruit new business ventures or welcome expanding enterprises.

The larger employers in Rockdale include Walmart Supercenter, Renaissance Villa, Bland Construction, Brookshire Bros., Citizens National Bank, city of Rockdale, Classic Bank, Manor Oaks Nursing Center, Veolia ES Industrial Services,

Perry & Perry Builders Inc., Richards Memorial Hospital, Rockdale Federal Credit Union, Rockdale ISD, Rockdale Reporter, and Luminant – a Dallas-based energy provider of electricity and lignite mining in Milam County.

The distribution of employment segments within the Rockdale employment market, and number of jobs in each, range from Agriculture, forestry, fishing and hunting, and mining (71); Construction (288); Manufacturing (467); Wholesale trade (65); Retail trade (311); Transportation and warehousing, and utilities (55); Information (72); Finance, insurance, real estate, and rental and leasing (79); Professional, scientific, management, administrative, and waste management services (66); Educational, health and social services (404); Arts, entertainment, recreation, accommodation and food services (194); Other services (except public administration) (206); and Public administration (70). More than 58 percent of the eligible 16 years and older work force population is employed in the Rockdale area.

Rockdale is also served by the Municipal

Table 2-8  
Area Socioeconomics

<b>Population</b>	<b>1990</b>	<b>2000</b>	<b>2010</b>	<b>2020</b>	<b>2030</b>
Milam County	22,946	24,238	24,757	28,014	29,238
Texas	16,986,335	20,851,820	25,145,561	28,005,788	31,830,589
United States (000)	248,710	281,422	308,745	324,927	403,687
<b>Labor Force</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>
Milam County	12,197	11,965	11,509	11,476	11,193
Texas	11,411,891	11,653,877	11,968,199	12,269,727	12,451,504
<b>Unemployment</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>
Milam County	4.2	5.5	10.8	10.2	9.6
Texas	4.4	4.9	7.5	8.2	7.9
<b>Per Capita</b>					
<b>Personal Income</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
Milam County	26,232	28,314	29,823	29,184	30,751
Texas	35,287	37,098	39,615	36,500	37,747

Development District (MDD), a governmental unit voted into existence by the public in May 2010. MDD began levying a one-half percent sales tax on October 1, 2010, on all items in the district which are subject to the general sales tax. The MDD jurisdiction includes the City of Rockdale and its extra-territorial jurisdiction (that area that extends outward from the city limits to one mile).

It is the mission of the MDD to aid the city and interested private or public entities in making the community a better place to live, work and do business. In so doing, the MDD may help develop and finance any permissible project as defined in Chapter 377 of the Texas Local Government Code and that benefits, strengthens and diversifies the economic base of Rockdale.

The Rockdale Municipal Development District is studying the possibility of moving the industrial park from its current location north of the city on Farm to Market Road 487 to a location close to H.H. Coffield Regional Airport.

### **Income**

A measure of economic health is income levels and available disposable income often termed Per Capita Personal Income (PCPI). Recreational aviation activity is found to be more prevalent in areas with higher levels of income and PCPI. Table 2-8 illuminates the regional and statewide income situation. This data indicates the levels of Per Capita Personal Income (PCPI) lags significantly behind the state of Texas average during the past five years. Unemployment also outpaces the Texas average which can be an indicator of limited employment opportunities within Rockdale and Milam County; or business segments affected economically by the recent economic downturn have been slower to return to market values prior to the slowdown.

# Update Airport Layout Plan Chapter Three

## *Forecasts of Aviation Demand*



## Chapter Three – Forecasts of Aviation Demand

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### 3.0 Introduction

The forecasts of aviation demand are the basis for determining airport facility requirements. These requirements are then used to plan airport development such as runways and taxiways, apron area, hangar space and selection of the appropriate airfield design standards. The forecasts establish the nature and magnitude of aeronautical activity and the associated need for airport development for the 20-year planning period. History has repeatedly demonstrated that airport utilization will vary significantly, depending upon the level of service provided for the public and regional economic conditions. Due to the highly elastic nature of the aviation industry, most aviation forecasts tend to follow trends rather than fluctuations in any given year.

#### Brief Economic Overview

The previous chapter provided an inventory of aviation activity and conditions salient to an analysis of future aviation activity, but additional information is noted here as background and supplemental.

The national economy started to decline in the summer of 2000 when manufacturing production dropped after numerous interest rate increases by the Federal Reserve Bank in an effort to combat inflation. Despite negative growth in other sectors of the economy, consumer spending kept the gross domestic product in a positive mode. It was predicted that the country would not enter a recession, and 2002 would bring positive growth. Contrary to the predictions

the nation entered a recession in March 2001. The economy recovered only to enter another recession in the end of 2007.

2008 brought many challenges for the nation's economy. Among these were rising interest rates and tightening credit conditions which caused a sharp decline in the housing market. The fourth quarter saw a dramatic decline in lending activity due largely to the turmoil in the financial markets. Energy prices also rose substantially throughout the first half of the year. With the number of lost jobs on the rise, consumer spending began to decline. The automotive industry suffered as sales fell to the lowest number in 16 years. The housing sector was also hit hard, as predicted both housing starts and residential investments experienced substantial declines throughout the year.

Economic growth forecast for 2009 was weak. Inflation was expected to decline and the unemployment rate to rise. 2008 and 2009 was predicted to be the slowest two year growth period since the early 1980's. As predicted, 2009 proved to be another challenging year, as unemployment numbers continued to climb reaching as high as 10 percent. Consumer confidence declined and spending reached a very low 0.7 percent for the first half of 2009. The housing sector continued to be very weak for the remainder of 2009. Vehicle sales were once again very poor, as they reached the lowest rate since the 1960's.

The federal government introduced the Car Allowance Rebate System at the beginning of the third quarter, in an attempt to boost the economy. This program, also known as cash for clunkers, boosted auto sales by nearly 2.0 million units from the previous quarter which helped real GDP grow slightly in the third quarter.

The nation's economy began to show positive growth in 2010 as the Gross Domestic Product increased in 48 states and the District of Columbia. This growth continued in the third and fourth quarters of 2011 at a rate of 1.8 percent and 3 percent respectively. The fourth quarter of 2011 saw the fastest growth since the second quarter of 2010. The national unemployment rate began a slow decline in 2011, and is reaching pre-recession levels. Personal incomes rose slightly in the fourth quarter of 2011 and consumer spending increased. Economic consensus predicts moderate growth in 2012-2013.

Aviation's growth had slowed following the terrorist attack of September 11, 2001, and again more recently with the spike in oil prices and the weak economy. After the terrorist attacks, air travel dropped as much as 50 percent but quickly bounced back to about 75 percent of normal. The current growth in the global economy is resulting in an increased demand for air travel. Industry growth over the next five years is expected to average 3.7 percent per year. As the economy continues to recover the airline industry predicts substantial growth with passenger miles more than doubling over the next 20 years.

### **Forecast Methodology**

Projections of aviation activity may be prepared considering these and other data. Various projections are then considered in the formulation of a forecast. Forecast formulation is a subjective process concerning the extent to

which one projection, or a combination of several projections or prevailing or anticipated conditions, represents a reasonable estimate of future aviation activity.

Several statistical projection techniques are available for forecasting demand at the H.H. Coffield Regional Airport. These include regression, trend and market share.

Regression involves the use of historical data to identify a relationship between the selected dependent variable, such as based aircraft, and an independent variable. This relationship is then applied to projections of the independent variable to produce future values for the dependent variable.

Trend projection provides estimates of future values for aviation demand by determining an historic pattern of change and projecting that pattern into the future. The primary assumption of this methodology is that the same factors will influence future aviation demand as have affected it in the past. It is further assumed that effects will continue to be similar.

Market share projections involve a review of past activity as a percentage of activity in a larger regional, statewide, or national market or environment. These percentages, or market shares, are then applied to activity forecasts for the aviation demand to produce a market share projection.

Application of these statistical projection techniques require strong relationships with historical activity levels of aircraft operations and based aircraft. Strong relationships in this regard may not be particularly valuable for this forecasting effort because of a relatively small area population, economy and changing nature and role of the Airport.

Because of this, these analyses will be de-emphasized for upcoming forecasting efforts. A more subjective judgment of anticipated future aviation activity is necessary and will be employed.

The Forecasts of Aviation Demand are provided in increments of 5, 10, and 20 years over the 20-year planning period. These periods are also classified in phases; Phase I is the first five years, Phase II is the second five years, and Phase III is the last 10 years. Year 2013 is the base forecast year, while 2032 is the final forecast year.

Aeronautical forecasts necessary to determine airport facility requirements include:

1. Based Aircraft
2. Based Aircraft by Type
3. General Aviation Operations
4. General Aviation Operations by Type
5. Aircraft Operations Mix
6. Peak Period Aircraft Operations
7. Instrument Aircraft Operations.

### **3.1 Based Aircraft**

Eight aircraft currently base at the H.H. Coffield Regional Airport. The Airport has some positive features, services the local pilot well and should continue to do so with improvements. National circumstances have slowed the growth of general aviation and the industry awaits a rebound. As general aviation demand continues into the future, pressure for continued growth and development at RCK may continue.

#### **Based Aircraft Projections**

Table 3-1 presents Based Aircraft projections using five years' worth of representative baseline data. Based aircraft values in the table are rounded, but percentage changes are not.

The Regression projection is a simple linear regression of the estimated historical number of based aircraft.

Milam County population data were regressed for the forecast periods and then historical-based aircraft data were projected from there to create the Population Regression Forecast.

The Market Share projection provides a forecast of locally-based aircraft applied to an anticipated percentage increase in the forecasts of the total active general aviation fleet via *FAA Aerospace Forecasts Fiscal Years 2012-2032*.

Historical Milam County Per Capita Personal Income (PCPI) data were regressed for the forecast periods and then historical based aircraft data were projected from there to create the PCPI Regression Projection.

The Historical Percentage Change projection applies past growth in based aircraft to each of the three horizon periods or phases, in consecutive five-year increments for the 20-year forecast period.

Data from FAA's Terminal Area Forecast (TAF) is noted in the TAF Adjusted projection. The TAF is FAA's own internal forecasting effort.

Projections on the following page shows that the Population and Market Share Projections and Adjusted TAF are slow growth scenarios, while the remaining projections, Population Regression, the Regression and especially the PCPI projection produce more robust results and show a greater increase in the number of based aircraft at end of every forecast period.

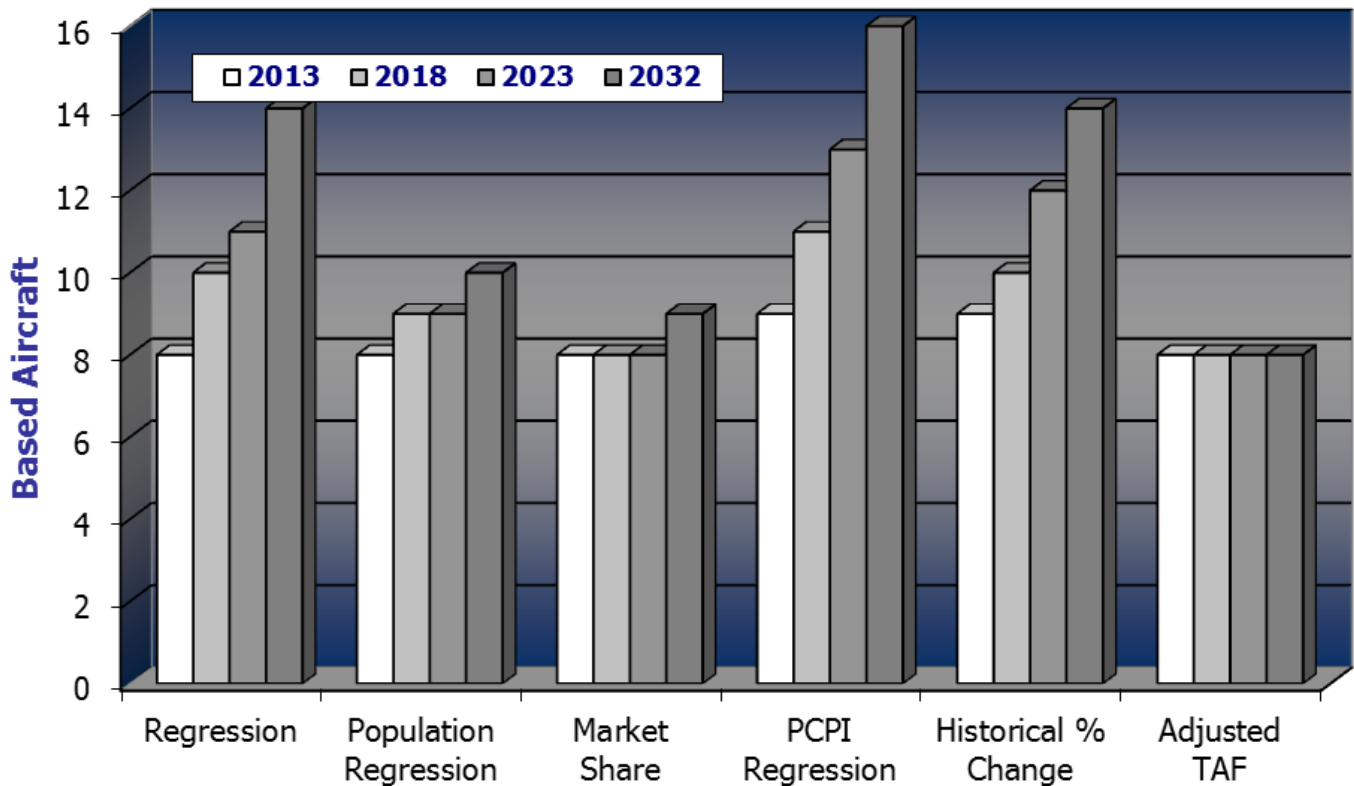
The average 20-year percentage change for these projections approximates 41 percent, statistically suggesting that the Airport could see additional three based aircraft by the year 2032.

But, forecast formulation from various activity projections necessarily requires subjectivity beyond pure statistical analysis.

Table 3-1  
Based Aircraft Projections

Year	Regression	Population Regression	Market Share	PCPI Regression	Historical % Change	Adjusted TAF
2013	8	8	8	9	9	8
2018	10	9	8	11	10	8
2023	11	9	8	13	12	8
2032	14	10	9	16	14	8
<i>Annual % Change</i>	<i>2.52%</i>	<i>0.95%</i>	<i>0.6%</i>	<i>3.32%</i>	<i>2.13%</i>	<i>0%</i>
<i>Overall 20-year % Change</i>	<i>60%</i>	<i>25%</i>	<i>11%</i>	<i>102%</i>	<i>49%</i>	<i>0%</i>

**FIGURE 3-1  
BASED AIRCRAFT PROJECTIONS**



It is seemingly logical and historically valid that no *substantial* growth in based aircraft should be expected based upon typical indicators of aviation activity, with the exception of Per Capita Personal Income. This projection seemingly skews the overall picture and suggests that the increase in area incomes may play a prominent role in the

future of the Airport, given the strong statistical relationship between disposable income and aviation activity. Also noteworthy are the natural resources extraction activities occurring in areas within the County, and more to the point, around RCK.

RCK is well-suited to accommodate at least portions of this activity and aircraft from oil and gas companies are often noted at area airports. Natural resources companies and other businesses with corporate aircraft would likely visit with larger corporate aircraft if RCK were improved to accommodate their aircraft; accommodation primarily relates to runway length and strength in this instance. Like pavement strength, inadequate runway length may have discouraged larger corporate aircraft from visiting because those aircraft require longer runway lengths for effective operation. Other gas companies visit the area frequently but typically use the Austin area due to airfield inadequacies.

For these reasons, use of the Airport by larger, faster and more expensive aircraft is expected to increase over the next 20 years, especially relative to use by smaller piston-driven aircraft.

It is noteworthy that new based aircraft will likely come to the Airport when new hangars are built. And, when new hangars are built, be they T- or box-type, by either the City or a ground-leased tenant when demand is likely sufficient to fill the space. The result of this, as example, is that the based aircraft count will jump 50 percent when a new T-hangar is built and occupied, meeting or even exceeding forecast demand.

### **Based Aircraft Forecast By Type**

Federal forecasts indicate that on a U.S. national basis, overall growth rates are expected to

approximate 0.6 percent annually. If this formula is applied to a projection, it would indicate that only one new aircraft could be expected to base at the airport over the next 20 years. This forecast may not accurately represent the complete economic picture, or potential for economic development.

Sufficient demand may very well exist for demand to not only exceed national aviation activity levels, but the economic projections. Based on extrapolations, and assuming that airfield upgrades will be completed in upcoming years, based aircraft numbers could increase slightly more than the projections would indicate, at least on a percentage basis, by the year 2032.

The actual increase in the numbers of forecasted aircraft is small, amounting to about one new based aircraft every few years.

The national trend toward larger, more sophisticated aircraft is a consideration for the forecast of based aircraft by type. Fractional jet ownership and its associated aircraft have, and are expected to constitute the fastest growing segment of the general aviation fleet according to FAA forecasts.

Private/business ownership of these aircraft is also noteworthy due to the significant decrease in acquisition costs, although national economic recovery and continued national regional strength in the natural resources market would seemingly be prerequisite for many business owners. These

Table 3-2  
Based Aircraft Forecast by Type

<b>Year</b>	<b>Single-Engine Piston</b>	<b>Multi-Engine Piston</b>	<b>Twin-Turbo Prop</b>	<b>Jet</b>	<b>Helicopter /Other</b>	<b>Total</b>
2013	8	0	0	0	0	8
2018	9	1	0	0	0	9
2023	10	1	1	0	0	12
2032	11	1	1	1	0	14

factors are considered in the formulation of the based aircraft forecast by type and for purposes of this study and based on current information and circumstances, future based aircraft are shown in Table 3-2.

### 3.2 Aircraft Operations Forecasts

The RCK is an uncontrolled facility and good counts of aircraft operational activity are not available. In 2011, approximately 2,400 annual aircraft operations were estimated to be conducted. The number of aircraft operations has been stable, but slightly increasing in the past five years according to local pilots.

General aviation as an industry has struggled over the past few years and aircraft production and sales have declined in all categories of aircraft manufacture, including executive aircraft. Larger business and charter general aviation aircraft are expected to fly only slightly more hours on a national basis. However, it is anticipated that itinerant general aviation operations will continue to increase and that local operations will, as well.

### General Aviation Operations Projections

Table 3-3 presents general aviation Aircraft Operations projections for RCK.

The Regression projection is a simple linear regression based on the estimated number of historical aircraft operations.

A ratio of based aircraft to aircraft operations is an established means of estimating future aircraft operational activity levels from the forecast of based aircraft previously presented.

The Operations per Based Aircraft projection reflects this methodology with a reasonable value of 500 operations per based aircraft, today's quotient.

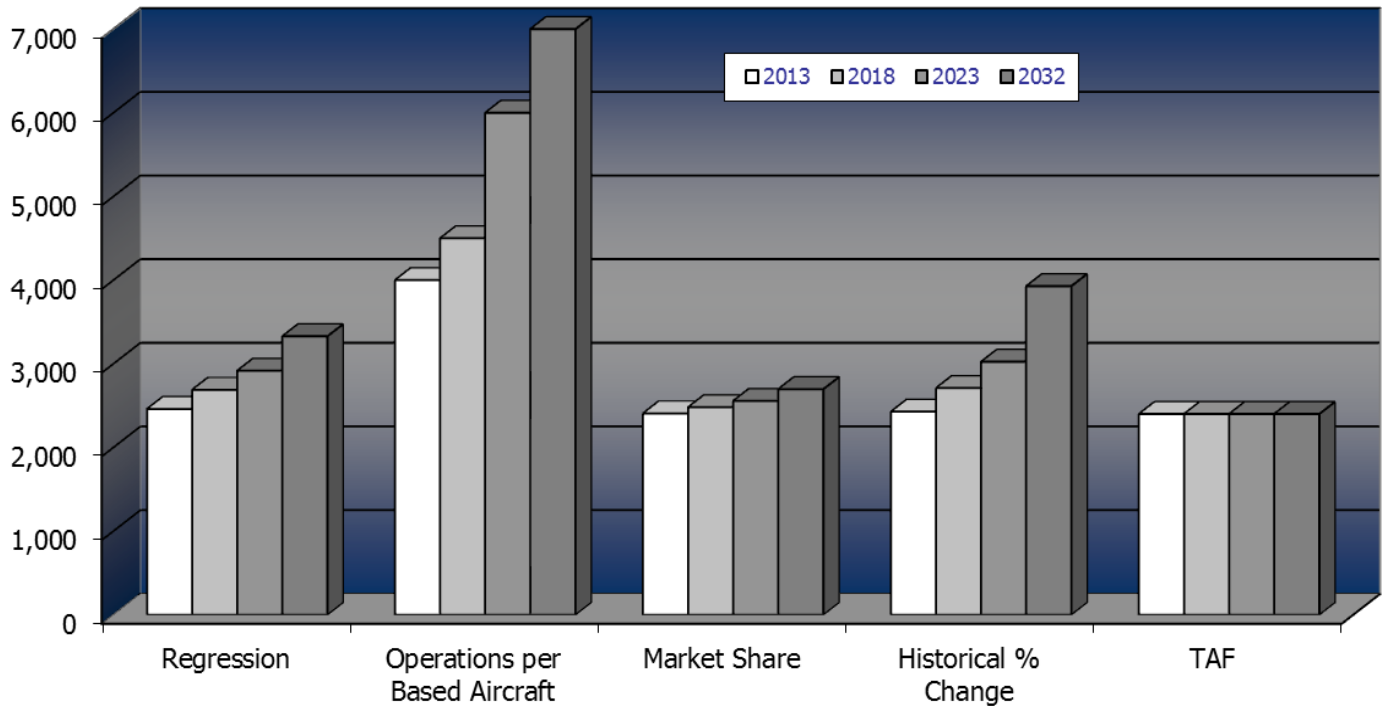
The Market Share projection provides a projection of aircraft operations applied to anticipated percentage increases in the forecasts of total hours flown from *FAA Aerospace Forecasts Fiscal Years 2012-2032*.

The Historical Percentage Change projection applies the percent increase in operations from the past five years to each of the three horizon periods or phases, in consecutive five-year increments for the 20-year forecast period.

Table 3-3  
Aircraft Operations Projections

Year	Regression	Operations Per Based Aircraft	Market Share	Historical % Change	TAF
2013	2,460	4,000	2,407	2,428	2,400
2018	2,689	4,500	2,480	2,710	2,400
2023	2,917	6,000	2,556	3,025	2,400
2032	3,329	7,000	2,697	3,928	2,400
<i>Annual % Change</i>	<i>1.65%</i>	<i>3.95%</i>	<i>0.6%</i>	<i>3.25%</i>	<i>0%</i>
<i>Overall 20-year % Change</i>	<i>35%</i>	<i>75%</i>	<i>12%</i>	<i>70%</i>	<i>0%</i>

**FIGURE 3-2  
AIRCRAFT OPERATIONS PROJECTIONS**



Data from FAA's Terminal Area Forecast is noted in the TAF Projection.

The Market Share and TAF projections show slow/no growth scenarios while the others produce more robust, seemingly reasonable growth. These latter projections seems the most likely from a statistical perspective given the circumstances discussed in the previous section.

The average 20-year percentage change for these projections approximate 38 percent, statistically suggesting that the Airport could see

3-4,000 aircraft operations by the year 2032. But again, forecast formulation from various activity projections necessarily requires subjectivity beyond pure statistical analysis.

#### **Aircraft Operations Forecast by Type**

It is estimated that the number of future aircraft operations will be approximately 8,500 around the final study year of 2032.

Table 3-4 shows the forecast of Aircraft Operations by Type for each of the three

Table 3-4  
Aircraft Operations Forecast by Type

Year	Single-Engine Piston	Multi-Engine Piston	Jet	Helicopter /Other	Total
2013	2,460	30	4	6	2,500
2018	3,522	50	8	20	3,600
2023	4,800	120	50	30	5,000
2032	8,110	220	120	50	8,500

planning periods within the 20-year horizon of this planning effort. National trends toward increased operational hours were previously discussed and expected improvements to RCK are considerations for the forecast of general aviation operations by type.

Note that multi-engine aircraft activity, in both the piston and turbine categories are expected to increase at a faster rate than the single-engine

occurs, future traffic will follow these national trends, with the exception of air taxi activity. A potential exists, based on the previous discussions, for an increase in the number of these types of operations. The forecast mix of operations is presented in Table 3-5.

### Peak Period Operations Forecast

Existing and future airport facilities should be designed and constructed not for an average

Table 3-5  
Forecast Mix of Aircraft Operations

<b>Year</b>	<b>Local Operations</b>	<b>% Local Operations</b>	<b>Itinerant Operations</b>	<b>% Itinerant Operations</b>	<b>Total Operations</b>
2013	1,750	70	750	30	2,500
2018	2,340	65	1,220	35	3,600
2023	3,000	60	2,000	40	5,000
2032	4,675	55	3,825	45	8,500

category. This is due to a continuing trend toward larger aircraft, servicing of the City business needs, anticipated aviation improvements in the near future and continuing life flight accommodation.

This forecast is justified due to the circumstances previously noted in the based aircraft analysis.

### Forecast Mix of Operations

An itinerant operation is defined as any aircraft operation other than a local operation. The 70/30 percent local/itinerant mix is dis-similar to the national average local/itinerant mix, averaging 48 percent local and 52 percent itinerant general aviation. It is assumed that as future basing

day's aircraft activity and not for the busiest day, but for activity somewhere in between.

Established FAA methodologies are reflected in Table 3-6 to estimate peaking characteristics. Peak day is defined as the average number of operations per day during the most active month. In FAA's Southwest Region and at RCK, the most active month normally accounts for approximately 10 percent of total annual operations and approximately 15 percent of the peak day operations occur during the peak hour.

Table 3-6  
Peak Period Forecast

<b>Year</b>	<b>Total Operations</b>	<b>Peak Month Operations</b>	<b>Peak Day Operations</b>	<b>Peak Hour Operations</b>
2013	2,500	250	8	1.3
2018	3,600	360	12	1.8
2023	5,000	500	17	2.5
2032	8,500	850	28	4.2

## Forecast Summary of Aircraft Operations by ARC, Runway End and Planning Year

The final forecast of this chapter is a forecast of aircraft operations with the following of subject:

1. Planning Years:
  - ✓ 2013, 2018, 2023, 2032
2. Runway Ends:
  - ✓ Runway 17, 35
3. Airport Reference Code/Class:
  - ✓ A & B-I Small
  - ✓ A & B-II Small
  - ✓ A & B-II Business
  - ✓ C & D-II Corporate
  - ✓ C & D-II Large Corporate.

With respect to Airport Reference Code/Class above, note that:

- *A & B-I Small* forecasts all aircraft types weighing less than 12,500 pounds, with approach speeds up to 121 knots, and wingspans up to 49 feet, inclusive.

Example aircraft include:

- ✓ Cessna 152, 172, 210, 206, 414, 441
- ✓ Piper Cub, Arrow, Comanche, Saratoga
- ✓ Beechcraft Bonanza, Duke
- ✓ Cirrus, Mooney, Diamond, Glasair
- ✓ Helicopters, Ultralights.

- *A & B-II Small* forecasts all aircraft types weighing less than 12,500 pounds, with approach speeds up to 121 knots and wingspans up to 79 feet, inclusive.

Example aircraft include:

- ✓ Cessna 441, Mustang
- ✓ Beechcraft King Air 90/100, Premier
- ✓ Embraer Phenom, Eclipse 500.

- *A & B-II Business* forecasts all aircraft types weighing greater than 12,500 pounds, with approach speeds up to 121 knots and wingspans up to 79 feet, inclusive.

Example aircraft include:

- ✓ Cessna Citation 550, 650, Sovereign
- ✓ Dassault Falcon 20, 50, 200
- ✓ Hawker 400, 850XP.

- *C & D-II Corporate* forecasts all aircraft types weighting up to 60,000 pounds, with approach speeds up to 166 knots and wingspans up to 79 feet, inclusive.

Example aircraft include:

- ✓ Cessna Citation X
- ✓ Bombardier
- ✓ Challenger 300, 605
- ✓ Lear 35, 45, 60, 85 (Weight Excepted)
- ✓ Dassault Falcon 900, 2000.

- *C & D-II Large Corporate* forecasts all aircraft 60,000 pounds or greater, with approach speeds up to 166 knots and wingspans up to 79 feet, inclusive.

Example aircraft include:

- ✓ Bombardier Global Express, Challenger
- ✓ Gulfstream II, III, 550, 650
- ✓ Falcon 7X
- ✓ Hawker Horizon.

This forecast is found in Table 3-7 on the following page.

Table 3-7

Forecast Summary of Aircraft Operations by ARC/Weight, Runway End and Planning Year

<b>Forecast 2013</b>	<b>17</b>	<b>35</b>	<b>Total</b>
A & B-I Small	1,090	1,170	2,260
A & B-II Small	85	100	310
A & B-II Business	25	30	55
C & D-II Corporate	0	0	0
C & D-II Large Corporate	0	0	0
<b>2013 Total</b>	<b>1,200</b>	<b>1,300</b>	<b>2,500</b>
<b>Forecast 2018</b>	<b>17</b>	<b>35</b>	<b>Total</b>
A & B-I Small	1,488	1,736	3,224
A & B-II Small	125	165	290
A & B-II Business	35	45	80
C & D-II Corporate	2	4	6
C & D-II Large Corporate	0	0	0
<b>2018 Total</b>	<b>1,650</b>	<b>1,950</b>	<b>3,600</b>
<b>Forecast 2023</b>	<b>17</b>	<b>35</b>	<b>Total</b>
A & B-I Small	2,087	2,463	4,550
A & B-II Small	180	195	375
A & B-II Business	25	30	55
C & D-II Corporate	8	12	20
C & D-II Large Corporate	0	0	0
<b>2023 Total</b>	<b>2,300</b>	<b>2,700</b>	<b>5,000</b>
<b>Forecast 2032</b>	<b>17</b>	<b>35</b>	<b>Total</b>
A & B-I Small	3,650	4,085	7,735
A & B-II Small	260	295	700
A & B-II Business	60	85	145
C & D-II Corporate	30	35	65
C & D-II Large Corporate	0	0	0
<b>2032 Total</b>	<b>4,000</b>	<b>4,500</b>	<b>8,500</b>

# Update Airport Layout Plan Chapter Four

## *Facility Requirements*



## Chapter Four – Facility Requirements and Capacity Analysis

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### 4.0 Introduction

Given that future aviation activity levels are determined, the ability of existing facilities to satisfy this demand must be evaluated. Deficiencies identified determine airport needs throughout the 20-year planning period. This chapter examines impacts to the airport due to the forecasts of aviation demand, focusing on five distinct elements:

- ⇒ Airport Role and Service Level
- ⇒ Local Airspace Capacity
- ⇒ Airside Requirements (runways, taxiways and navigational aids)
- ⇒ Landside Requirements (terminal, air traffic control tower, utilities, roads, parking)
- ⇒ Compliance.

Any shortcomings in the ability to serve forecasted demand are highlighted, and recommendations are made regarding physical improvements needed to correct identified shortcomings.

### 4.1 Airport Role and Service Level

The RCK is currently not classified in the FAA's National Plan of Integrated Airport Systems (NPIAS), but is classified by the State of Texas as a basic facility.

For purposes of this narrative, this type of airport generally accommodates visual A and B aircraft. As described in the Forecasts of Aviation Demand, the Airport is currently accommodating aircraft operations within these weight and speed thresholds.

### Short-Term Role and Design Standards

The Inventory and Forecasts of Aviation Demand chapters of this narrative established that the Airport should be designed to comply with A-I standards at minimum. The most demanding aircraft or group of aircraft with similar characteristics that use the Airport on a regular basis, conducting at least 500 annual takeoffs and landings, is termed the critical/design aircraft. This aircraft determines design standards such as runway width, pavement strength and runway to taxiway separation criteria.

Design for airport facilities to accommodate this classification should proceed and future airside and landside facilities should be designed to accommodate these types of aircraft. Note that not all parts of the field require construction based upon these design standards, including any future T-hangar access.

### Longer-Term Role and Design Standards

The Inventory and Forecasts of Aviation Demand chapters also establish that the Airport may see small but increasing numbers of turbo-prop and jet aircraft, along with other aircraft which are larger, faster, heavier and more expensive.

This narrative expects that RCK will continue in its role as a community airport for the next 20 years, and perhaps move from a basic airport to a Community Service or Business Corporate facility per the Texas System plan methodology.

Following the initial 10-year term planning period (2013-2023) of this planning effort, it is anticipated that larger, faster and heavier aircraft may frequent the Airport in sufficient numbers to substantiate a change in classification from A-I to B-II.

The critical or design aircraft toward the end of the short-term development period is characterized by the various aircraft which have approach speeds not exceeding 121 Knots, or up to Category B, aircraft wingspans not exceeding 79 feet, or up to Group II, with weights not exceeding 30,000 pounds. The type of aircraft in the B-classification include the small and some mid-size business and corporate aircraft such as a few of the Bombardier, Embraer, Cessna Citation Models; the Lear aircraft models are also a potential user from a general aviation perspective.

In summary, the following design standards are anticipated for these portions of the field in the long-term:

- ✓ Runway 17-35: A/B-II, 30,000 DWG
- ✓ Taxiway A/Connectors: A/B-II, 30,000 DWG
- ✓ Itinerant Main Apron: A/B-II, 30,000 DWG
- ✓ Based Main Apron: A/B-I, 12,500 SWG
- ✓ T-Hangar Access: A/B-I, 12,500 SWG.

## 4.2 Capacity Analysis

The ability of an airport and its runways to effectively process aircraft operations is quantified in terms of its Annual Service Volume (ASV) and peak hourly Instrument Flight Rules and Visual Flight Rules (VFR) capacities.

Procedures and guidelines in FAA Advisory Circular 150/5060-5 *Airport Capacity and Delay* are employed and analysis follows in Table 4-1.

The airspace structure serving RCK is relatively unconstrained from a capacity perspective and there are no significant airspace conflicts which cannot be reasonably addressed, given that airspace is protected in the future. Existing capacity should adequately serve the anticipated demand through the planning period.

### Annual Service Volume

Local meteorological conditions, the airfield configuration, aircraft mix and various runway configurations are some of the elements used to calculate a quantitative breakdown of the Annual Service Volume (ASV). ASV is a reasonable estimate of an airport’s annual capacity. It accounts for differences in runway use, aircraft mix, and weather that would be encountered during a typical year.

The ASV at the Airport is 125,000 annual operations without a planned full-length parallel taxiway for Runway 17-35. Table 4-1 depicts the ASV relationship to the 20-year forecast of

Table 4-1  
Annual Service Volume and VFR/IFR Hourly Capacities

Year	Total Forecast Operations	% Annual Service Volume	
2013	2,500	0.2	
2018	3,600	0.3	
2023	5,000	0.4	
2032	8,500	0.7	
Year	Peak Hour Operations	% VFR Hourly Capacity	% IFR Hourly Capacity
2013	1.3	1.7	2.2
2018	1.8	2.3	3.0
2023	2.5	3.2	4.2
2032	4.2	5.5	7.1

aircraft operations, expressed as a percentage based upon a partial parallel taxiway. FAA guidelines suggest that airport sponsors should initiate planning for capacity improvements when annual aircraft operations reach 60 percent of ASV.

### **Hourly Capacities**

FAA guidance suggests that the peak hour VFR capacity for the existing airfield configuration is 76 aircraft operations, and peak hour IFR capacity for the existing airfield configuration is 59 aircraft operations.

Table 4-1 also presents the peak hour forecast of aircraft operations related to VFR and IFR peak hour capacities, expressed as a percentage. FAA recommends that capacity improvements be initiated at 80 percent of hourly capacity.

Although not part of the above analysis, note that an instrument operation requires the pilot in command of the aircraft to execute the final portion of an instrument procedure beginning approximately 5 miles from the end of the runway and the time required to travel the necessary 5 miles would generally be 5-10 minutes depending upon the aircraft approach speed. Therefore, given that no other aircraft can use the 5-mile path, only 6 to 12 IFR peak hourly operations can be accommodated.

## **4.3 Airside Requirements**

An analysis of the airfield requirements generated from the Forecasts of Aviation Demand include an analysis of wind data, instrument approach capability, area obstructions, runway, taxiway and apron dimensions, pavement strengths and airfield design standards. Landing and navigational aids are also discussed.

### **Wind Analysis**

FAA details the objectives of a wind analysis noting that the desirable wind coverage is 95

percent. That is, a runway, or runways, at a given alignment(s) should have a crosswind component less than a given threshold 95 percent of the time.

These thresholds are: 10.5 knots for small aircraft, 13 Knots for larger general aviation aircraft, and 16 Knots for larger turbo-prop and some jet aircraft and 20 Knots for the largest turbine commercial aviation turbine aircraft.

Data gathered from the weather reporting equipment at KAUS from January 1, 2003, to December 1, 2009, were used to create the wind roses for RCK as shown on the cover sheet of the Airport Layout Plan drawings at the conclusion of Chapter Seven.

These three wind roses are (1) All-Weather (all cloud ceiling heights and all visibilities), (2) VFR (occurrence of cloud ceiling heights greater than 1,000 feet above ground level and visibilities greater than three statute miles visibility), and (3) IFR (occurrence of cloud ceiling heights less than 1,000 feet but greater than 200 feet above ground level and visibilities less than 3 statute miles but greater than ½ mile).

All-weather crosswind coverage's for the conditions at KAUS are as follows as they relate to Runway 17-35's alignment at RCK are: 10.5 Knots: 98.20%, 13 Knots: 99.89%, 20 Knots: 99.99%. The VFR crosswind coverage's for the conditions at KAUS are as follows as they relate to Runway 17-35's alignment at RCK are: 10.5 Knots: 98.12%, 13 Knots: 99.88%, 16 Knots: 99.99%. The IFR crosswind coverage's for the conditions at KAUS are as follows as they relate to Runway 17-35's alignment at RCK are: 10.5 Knots: 99.07%, 13 Knots: 99.62%, 16 Knots: 99.91%.

The Airport wind coverage meets or exceeds FAA recommended criteria of 95 percent for the

various wind speed categories and directions. Runway 35 appears to provide the best wind coverage for instrument operations.

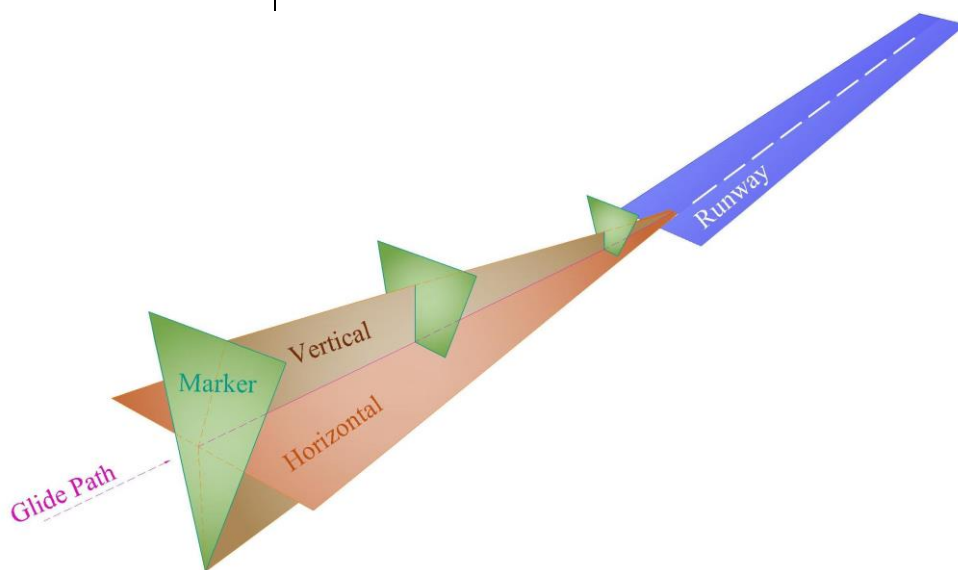
### **Instrument Approach Capability**

Instrument approach capability is defined based upon the ability of the airport's navigational equipment and/or GPS technology to safely accommodate aircraft operations during periods of inclement weather. FAA categorizes three types of instrument approach capability: precision, non precision and visual. A runway end with precision instrument approach capability is equipped with either ground-based navigational equipment or satellite-based technology that provides vertical and horizontal guidance to a runway end. A runway end with non precision instrument approach capability is equipped with either ground-based navigational equipment or satellite-based technology that provides only horizontal guidance to a runway end. Horizontal guidance allows the aircraft to be piloted in poorer weather conditions, and horizontal and vertical guidance allows the aircraft to be piloted in poorer conditions still. A runway end with visual instrument approach capability is equipped with no equipment or technology and requires relatively clear weather for landing.

The traditional airfield equipment that provides precision instrument approach capability is an Instrument Landing System (ILS). This system generally consists of a glideslope, a localizer, an approach lighting system along with a series of markers to indicate distance from the runway end

along a glide path. The glideslope emits a radio signal which allows an aircraft to follow a specific vertical path to a runway end. The localizer emits a radio signal which allows an aircraft to follow a specific horizontal path to a runway end. The approach lighting system allows close-in visual guidance for day and night operations. An ILS can provide the precision instrument approach capability necessary for safe aircraft operation during periods of inclement weather.

Weather, in this regard, comes in two measures, (1) local visibility in statute miles and (2) substantial height of a cloud ceiling above airport



elevation. These two measures are termed 'minimums'. An ILS (Category I) allows a properly equipped aircraft, a properly certified pilot and properly equipped airfield to safely complete a landing with cloud ceilings as low as 200 feet with visibilities as low as ½ mile.

FAA is charged with creating paths in the nation's airspace, which allow for safe aircraft operation and landing. These paths nearer to the ground at the nation's airports are termed Instrument Approach Procedures (IAPs). IAPs are instructions for aircraft operators to avoid terrain and obstacles on the way to land on a given runway

end. An IAP can be based upon or written for ILS equipment or GPS technology.

### **GPS-Based Navigation**

FAA has participated in establishing the Wide Area Augmentation System (WAAS) program for aviation, using regionally-corrected satellite signals from the Global Navigation Satellite System (GNSS; more commonly known as GPS). Precision instrument approach procedures with ILS-type minima are employed at airports across the country and do not necessitate the expense of ground-based navigational equipment.

GPS-based IAPs are now formally termed RNAV (aRea NAVigation) Approaches. These approaches are built based upon relatively new aviation terminology: waypoints, segments, fixes and points. These combine to create a path in the space above and surrounding the Airport which the aircraft operator must follow to ensure a safe landing.

The typical progression for an RNAV approach using waypoints, segments, fixes and points is described as follows and as illustrated on the diagram on the previous page:

Begin the IAP by maneuvering on the prescribed intercept route or segment from enroute airspace (above 17,999 feet above sea level) to intercept the Initial Approach Fix (IAF). Proceed from the IAF along the initial segment at the prescribed rate of descent to the Intermediate Fix (IF). Proceed from the IF along the intermediate segment at the prescribed rate of descent to the Final Approach Point (FAP). Proceed from the FAP along the final segment at the prescribed rate of descent until (1) the airfield environment is in sight and landing can be initiated, or (2) the Missed Approach Point (MAP) is reached. If the MAP is reached and clouds are too low to the ground or visibility was too low for a safe landing to occur, ascent along the missed approach

segment then follows. Although not clearly shown on the diagram, the IAP will then instruct the aircraft operator to maneuver the aircraft safely back to a point where the IAP may be reattempted. Referencing the diagram on the previous page, the airfield will be found between the FAF and MAP, the IAF is typically 10 miles from the subject runway end and the FAF is typically 1 or 2 miles from the runway end.

A series of geometric shapes surround the procedures. These typical surfaces and their dimensions are prescribed in FAA Order 8260.3B *US Terminal Instrument Approach Procedures (TERPS)*, and related orders. The elevation of these surfaces and the course upon which they are based is produced by the controlling obstacle height. If no obstacles exist, the height of the FAF, and hence cloud ceiling minima, would theoretically be 0 feet above ground level. The controlling obstacle is the tallest object which penetrates any of the surfaces. Generally the higher the controlling obstacle, the higher the cloud ceiling minima.

In order to maximize the utility of the airport for the flying public, the City should seek an instrument approach procedure to Runways 17 and 35 in the near future. This procedure will be based upon the controlling obstacle and FAA will assign minima for the IAP.

### **RNAV Approach Procedure Design Criteria**

FAA has requirements prerequisite to IAP creation for IAPs based upon GPS technology, including application of the appropriate airport design standards, airfield survey and identification and potential mitigation of area obstructions to navigable airspace. Once appropriate design standards have been implemented, survey completed and obstructions mitigated, FAA may proceed to IAP creation.

FAA has established airport and airspace design guidelines for new RNAV IAPs. Publication of all RNAV procedures is subject to compliance with various design criteria associated with the desired minima and approach capability (precision, non precision or visual). *Airport Design* identifies the best-case minima requirements for new RNAV IAPs, with visibilities greater than  $\frac{3}{4}$  statute mile. These requirements are noted in Table 4-2.

Information describing the various standards and specifications in the table follows:

Height Above Touchdown (HAT) is a calculation that is generally made to consider the desired cloud ceiling minima. HAT is the height of the Minimum Descent Altitude (MDA) above the highest elevation within the runway end environment. Minimum Descent Altitude is an altitude prescribed by an approach procedure below which a pilot should not descend unless able to see the airfield environment during inclement weather on a given glide path. Generally, a glide path angle greater than three percent will increase the HAT and the cloud ceiling minimum established for a given approach.

Although a complete analysis of *TERPS* surfaces for future or ultimate airfield configurations is beyond the scope of this planning, FAA has identified specific guidance for inclusion into *Airport Design*. Guidance therein relates Glideslope Qualification (GQS) and Chapter 3, Section 3 Surfaces. These surfaces emanate from the end of each runway and protect its final approach.

The Airport Layout Plan should show design standards compliance for the desired instrument approach procedures and be approved.

Runways ends should be marked non precision with aiming points.

Connector taxiways should have holdlines and airfield signage located 200 feet from runway centerline.

Medium or low-intensity runway lighting and taxiway extensions should accompany the runway.

Compliance with greater than  $\frac{3}{4}$ -mile design standards should be maintained.

FAA advisory circular guidance prescribes vertical and/or non-vertical survey instructions for airfield

Table 4-2  
RNAV Instrument Approach Procedure Airport Design Criteria

Standard/Specification	Runway 17-35
Height Above Touchdown (HAT)	450 Feet
TERPS Glideslope Qualification Surface	30:1 Clear
TERPS Chapter 3, Section 3 (20:1)	Clear/Night Lighted
Airport Layout Plan	Recommended/Approved
Minimum Runway Length	3,200 Feet
Runway Markings	Non Precision
Holdlines and Airfield Signage from Runway	200'
Runway Edge Lighting	MIRL/LIRL
Parallel Taxiway	Recommended
Approach Lighting	Recommended
Airfield Design Standards	>3/4 Mile
Threshold Siting Criteria (AOCS/DOCS)	20:1 Clear
Approach Survey	Non-Vertical

and obstacle location based upon *TERPS* airspace surfaces and potential obstructions for a proposed approach procedure.

**Runway Length**

Runway length requirements can be developed based upon the airport role, service level determination and the wind analysis. FAA recommended runway length is a function of airport elevation (noted in feet above mean sea level), mean maximum temperature of the hottest month, (degrees Fahrenheit), aircraft weight (in pounds, maximum gross certificated weight), number of passenger seats, aircraft engine performance, wet/dry condition of the runway and the maximum difference in runway elevation on centerline.

Runway lengths, calculated using the FAA’s design software, are identified in Table 4-3 based upon the Airport’s 474-foot elevation, 96 degrees temperature along with the current maximum runway centerline elevation difference of 21 feet.

The computer program splits aircraft of all types

and sizes into four groups:

- 1. Aircraft which weigh less than 12,500 pounds with less than 10 passenger seats,
- 2. Aircraft which weigh less than 12,500 pounds with more than 10 passenger seats,
- 3. Aircraft which weigh between 12,500 and 60,000 pounds, and
- 4. Aircraft which weigh more than 60,000 pounds.

The first group of aircraft is split into three sub-sets based upon aircraft performance. One aircraft within the group may perform more poorly than another, solely due to aircraft design and performance characteristics; this aircraft will require a longer take-off run. Aircraft are thus arranged from best to poorest performing and expressed in a percentage of the whole group, with breaks at 75, 95 and 100 percent. The computer program generates a runway length based upon the aggregated performance of the top 75, 95 and 100 percent of all aircraft. For example, runway length generated for 75 percent of airplanes would represent the length required by the top 75 percent of the best performing aircraft.

Table 4-3  
Runway Length

Recommended Runway Lengths	Length
1. Small Airplanes with Less than 10 passenger seats:	
-75 Percent of these Small Aircraft	2,730
-95 Percent of these Small Aircraft	3,270
-100 Percent of these Small Aircraft	3,910
2. Small Airplanes with 10 or More Passenger Seats:	4,450
3. Large Airplanes of 60,000 Pounds or Less:	
-75 Percent of These Large Airplanes at 60 Percent Useful Load	5,020
-75 Percent of These Large Airplanes at 90 Percent Useful Load	7,410
-100 Percent of These Large Airplanes at 60 Percent Useful Load	6,060
-100 Percent of These Large Airplanes at 90 Percent Useful Load	9,510
4. Airplanes of More Than 60,000 Pounds:	
-Traveling no more than 500 non-stop miles to destination	5,020
-Traveling no more than 1,000 non-stop miles to destination	6,150
-Traveling no more than 1,500 non-stop miles to destination	7,040
-Traveling no more than 2,000 non-stop miles to destination	7,850

No splitting is done for the second group of aircraft.

The third group of aircraft is similarly split, but only into two categories, 75 and 95 percent of the whole, again based upon performance. These two categories are then split in two sub-categories, based upon useful load of the aircraft operation. Useful load includes the weight of fuel, passengers and cargo. The useful load split, either 60 or 90 percent is predicated upon the notion of a longer take-off run.

Finally, runway length requirements for the fourth group are handled in a slightly different manner. The computer program generates a runway length based upon a given distance from the RCK to a destination airport for a given non-stop aircraft operation. The presumption is that the farther the travel distance, the greater the useful load (fuel) required, and the longer the required take-off run. For purposes of reporting, distances are noted in 500-foot intervals.

The Forecasts of Aviation Demand indicate that the airport accommodates and will continue to accommodate increasing numbers of aircraft (1) in the small aircraft {less than 12,500 pounds} category, (2) increasing aircraft weighing between 12,500 and 30,000 pounds and (3) very smaller number of aircraft weighing more than 60,000 pounds traveling less than 1,500 miles.

With respect to (1) above, a runway length should be 4,450 feet. With respect to (2), a runway length should range between 5,020 and 9,510 feet. With respect to (3), a runway length should range between 5,020 and 7,040 feet.

Given that the FAA software used to calculate the runway lengths in Table 4-3 is more than 30 years old and more performance efficient aircraft have been manufactured since then, FAA

generally requires an airport sponsor to substantiate runway length requirements. Substantiation takes the form of letters at the behest of aircraft operators.

As can be seen from the above discussion, there is no FAA methodology to determine a *standard* runway length for RCK, only a range of lengths which accommodate certain aircraft types. Analysis for length determination purposes is conducted in the next chapter, as design, land use, economic development, grant assurance compliance, and community compatibility concerns are relevant.

### **Airfield Design Standards**

Existing airfield design standards (A/B-I, Small Aircraft, Greater Than  $\frac{3}{4}$  Mile) along with potential future design standards A/B-II, Large Aircraft, Greater than  $\frac{3}{4}$  Mile) for Runway 17-35 are noted in Table 4-4.

Chapter Two indicates potential for C/D-II operational activity at RCK to reach the FAA guideline of 500 operations at the end of or beyond long-term planning period.

For simplicity sake, A/B-I standards are noted as existing and future and A/B-II standards are noted future.

*Notes to the Tables 4-4 and 4-5: <sup>1,2,3</sup>Runway grade, OFZ and approach/departure surface clearance standards are more extensive than identified.*

### **Runway/Airfield Lighting**

Both REILS and PAPIs should be installed for Runway 17 and 35. Refurbishment/replacement of these units will likely be necessary toward the end of the planning period. Similarly, the existing Low Intensity Runway Edge Lighting system (LIRL) could be updated to medium intensity along with any runway extension.

Table 4-4  
Existing (A/B-I, Small Aircraft, Greater Than  $\frac{3}{4}$  Mile) and  
Future (A/B-II, Large Aircraft, Greater Than  $\frac{3}{4}$  Mile)  
Airfield Design Standards for Runway 17-35

Standard/Specification	Existing	Future
Runway/Taxiway Width	50'/N/A	75'/35'
Runway Longitudinal Grade <sup>1</sup>	Within $\pm 2\%$ Maximum	Within $\pm 2\%$ Maximum
Runway Pavement Strength (Pounds)	<12,500 SWG	30,000 DWG
Runway 17 and 35 Protection Zones	250'x500'x1,000'	500'x700'x1,000'
Runway Safety Area Width/Beyond End	120'/240'	150'/300'
Runway Object Free Area Width/Beyond End	250'/240'	500'/300'
Taxiway Safety Area Width	49'	79'
Taxiway/Taxilane Object Free Area Width	89'/79'	131'/115'
Runway 17-35 to Parallel Taxiway	150'	240'
Runway 17-35 to Aircraft Holdline	200'	200'
Runway 17-35 to Aircraft Parking	250'	400'
Obstacle Free Zone Width/Beyond End <sup>2</sup>	400'/200'	400'/200'
Runway 17 Approach Clearance (20:1) <sup>3</sup>	250'x700'x5,000'	800'x3,800'x10,000'
Runway 17 Departure Clearance (40:1) <sup>3</sup>	N/A	1,000'x6,266'x10,200'
Runway 35 Approach Clearance (20:1) <sup>3</sup>	250'x700'x5,000'	800'x3,800'x10,000'
Runway 35 Departure Clearance (40:1) <sup>3</sup>	N/A	1,000'x6,266'x10,200'
FAR Part 77 Primary Surface Width/Beyond End	500'/200'	500'/200'
FAR Part 77 Approach Surface, Runway 17	250'x1,250x5,000'; 20:1	500'x3,500x10,000'; 34:1
FAR Part 77 Approach Surface, Runway 35	250'x1,250x5,000'; 20:1	500'x3,500x10,000'; 34:1

Although not required, an approach lighting system for Runway 35 is recommended. A segmented circle should be relocated near midfield and the beacon may need refurbishment in the intermediate- or longer-term planning periods.

### Taxiway System

The existing taxiway system consists of no full-length parallel taxiway for Runway 17-35. A full-length parallel taxiway to serve the primary runway is a capacity item development item only if proper turns are sited on both runway ends. Runway end turns should be considered for construction with any runway extension. Connecting taxiways should continue to be 35 feet wide, with phased pavement strengths constructed in accordance with Section 4.1 of this chapter, and a minimum separation from runway centerline of 240 feet for A/B-II standards.

Holdlines and signage now at 65 feet from runway centerline should be relocated to a 200 feet separation and the apron relocated. Any future taxiways should be equipped with either edge reflectors or medium-intensity taxiway lights and appropriate airfield signage.

### Objects Affecting Navigable Airspace

A controlling obstacle and other obstructions to navigable airspace with proposed dispositions and other objects in the vicinity of the airport are identified on the various drawings in Chapter Five. There are numerous tree and tower obstructions in the airport area which currently require disposition.

Given that the City continues to grow south to the Airport and up and around the field, compatible land use is, and will always be a concern. The next chapter seeks to consider various development options to meet expected

demand over upcoming years. Consequential to meeting that demand are airfield improvements which may create obstructions to navigable airspace. Care should be taken when considering options in this regard to minimize adverse airspace impacts. Future applications for changes in land use around the Airport should be scrutinized by the City per City interpretation of Appendix B, and antennas or other tall structures shall be sited/moved to avoid airspace conflicts.

### 4.4 Landside Requirements

Various landside requirements are generated based upon the forecasts of aviation demand. These relate to apron and circulation area, terminal building and aircraft hangar requirements, aircraft fueling and fueling recommendations, automobile access and area requirements.

Landside facilities are those portions of the airfield which are not directly related to the landing and take-off of aircraft but support it.

#### Based Aircraft Apron

The existing terminal apron provides an area of approximately 3,000 square yards. This aircraft parking area currently accommodates single-engine and multi-engine itinerant aircraft parking and tie-down needs in a non-standard configuration.

Eight aircraft currently base at the Airport and

the based aircraft apron area is, and will continue to be required; most pilots’ hangar their aircraft due to personal choice and weather, but reserving one or two spots on the apron for an aircraft pending new hangar construction is prudent. Table 4-5 shows the requirements for based aircraft apron using a standard 600 square yards of area per single-engine aircraft and 800 square yards for multi-engine aircraft. Forecast based aircraft were presented in Chapter Three. Note that these area calculations do not include necessary taxiway and taxilane to parking positions.

As can be seen from the analysis, no additional based aircraft apron will be necessary given that the existing apron is ±3,000 square yards.

#### Itinerant Aircraft Apron

Apron requirements for itinerant aircraft activity are estimated a bit differently, as shown in Table 4-6. Predicated upon the forecasts of aviation demand, approximately 15 percent of aircraft are eventually expected be in the larger aircraft category including multi-engine piston, multi-engine turboprop and jet aircraft, with the balance in the smaller aircraft category. Itinerant apron required can then be computed as follows: 85 percent (for small aircraft) times 600 square yards per small aircraft plus the quantity of 15 percent (for large aircraft) times 800 square yards per large aircraft is equal to 630 square yards per aircraft {(600 x

Table 4-5  
Based Aircraft Apron Requirements

	2013	2018	2023	2032
Forecast Single-Engine Based Aircraft	8	9	10	11
Single-Engine Based Aircraft not Hangared	1	1	1	1
Based Aircraft Apron (Single-Engine) (Sq. Yards)	600	600	600	600
Forecast Multi-Engine Based Aircraft	0	1	2	3
Multi-Engine Based Aircraft not Hangared	1	1	1	1
Based Aircraft Apron (Multi-Engine) (Sq. Yards)	800	800	800	800
Total Based Aircraft Apron Required (Sq. Yards)	1,400	1,400	1,400	1,400

Table 4-6  
Itinerant Aircraft Apron Requirements

	2013	2018	2023	2032
Peak Day Operations	8	12	17	28
Peak Day Itinerant Operations	3	5	7	12
Itinerant Aircraft Positions Required	2	3	4	6
Simultaneous Itinerant Aircraft Positions Required	2	2	3	5
Total Itinerant Aircraft Parking Area Required (Square Yards)	812	1,219	1,726	2,844

$85\%)+(800 \times 15\%)=630\}$ .

The following is assumed for the calculations in Table 4-6 per FAA estimating guidelines: (1) Peak day itinerant activity constitutes 43 percent of peak day operations, (2) half of these aircraft will require apron parking at some point during the peak day, and (3) approximately 75 percent of peak day transient aircraft must be simultaneously accommodated. Peak day operations were forecast in Chapter Three.

For example, the year 2013 calculation is as follows: 8 peak day operations times 43 percent (peak day itinerant operations) equals 3, divided by 2 (for those that require parking area) is equal to 2. The product of 2 and 75 percent (aircraft that are expected to be simultaneously accommodated) is equal to 1.29. 1.29 times 630 square yards per aircraft is equal to 812 square yards.

As can be seen from the analysis, additional itinerant aircraft apron is necessary in the near future, exclusive of based aircraft parking area.

### Terminal Building

A general aviation terminal and administration building should typically provide office space, a waiting room for pilots and passengers, a small area for food and drink vending, a public telephone and public restrooms.

Terminal floor space requirements are a function of the anticipated number of peak hour operations and airport users. Peak hour users are computed as 1.5 passengers per each local aircraft arrival and 2.5 passengers per itinerant arrival. Based upon Table 3-5, a modified 55/45 percent mix of local/itinerant activity is expected in 2032.

Typical floor space requirements, expressed in square feet per user are as follows for general aviation terminal facilities: Waiting Lounge; 15, Office Space; 3, Public Conveniences; 1.5, Concession/Vending; 5, Storage, Circulation, HVAC; 24.5. Terminal building area recommendations are shown in Table 4-7. The

Table 4-7  
Terminal Building Requirements

	2013	2018	2023	2032
<i>Peak Hour Operations</i>	<i>1.3</i>	<i>1.8</i>	<i>2.5</i>	<i>4.2</i>
<i>Peak Hour Users</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>8</i>
Waiting Lounge	38	53	73	122
Office Space	8	11	15	25
Public Conveniences	4	5	7	12
Vending/Concession	13	18	24	41
Storage, Circulation, HVAC	62	86	119	201
Total Terminal Building Area Required (Square Feet)	124	172	239	401

Airport's terminal will be somewhat adequate for the planning period, though not in its current configuration and condition.

As can be seen from the analysis, additional terminal building will be necessary and refurbishment should be considered in the short-term.

### Aircraft Hangars

RCK currently accommodates three conventional hangars totaling approximately 28,675 square feet of aircraft storage area. It is presumed that 100 percent of future based aircraft will require hangar space given current owner preferences. Note that future aircraft may be located in T-hangar units, in more conventional, small box hangars, or collocated with other aircraft in a larger hangar. Furthermore, a single aircraft, only requiring 1,200 square feet, may be located in a

hangar with 6,400 square foot hangar, as is the case in several instances at RCK now.

Hangar area requirements found within Table 4-8 are based upon: 1,200 square feet for single-engine piston aircraft, 2,200 square feet for multi-engine piston and twin-turbo prop aircraft, 4,000 square feet for smaller jet aircraft, 12,000 square feet for larger jet aircraft, and 1,500 square feet for helicopter/other.

### Support Facilities

As the airport is developed and improvements take place, extensions to existing utility systems should be considered. Future airport users, including individual aircraft owners and corporate interests, should to the extent reasonable be required to participate in the cost of extending utilities to their building and should be charged a connection fee to any system. The fee may be

Table 4-8  
Hangar Area Requirements

	2013	2018	2023	2032
<i>Single-Engine Based Aircraft</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>11</i>
Single-Engine Hangar Area Required	9,600	10,800	12,000	13,200
<i>Multi-Engine/Twin Turbo Prop Based Aircraft</i>	<i>0</i>	<i>1</i>	<i>2</i>	<i>3</i>
Multi-Engine/Twin-Turbo Prop Hangar Area Required	0	2,200	4,400	6,600
<i>Jet (Small) Based Aircraft</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Jet (Small) Hangar Area Required	0	0	0	0
<i>Jet (Large) Based Aircraft</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>1</i>
Jet (Large) Hangar Area Required	0	0	0	8,000
<i>Helicopter/Other Based Aircraft</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Helicopter/Other Hangar Area Required	0	0	0	0
Total Itinerant Aircraft Parking Area Required (Square Feet)	9,600	13,000	16,400	27,800

Table 4-9  
Automobile Parking Area Requirements

	2013	2018	2023	2032
Peak Hour Users	3	4	5	8
Tenants/Employees	1	2	2	3
Automobile Parking Positions Required	4	6	7	11
Total Automobile Parking Area Required (Square Yards)	140	210	245	385

levied directly or through user fees and leases. Utility extensions should be maintained underground to the maximum extent feasible. Large-scale and corporate development is expected at the Airport. Substantial utilities for these developments are not necessary.

General aviation security requirements do not currently specify access/denial infrastructure or procedures, and aviation industry groups have endorsed various airport watch security programs to protect the Airport and its aircraft from terrorist incidents. These programs focus on informal surveillance procedures and airport user monitoring of airport activities, not necessarily security-related capital improvements. Formal daily airfield and security inspections should be completed and airport emergency and security plans should be drafted as necessary.

Based on the increasing number of aircraft operations by newer-generation and turbine-powered aircraft nationwide, and the opportunity to generate additional airport revenue, it is recommended that the existing fueling capability be supplemented with additional turbine fuel capacity as demand warrants.

### **Automobile Parking and Access**

No paved automobile parking spaces are near the terminal building. Although an expansive formal parking lot may not be necessary, adequate space should be strategically planned and protected. The number of automobile parking spaces required is a function of peak hour users and tenant/employee demand. The peak hour user count was previously derived for the terminal building analysis. The number of tenants and employees at an airport like the RCK is estimated to be one person per five based aircraft. A standard 35 square yards per automobile is used to complete Table 4-9.

# Update Airport Layout Plan Chapter Five

## *Alternatives Analysis*



## Chapter Five – Alternatives Analysis

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### 5.0 Introduction

This chapter describes various development alternatives which should be considered to accommodate the facility requirements analysis and recommendations.

Several issues are of importance.

1. Potential Accommodation of Larger Business or Corporate Aircraft
2. Plan for Additional Hangars and Apron
3. Protect Airspace and Land Use
4. FAA Design Standards Compliance.

Although apparently separate and distinct, the above issues are all related and one impacts the other in obvious and in some more subtle ways. Chapter Three established that the Airport may experience aircraft operations which suggest an airport design standards change from the current Personal (A-I) Class to Business (B-II) class.

The focus of this section is to identify the merits and deficiencies of the development alternatives and to provide the technical basis necessary for determining a preferred course of action. Airside requirements such as a range of runway lengths and apron needs, along with other airfield design standards were previously identified, and complement discussions in this chapter.

An analysis of how to adopt both current and potential business class aircraft design standards, including a runway extension, will be analyzed. Hangars of various sizes and types may be accommodated on the existing Airport property envelope or with additional land acquisition. Airspace and land use protection is integrated

into the above analyses. An appendix following this document contains a recommended airport overlay district for airspace and land use protection and alternatives incorporate the spirit and intent of this TXDOT document.

Analyses will be made for the following criteria:

- 1) Operational effectiveness
- 2) Airspace considerations
- 3) Land resource utilization
- 4) Environmental considerations
- 5) Terminal/landside operational effectiveness
- 6) Flexibility and expandability issues
- 7) Construction/phasing issues
- 8) Revenue generation
- 9) Opportunities for private investment.

Overall, a selected course of action for the future represents the formulation of a development policy as much as the process of concept selection. The development policy should:

- a) Comply with FAA standards/guidelines,
- b) Be compatible with other existing and proposed uses on and off the airport,
- c) Dovetail with City planning and zoning,
- d) Minimize negative environmental impacts,
- e) Be cost-effective,
- f) And, be compatible with City economic development prerogatives.

### 5.1 Alternatives

First and foremost is analysis for selection of Runway 17-35's future airfield design standards, all-weather capabilities and length. The previous chapter established that the Airport may see increasing numbers of aircraft operations which

are larger, heavier and faster than currently being experienced. Recommendation was formalized in previous chapters to analyze design standards compliance with Business (B-II) airport design standards along with consideration for an increase in runway length.

For purposes herein, three alternatives are described, and depictions follow the analysis:

#### **Exhibit A1**

Depicts the Airport *as is* with existing Personal (A-I) Class FAA airport design standards compliance, including a minimal runway extension and no IAP. This alternative is essentially a *no change* alternative except current FAA airport design standards are applied.

#### **Exhibit A2**

Depicts the Airport with potential future Business (B-II) Class FAA airport design standards compliance, including a runway extension to 5,000 feet and improved all-weather capabilities with 1-mile IAPs on both Runways 17 and 35.

#### **Exhibit A3**

Depicts the Airport with potential future Business (B-II) Class FAA airport design standards compliance *at an alternative location*, including a 5,000 foot runway and improved all-weather capabilities with 1-mile IAPs on both runway ends.

Features common to all alternatives include:

- a) Tree clearing recommended based upon design standards to provide airspace protection for a given 80 foot tree. This light green area in the depiction constitutes *Should Buy* Land acquisition to comply with airport design standards and airspace clearances. *Should Buy* in this context means that land purchase is not a requirement, but a recommendation via purchase of an avigation/tree clearing easement.
- b) *Must Buy* land acquisition to comply with airport design standards as shown in purple. The area's limits are primarily derived as a consequence of design

standards compliance and the airspace necessary to clear a future perimeter fence.

- c) An AWOS and its 500 foot radius critical area, within which no building should be located and easement acquired.
- d) Suitable apron and hangars.
- e) A 35-foot Building Restriction Line (BRL). The BRL encompasses and protects aircraft operations. The purpose of the BRL is to keep planned development, hangars and other tall objects greater than 35 feet at a distance from the runway.

More detail for each of the alternatives follows:

#### **Exhibit A1**

This alternative shows the recommended improvements for design standards compliance with Personal (A-I) Class airport design standards with no IAP or runway extension improvements.

Tree clearing on and off Airport property should be completed on either side of and beyond runway and extended runway centerline to provide for clear airspace. This recommendation is based upon application of a 20:1 approach surface and the 7:1 transitional surface for a surrounding average tree height of 80 feet as depicted on the typical cross-section and profile view.

Approximately 11 acres of private property is proposed for *Must Buy* fee simple acquisition. Approximately 6 acres associated with the Runway 35 RPZ, as shown in the lighter purple, is proposed for *Should Buy* fee acquisition. FAA does not currently mandate purchase of the RPZ, but requires extensive coordination and justification if it is not purchased. The remaining *Should Buy* property acquisition area is approximately 85 acres as shown in light green. This area is proposed for *Should Buy* avigation/tree clearing easement acquisition.

Other items which are addressed with this alternative include:

1. Reconstruction of Runway 17-35 with a relocation on the north end and an extension of the south end,
2. A new hangar/apron area given that the existing apron and hangar are too close to the runway,
3. And, new airport lighting and visual landing aids.

With respect to the first item, the runway reconstruction projects, the following improvements are noteworthy:

- Runway markings should be modified for design standards compliance. Runway crossing conditions potentially created with hangars on both sides of the runway should be remedied via relocation of the hangar.
- Runway 17-35's longitudinal gradient exceeds FAA's required two percent; and, the runway's transverse grade may not reach FAA's required one percent in select locations. The grades should be fixed with reconstruction.
- The Runway 17 20:1 approach surface is likely penetrated by roads, power lines, trees, and buildings. The ROFA/RSA overlap Road 908 on north runway end and the property line on the south runway end. The Runway 17 threshold should be relocated 600 feet south to clear.
- TXDOT recommends a minimum 3,270 foot long runway at RCK. Given a 600 foot relocation and a minimum 3,270 foot runway, a southerly runway extension is planned. Note that an underground gas line may exist just beyond ( $\pm 500$  feet) the current south runway end. This line may need to be lowered or relocated.
- The 20:1 approach surface emanating from the new Runway 35 end is likely penetrated by power lines and trees.
- Incompatible land uses likely within the immediate airfield area with insufficient

property ownership for 35-foot BRL. Property associated with an abandoned rail line easement within the ROFA may have been vacated/transferred. The east-side 7:1 surface is penetrated by trees, hangars, fueling station/tanks, power lines, while the west-side 7:1 is penetrated by trees.

With respect to the second item, apron/hangar area projects, the following improvements are noted:

- The holdline is at a non-standard separation ( $\pm 65$  feet from runway centerline, while it should be a minimum 125 feet. All aircraft parking apron/ramp and the southern-most hangar is within ROFA. Auto access is also within ROFA near its intersection with the apron. The two historical hangars may have reached the end of their useful lives, as unsafe conditions have been noted within.

With respect to the third item, airfield lighting and visual aids projects, the following improvements are noted:

- Non-standard LIRL (and other existing airfield lighting) in sub-optimal condition. RNAV IAPs, Beacon, AWOS, PAPI, REIL, other airfield signage absent. MIRL should be installed. Segmented circle in non-standard location.

ADG understands that RCK was donated by Mr. H.H. Coffield himself a number of years ago, and that upon his passing the title for properties upon which the Airport currently rests were transferred to the City with the express understanding that the property would remain City property as long as its use remained an airport.

ADG understands that it is possible that non-standard condition disposition and airspace/obstruction mitigation will require substantial investment. Portions of property acquisition for existing agricultural residential properties around airport property and the rail right-of-way may

prove difficult, given existing property owner prerogatives.

Given that the Committee is considering landside development with runway access for business development purposes, this alternative will not be responsive and expandability concerns exist. Alternative A2 was created to be responsive to City economic and business development purposes.

#### Exhibit A2

Given the potential desire/need to accommodate larger, faster and more expensive aircraft in the long-term, this alternative provides the ability to accommodate those aircraft with standards compliance.

This alternative shows planned improvements for design standards compliance with Business (B-II) Class airport design standards with an improved IAP to 1-mile for both Runway's 17 and 35.

Tree clearing on and off Airport property should be completed on either side of and beyond runway and extended runway centerline to provide for clear airspace. This recommendation is based upon application of a 34:1 approach surface and the 7:1 transitional surface for an surrounding average tree height of 80 feet as depicted on the typical cross-section and profile view.

Approximately 58 acres of private property is proposed for *Must Buy* fee simple acquisition. Approximately 10 acres associated with the Runway 35 RPZ, as shown in the lighter purple, is proposed for *Should Buy* fee acquisition. FAA does not currently mandate purchase of the RPZ, but requires extensive coordination and justification if it is not purchased. The remaining *Should Buy* property acquisition area is approximately 195 acres as shown in light green.

This area is proposed for *Should Buy* avigation/tree clearing easement acquisition.

Other items which are addressed with this alternative include:

1. Reconstruction of Runway 17-35 with a relocation on the north end and an extension of the south end,
2. A new hangar/apron area given that the existing apron and hangar are too close to the runway,
3. And, new airport lighting and visual landing aids.

With respect to the first item, the runway reconstruction projects, the following improvements are noteworthy:

- Runway markings should be modified for design standards compliance. Runway crossing conditions potentially created with hangars on both sides of the runway should be remedied via relocation of the hangar.
- Runway 17-35's longitudinal gradient exceeds FAA's required two percent; and, the runway's transverse grade may not reach FAA's required one percent in select locations. The grades should be fixed with reconstruction.
- The Runway 17 34:1 approach surface is likely penetrated by roads, power lines, trees, and buildings. The ROFA/RSA overlap Road 908 on north runway end and the property line on the south runway end. The Runway 17 threshold should be relocated 1,100 feet south to clear.
- Although not likely justified for eligibility purposes at this time, an ultimate 5,000 foot runway length is shown. Given a 1,100 foot relocation and a minimum 5,000 foot runway, a southerly runway extension is planned. Note that an underground gas line may exist just beyond (±500 feet) the current south runway end. This line may need to be lowered or relocated.

- The 34:1 approach surface emanating from the new Runway 35 end is likely penetrated by power lines and trees.
- Incompatible land uses likely within the immediate airfield area with insufficient property ownership for 35-foot BRL. Property associated with an abandoned rail line easement within the ROFA may have been vacated/transferred. The east-side 7:1 surface is penetrated by trees, hangars, fueling station/tanks, power lines, while the west-side 7:1 is penetrated by trees.
- The above ground apparatus for the City of Rockdale water well is located within ROFA and should be lowered or relocated.

With respect to the second item, apron/hangar area projects, the following improvements are noted:

- The holdline is at a non-standard separation ( $\pm 65$  feet from runway centerline, while it should be a minimum 125 feet. All aircraft parking apron/ramp and the southern-most hangar is within ROFA. Auto access is also within ROFA near its intersection with the apron. The two historical hangars may have reached the end of their useful lives, as unsafe conditions have been noted within.

With respect to the third item, airfield lighting and visual aids projects, the following improvements are noted:

- Non-standard LIRL (and other existing airfield lighting) in sub-optimal condition. RNAV IAPs, Beacon, AWOS, PAPI, REIL, other airfield signage absent. MIRL should be installed. Segmented circle in non-standard location.

ADG understands that it is possible that non-standard condition disposition and airspace/obstruction mitigation will require additional substantial investment.

Given that the Committee is considering landside development with runway access for business development purposes, expandability concerns persist; and now, through this alternatives process, may be an appropriate time to also consider other options.

It appears that selecting and developing an airport on a new property, elsewhere may be less costly and more palatable than preparing the existing airfield pursuant to Alternative No. 1, and then expanding it to accommodate the types of economic development envisioned by the Committee per Alternative No. 2.

Alternative No. 3 was created to be responsive to City economic and business development purposes at another site. It is important to note that this a sample site for purposes herein.

A formal site selection process is prerequisite to actual FAA/TXDOT investment in a new airport site. This site may not be the best. This site is considered herein because it is currently for sale, it is relatively close to the city proper, it is along FM Road 908 and its property envelope is able to accommodate business aviation activity with modifications. Specifically, ample area exists to co-locate an industrial/business park.

#### Exhibit A3

Given the potential desire/need to accommodate larger, faster and more expensive aircraft in the long-term, this alternative provides the ability to accommodate those aircraft with standards compliance at a new site.

This alternative shows planned improvements for design standards compliance with Business (B-II) Class airport design standards with an improved IAP to 1-mile for both Runways 17 and 35.

Tree clearing on and off Airport property should be completed on either side of and beyond runway and extended runway centerline to

provide for clear airspace. This recommendation is based upon application of a 34:1 approach surface and the 7:1 transitional surface for surrounding an average tree height of 80 feet as depicted on the typical cross-section and profile view.

The property for sale consists of 600 total acres. Approximately 133 acres of the 600 acres requires tree clearance. Approximately 61 acres of the 600 acres would be within the fence, as depicted.

The configuration of the property is not sufficient to fully contain the airport and its desired airspace. Approximately 6 acres associated with the Runway 19 RPZ, as shown in the lighter purple, is proposed for *Should Buy* fee acquisition. FAA does not currently mandate purchase of the RPZ, but requires extensive coordination and justification if it is not purchased. The remaining *Should Buy* property acquisition area is approximately 120 acres as shown in light green. This area is proposed for *Should Buy* aviation/tree clearing easement acquisition.

Approximate ground elevations along the depicted runway alignment are such that a one percent overall centerline grade is produced. Elevations surrounding the runway alignment are relatively flat and should suit ancillary development.

The same facilities are planned with the alternative as with the previous. The following development is shown.

## **5.2 Landside Aviation Development**

Specific aims for landside development in this section of the plan include:

1. Plan land uses and propose facilities which will meet anticipated demand, and which will also allow for continued demand

accommodation in case regional economic activity is more robust than anticipated.

2. Plan land uses and propose facility locations which will allow the Airport to be as financially self-sufficient as possible.
3. Minimize runway and taxiway crossings from one side of the runway to another, and provide for an efficient airfield design.

Given that RCK may experience and wishes to plan to accommodate larger, faster and heavier aircraft, a transition from a Personal (A-I) Class facility to a more Business (B-II) Class facility has been hereto considered.

Rationale and justification for configuration and locations of future hangar and ramp are of primary importance and near-term, long-term and reserve development areas for aviation and non-aviation purposes should also be planned and potential hangar locations identified.

Examples of aviation-related land uses include:

1. General Aviation Terminal/Ramp
2. Corporate Aviation Terminal/Ramp
3. Air Cargo
4. Aircraft Maintenance and Support
5. Aircraft Rescue and Structural Firefighting
6. On-Field Agricultural/Agricultural Lease
7. Aviation-Related Light Industrial
  - a. Parts Manufacturing and Assembly
  - b. Flight Simulator
  - c. Defense Contractor
  - d. Aerial Photography/Photogrammetry
  - e. Aerial Spray
8. Fixed Base Operation (FBO)
  - f. Aircraft Charter, Storage, Sales
  - g. Aircraft Repair and Wash
  - h. Pilot Supplies
  - i. Pilot Lounge, Flight Planning
  - j. Flight Training
  - k. Food Services/Catering
  - l. Office/Overnight Accommodations
  - m. Restrooms

- 9. Aircraft Storage
  - n. T-Hangar
  - o. Executive Hangar
  - p. Mixed-Use Hangar
  - q. T-Shade
- 10. U.S. Government
  - r. Military
  - s. Air Traffic Control
  - t. Navigational Aids
  - u. Homeland Security
  - v. Public Safety and Emergency Facilities
  - w. Weather Collection and Dissemination
  - x. Satellite Communications.

Examples of non-aviation related land uses which are generally compatible in the airport area/ environment include:

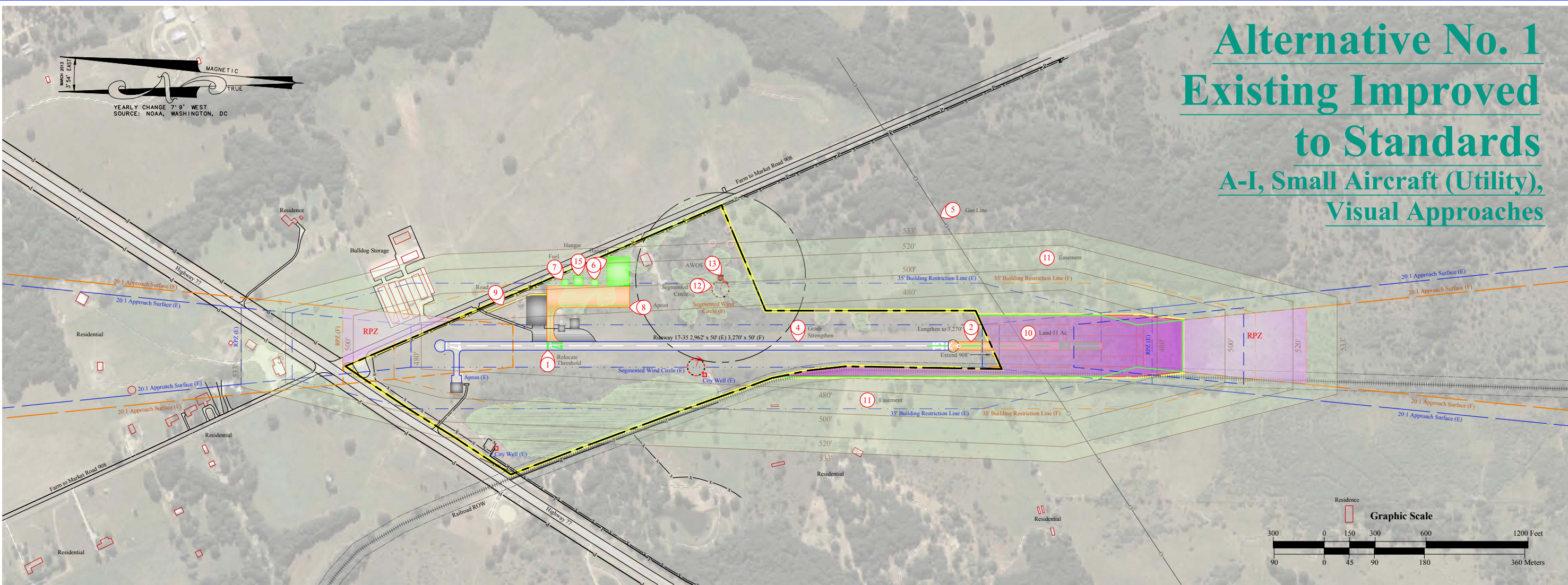
- 1. Postal Annex
- 2. Telecommunications Facilities
- 3. Greenhouses
- 4. Auto Mall/Large-Scale Retail
- 5. Rental Car Ready Return/Storage
- 6. Auto/Boat Storage and Mini-Storage
- 7. Light and Heavy Manufacturing
- 8. Warehousing/Storage
- 9. Data Storage
- 10. Recreational; Fields and Golf Course
- 11. Hotel/Motel
- 12. Support/Regional Businesses
  - a. Bank
  - b. Convenience Store
  - c. Restaurant
  - d. Coffee/Snack Shop.

### **5.3 Consensus and Summary**

These alternatives were presented to and discussed with the Committee in October 2012 at the presentation for Working Paper No. 1. The Committee and meeting participants were generally supportive of development to accommodate larger aircraft as discussed and depicted on Alternatives No. 2 and No. 3. This support was limited to the reality of the funding situation, in that meeting participants understood

that general City and TXDOT funds is and will be limited for the foreseeable future.

A good amount of discussion centered about the possibility of a new airport site using alternative financing mechanisms. An interested resident and business persons fielded the idea of one such mechanism; the sale of the existing airport property (were that found to be permitted), may be used to somewhat front airport development at an alternative site.



# Alternative No. 1

## Existing Improved to Standards

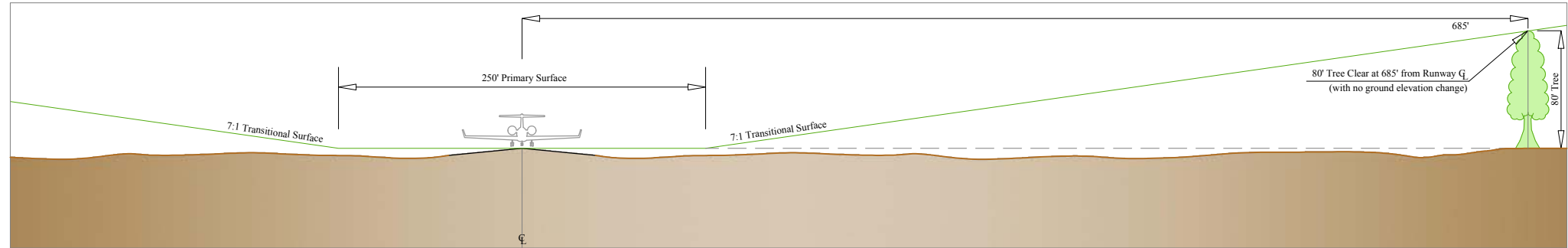
### A-I, Small Aircraft (Utility), Visual Approaches

No.	Revision	Ckd	Date

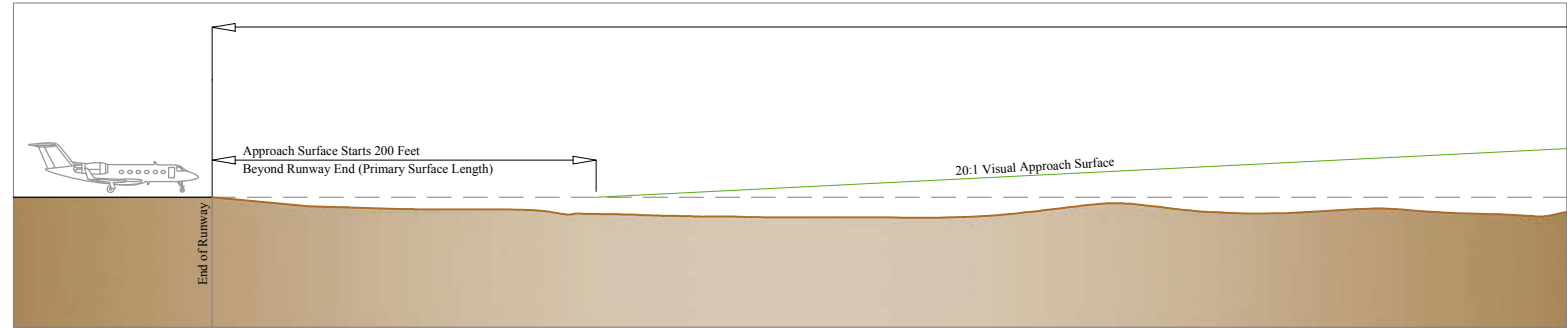
**H.H. Coffield**  
**Regional Airport**  
Rockdale, TX

**ADG** AIRPORT DEVELOPMENT GROUP, INC.  
4776 South Jackson Street / Suite 300  
Rockdale, TX 78067-3002  
303.782.0802 / 303.782.0842 fax  
www.ADGairports.com

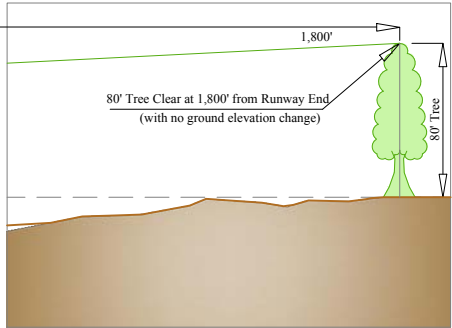
TxDOT Contract Number: 2X1A/V064



Typical Cross-Section View; Primary and Transitional Surface Clearances



Typical Profile View; Approach Surface Clearances



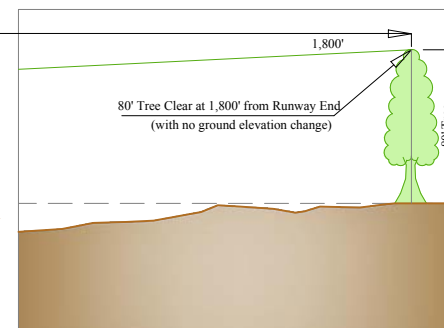
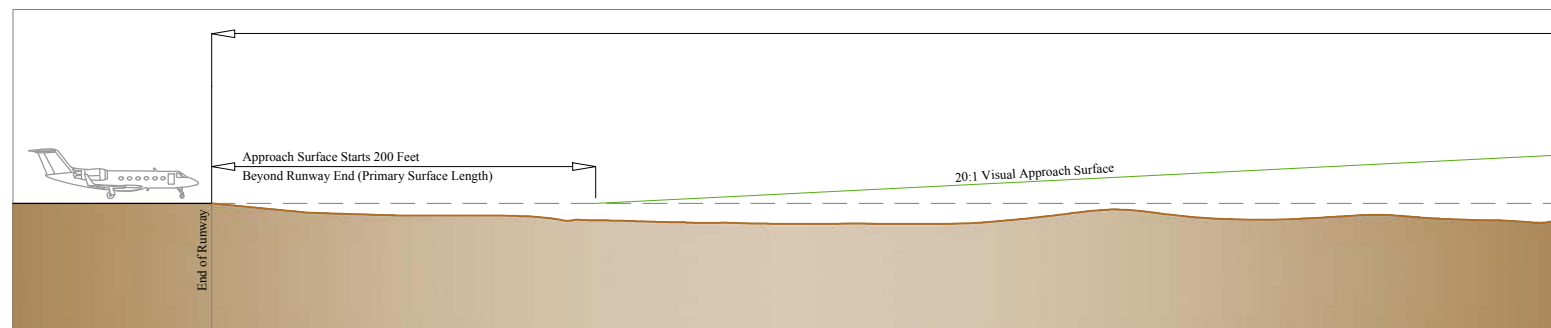
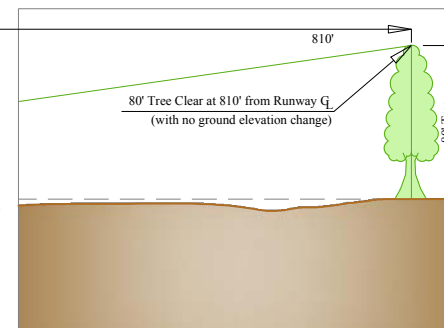
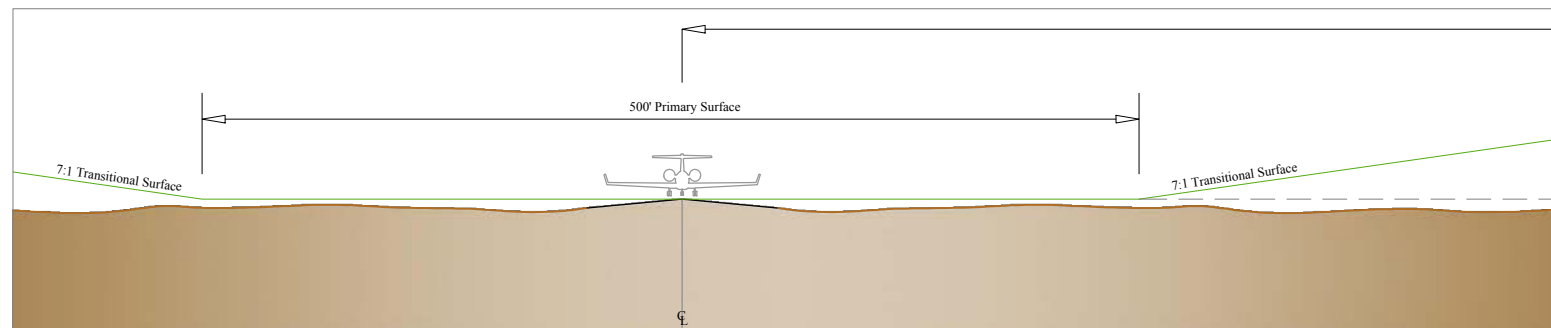
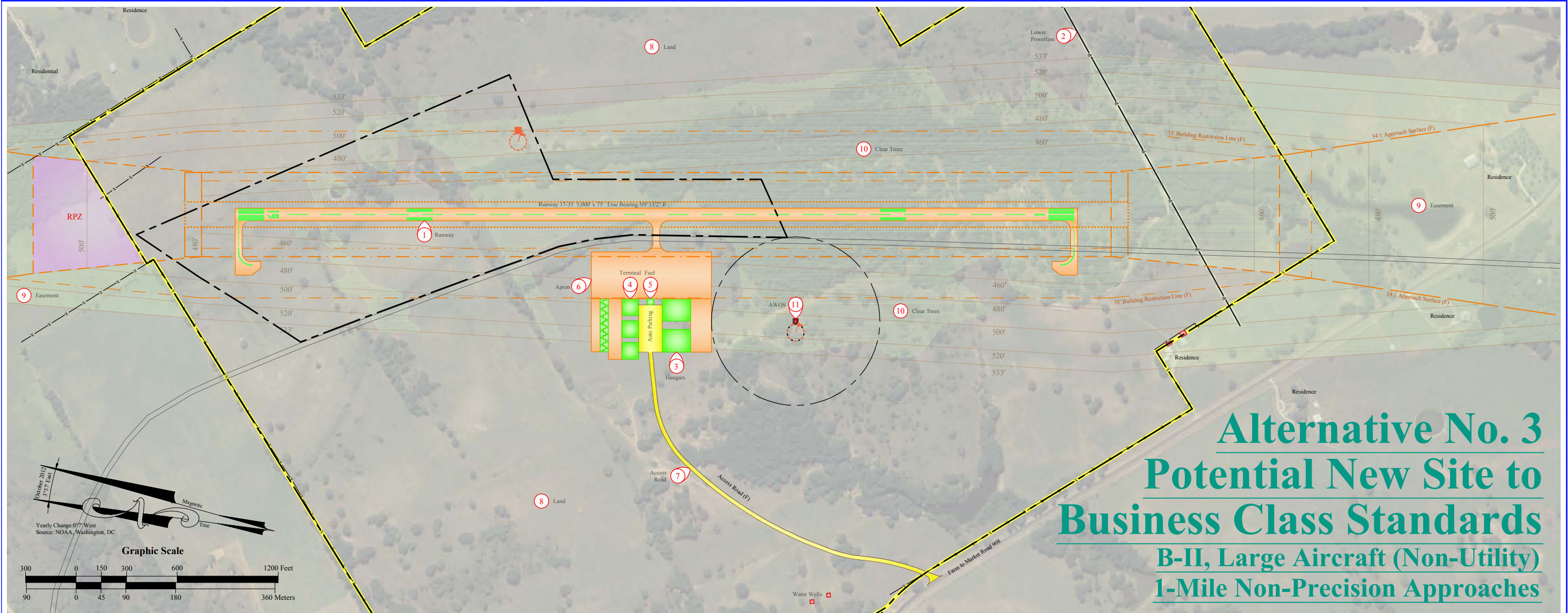
Legend			
(E), (F)	Existing, Future		Existing Buildings
---	Existing Property Line		Future Buildings
---	Future Property Line		Existing Buildings To Be Removed
---	Building Restriction Line (BRL)		Dirt Road
---	Runway Protection Zone (RPZ)		Existing Paved Roads
---	Approach Surface		Future Paved Roads
---	Existing Pavement		Drainage Line
---	Future Pavement		
---	Existing Pavement To Be Removed		

Short-Term Improvements (2014 - 2018)	
Improvement	Rough Cost Estimate
<b>Reconstruct Runway 17-35:</b> 1. Relocate Runway 17 Threshold 600' 2. Lengthen to 3,270' 4. Fix Longitudinal Grade, Fix Transverse Grade, Strengthen to 12,500 SWG 5. Relocate/Lower Gas Line	\$2,550,000
<b>New Hangar/Apron Area:</b> 6. Relocate/Build 2 New Hangars 7. Relocate Self-Serve Fueling 8. Relocate Apron 9. Relocate Entrance Road	\$1,675,000
10. Acquire Land To Clear Fence (11 Ac.) 11. Airspace/Tree Clearing Easement (±92 Ac.) (Clear 80' Tree)	\$255,000
12. Relocate Segmented Circle	\$6,000
13. Install Beacon, AWOS, Supplemental Windcones	\$185,000
14. Install MIRL, REILs and PAPI (17 and 35), Airfield Signage	\$1,220,000
15. Relocate West-side Hangar (requires inline taxiway)	\$520,000
<b>TOTAL ESTIMATE</b>	<b>\$6,411,000</b>

Project No.:	RCK 1400M
Designed By:	SJPM
Drawn By:	MTP
Approved By:	SMP
Date:	April 2013

**Alternative No. 1**  
**Existing Improved**  
**To Standards**





**Legend**

(E), (F)	Existing, Future		Existing Buildings
	Existing Property Line		Future Buildings
	Future Property Line		Existing Buildings To Be Removed
	Building Restriction Line (BRL)		Dirt Road
	Runway Protection Zone (RPZ)		Existing Paved Roads
	Approach Surface		Future Paved Roads
	Existing Pavement		Drainage Line
	Future Pavement		
	Existing Pavement To Be Removed		

Long-Term Improvements (2024-2033)	
Improvement	Rough Cost Estimate
<u>New Runway 1-19:</u> <b>1. Construct Runway 17-35 to 5,000 feet by 75 feet at 30,000 DWG Strength</b> <b>2. Relocate/Lower Power Line</b>	\$5,125,000
<u>New Hangar/Apron Area:</u> <b>3. Build 2 New Hangars (and Relocate 1 Existing Hangar)</b> <b>4. New Terminal</b> <b>5. Install Self-Serve Fueling</b> <b>6. Construct New Apron</b> <b>7. New Entrance Road</b>	\$3,250,000
<b>8. Acquire Land (Existing Ranch for Sale (±600 Ac.)</b> <b>9. Airspace/Tree Clearing Easement (±120 Ac.) (Clear 80' Tree)</b>	\$1,500,000
<b>10. Clear Trees on Ranch for 80' Clearance (±133 Ac.)</b>	\$120,000
<b>11. Install Beacon, AWOS, Supplemental Windcones</b>	\$195,000
<b>12. Install MIRL, REILS and PAPI (17 and 35), Airfield Signage</b>	\$1,650,000
<b>TOTAL</b>	<b>\$11,840,000</b>

# Update Airport Layout Plan Chapter Six

## ***Phased Development and Cost Estimates***



## Chapter Six – Phased Development and Cost Estimates

### 6.0 Introduction

Capital improvements and preventive maintenance at the H.H. Coffield Regional Airport are scheduled for three successive time periods: Phase I; 2013–2017, Phase II; 2018–2022, and Phase III; 2023–2033. The following sections describe and depict the various improvements, by phase, along with an estimated cost for each item. Development items are shown on three exhibits following the text. The recommended phasing is not set in stone and changes in aviation demand, City perspective; funding or area economics may alter proposed improvement timing.

Estimates were developed using historical year (2012) costs. Each figure represents an estimate of the total project cost. Estimates include construction, engineering, administration, testing, surveying and legal expenses. It should be noted that these estimates are order of magnitude accurate for planning purposes, based upon area bid tabulations. A contingency amount was added to anticipate unforeseen circumstances. This approach reduces the chance of budget surprises when a more detailed investigation and design is initiated. Cost estimates may be reviewed and updated in the future as necessary to account for technological improvements, changes in the economy, future construction innovations, and/or changes in local conditions.

The proposed improvement items are based on an unsubstantiated need and not availability of funding; these costs constitute a constrained

display of future airport needs. The timing of these improvements may vary due to funding constraints. The tables identify FAA, TXDOT and City participation. City participation may be revenues from the operation of the Airport or from general funds. This could also include general aviation or corporate hangar developers, aviation business owners, aerospace companies or similar companies or individuals that wish to make an investment in the Airport. These types of developments are generally not eligible for TXDOT funding.

### 6.1 Short-Term Improvements

During this period (2013-2017), several relatively minor development and improvement items are planned to provide for safe and efficient airport operations and to allow for planned development. This table is synonymous with a constrained Airport Capital Improvement Plan (ACIP). The following descriptions accompany the table and the exhibit on upcoming pages.

#### 1. Displaced Runway 17 End (2013)

An approximate 250 foot relocation of Runway 17 would be necessary to move the OFA off FM Road 908. Also, a 250 foot displacement would be necessary to clear a 20:1 threshold siting surface. The current runway end will be displaced 250 from its current end. Compliance with these two standards (OFA/TSS) though not compulsory, is reasonable practice. The Airport perimeter fence remains within the OFA. A 90 percent TXDOT grant is planned for this project.

## 2. Acquire OFA and Easement (2014)

Acquisition of the entire OFA in fee is recommended, but not compulsory.  $\pm 1.2$  acres near the end of Runway 35 and within the old rail right-of-way are of subject. A trapezoidal area beyond each runway end exists termed a Runway Protection Zone. Land uses within this area should be limited such that an aviation easement is the minimum amount of encumbrance recommended. Compliance with this RPZ standard, though not compulsory, is reasonable practice. The area is approximately 12 acres for properties on both runway ends. A 90 percent TXDOT grant is planned for this project.

## 3. Lower Trees within Runway 35 RPZ (2015)

Trees should be lowered or removed within the area described above to clear a 20:1 threshold siting surface. Compliance with this TSS standard though not compulsory, is reasonable practice. This project is planned to be completed with City work crews.

## 4. Lower On-Airport Trees (2015)

Trees should be lowered or removed for nearly all airport properties to clear airspace and for a safe operating environment. Clear airspace in this instance refers to a 7:1 transitional surface and maintenance of this surface clear, though not compulsory, is reasonable practice. This project is planned to be completed with City work crews.

## 5. Raze Smaller Hangar, Remove Portion of Apron (2015)

The smaller of the two east-side hangars is within the OFA, does not clear the 7:1, and has aged past its useful life. OFA Standards compliance and maintenance of a clear 7:1 surface, though not compulsory, is reasonable practice. The existing apron is wholly within the OFA. This apron, except for a portion to be retained for an access taxiway, should be removed and replaced

at a standard (farther from runway centerline) location with upcoming, planned projects.

## 6. Access Taxiway, Relocate Fuel (2015)

A portion of the existing apron will remain and serve as an access taxiway nearer to the runway. Construction of the remainder taxiway to a standard offset from runway centerline is recommended. Simultaneously, the existing fueling apparatus will be either removed or replaced to a new location along the new taxiway. This taxiway will also allow new hangar construction (likely ground lease) adjacent. A 90 percent TXDOT grant is planned for this project.

## 7. Construct Phase I Apron (2016)

An apron will also for aircraft turns along with parking for fueling or overnighting. Projects 6, 7 and 8 are envisioned and intended to be completed around the same time for operational continuity. A 90 percent TXDOT grant is planned for these projects.

## 8. Construct MIRL (2016)

The existing low-intensity edge lighting system is in substantial disrepair and aged beyond its useful life. A new medium-intensity system is planned. A 90 percent TXDOT grant is planned for these projects.

## 9. Relocate Airport Access Road (2017)

The existing Airport access road enters the OFA near the existing apron and should be relocated around and behind the larger hangar. Compliance with this OFA standard though not compulsory, is reasonable practice. This project is planned to be completed with City work crews.

Exhibit ST near the end of this chapter depicts these items numerically-tabulated and referenced in plan view. These items total \$1,186,500, and \$152,750 is planned for City of Rockdale participation.

## 6.2 Intermediate-Term Improvements

During this period (2018-2022), several relatively minor improvement items are planned to provide for safe and efficient airport operations and to allow for planned development. The following descriptions accompany the table and the exhibit on upcoming pages.

### 1. Relocate Segmented Circle (2018)

A portion of the existing segmented circle is within the OFA and should be relocated to standards location. Compliance with this OFA standard though not compulsory, is reasonable practice. A 90 percent TXDOT grant is planned for this project.

### 2. Raze Larger Hangar (2019)

The larger of the two east-side hangars is just outside the OFA, but does not clear the 7:1, and has aged past its useful life. A clear 7:1 surface, though not compulsory, is reasonable practice. This project is planned to be completed with City work crews.

### 3. Construct Phase II Apron (2020)

Additional apron will provide for aircraft turns along with additional parking for fueling or overnighing. Phase I and II apron area approximates the original apron area. A 90 percent TXDOT grant is planned for this project.

### 4. Acquire Avigation Easement (2021)

A circular clear area is required around an AWOS for reasonably accurate wind readings. Land uses within this area should be limited such that an avigation easement is the minimum amount of encumbrance recommended. Compliance with this clearing standard, though not compulsory, is reasonable practice. The area is approximately 5 acres. Actual AWOS installation is the next project. A 90 percent TXDOT grant is planned for this project and the next.

### 5. Install AWOS (2022)

An Automated Weather Observing System (AWOS) is not a required piece of airport equipment, but is a very helpful tool for local pilots and the general aviation community as a whole. This equipment takes hourly winds reading which flying and general public may view.

### 6. Update ALD/ALP (2022)

Is it expected that ten years will have expired since this planning effort, and an update to address all has happened in the community, the region and the aviation world should be done to ensure a responsive plan at that point. A 90 percent TXDOT grant is planned for this project.

Exhibit IT near the end of this chapter depicts these items numerically-tabulated and referenced in plan view. These items total \$619,500, \$86,700 is planned for City of Rockdale participation.

## 6.3 Long-Term Improvements

During this period (2023-2033), several relatively major improvement items are planned to provide for safe and efficient airport operations and to allow for planned development. A runway extension and rehabilitation and perimeter fencing highlight the overall development. The following descriptions accompany the table and the exhibit on upcoming pages.

### 1/2. Environmental Assessment (EA)/Mitigation (2023/2024)

It is anticipated that a planned runway extension to meet TXDOT's minimum 'basic service' runway length as specified in TXDOT system plan will require an EA, and potentially environmental mitigation as a consequence. A 90 percent TXDOT grant is planned for this project. Costs (as a consequence of scope) for mitigation are unknown.

### 3. Acquire Fee Land (±27 Acres) for Southerly Runway Extension (2025)

An approximate 483 foot southerly runway extension for a total of 3,200 feet is planned. This configuration results in a recommendation to acquire approximately 27 acres in fee. Note that aircraft have 3,200 feet available for landing Runway 17 only and all other operations have 3,450 feet available. A 90 percent TXDOT grant is planned for this project.

### 4. Lower Trees within Acquired Property (2026)

Trees should be removed within the area described above to provide for a safe operating environment. Compliance with these standards though not compulsory, is reasonable practice. This project is planned to be completed with City work crews.

### 5. Lower Gas Line (2026)

A cursory utility inventory revealed a gas supply line of unknown size just south of current Airport property which may need to be relocated or lowered depending upon its current depth and owner permissions. A 90 percent TXDOT grant is planned for this project. Costs are currently unknown, but could be substantial.

### 6. Rehabilitate (To 60 Feet Wide) and Extend Runway 483 Feet to the South (2027)

An approximate 483 foot southerly runway extension for a total of to 3,200 feet is planned (3,450 feet for all operations except landing Runway 17). This improvement includes reconstruction and fixes for grades. A 90 percent TXDOT grant is planned for this project.

### 7. Install MIRL, PAPIs and Beacon (2028)

Installation of a Medium Intensity Runway Lighting (MIRL) system is planned along with a Precision Path Indicator (PAPI) system for each runway end. The runway edge lights help to make the Airport more of an all-weather facility and the PAPI landing aids provides visual

glideslope reference for landing pilots. The Beacon is planned for rehabilitation. 90 percent TXDOT grant is planned for this project.

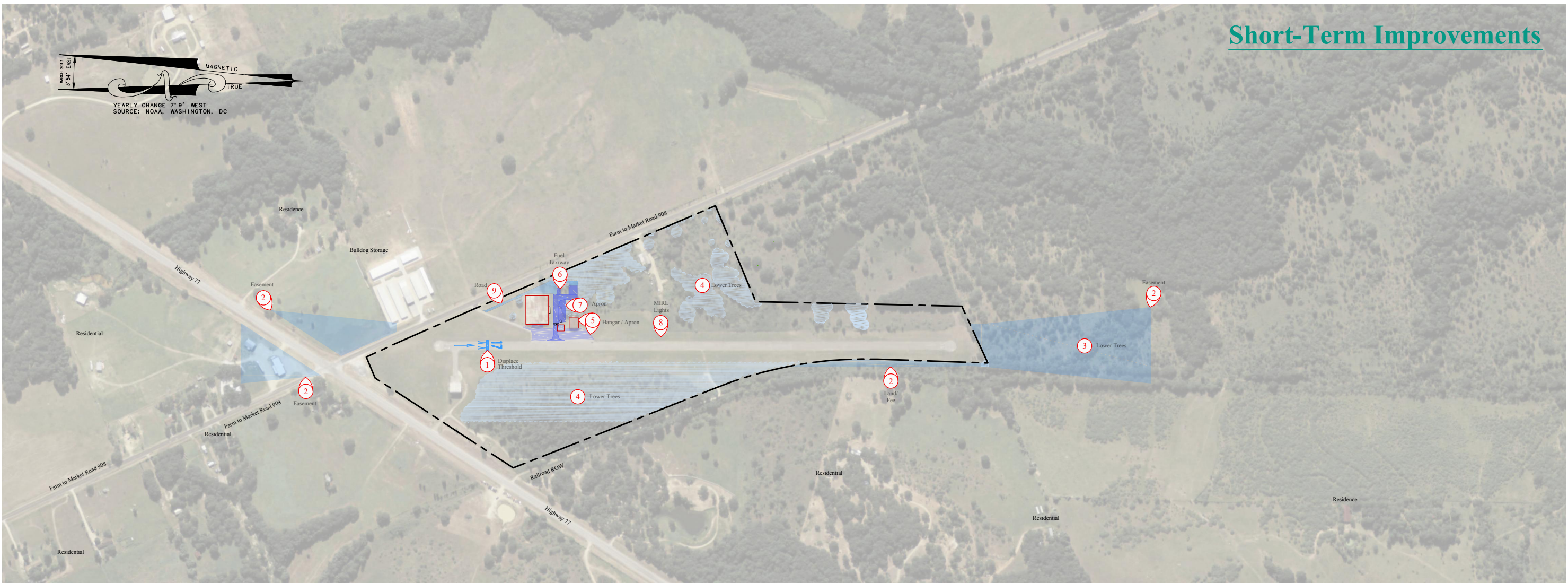
### 8. Construct Phase III Apron (2030)

This final apron area will provide for the additional forecast aircraft along with parking for fueling and overnighting. A 90 percent TXDOT grant is planned for this project.

### 9. Construct Perimeter Wildlife Fencing (2033)

Wildlife fencing will help to mitigate larger mammalian wildlife incursions and limit risk. A 90 percent TXDOT grant is planned for this project.

Exhibit LT at the end of this chapter depicts these items numerically-tabulated and referenced in plan view. These items total \$3,574,000, of which \$352,450 is planned for City of Rockdale participation.



Short-Term Improvements

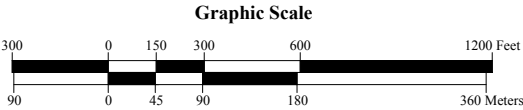
**Legend**

(E) Existing

Property Line

Existing Buildings

Short-Term Improvements (2013 - 2017)					
Number	Recommended Improvements	FAA	TxDot	City	Total
1	(2013) Displace (Mark) 17 threshold ±250' to clear 20:1 over Farm to Market Road 908	\$	\$ 20,250	\$ 2,250	\$ 22,500
2	(2014) Acquire Fee (OFA), (±1.2) Easement (±12 acres) for 17 and 35 RPZ		\$ 67,500	\$ 7,500	\$ 75,000
3	(2015) Lower Trees within acquired 35 RPZ			\$ 7,000	\$ 7,000
4	(2015) Lower On-Airport Trees			\$ 12,000	\$ 12,000
5	(2015) Raze smaller hangar (currently inside OFA), remove portion of existing apron		\$ 67,500	\$ 7,500	\$ 75,000
6	(2015) Construct access taxiway, relocate existing fueling system (currently within OFA)		\$ 459,000	\$ 51,000	\$ 510,000
7	(2016) Construct Phase I Apron; 625 sq. yds, (for maneuvering/fueling)		\$ 198,000	\$ 22,000	\$ 220,000
8	(2016) Construct MIRL		\$ 238,250	\$ 26,500	\$ 265,500
9	(2017) Relocate auto access road (currently within OFA)			\$ 17,000	
Totals:		\$	\$ 1,058,250	\$ 152,750	\$ 1,186,500



No.	Revision	Ckd	Date

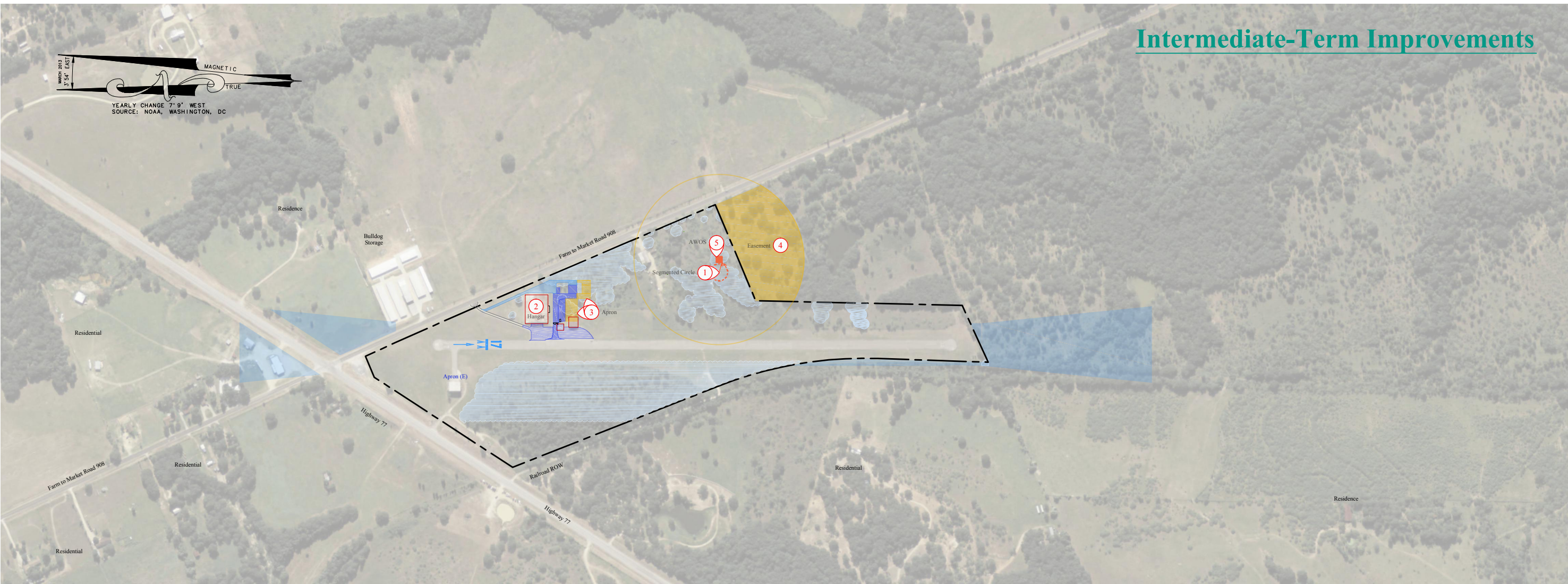
H.H. Coffield  
Regional Airport  
Rockdale, TX

ADG AIRPORT DEVELOPMENT GROUP, PC  
1776 South Jackson Street / Suite 900  
Denver, Colorado 80210-3802  
303.782.0882 / 303.782.0842 fax  
www.ADGairports.com

TxDOT Contract Number: 2X1A V064

Project No.: RCK1400M	SPM	MTP	SMP	Date: April 2013
Designed By:				
Drawn By:				
Approved By:				

Short-Term Improvements  
(Years 2013 - 2017)

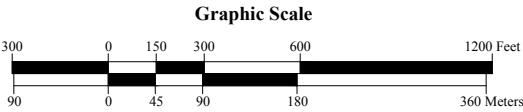


Intermediate-Term Improvements

**Legend**

(E) Existing  
Property Line  
Existing Buildings

Intermediate-Term Improvements (2018 - 2022)					
Number	Recommended Improvements	FAA	TxDot	City	Total
1	(2018) Relocate Segmented Circle (Currently within OFA)	\$	\$ 22,500	\$ 2,500	\$ 25,000
2	(2019) Raze Larger Hangar			\$ 27,500	\$ 27,500
3	(2020) Construct Phase II Apron - 1025 sq. yds, (itinerant apron)		\$ 252,000	\$ 28,000	\$ 280,000
4	(2021) Acquire Avigation Easement (±5.4 acres) for AWOS Critical Area		\$ 10,800	\$ 1,200	\$ 12,000
5	(2022) Install AWOS		\$ 180,000	\$ 20,000	\$ 200,000
6	(2022) Update ALD (Non-AGIS compliant) (not shown)		\$ 67,500	\$ 7,500	\$ 75,000
Totals:		\$	\$ 532,800	\$ 86,700	\$ 619,500



No.	Revision	Ckd	Date

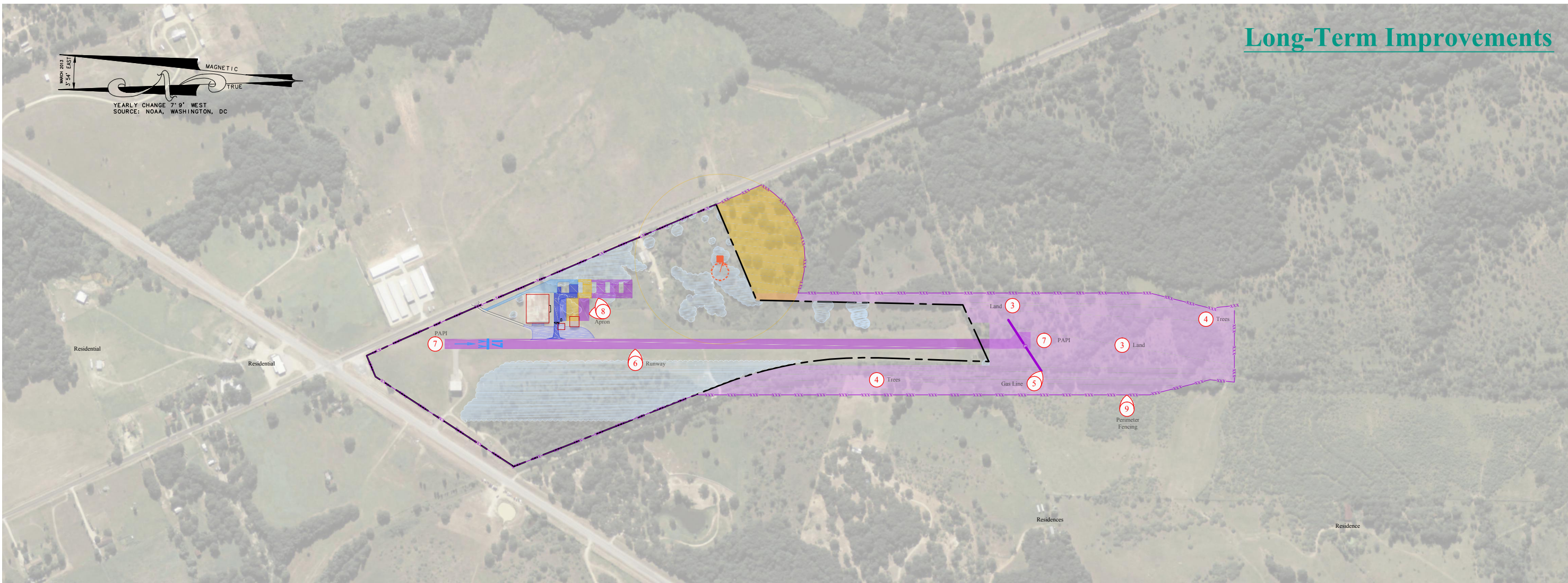
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Project No.:	RCK1400M
Designed By:	SPM
Drawn By:	MTP
Approved By:	SMP
Date:	April 2013

Intermediate-Term  
Improvements  
(Years 2018 - 2022)



Long-Term Improvements

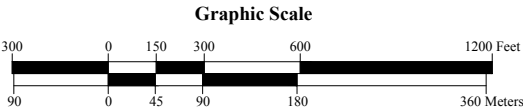
**Legend**

(E) Existing

Property Line

Existing Buildings

Long-Term Improvements (2023 - 2033)					
Number	Recommended Improvements	FAA	TxDot	City	Total
1	(2023) EA; Southerly Runway Extension (483' to 3,200') (not shown)	\$	\$ 76,500	\$ 8,500	\$ 85,000
2	(2024) EA mitigation (not shown)		Not Known		Not Known
3	(2025) Acquire Fee Land ( ±27 acres) for 483' Extension		\$ 175,500	\$ 1,950	\$ 195,000
4	(2026) Lower Trees within Acquired Property			\$ 14,000	\$ 14,000
5	(2026) Lower Gas Line		Not Known		Not Known
6	(2027) Rehabilitate Existing Runway (60' wide); construct 483' Extension (rehab will fix trans/long grade busts and build P-152 safety area)		\$ 1,462,500	\$ 162,500	\$ 1,625,000
7	(2028) Install MRL, PAPI and Beacon		\$ 531,000	\$ 59,000	\$ 590,000
8	(2030) Construct Phase III Apron (±1,750 square yards)		\$ 337,500	\$ 37,500	\$ 375,000
9	(2033) Construct Wildlife Perimeter Fencing		\$ 621,000	\$ 69,000	\$ 690,000
Totals:		\$ 0	\$ 3,204,000	\$ 352,450	\$ 3,574,000



No.	Revision	Ckd	Date

H.H. Coffield  
Regional Airport  
Rockdale, TX

**ADG** AIRPORT DEVELOPMENT GROUP, P.C.  
1776 South Jackson Street / Suite 900  
Denver, Colorado 80210-3802  
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TxDOT Contract Number: 2X1A1V064

Project No.: RCK1400M	SPM	MTP	SMP	Date: April 2013
Designed By:				
Drawn By:				
Approved By:				

Long-Term  
Improvements  
(Years 2023 - 2033)

Exhibit:  
**LT**  
of 4 Exhibits

# Update Airport Layout Plan Chapter Seven

## *Airport Layout Plan and Drawings*



## Chapter Seven – Airport Layout Plan and Drawings

---

### 7.0 Introduction

This chapter describes and depicts the necessary improvements derived from Facility Requirements and Phased Development and Cost Estimates chapters and shows airport features, not limited to: existing airfield and landside configurations, future developments, airport airspace, land uses and property ownership.

While the single-sheet ALP drawing shows most airport-related features, other necessary depictions, such as airspace limits and off-airport land uses are shown on separate drawings.

These drawings constitute the ALP drawing set:

Exhibit I	Airport Layout Plan
Exhibit II	Terminal Area Plan
Exhibit III	Runway 17 Approach Surface Plan and Profile
Exhibit IV	Runway 35 Approach Surface Plan and Profile
Exhibit V	Land Use Plan
Exhibit VI	Airport Property Map.

The ALP is a working document and represents an agreement between the City of Rockdale and the State of Texas.

This agreement primarily concerns design standards compliance, future development locations and obstruction disposition. On-airport development must be depicted on the ALP and it should be kept reasonably current. A reduced-size ALP along with and other drawings can be found at the end of this chapter.

### 7.1 Airport Layout Plan

The Airport Layout Plan (ALP) is a scaled graphic representation of existing and proposed airport development including pertinent clearance and dimensional information to show conformance with design standards (though conformance is not prerequisite or mandatory).

The ALP depicts the existing and recommended location and/or configuration of fiscally-constrained facilities proposed to accommodate the 20-year demand as discussed in the facility requirements chapter and synthesized through the planning process.

Short-term improvements primarily relate to limited standards compliance and tree removal, apron and road relocation. Proposed intermediate improvements continue with these efforts and include a new AWOS and relocated segmented circle. Proposed long term improvements include a runway extension to the TXDOT recommended minimum, land acquisition to accommodate the extension and airfield and navigational aid lighting.

The Airport Data Table provides basic information concerning airport elevation, airport reference point location, airport land ownership, etc. The Runway Data tables provide information such as airport role, approach surface information and end coordinates/elevations. A scale, legend, and north arrow orient the reader.

## **7.2 Terminal Area Plan**

A number of changes are depicted on the Terminal Area Plan for the H.H. Coffield Regional Airport. This drawing represents a closer-in view of the proposed landside improvements shown on the ALP. Airport and potential private hangar developments are planned for the short-, intermediate- and long-term, as well as a phased expansion of the existing hangar area. This general aviation area includes phased development for apron, hangar and other aviation facilities.

Phased facility construction, utility extension, auto access and parking area are planned. Improvements should be constructed as funding and demand allows and are planned to accommodate the expected activity. The proposed size and location in this regard are for planning purposes only and specific plans should be evaluated on a case-by-case basis for general conformance to the ALP.

## **7.3 Runway Plan and Profiles**

The Approach Surface and Inner-Approach Surface Plan and Profile drawings show the existing, future and ultimate approach surface configurations and their interaction with the airport and off-airport environs. The extended runway centerline ground profile and the critical point profiles are shown for terrain clearance purposes. Notable objects in this regard are shown in each plan and profile and tabulated with heights and disposition, as appropriate. These drawings are supplemental to the Airport Airspace Plan.

## **7.4 Land Use Plan**

The Land Use Plan identifies areas within and adjacent to airport property by zone and/or land use. Review for any residential development near the Airport should consider the Airport's proximity. Sensitive areas should continue to be protected by the existing City code to ensure compatible land use. Areas off the end of the runway ends are generally the most noise sensitive.

## **7.5 Airport Property Map**

The Airport Property Map shows areas of existing airport sponsor ownership and area proposed for ownership or release. The map also shows easements, buildings, apron, fences, roads and other features of concern. Tracts are shown for depiction purposes only and this map is not to be used for survey or land acquisition. Property information includes ownership, location, purpose, book and page.

## Chapter Seven – Airport Layout Plan and Drawings

---

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# H H Coffield Regional Airport

Rockdale, Texas



## *Airport Action/Business Development Plan Volume Two*

**H.H. COFFIELD**  
**REGIONAL AIRPORT**

PHONE  
**446-2511**



NIGHT  
**446-3436**

# Airport Action/ Business Development Plan Section One

## *Situation Analysis*



# ***Situation Analysis***

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## ***1.0 Introduction***

---

The City of Rockdale, through its agent – the Texas Department of Transportation, Division of Aviation - has retained Airport Development Group, Inc. to prepare a business action plan which recommends strategies that maximizes the “airport asset” for its community airport – the H.H. Coffield Regional Airport. The City, Airport Advisory Board and other key community constituent groups believe that the Airport is an underutilized asset and through investment to improve the airport environment and more aggressive marketing, the Airport can be part of the economic growth of Rockdale and Milam County, Texas.

A business action plan will assist the City of Rockdale with managing and developing the business side of the Airport in their desire to grow the business asset. This Plan is a companion document to the Airport Development Plan created in 2013 for the City through a TXDOT Aviation grant initiative. This plan identifies business opportunities for the Airport; as well as a review of the present management of the Airport.

In the following sections, a marketing program will suggest means to promote aviation revenue opportunities at the Airport as well as outlets to promote the Airport to aviation and non-aviation audiences to build support and value for the Airport as a regional business tool.

## ***1.1 General Background***

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The H.H. Coffield Regional Airport is located approximately 2.5 miles southeast of downtown Rockdale in Milam County at the intersection of US Highway 77 and Farm to Market Road 908. The airport is well-situated at the confluence of US Highways 77 and 79 to effectively serve a large triangular Texas metropolitan business market of Austin, College Station and Waco. The Airport is owned and operated as a general aviation airport by the City of Rockdale.

The City of Rockdale and the H.H. Coffield Regional Airport are well-positioned within this triangular region to become a prime business hub for commerce with a supporting airport to serve the region. This five-county area (Milam, Burleson, Brazos, Robertson and Williamson) has experienced modest population growth since 1990 and increasing retail sales which result from a strong, above average median household income.

The key to a strong and successful business action plan is the ability to review and determine the most appropriate business opportunities for H.H. Coffield Regional Airport. The plan will suggest to the Airport’s owner, the City of Rockdale, to how best define, and recruit, appropriate aviation business opportunities for the airfield and region, with a net gain of new businesses that produce more jobs and revenue for the region.

H.H. Coffield Regional Airport is at an elevation of approximately 474 feet. The Airport has eight based aircraft that contribute to approximately 2,400 annual operations as of the September 2011 annual inspection. All aircraft are single engine, but anecdotal observation has witnessed occasional turbine operations. Aircraft operations count consists of 1,600 local general aviation operations and 800 itinerant general aviation operations. Runway 17-35 is 2,962 feet long and 50 feet wide with unknown pavement strength. The runway is equipped with non-standard Low Intensity Runway Lights (LIRL) and markings and no VGSI, REIL, or airfield signage or supplemental wind cones.

The Airport encompasses approximately 41 acres dedicated to airport services, as well as future development. The Airport facilities include three hangars; and fuel service. The Airport does not offer any aircraft-related services, i.e. – flight instruction, aircraft rental, airframe and power plant maintenance.



An unidentified business jet lands at the H.H. Coffield Regional Airport in 2006.  
*Photo courtesy of TXDOT Aviation.*

## **1.2 Current Business Environment**

---

The business environment, in the H.H. Coffield Regional Airport Service Area, is affected by the growth and health of the national economy, the state economy, and the local economy. As we know, the business climate is constantly changing. The following is an overview of the current economic situation for business.

### **The Nation**

The U.S. economy expanded modestly in 2012, continuing the slow recovery seen since the recession ended in mid-2009. Although economic growth is expected to remain slow again this year, the Congressional Budget Office (CBO) anticipates that underlying factors in the economy will spur a more rapid expansion beginning in 2014.

Even so, under the fiscal policies embodied in current law, output is expected to remain below its potential (or maximum sustainable) level until 2017. By the CBO's estimates, in the fourth quarter of 2012, real (inflation-adjusted) Gross Domestic Product (GDP) was about 5.5 percent below its potential level. That gap was only modestly smaller than the gap between actual and potential GDP that existed at the end of the recession because the growth of output since then has been only slightly greater than the growth of potential output. With such a large gap between actual and potential GDP persisting for so long, the CBO projects that the total loss of output, relative to the economy's potential, between 2007 and 2017 will be equivalent to nearly half of the output that the U.S. produced last year.

The CBO expects that economic activity will expand slowly in 2013, with real GDP growing by just 1.4 percent. That slow growth reflects a combination of ongoing improvement in underlying economic factors and congressional fiscal tightening that has already begun or is scheduled to occur—including the expiration of a 2 percentage-point cut in the Social Security payroll tax, an increase in tax rates on income above certain thresholds, and scheduled automatic reductions in federal spending. That subdued economic growth will limit businesses' need to hire additional workers, thereby causing the unemployment rate to stay near 8 percent this year, the CBO projects. The rate of inflation and interest rates are projected to remain low.

After the economy adjusts in 2013 to the fiscal tightening inherent in current law, underlying economic factors will lead to more rapid growth, the CBO projects—3.4 percent in 2014 and an average of 3.6 percent a year from 2015 through 2018. In particular, CBO expects that the prior negative effects of the housing and financial crisis will continue to fade and that an upswing from the previous low levels of housing construction, rising real estate and stock prices, and increasing availability of credit will help to spur a virtuous cycle of faster growth in employment, income, consumer spending, and business investment over the next few years.

## **Texas**

The Texas economy continues to grow at a robust pace. The state's economy gained 355,600 nonagricultural jobs from February 2012 to February 2013, an annual growth rate of 3.3 percent compared with 1.5 percent for the U.S.

The state's nongovernment sector added 336,800 jobs, an annual growth rate of 3.8 percent compared with 1.9 percent for the nation's private sector.

Texas' seasonally adjusted unemployment rate fell to 6.4 percent in February 2013 from 7.1 percent in February 2012. The nation's rate decreased from 8.3 to 7.7 percent.

All Texas industries and the state government had more jobs in February 2013 than in February 2012. The state's construction industry ranked first in job creation, followed by mining and logging, leisure and hospitality, other services, professional and business services, and trade.

According to Site Selection Magazine, 40 percent of the new U.S. jobs created since June 2009 were created in Texas. The state was recognized by the publication in 2011 as offering the best climate to conduct business in the nation.

## **Milam County and Rockdale**

The county's economy is looking better, but significant job growth will lag behind an improving economy as the county's unemployment rate of 7.9 percent exceeds the current state unemployment figure of 6.3 percent. Local business remains cautious. Local leaders stated that they are hesitant to add workers even though some indicators suggest the worst of a year-old downturn may be over and the county's economy appears poised to move ahead.

In 2011, Milam County residents had a per capita personal income (PCPI) of \$32,003. This PCPI ranked 174th in the state and was 80 percent of the state average, \$40,147, and 77 percent of the national average, \$41,560. The 2011 PCPI reflected an increase of 3.2 percent from 2010.

The 2010-2011 state change was 5.0 percent and the national change was 4.4 percent. In 2001, the PCPI of Milam was \$21,729 and ranked 161st in the state. The 2001-2011 compound annual growth rate of PCPI for Milam County was 3.9 percent. The compound annual growth rate for the state was 3.2 percent and for the nation was 2.9 percent.

Within a 30-mile radius of Rockdale, community leaders and business owners have access to a trade region of more than 80,000 people. Many of these households have annual incomes exceeding \$50,000 – a potential indicator of disposable income available for aviation pursuits.

The community leaders want to continue to support existing employers while attracting new businesses that will contribute to the well-being of the area. "Quality of life" is a key ingredient for the people in Rockdale. It is very important that every effort is utilized to maintain and enhance the "quality of life." New business enterprises should fit the overall community goals.

The "quality of life" is enhanced by a low cost of living for the residents in the area and should be attractive for recruiting new business enterprises to the area. The lower cost of living will allow the residents to afford more with a lower salary. This should be a positive point for companies coming to the area.

Employment in Milam County is becoming more diverse. Emphasis is being placed, by economic development groups within the City and County, on the attraction/development of high tech

business enterprises. Opportunities exist to recruit businesses away from the metropolitan triangle of Austin, Bryan and Waco along with new business investment from outside the State of Texas.

**Table 1-1** lists the distribution of employment in Milam County.

<b>TABLE 1-1 DISTRUBUTION OF EMPLOYMENT SECTORS IN MILAM COUNTY</b>	
<b>Industry</b>	<b>% Share</b>
Education and Health Services	22.8%
Government	15.1%
Professional and Business Services	14.9%
Wholesale/Retail Trade	13.1%
Manufacturing	13.0%
Construction	10.4%
Agricultural, forestry and mining	8.3%
Trade, Transportation, Utilities	6.4%
Leisure and Hospitality	5.8%
Information and Other Services	1.1%

**Table 1-2** lists the major employers for Rockdale. The area's employment base has become more diversified. Healthcare and education, government and trade services remain the largest industries.

<b>TABLE 1-2 MAJOR EMPLOYERS IN ROCKDALE, TEXAS</b>	
<b>Company</b>	<b>Industry</b>
Walmart Supercenter	Retail
Renaissance Villa	Alzheimer home
Bland Construction	Construction
Brookshire Bros.	Grocery
Citizens National Bank	Banking facility
City of Rockdale	Municipality
Classic Bank	Banking Facility
Manor Oaks Nursing Center	Health Care
Veolia ES Industrial Services	Industrial
Perry & Perry Builders Inc.	Construction
Richards Memorial Hospital	Hospital
Rockdale Federal Credit Union	Financial
Luminant	Electric power

The H.H. Coffield Regional Airport can conveniently serve patrons for aviation services within a five county region – Milam, Brazos, Burleson, Robertson and Williamson. These five counties have a combined population of approximately 714,890.

**Table 1-3** lists the economic data of the five counties potential served by the H.H. Coffield Regional Airport market area.

<b>TABLE 1-3 COUNTY ECONOMIC DATA FOR THE H.H. COFFIELD REGIONAL AIRPORT AREA</b>					
	<b>Milam</b>	<b>Brazos</b>	<b>Burleson</b>	<b>Robertson</b>	<b>Williamson</b>
Population	24,157	200,665	17,291	16,545	456,232
Households	9,323	67,612	6,490	5,971	147,912
Median Household Income	\$39,751	\$37,161	\$42,679	\$38,397	\$71,346
Retail Sales	\$181,361, 000	\$2,119,149,000	\$42,679,000	\$115,236,000	\$9,918,009,000
% of Pop. Over 25	68%	47%	69%	67%	59%
% of HHold Inc. over \$50,000	41%	41%	45%	40%	69%
Non-Farm Businesses	418	3,765	306	275	8,055
Non-Farm Employees	4,180	53,932	2,511	2,608	116,345

The average household income for these five counties is \$45,867 compared to the \$49,392 state average.

### 1.3 Global Strategies

Demographics, economics, global competition, new technologies, communications, and new production methods are transforming the work place. The U.S. is becoming a service-based economy and is no longer the manufacturing center for the world.

Organizations are merging and downsizing with industrial and commercial programs being developed as worldwide partnerships or alliances. In the 1990s, the federal government budget for defense and aerospace was drastically reduced. The surviving aerospace companies and defense contractors were re-engineered to a blend of “military and nonmilitary business” to remain competitive. Companies are relocating from the large centers of commerce to smaller towns with lower labor cost and to areas where business incentives will produce lower operating cost.

Within the aviation sector, federal budget cuts and realignment of appropriations to support the nation’s commercial and general aviation airfields are placing increasing pressures upon the airport sponsors’ capacity to shoulder a greater burden of the financial share, or postpone investment, to maintain, or enhance, their airport.

## 1.4 Current Situation

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The market for business is global. Companies, large and small, are affected in all areas by global competition. The creation of the North America Free Trade Association linked the U.S. with Canada and Mexico as one homogenous market for the production and sales of goods and services. The combination of the technical skills of the U.S. and Canada along with the lower cost of labor in Mexico will allow for the production of high quality goods at competitive pricing. There is a movement to form the North American Union by 2020 which would allow the U.S., Canada, and Mexico to combine their economic strengths and be more competitive with China and the European Economic Union.

The manufacturing industry is reorganizing into smaller, more specialized units. The manufacturing industry is becoming broad, diverse, and segmented. It has found that there are increased global opportunities for U.S. products and this market wants quality products. Through the use of automation, U.S. companies have found that they can lower the cost of production and increase the quality of goods produced. The trend is for major companies to convert from mass production to lean production of specialty products. The key to this conversion will be keeping labor and operating cost lower and, at the same time, produce a quality product. There will be an increasing need for highly skilled workers and improved methods in quality control.

Due to enduring unemployment from the last recession, there appears to be an abundance of American workers. Unskilled and semi-skilled workers are plentiful and companies could easily fill their needs. The worker of today will not meet the needs of tomorrow's jobs. The jobs of tomorrow will require a better educated and a better-trained worker to meet the technical requirements of the job market.

Industry will be heavily recruiting to get the best employees for all areas of the country. The major manufacturing and production companies are downsizing and are outsourcing work that was previously done in their plants and factories. Smaller sub-contractors are taking on the responsibility for more of the production of parts and systems. For the past 18 years, the growth in employment in the U.S. has come from companies with less than 10 employees.

These smaller companies provide a specialized service for larger companies at a lower cost. Many individuals have found that with the new advances in communication and computer equipment, they can operate their companies from almost anywhere. Also, the concept of the "job" is changing drastically. The traditional 8-5 job as a career is being replaced, in many cases, by portfolio careers made up of contract, free-lance, part-time, consulting, and self-employment specialists. A generation ago, workers followed a rigid set of workplace rules, whereas employees today may not even have job descriptions. Below is a comparison of the typical job 30 years ago and today:

### **A Typical Job 30 Years Ago:**

- \* Fixed Position
- \* Long Term Employment
- \* Loyalty and security
- \* Limited job description
- \* Limited access to information
- \* Fixed Salary
- \* Conventional benefits
- \* Escalator type advancement

### **Today's Jobs Include:**

- \* Assignments
- \* Contracts
- \* Employee adds value to company
- \* Do whatever needs to be done
- \* Abundant access to information
- \* Fee plus share of profits
- \* Handle own benefits
- \* Career journey

## ***1.5 Future Situation***

---

Trends for the future will be centered on meeting customer satisfaction requirements through the use of new technology. Industry will have an increased need for highly trained workers and, at the same time, for lower production costs. There will be more emphasis on recruiting workers who can be trained to meet the requisite advanced skill sets. The American worker has established “quality of life” as a major goal in their professional and personal lives. Companies have found that they can lower their labor and production cost by relocating away from the major cities. Outsourcing of certain tasks and production has produced good quality products through lower costs. Communities like Rockdale are becoming more attractive destinations for relocated companies, and new companies who sub-contract to the major companies.

These smaller companies are looking for towns and communities that can offer lower cost labor, lower cost facilities, lower taxes, lower cost utilities, low crime rates, fewer environmental constraints, multi-modal transportation systems, access to universities and community education, and training programs. In order to attract and keep their management and staff, they are looking for areas that provide a better “quality of life” for the employee and their families.

## ***1.6 H.H. Coffield Regional Airport Strategies***

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Community leaders were interviewed to determine the overall strategy for this plan. The views of this group were diverse, but there was concurrence in regards to the following strategy:

### **Vision**

The vision for Rockdale is one where the culture and values will remain while the population and economy continues to grow. The community plans to support existing businesses and seek a broad and diverse base of companies and organizations that are in the technology and services sector. A strong consensus exists to invest in the H.H. Coffield Regional Airport to meet the general aviation needs of the region and attract aviation-related business that can be a stimulus for the local economy.

### **Mission**

The mission of the H.H. Coffield Regional Airport is to become a viable general aviation airport, and meet the needs of airport patrons and other general aviation interest in the community, and region. To achieve this mission, the City of Rockdale will be focused towards a commitment to airport improvement for its patrons and future customers in everything the Airport develops and performs. It is the goal of the airport community that the Airport grow and evolve into a facility that offers a wide ranges of amenities and services to support aviation in the region.

### **Goals**

In setting out to achieve its mission, the H.H. Coffield Regional Airport, and its sponsor – the City of Rockdale - seek to accomplish several key goals:

- Create an atmosphere which supports existing tenants, airport activities and embraces the benefits of aviation at the Airport;
- Plan for improvements necessary to meet the Airport’s needs, and maintain a safe operating environment;
- Dedicate appropriate reserve funds to maintain, and enhance, the Airport; and

- Support and promote current airport activities while recruiting appropriate aviation-related businesses or opportunities.

## **Objectives**

The business objectives for the H.H. Coffield Regional Airport can be quantified as follows:

### General Aviation Objectives

- Identify requirements to facilitate growth in corporate and general aviation; and
- Provide airport improvements to meet the needs and help existing owners.

### New Business Development Objectives

- Identify and target companies, aviation and non-aviation, that could locate at the Airport;
- Determine improvements required to meet needs of target companies; and
- Recruit new businesses to the Airport.

## ***1.7 Airport Development Plan***

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To facilitate the recruitment of additional industries and businesses to the H.H. Coffield Regional Airport, a quality airfield to support general and corporate aviation at the Airport is necessary. An Airport Development Plan (ADP) was finalized in 2013 and recommends a variety of improvements to the Airport to bring the facility into compliance with current Texas and FAA standards. This ADP is a companion document to this Airport Business Action Plan.

With improved, and safer, facilities, the Airport can offer competitive fees and lease rates at a significantly improved airport to attract both general and corporate aviation clientele.

## ***1.8 Business Tactics***

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The business tactics are based on the strategies, objectives, and goals of the H.H. Coffield Regional Airport. In the near term (2013-2016), the business tactics for the Airport should center on:

### *In the near term (2013-2016)*

- Optimize revenue on existing airport facilities and attract new tenants to generate additional new revenue through an effective business development program. It is an industry best practice that all revenue generated on the airport remain in the airport budget and be used to maintain, and enhance, the facility; and
- Identify and fund recommended improvements from the Airport Development Plan to improve utility and safety at the H.H. Coffield Regional Airport.

### *In the long term (beyond 2016)*

- Leverage local, state, and possibly federal, funds or grants to maintain and enhance the airport facility to be recognized as a modern, safe, and cost effective facility, while at the same time, meets the needs of its customers; and
- Retain annual profits sufficient to cover future capital projects, promote the Airport and recruit new tenants compatible with aviation-related services.

## ***1.9 Business Development***

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The community leaders of Rockdale have been seeking new business opportunities that fit the overall characteristics for their community. They have supported agencies for economic development and have supported the development of land for industrial business parks and commercial developments.

The City of Rockdale implemented a Comprehensive City Plan in February 2013. This planning document did not include any recommendations or provisions to include the H.H. Coffield Regional Airport into the City's comprehensive plan. A community airport should fit into the overall master plan of its sponsor's community and play an integral role in a multi-modal environment that attracts business investment to the community.

A 'Rockdale 2022 – Visioning Our Future' was a community exercise in prioritizing and scaling future civic improvements to create a better "quality of life" for its 5,643 residents. The 2012 plan was finalized for the City by TIP Strategies, Austin. Community feedback through this process indicated a preference for having a viable community airport in its economic development toolkit.

## ***1.10 Changing Aviation Environment***

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As federal and state governments emerge from the 2008-09 recession, austere budgeting and dwindling revenue streams have impacted personal growth and business investment across many commercial sectors. Aviation has been unable to escape this economic morass.

With decreasing funds and increasing demands by airports for necessary repairs and enhancements, the Federal Aviation Administration (FAA) initiated a comprehensive review of the nation's general aviation airports in May 2012. This study attempts to classify airports nationally based on FAA-created criteria.

The complete study may be obtained on the Internet at:  
[http://www.faa.gov/airports/planning\\_capacity/ga\\_study](http://www.faa.gov/airports/planning_capacity/ga_study)

Many aviation industry analysts, state aviation directors and airport operators are concerned that the direct outcome of this FAA-initiated study will be to reduce the federal obligation of the FAA to airports through its Airport Improvement Program (AIP) grant program. AIP grants are available annually to all airports listed in the FAA's National Plan of Integrated Airports System (NPIAS).

Through AIP, each NPIAS airport is scheduled to receive \$150,000 annually for use toward planning and engineering project scheduled on the airport's annual Airport Capital Improvement Program (ACIP). The airport sponsor is obligated to a 10 percent match when executing a project using AIP grant money.

The H.H. Coffield Regional Airport was created as a private airport many years earlier by Mr. H.H. Coffield, and then donated to the City of Rockdale after his death. The Airport was not granted inclusion to the NPIAS because it was a privately created airport, and thus will not qualify for FAA grant funds under the current guidelines.

If the City of Rockdale wishes to acquire outside grant funds to improve the Airport, these funds must come from the Texas Department of Transportation's Division of Aviation (TXDOT) state grant

program. This program is constrained as to the size and scope of projects it may offer to airports but some financial assistance is better than none in this economy.

### ***1.11 Political Situation***

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The H.H. Coffield Regional Airport is owned by the City of Rockdale after it was gifted to the City from the estate of Mr. H.H. Coffield. The Airport is located near some small ranches in county territory. Presently, the Airport is not in conflict with environmental regulations or stewardship. The biggest problem affecting the Airport is lack of infrastructure. The Airport does not have a sewer system and water is available only from an on-site well. This is not sufficient to support industrial development. The Airport and the County will need to solve this problem before any type of industry can locate at the Airport. Smaller aviation -related business similar to the FBO at the Airport can probably operate under the existing situation.

### ***1.12 Strategic Position for the Airport***

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The H.H. Coffield Regional Airport is classified as a general aviation airport. The Airport has the capability at the present time to handle general aviation, limited corporate aviation, and small aircraft charter service. The Airport will need to address major issues like facilities, incentives, resources, and competition to develop a position as prime general aviation airport in the region.

#### **Facilities**

The runway meets the operational minimum requirements of today's general aviation and very few corporate aviation aircraft. Other airport facilities will need to be expanded to accommodate new business. Presently, the Airport lacks available commercial building space or hangars for prospective tenants. New aviation-related business will want land with airport runway access. The Airport layout developed by Airport Development Group, Inc., consultant for the City of Rockdale, identifies current and recommended land-use and facility requirements. The Airport footprint is significantly constrained, which can be an impediment to new buildings and growth, and may require land acquisition.

The Airport Development Plan offers multiple scenarios for improvement opportunities to maintain current aviation standards with toward business development.

#### **Support**

A consensus appears to exist among city leaders, economic development, business owners and the airport community that improvements are needed at the H.H. Coffield Regional Airport. This same group wants the City of Rockdale to own and operate a viable and pro-aviation friendly facility. On the contrast, very few individuals have spoken in opposition to neither the airport nor wanting to invest public dollars into the facility.

How the improvements are to be paid opens a dialogue without specific solutions. The City has indicated that very few dollars are spent on the Airport, and accruing reserve funds to invest in major projects at the Airport has not been a priority by the City Council. The airport community has been lobbying the City regularly for continued investment to meet the basic needs of keeping the Airport viable and safe, i.e. – mowing the property, keeping the runway lights operable, maintaining a viable fuel delivery system to generate revenue for the Airport, and other items.

This continued support for the H.H. Coffield Regional Airport will result in a dialogue which creates solutions to improve the Airport and make it a valuable community asset.

## Available Resources

The City of Rockdale has contacted TXDOT regarding grant requirements to fund various projects. The City has indicated limited resources exist to invest at the Airport.

### 1.13 Competitive Situation

A unique, competitive market exists for the H.H. Coffield Regional Airport. Seven general aviation airports are located within a 50-mile drive of the Airport. This market fragmentation presents a strong marketing challenge for the City of Rockdale, owner of the Airport.

Of the seven airport competitors, five airports are similar in configuration and runway length to the H.H. Coffield Regional Airport. The other two airports are larger general aviation facilities that cater to both general and business aviation aircraft with longer runways.

A beginning piece to examine in the competitive mix is the universe of registered aircraft in the region between the eight airports. This aircraft count from the FAA's online database offers a quick snapshot between available registered aircraft and where these aircraft are based. This plan will not address the reasons why aircraft owners choose where to base their airports.

As an element of the FAA's Asset Study, based aircraft and operational activity will eventually be prime determinants to funding active and vibrant general aviation airports. The City of Rockdale can use this database tool to actively seek and recruit new aircraft to the H.H. Coffield Regional Airport.

**Table 1-4** is a comparison of registered aircraft in the county of the airport and based aircraft at each airport.

<b>TABLE 1-4 REGISTERED AIRCRAFT AIRPORT ANALYSIS BY COUNTY</b>		
<b>Airport</b>	<b>Registered Aircraft</b>	<b>Based Aircraft</b>
H.H. Coffield Regional Airport (RCK) Rockdale / Milam County	37	8
Taylor Municipal Airport (T74) Williamson County	436	47
Cameron Municipal Airpark (T35) Milam County	37	8
Hearne Municipal Airport (LHB) Robertson County	17	2
Caldwell Municipal Airport (RWV) Burleson County	26	9
Coulter Field (CFD) Bryan / Brazos County	202	67
Georgetown Municipal Airport (GTU) Williamson	436	195
Austin Executive (KEDC) Travis County	883	9

Based on this comparison, there are opportunities for the H.H. Coffield Regional Airport to recruit aircraft owners to base their aircraft at the Airport which in turn would generate interest for aviation-related service businesses to locate on the field, i.e. – FBO, flight instruction, airframe and power plant services, etc.

## ***1.14 Strengths, Weaknesses, Opportunities, Threats***

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### **S.W.O.T. Analysis**

A basic business analysis tool is the S.W.O.T. (strengths, weaknesses, opportunities and threats) Analysis. This tool can assist an organization shape its competitive viability in the marketplace.

The true value of S.W.O.T. is that it can be implemented across any business discipline. It is not just limited to marketing, but to finance, manufacturing and production, sales —any operational aspect.

The key benefit S.W.O.T. offers when applied across areas of an organization is a 360-degree view of the company, which helps create better focus for decision-making. When an organization has an understanding of its strengths, weaknesses, opportunities and threats, it has invaluable overall operational knowledge, and that becomes the foundation for understanding everything upon which a business strategy is derived.

In addition to its more common use as a competitive assessment and sales projection tool, S.W.O.T. can be used to gauge the viability of a new product or brand, a sales distribution channel, shifting suppliers, a new idea, entering a new market, working with a partner, a potential investment, or outsourcing an activity.

S.W.O.T. is a never-ending analysis process for an organization, and its frequency of review/analysis is dependent upon an organization's structure and business goals.

Where possible, an organization should analyze the four components of S.W.O.T., internally and externally. Try to use the competition as a benchmark, which will offer goals to work toward and better insight. The four S.W.O.T. components break down as follows:

- ***Strengths*** — What are the things you do well as an organization? What do you consider your competitive advantages to be and why? Why do customers come back to you? One way to understand this strength is through customer surveys. In each area, strengths can include everything from your people, pricing/services value and processes to your ability to innovate and your promotional culture.
- ***Weaknesses*** — Where have you not been able to compete and why? Where are your gaps in capabilities and resources? Are you cash-strapped, do you have supply chain or inventory issues or do your vulnerabilities negatively affect your reputation?
- ***Opportunities*** — This assessment really comes down to market or competitor research. For example - where are competitors and how do they compete against you? Where are the emerging markets in your industry or even peripheral markets where you might expand your presence? Looking internally and externally, opportunities may fall in areas like new technologies to streamline operations or offer products to consumers in new channels. Think in terms of new markets, product/services development and business development.
- ***Threats*** — External threats exist in the form of competitors, legislation/regulation that may affect your product, service or company, shifting consumer demand, environmental issues

and the economy. Also, organizational threats can have a devastating impact on business success, such as a disgruntled airport manager or frequent turnover from board members that impede forward thinking and planning to sustain the airport.

Among the many benefits of an S.W.O.T. analysis is that it forces organizations out of the day-to-day routine; where they see only the effects of weaknesses or threats and may not understand their long-term potential impact. If an organization takes the time to look at the big picture, it opens the vision for a clear path to change and to keeping your organization profitable or viable. The ultimate advantage is that any organization will be a stronger competitor in the marketplace.

A S.W.O.T. assessment for the H.H. Coffield Regional Airport would reveal, but is not limited, to some of these issues:

### **Strengths:**

- Location and easy access from surrounding region;
- Lack of physical impediments to air operations;
- Long-established airport;
- City of Rockdale owns the property debt-free;
- Strong community interest for active community airport;
- Active pilot community;
- Available acreage for expansion with minimal environmental impact;
- Ability to avoid noise impact issues for operations or property development; and
- Favorable terrain for the airport, and operating weather most of the year.

### **Weaknesses:**

- Airport lacks dedicated airport manager to keep focus on growth and service;
- Up to this point no long range planning to develop airfield or attract new businesses;
- Limited revenue opportunities to sustain and enhance facilities;
- Limited airport property infrastructure restricts future development;
- Infrastructure development will be expensive, and maybe environmentally challenging;
- Airport lacks air and non-side facilities for expansion or tenant recruitment;
- Future development will require collaborative partnerships from many sectors; and
- Multiple airports within close proximity compete for revenue, operations and based aircraft.

### **Opportunities**

- H.H. Coffield Regional Airport in best position of four area airports to grow and expand facilities, recruit business investment;
- Purchase of adjacent properties to expand and develop airport;
- Potential to develop limited airport property into revenue producing business development;
- Enhanced potential revenue stream with more aggressive fuel sells strategy and facility;
- Enhanced facilities enable successful recruitment of aviation-related businesses;
- Continued population and economic growth in region;
- Availability of grants and loan programs to support the airport's capital projects' plan;
- Low cost of doing business keeps Rockdale economically competitive for expansion; and
- Demand for GA facilities and services in the region remain steady.

### **Threats**

- Avoid the "build it and they will come" syndrome, plan for growth and seek investment;
- Lack of dedicated airport manager inhibits market awareness with competitors;
- Potential reduction, or loss, of state airport funding;
- Deteriorating airport infrastructure and lack of funding for remediation;
- How can airport survive with minimal city investment and no state funding?;

- Competing business park developments in the region;
- Available funding for infrastructure development to support property development;
- Personal agendas; and
- Multiple airports within close proximity compete for revenue, operations and based aircraft.

This analysis is not a one-time event but needs to be revisited each and every time a significant change occurs at the H.H. Coffield Regional Airport, or on a regular strategic plan schedule, that results in operational or financial impacts at the airport to its manager, airport board, membership ranks or relations with outside regulatory or funding partners.

A suggested strategy is to make this an annual function of the Airport Advisory Board to review the S.W.O.T. analysis and update as necessary to remain competitive and consistent with the marketplace and city finances.

The strengths, weakness, opportunities and threats analysis will point out existing advantages and disadvantages of the H.H. Coffield Regional Airport. The lack of development in the past may not be a disadvantage because the Airport is now free to create a land use plan that will fit current and future needs of the community as it continues to grow.

On the following page, **Table 1-5** offers a multi-element overview of the seven competing airports in the H.H. Coffield Regional Airport service area. This table provides a snapshot comparison of features and services that can assist the City of Rockdale adjust the needs of the aviation marketplace and create an action list of projects to accomplish that will make the Airport competitive with its regional neighbors.

**TABLE 1-5**  
**AIRPORT MARKET COMPARISON CHART**

	Rockdale (RCK)	Taylor (T74)	Cameron (T35)	Hearne (LHB)	Caldwell (RWV)	Bryan (CFD)	Georgetown (GTU)	Austin Exec (KEDC)
Distance from RCK	0	28	17	30	26	50	46	45
County	Milam	Williamson	Milam	Robertson	Burleson	Brazos	Williamson	Travis
Airport Owner	City of Rockdale	City of Taylor	City of Cameron	City of Hearne	City of Caldwell	City of Bryan	City of Georgetown	Privately owned
NPIAS	No	Yes	Yes	Yes	Yes	Yes	Yes	No
Based Aircraft <sup>1</sup>	8	47	8	2	9	67	195	9
Registered Aircraft in County <sup>2</sup>	37	436	37	17	26	202	436	883
RWY Length <sup>1</sup>	2962 x 50	4000 x 75	3200 x 50	4000 x 75	3252 x 50	4000 x 75	5000 x 100	6025 x 100
RWY Lights	LIRL	MIRL	MIRL	MIRL	MIRL	MIRL	MIRL	MIRL
Fuel	100LL	100LL / Jet A	100LL	None	100LL	100LL / Jet A	100LL / Jet A	100LL / Jet A
Service Hours	UNATTD	0800-1700	UNATTD	UNATTD	UNATTD	0730-1930	0700-1730	24 hrs
Local Transportation	None	Courtesy Car/ Taxi	Taxi	Courtesy Car/ Taxi / Rental	Taxi	Courtsey Car / Taxi	Courtsey Car	Courtsey Car / Rental
Food / Lodging	1 mi	.5 mi	2 mi	1.5 mi	1 mi	3 mi	1.5 mi	12 mi
Repairs Available	No	Yes	No	No	No	Yes	Yes	Limited
Flt Instruction	No	Yes	No	Yes	No	Yes	Yes	No
FBO	No	Yes	No	No	No	Yes	Yes	Yes
Annual Est. <sup>1</sup> Operations	2,400	26,100	1,500	5,700	2,700	16,200	127,000	2,700

<sup>1</sup> FAA 5010 Master Record

<sup>2</sup> FAA Registered Aircraft Database

# Airport Action/ Business Development Plan Section Two

## ***New Business Analysis***



# ***New Business Analysis***

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## ***2.0 Overview***

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This section of the Business Action Plan analyzes and recommends business activities that could be pursued by the H.H. Coffield Regional Airport, the City of Rockdale and Milam County in general.

The business opportunities analyzed have been developed using the “28 standard categories of business products and services” as presented by Business Week. These categories follow the Standard Industrial Classification system of the U.S. Department of Commerce, and were used in the comprehensive business situational review for the City of Rockdale, Milam County and at the H.H. Coffield Regional Airport. These categories cover all of the classifications for any type of business that operates in the U.S.

These categories include: Aerospace, Agriculture, Automotive, Banking, Business Services, Chemicals, Conglomerates, Consumer Products, Containers and Packaging, Discount and Fashion Retailing, Educational Services, Electrical and Electronics, Food, Fuel, Health Care, Housing and Real Estate, Leisure Time Activities, Manufacturing, Metals and Mining, Non-bank Financial, Office Equipment and Computers, Paper and Forest Products, Public Administration, Publishing and Broadcasting, Service Industries, Telecommunications, Transportation, Utilities and Power. The goal of the community is to help existing business expand and attract companies that fit well with the City of Rockdale.

The initial businesses in a community are consumer product and services companies and they generally include: Apparel Sales; Appliance Sales and Repair; Auto Parts, Auto Repair, and Auto Sales; Building Materials; Business Services; Electronic Products and Repairs; Food and Drug Stores; Floor Coverings; Furniture Sales; Hospitals and Nursing Homes; Hotels and Motels; Insurance Agencies; Medical and Dental Services; Real Estate Services; Restaurants; Service Stations; Stockbrokers; Tire Sales and Repair; Transportation services; and Travel Agencies.

The other business products and services in a community follow the geographical characteristics and attributes of an area. The attributes are historical and provide a general base for business. The natural attributes of Rockdale and Milam County tend to attract agricultural, government, technology, natural resources extraction and service industries. A strong rail (Burlington Northern/Santa Fe and Southern Pacific) and highway transportation system (Highways 77 & 79) helps place Rockdale and Milam County at a competitive advantage in attracting manufacturing and industrial companies.

**Table 2-1** lists the various categories of business products and services that are commonly located in a community.

<b>TABLE 2-1</b> <b>CATEGORIES OF BUSINESS PRODUCTS AND SERVICES</b>	
Aerospace/Aviation	Health Care
Agriculture	Housing and Real Estate
Automotive	Leisure Time Activities
Banking	Manufacturing
Business Services	Metals and Mining
Chemicals	Non-Bank Financial
Conglomerates	Not for Profit
Consumer Products	Paper and Forest Products
Containers and Packaging	Public Administration
Discount Fashion Retailing	Publishing and Broadcasting
Educational Services	Service Industries
Electrical and Electronics	Telecommunications
Food	Transportation
Fuel	Utilities

## 2.1 Current Situation in Rockdale and Milam County

Two industrial parks are located in Milam County. The Cameron Industrial Park is a 30-acre Greenfield site with rail access to Burlington Northern / Santa Fe routes. In Rockdale, the 170-acre H.H. Coffield Industrial Park is just north of the city on Farm to Market Road 487.

The Coffield site was donated to the City of Rockdale in 1987, along with the H.H. Coffield Regional Airport. The two sites are approximately six miles apart. The industrial site needs improved road access to US Highway 77 to make the site attractive for business attraction. A planned US Highway 79 by-pass along the northern edge of Rockdale would also make the site more attractive for business development. Regional transportation systems offer Interstate Highway access both east and west of Rockdale in less than an hour's drive.

The acreage at H.H. Coffield Regional Airport is limited for an industrial or business park at this time. As part of the Airport Layout Drawing (ALD) created within the Airport Development Plan, potential land use exists on the Airport's east side toward the south end of the property for potential building development with air-side access. At the present time, the Airport has one public hangar and two private tenants storing and operating general aviation aircraft. All of the existing facilities have runway access.

## 2.2 Business Products and Service in H.H. Coffield Regional Airport Area

Table 2-2 presents an inventory of business products and services currently located in the H.H. Coffield Regional Airport area listed by the standard categories developed by Business Week. Of the 77 categories of products and services, none are located at the airport; 43 are located within 30 minutes of the airport; and 34 are not located within the airport area. None of the business products, services, or manufacturing is located at the H.H. Coffield Regional Airport. The manufacturing categories require large facilities, large levels of semi-skilled workers, and access to parts and materials. Aerospace, electronics, and computers normally require easy access to metro areas and highly skilled workers.

**Table 2-2** lists an inventory of business products and services located in the area.

<b>TABLE 2-2 INVENTORY OF BUSINESS PRODUCTS &amp; SERVICES LOCATED IN THE ROCKDALE MARKET AREA</b>			
<b>Product/Service</b>	<b>At Airport</b>	<b>In Area</b>	<b>Not in Area</b>
Aerospace/Aviation; Government & DOD		X	
Aerospace/Aviation; Non-Government		X	
Agriculture; Production		X	
Agriculture; Processing		X	
Automotive; Parts Manufacturing			X
Automotive; Vehicle Manufacturing (vehicle)			X
Automotive; Sales and Service		X	
Automotive; Tire and Rubber		X	
Banks		X	
Business Services		X	
Chemicals			X
Conglomerates			X
Consumer Products; Apparel		X	
Consumer Products; Appliance and Furnishings		X	
Consumer Products; Beverages		X	
Consumer Products; Personal Care		X	
Containers and Packaging; Glass, Metal, Plastic		X	
Containers and Packaging; Paper		X	
Fashion		X	
Education; Services		X	
Education; College		X	

Electrical/Electronics; Electrical Products		X	
Electrical/Electronics; Electronics		X	
Electrical/Electronics; Instruments		X	
Electrical/Electronics; Semi Conductors			X
Food; Distribution		X	
Food; Processing			X
Food; Retailing		X	
Fuel; Coal			X
Fuel; Oil and Gas		X	
Fuel; Petroleum Services		X	
Health Care; Drug Manufacturing			
Health Care; Research		X	X
Health Care; Services		X	
Health Care; Medical Products		X	
Housing and Real Estate; Building Materials		X	
Housing and Real Estate; Construction		X	
Housing and Real Estate; Real Estate Sales		X	
Product/Service; Building Materials		X	
Product/Service; Construction		X	
Product/Service; Real Estate Sales		X	
Leisure Activities; Eating Establishments		X	
Leisure Activities; Entertainment		X	
Leisure Activities; Hotel/Motel		X	
Leisure Activities; Recreation Products			X
Manufacturing; Fabricated Metal		X	
Manufacturing; Furniture			X
Manufacturing; House ware			X
Manufacturing; Machine/Hand tools			X
Manufacturing; Primary Metals			X
Manufacturing; Rubber and Plastics			X
Manufacturing; Special Machinery			X
Manufacturing; Textiles			X
Metal and Mining			X
Non-Bank Financial; Financial Service		X	
Non-Bank Financial; Insurance		X	

**TABLE 2-2 (Continued)**  
**INVENTORY OF BUSINESS PRODUCTS & SERVICES**  
**LOCATED IN THE ROCKDALE MARKET AREA**

<b>Product/Service</b>	<b>At Airport</b>	<b>In Area</b>	<b>Not in Area</b>
Non-Bank Financial; Thrift and Loan		X	
Office Equipment and Computers; Business Machines/Services		X	
Office Equipment and Computers; Computers/Peripherals		X	
Office Equipment and Computers; Software Services		X	
Paper and Forest Products			X
Public Administration; Federal Government		X	
Public Administration; State Government		X	
Public Administration; Local Government		X	
Broadcasting		X	
Publishing and Printing		X	
Service Industries; Advertising		X	
Service Industries; Construction		X	
Service Industries; Engineering		X	
Service Industries; Distribution		x	
Service Industries; Consultants		X	
Service Industries; Other Services		X	
Telecommunications; Equipment and Services		X	
Telecommunications; Telephone companies		X	
Transportation; Airlines		X	
Transportation; Bus		X	
Transportation; Rail		X	
Transportation; Ship			X
Transportation; Truck		X	
Utilities & Power		X	

## ***2.3 Airport Tenants***

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All of the facilities and hangers on the airport property are currently occupied. In order to accommodate new tenants, new facilities will need to be built.

## ***2.4 Businesses Located Near the Airport***

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The area near the Airport is mostly open land for agriculture and small ranches. There are no manufacturing companies or industrial companies located near the Airport or planned to locate near the Airport in the near term. The only businesses in the proximity of the Airport are self-storage center located across from the Airport on the Farm to Market Road 908, and a restaurant northeast of the airport just off US Highway 77.

## ***2.5 Resources***

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As a publically-owned airport by the City of Rockdale, all expenses are born by the City. The City will need to develop funding strategies to finance the improvements required for the Airport to maintain industry compliance or attract new business opportunities.

## ***2.6 Incentives for Business***

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The State of Texas provides various incentives for the development and location of business in the area. Also, the City of Rockdale and its Municipal Development District (MDD) have incentive programs and fund to attract or assist local firms expand.

Financial aids include small business loans, industrial revenue bonds, tax-free leasing, and business and industry loans through the U.S. Department of Agriculture. Educational and training grants are available.

## ***2.7 Community Benefits***

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The “quality of life” and low cost of operation are the best selling points. The community has a low crime rate, good public education through the college level in the region, and lower cost housing. Good passenger air service and cargo service are available nearby at Austin-Bergstrom International Airport. The community leaders seem to favor new business for the area. The local economic development groups are seeking all types of businesses that will be compatible with the goals of the community. Upon review of customer requirements, the H.H. Coffield Regional Airport area should be an attractive area for relocation or the start of a business.

## ***2.8 Customer Requirements***

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The key to the recruitment of a new business to the H.H. Coffield Regional Airport area is the ability to meet the requirements of that business. The potential customer will create jobs for the area residents and contribute to the overall aviation demand at the airport. In various surveys that have been performed regarding relocation, the following are considered the most important requirements of the customer.

**Table 2-3** lists some of the critical elements necessary to successful recruitment and retention to business enterprises at the H.H. Coffield Regional Airport.

**TABLE 2-3  
KEY CUSTOMER REQUIREMENTS**

Low Cost Labor and Non Union Environment
Low Cost Land and Low Taxes
Pre-Constructed Facilities and Build to Suit
Limited Environmental Restrictions
Economic Incentive and Availability of Training Funds
Location that Offers "Quality of Life" for Employees
Transportation Access to Major Markets
Strong Air Passenger and Cargo Opportunities
Strong Community Support for Business

## 2.9 Market Trends

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The analysis of Rockdale, Milam County, and the H.H. Coffield Regional Airport market area indicates the market has a base of business centered on agriculture, government, technology, health care and service businesses. There is low cost land available for occupancy throughout the county. The population is stable and the area has an available work force of skilled and semi-skilled people. The area vocational and workforce development agencies can develop training programs for new companies that need to hire employees. The State of Texas is very aggressive in the recruitment and relocation of businesses to the state and offers a comprehensive package of incentives. The City has its own package of incentives to attract new business and the Airport should be positioned as an asset for new companies locating in the area.

## 2.10 Market Characteristics for Airport-Related Business

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There are certain products and services that are directly related to aviation service delivery. These products and services, by their nature, may be required to be located at the airport or near the airport. In reviewing various aviation guides and directories, a list of 52 aviation-related services has been identified.

In reviewing the list we found that, in most cases, many aviation-related products and services needed to be onsite or near the Airport. In our survey we identified that 39 of the 52 activities need to be at or near the airport. These activities are the service related businesses that support freight service and general aviation services. The companies provide services for general aviation. These products and services are totally dependent on the Airport.

We identified 13 activities that do not depend on an airport location to operate effectively. These products or services included manufacturing, engineering, training, publishing, and consulting. These products and services could be located at an airport or near an airport as long as the cost of operation is lower than a location away from the Airport.

## 2.11 Market Characteristics for Industrial Park Related Industries

As mentioned in the customer requirements section of this plan, the need for low cost land, low taxes, build-to-suit facilities, economic incentives, and limited environmental restrictions are the market drivers for companies to locate at the airport industrial park.

**Table 2-4** lists the location characteristics for aviation related businesses.

<b>TABLE 2-4 LOCATION CHARACTERISTICS OF AVIATION-RELATED PRODUCTS AND SERVICES</b>			
<b>Aviation Activity</b>	<b>Onsite at Airport</b>	<b>Near Airport</b>	<b>No Airport Requirement</b>
Accessory Manufacturers			X
Acoustics			X
Air Ambulance	X		
Air Cargo	X		
Air Charters	X		
Air Courier		X	
Air Taxi	X		
Aircraft Brokers			X
Aircraft Cleaning Services	X		
Aircraft Interior Design and Modification			X
Aircraft Manufacturer	X		
Aircraft Parts Manufacturer			X
Airframe Repair and Overhaul	X		
Associations/Clubs	X		
Automobile Rental	X	X	
Aviation Attraction	X	X	
Aviation Fueling	X		
Aviation Medical Services		X	
Avionics Distribution/Dealers	X	X	
Aviation Training	X	X	

**TABLE 2-4 (Continued)**  
**LOCATION CHARACTERISTICS OF AVIATION-RELATED**  
**PRODUCTS AND SERVICES**

<b>Aviation Activity</b>	<b>Onsite at Airport</b>	<b>Near Airport</b>	<b>No Airport Requirement</b>
Catering		X	
Component Design Engineering			X
Computer Software			X
Engine Repair and Overhaul	X		
Flight Planning Services			X
Freight Forwarder		X	
General Aviation Center	X		
Ground Equipment Manufacturer			X
Ground Equipment Repair			X
Government Agency	X	X	
Helicopter Charter	X		
Helicopter Repair/Overhaul	X		
Hotel		X	
Instrument Manufacturer			X
Instrument Repair	X	X	
Modification/Repair/Painting	X		
Pilot Training	X		
Publications (Aviation)			X
Restaurants/Food Service	X	X	
Safety and Emergency Equipment			X
Simulators		X	
Weather Services	X	X	X
Window, Windshield, Shade Repair			X

## **2.12 Market Segmentation**

The H.H. Coffield Regional Airport is dealing with a very broad and diverse market in its efforts to find companies that will relocate. The number of options available is numerous, widely scattered, and varied in their selection requirements. Some of the Airport's competitors are in a better position to serve certain segments of the market. Instead of competing everywhere, it is in the best interest of the Airport to identify the most attractive segments of the market that it can serve most effectively.

The market consists of companies that differ in their wants, resources, geographical location requirements, buying attitudes and practices. Industrial markets can be segmented by using variables such as: demographic variables, operating variables, business character, situational factors, and personal characteristics.

## Market Segmentation Variables

### Demographic

- Industry: which industry should we focus on?
- Company: what size companies should we focus on?
- Location: what geographical areas should we focus on?

### Operating Variables

- Technology: what customer technologies should we focus on?
- Customer capabilities: should we focus on customers needing many or few services?

### Character of the Business

- Power structure: should we focus on companies that are engineering dominated, financially dominated, marketing dominated, etc.?
- Nature of existing relationships: should we focus on companies and industries already represented in the county or go after the most desirable companies?
- Sales criteria: should we focus on companies that are high volume with many employees or on companies that are high tech and high income?

### Situation Factors

- Urgency: should we focus on companies that need a quick and sudden change of location?
- Specific application: should we focus on certain product or service applications rather than all applications?
- Size of client: should we focus on large or small clients?

### Personal Characteristics

- Buyer-seller similarity: should we focus on companies whose people and values are similar to ours?
- Attitudes toward risk: should we focus on risk-taking or risk-avoiding companies?
- Loyalty: should we focus on companies that show loyalty to their customers, suppliers, employees, and community?

Based on the market segment variables for Industrial Markets, the segmentation strategy for the airport market area should be centered on the following:

**Demographic** – The community is focusing their efforts on business development and attraction. Land is being set aside for industrial and commercial development. As the country emerges from the recession of 2008-2009, the opportunities to recruit new businesses will improve as companies seek to lower operating costs. The downturn of the economy may slow down relocations by business. Rockdale should recruit regional companies that are either already established in the Austin/College Station area or are familiar with doing business in the region. Companies from outside the region, or state, could be targeted from states that have stricter work rules or a much poorer quality of life.

**Operating Variables** - Fiber optic business telecommunications systems are a key component in the evaluation equation for businesses seeking to locate and Rockdale should make sure that service providers are in place to help fill that business need. The ability to use Internet, teleconferencing, and direct line access will be necessary for all businesses. Companies need immediate high speed telecommunications response from outside suppliers, delivery systems, and even internal company communications to meet their business objectives and immediate access to their customer base.

**Character of the Business** - Professional and technical companies have the greatest flexibility in locating. The city should look to adding to its existing areas of business to create a specialty niche or cluster for new types of businesses.

**Situation Factors** - In the short term, there should be a focus on companies that need a quick change of location. Companies seeking to leave the high-crime areas in the large metropolitan areas would be good candidates.

**Personal Factors** - The companies that the H.H. Coffield Regional Airport will attract, in most cases, are privately owned. The existing location of these companies is based on various business factors and the companies are close to where the owner wants to live. "Quality of life" is a key selling point of the recruitment package and this should be stressed.

Each of the business or industry types is profiled based on certain criteria to determine if this business or industry type meets the goals and objectives of the community. The development of the profile is based on the business attributes of Rockdale, Milam County and the H.H. Coffield Regional Airport area.

The key business attributes include lower cost land, lower cost labor, a pool of skilled labor, lower cost housing, land available for small or mid-size business, pro-business environment, access to vocational/technical schools, community college and university facilities along with close proximity to a viable community airport, and good access to metropolitan markets. Each of the business or industry types is matched against the business attributes of the region to find which segment presents the best target of opportunity.

## **2.13 Business Selection Criteria**

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Each of the business or industry types is profiled based on certain criteria to determine if this business or industry type meets the goals and objectives of the community. The development of the profile is based on the business attributes of Rockdale, Milam County and the H.H. Coffield Regional Airport area.

As noted in Section 2.12, each of the business or industry types is matched against the business attributes of the region to find which segment presents the best target of opportunity.

**Table 2-5** lists business attributes of market area.

<b>TABLE 2-5 BUSINESS ATTRIBUTES OF MARKET AREA</b>										
<b>Business/Industry</b>	<b>Low-Cost Land</b>	<b>Low-Cost Labor</b>	<b>Low-Cost Housing</b>	<b>Skilled Labor</b>	<b>Low-Cost Utilities</b>	<b>Facilities and Land Available</b>	<b>Access to Metro Markets</b>	<b>Access to Higher Education</b>	<b>Limited Environ. Restrictions</b>	<b>Fits Community Objectives</b>
Aviation	X	X	X	X	X	X	X	X	X	X
Agriculture; Production	X	X	X		X	X			X	
Agriculture; Processing	X	X	X		X	X	X		X	X
Automotive; Manufacturing	X	X	X	X	X	X	X		X	
Parts Manufacturing	X	X	X	X	X	X	X		X	
Automotive; Sales/Service	X	X	X	X	X	X				X
Banking	X	X	X	X	X	X	X	X		X
Business Services	X	X	X	X	X	X	X	X		X
Chemicals	X	X	X	X	X	X	X		X	
Consumer Services; Apparel	X	X	X		X	X				
Consumer Services; Containers	X	X	X		X	X	X			X
Consumer Services; Beverages	X	X	X		X	X	X		X	X
Consumer Services; Appliances	X	X	X		X	X			X	
Educational Services	X	X	X	X	X	X	X	X		X
Electronics; Assembly	X	X	X	X	X	X	X		X	X
Electronics; Manufacturing	X	X	X	X	X	X	X	X	X	X
Food; Distribution	X	X	X		X	X	X		X	X
Food; Processing	X	X	X		X	X	X		X	
Fuel/Energy Products	X	X	X	X	X	X			X	
Healthcare; Research	X	X	X	X	X	X	X	X	X	X
Healthcare; Production	X	X	X	X	X	X	X	X	X	X
Healthcare; Services	X	X	X	X	X	X	X	X	X	X
Housing Materials	X	X	X		X	X	X		X	

**TABLE 2-5 (Continued)**  
**BUSINESS ATTRIBUTES OF MARKET AREA**

<b>Business/Industry</b>	<b>Low-Cost Land</b>	<b>Low-Cost Labor</b>	<b>Low-Cost Housing</b>	<b>Skilled Labor</b>	<b>Low Cost Utilities</b>	<b>Facilities and Land Available</b>	<b>Access To Metro Market</b>	<b>Access To Higher Education</b>	<b>Limited Environ. Restrictions</b>	<b>Fits Community Objectives</b>
Leisure Time; Entertainment	X		X	X	X	X	X	X		X
Leisure Time; Rec. Products	X	X	X	X	X	X	X	X		X
Manufacturing; Metal	X	X	X	X	X	X	X		X	
Manufacturing; Furniture	X	X	X	X	X	X	X		X	
Manufacturing; House wares	X	X	X	X	X	X	X		X	
Manufacturing; Machine Tools	X	X	X	X	X	X	X		X	
Manufacturing; Plastics	X	X	X		X	X	X		X	
Manufacturing; Textiles	X	X	X		X	X	X		X	
Metals and Mining	X	X	X	X	X				X	
Non-Bank Financial	X	X	X		X	X	X	X		X
Office Equipment/Computers; Business Machines	X	X	X		X	X	X	X	X	X
Office Equipment/Computers; Personal Computers	X	X	X		X	X	X	X		X
Office Equipment/Computers; Software	X	X	X		X	X	X	X		X
Paper Products	X	X	X		X		X		X	
Publishing and Broadcasting	X	X	X		X	X	X	X		X
Service Industries; Construction	X	X	X		X	X			X	
Service Industries; Distribution	X	X	X		X	X	X			X
Service Industries; Consulting	X		X		X	X	X	X		X

**TABLE 2-5 (Continued)**  
**BUSINESS ATTRIBUTES OF MARKET AREA**

<b>Business/Industry</b>	<b>Low-Cost Land</b>	<b>Low-Cost Labor</b>	<b>Low-Cost Housing</b>	<b>Skilled Labor</b>	<b>Low-Cost Utilities</b>	<b>Facilities and Land Available</b>	<b>Access to Metro Markets</b>	<b>Access to Higher education</b>	<b>Limited Environ. Restrictions</b>	<b>Fits Community Objectives</b>
Service Industries; Printing and Advertising	X	X	X	X	X	X	X	X	X	X
Telecommunications; Equipment	X	X	X	X	X	X	X	X		X
Telecommunications; Services	X	X	X	X	X	X	X	X		X
Transportation; Aviation	X	X	X	X	X	X	X	X	X	X
Transportation; Motor Coach	X	X		X	X	X	X		X	X
Transportation; Rail	X	X		X	X	X	X	X	X	X
Transportation; Trucking	X	X		X	X	X	X	X	X	X
Tourism	X	X		X	X	X	X	X		X
Utilities; Electric	X	X	X	X	X	X	X	X	X	X
Utilities; Water	X	X	X	X	X	X	X	X	X	X
Utilities; Gas	X	X	X	X	X	X	X	X	X	X

## 2.14 Target Markets

The market segmentation analysis revealed the opportunities for the market area by Business and Industry Type. The various segments have been evaluated by segment size and growth; by segment attractiveness; and by objectives and resources of the community.

Based on the business segmentation criteria data presented on the previous pages, the areas that show growth; attractiveness; and best fit the objectives and resources of Rockdale and Milam County are: agriculture, banking, business services, educational services, healthcare, leisure time products, light manufacturing, non-bank financial, office equipment, publishing, printing, telecommunications, tourism, and utilities. Listed below are the primary target areas:

**Agricultural** - This has been the basic industry for the region for many years. Community leaders will not have to go far to find companies and organizations in this field.

**Banking and Non-bank Financial Services** - As Austin is the key community in the region, it is the natural banking center for the area. Non-bank financial services can include telemarketing center for credit cards, mortgages, and consumer loans. "Quality of life" is key to this area.

**Business Services** – This industry has done well in the regions area due to the above average median household incomes. Companies in this area include engineering, consulting, architects, environmental, and marketing.

**Educational and Training Services** - The primary companies in this business area engage in providing educational development and services in training and development. These companies provide training hardware, training software, off-the-shelf published material, and provide seminars and conferences for this \$235 billion market. This field of business is seeking low cost operations and presently operates in suburban areas.

**Health Care Services** – Rockdale already has good health care facilities and facilities for all ages. With the cost of senior care and senior housing increasing dramatically, the lower cost of living and available labor force in Rockdale should allow for a competitive advantage. The quality of life should be attractive to retirees.

**Publishing and Printing** – The pool of skilled workers in the region is attractive for this industry. Rockdale's location in the middle of the regional triangle would allow it to compete favorably with the larger metro areas of Austin, College Station and Waco with its combination of highways and airport access.

**Telecommunications** - This is already a key industry for the area. Lower cost facilities and access to lower cost labor is key to this business. Manufacturing and services can both be developed in the Rockdale area.

**Tourism** – The geography and physical attributes of an area are key for tourism. The history of Rockdale is actively promoted and offer tourism opportunities. Air tourism is a growing segment of the aviation industry. Unique locations such as the historic Beaumont Hotel and Airport in Beaumont, Kansas, offer pilots a unique dining and lodging experience. Rockdale could create similar destination packages using local partners, i.e. – The Rainbow Courts, to compliment services for tourists at the Airport.

**Utilities** – Generation of power is usually in remote areas and the distribution can be key to the development of the area. Manufacturing of utility equipment could be a good opportunity for the region. Texas is the most intensive wind energy development region in the Western Hemisphere, and opportunities are present to recruit manufacturing or training firms to settle in the region.

Each of these target markets require specific marketing plan for any successful business recruitment by the City of Rockdale. The marketing plan will also present ideas on how to attract these target companies to Rockdale.

## 2.15 Business Opportunities for H.H. Coffield Regional Airport

The airport property that has access to the runways and taxiways will be very attractive to aviation-related companies. As noted on the ALD, the city will have to address how best to provide ramp access and facilities that can be built to suit the tenant needs.

The aviation business area of this Business Plan has been segmented into 48 products and services for the H.H. Coffield Regional Airport market. Of the 48 products and services, only two are presently at the Airport. Two are near the Airport and the other 42 opportunities are not in the area. This provides great opportunities for the Airport.

The aviation-related products and services that would best fit the business objectives and resources of H.H. Coffield Regional Airport include: general aviation and corporate hangars, maintenance repair operations, aviation training, and aviation and aircraft equipment manufacturing.

**Table 2-6** shows the aviation related products and services that would best fit the business objectives and resources of H.H. Coffield Regional Airport.

<b>TABLE 2-6 TARGET AVIATION AND AIRLINE-RELATED PRODUCTS AND SERVICES FOR H.H. COFFIELD REGIONAL AIRPORT</b>			
<b>Activity</b>	<b>Onsite at Airport</b>	<b>Near Airport</b>	<b>Not at Airport</b>
Accessory Manufacture			X
Acoustics			X
Air Ambulance			X
Air Cargo			x
Air Charters			X
Air Taxi			X
Aircraft Broker			X
Aircraft Cleaning			X
Aircraft Modification			X
Aircraft Maintenance			X
Aircraft Manufacturer			X
Aircraft Storage	X		
Airframe Repair			X
Associations			X
Auto Parking Lot			X
Auto Rental			X
Aviation Attraction			X
Aviation Fueling	X		

Aviation Medical			X
Aviation Training			X
Avionics Repair			X
Catering		X	
Cargo Facility			X
Electrical Repair			X
Engine Repair			X
Fire Crash Rescue		X	
Flight Planning			X
Freight Forwarder			X
General Aviation Center			X
Gift/Retail Shop			X
Government Agencies			X
Ground Equipment Manufacturer			X
Ground Equipment Repair			X
Helicopter Repair			X
Hotel			X
In-Flight Training			X
Instrument Manufacturer			X
Instrument Repair			X
Maintenance Training			X
Terminal			X
Pilot Training			X
Repair & Painting			X
Reservations Training			X
Restaurant			X
Safety Equipment Manufacturer			X
Security Training			X
Simulator Training			X
Weather Service			X
Window Repair			X

## ***2.16 Aviation-Related Business that Need Airport Access***

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The various aviation business options that need airport access to conduct business can be combined into four business opportunities:

1. General Aviation and Corporate Aviation - Fuel sales, aircraft sales, hangar rental, and corporate aircraft servicing.
2. Maintenance Repair Operation – Airframe repair and painting, avionics and instrument repair, electrical repair, and engine repair.
3. Aviation Training Center – Pilot training and maintenance training.
4. Operations Center – supports various aviation programs that need hangar and office space.

### **General Aviation and Corporate Aviation**

H.H. Coffield Regional Airport needs to explore recruitment of a FBO service and a facility to handle corporate aircraft operations. Established companies in the area present a great opportunity for charter flights and corporate aircraft storage. Aircraft fueling, aircraft cleaning, and aircraft catering can be provided by the fixed base operator. Air Ambulance service may also be needed to support the hospital and medical services community. Eventually, a helicopter or tour-type aircraft could be utilized for air tours of the area.

### **Maintenance Repair Operation**

If the H.H. Coffield Regional Airport had a full time Maintenance, Repair and Overhaul (MRO) facility, it would have a substantial competitive edge over several of the closest competing airports in its market service region. This increased service demand could drive a greater need for hangar space and more flights at the airport. Another business opportunity that may work for H.H. Coffield Regional Airport is the aircraft modification business. With the increased use of private aircraft by businesses due to security concerns, there is also a need for more aircraft upgrades and modification. Almost all of the conversion work will be interior modifications. A company engaged in this business will need a hangar large enough to contain a piston or turbine aircraft and office space to house the staff. Runway access is mandatory for this service business.

### **Aviation Training Center**

There is a large demand in the industry for maintenance and operations people. Most of the people in this field have been trained through technical schools and community colleges. Development of a local curriculum through a joint venture with the Airport and established educational provided could be oriented toward aircraft maintenance, pilot training, flight training, airport operations, security training, and a program for fire, crash, and rescue. Many of these aviation training programs can be conducted off-airport with follow-up field course work at the Airport. Federal or state funds may be available for the development of this program.

### **Operations Support**

Another potential client for the H.H. Coffield Regional Airport is Operational Support businesses. The Civil Air Patrol, Law Enforcement and Military require operational support to base aircraft and staff in support of their missions. The H.H. Coffield Regional Airport offers easy access and available land to support facilities for these and other similar operational support.

## 2.17 Aviation-Related Business that Do Not Need Airport Access

Many aviation product and service providers do not need to be located at the Airport. The review of the business opportunities indicated that there are 13 aviation-related businesses that do not need to have airport access. These activities included; aircraft broker, aircraft parts manufacturer, component design engineering, aviation computer software, engine repair and overhaul, charter services, ground equipment repair, flight training, maintenance training, aviation publications, corporate office, safety and emergency equipment, and simulators.

The FBO can take on the role as the aircraft broker for the area. The engine repair can be done by the MRO and the training can be done by an authorized vocational institute. None of the other aviation functions fit the H.H. Coffield Regional Airport profile.

## 2.18 Additional Business Opportunities for the H.H. Coffield Regional Airport

**Table 2-7** lists the aviation-related products and service opportunities for H.H. Coffield Regional Airport. Based on review, the Airport is unique in that it can meet the requirements of all of the aviation-related businesses and most all of the non-aviation related businesses that locate near airports.

<b>TABLE 2-7 AVIATION AND AIRLINE-RELATED PRODUCT AND SERVICE OPPORTUNITIES FOR THE H.H. COFFIELD REGIONAL AIRPORT</b>	
<b>Activity</b>	<b>Opportunity for Airport</b>
Air Ambulance	Yes
Air Cargo Service	No
Aircraft Broker	Yes
Aircraft Cleaning Service	Yes
Aircraft Manufacturer	No

**TABLE 2-7 (Continued)**  
**AVIATION AND AIRLINE-RELATED PRODUCT AND SERVICE**  
**OPPORTUNITIES FOR THE H.H. COFFIELD REGIONAL AIRPORT**

<b>Activity</b>	<b>Opportunity for Airport</b>
Aircraft Parts Manufacturer	Yes
Airframe Repair and Overhaul	Yes
Aviation Training School	Yes
Catering/ Food Service	Yes
Component Design Engineering	Yes
Computer Software	No
Electrical Repair	Yes
Engine Repair and Overhaul	Yes
Flight Planning Services	No
Freight Forwarder	No
Ground Equipment Manufacturer	Yes
Ground Equipment Repair	Yes
In-flight Training	Yes
Instrument Manufacturer	Yes
Instrument Repair	Yes
Maintenance Training	Yes
Pilot Training	Yes
Publication	No
Reservations Training	Yes
Regional or Charter Airline Corporate Office	No
Regional or Charter Airline Maintenance Base	No
Safety and Emergency Equipment Manufacturing	Yes
Security Training	Yes
Scheduled Passenger Service	No
Simulator	Yes
Window, Windshield Repair	Yes

## 2.19 New Business Enterprises

Based on experience at other airports, the non-aviation businesses that may be interested in locating at an airport, or airport industrial park, are small manufacturing or service-related companies that would employ from 10 to 50 people. Annual payroll for this type of company would range from \$300,000 to \$1.5 million.

A multi-use building would be an attractive incubator to recruit small enterprises that perform specialty services. Attorneys, accountants, consultants, architects, financial services, marketing companies, and computer support companies that specialize in aviation are examples of jobs that would be candidates for this type of building. These companies will range from 1 - 10 employees. Annual payroll could range from \$50,000 to \$300,000 per year. It is not known at this time what companies would consider locating at the Airport. Listed below is scenario of various size companies that could locate in the Airport industrial park and the potential new business revenue from these ventures.

**Table 2-8** Identifies examples of potential Business for the Airport.

<b>TABLE 2-8 EXAMPLES OF POTENTIAL BUSINESS FOR THE AIRPORT</b>			
<b>Business</b>	<b>Annual Revenue</b>	<b>No. of Jobs</b>	<b>Annual Payroll</b>
FB0/Corporate Aviation	\$2 Million	8	\$350,000
Maintenance Repair	\$5 Million	15	\$750,000
Aviation Training (flight, repairs, etc.)	\$5 Million	15	\$1,000,000
Aviation Product	\$10 Million	40	\$1,600,000

## 2.20 Economic Impact

TXDOT calculated the economic impact of all Texas airports in 2011. This calculation combines direct airport costs with project indirect revenue generated from airport activities, i.e. – fuel purchase, aircraft rental, lodging, dining and shopping, cost of doing business within the market area.

TXDOT calculated the state's economic impact for its airports at \$14.6 billion annually. The impact values generated for each community is an important value to communicate to community stakeholders, elected officials and local media as a benchmark for the vitality and quiet 'impact' an airport has on its community. Many airport sponsors are never aware of this value, or do not use it enough to demonstrate the value of having a community airport.

**Table 2-9** lists a comparison of economic impact of the seven competing airports within the service area of the H.H. Coffield Regional Airport.

**TABLE 2-9  
REGIONAL ECONOMIC AIRPORT IMPACT**

<b>Airport</b>	<b>Jobs Supported</b>	<b>Salary, Wages &amp; Benefits</b>	<b>Economic Impact</b>
<b>H.H. Coffield Regional Airport</b>	<b>2</b>	<b>\$82,958</b>	<b>\$187,293</b>
Caldwell Municipal Airport*	1	N/A	\$51,748
Cameron Municipal Airpark	2	\$236,000	\$123,441
Hearne Municipal Airport*	.5	N/A	\$12,937
Taylor Municipal Airport*	N/A	N/A	N/A
Bryan – Coulter Field	49	\$2,242,120	\$7,813,759
Georgetown Municipal Airport	227	\$9,872,319	\$23,738,564
Austin Executive Airport (Private)	N/A	N/A	N/A
*Information Estimated from TXDOT.			
<b>Total Impacts</b>	<b>281.5</b>	<b>\$12,433,397</b>	<b>\$31,927,742</b>

## ***2.21 Capital and Assets Required***

The companion Airport Development Plan created by Airport Development Group, Inc., has created a capital improvement project list and estimated project cost spreadsheet.

These estimates can form the basis of creating a priority list to bring the Airport up to industry compliance and plan for developments that can attract new business investment at the H.H. Coffield Regional Airport.

The City of Rockdale will need substantial funds to move ahead with the project list. The H.H. Coffield Regional Airport is not eligible for Federal funding through the FAA. The Airport is eligible for airport improvement grants through TXDOT.

However, the City may be eligible for federal and state economic development grants for creating new infrastructure and facility construction in its pursuit of new business. At the federal level, the U.S. Department of Commerce, and U.S. Department of Agriculture have grant funds available for individual businesses. Also, the similar agencies at the State of Texas have development grants available.

# Airport Action/ Business Development Plan Section Three

## *Marketing Action Plan*



# ***Marketing Action Plan***

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## ***3.0 Management Approach***

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The H.H. Coffield Regional Airport is presently classified as a general aviation airport. The Airport has the capability at the present time to handle general aviation and limited, small-sized corporate aircraft. The Airport will need to address major issues like facilities, incentives, resources, and competition to develop a position as a prime general aviation airport in the region.

This Chapter of the Business Action Plan will suggest marketing strategies to be utilized for the attraction of aviation patrons and new businesses that require airport facilities. It is critical for the City of Rockdale, the Airport and its advisory board to heed directives from the FAA and TXDOT when making changes in the Airport's organizational structure and business practices toward achieving self-sustaining revenue streams to remain eligible for future funding opportunities from these agencies.

## ***3.1 Organization of the H.H. Coffield Regional Airport***

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Presently, the H.H. Coffield Regional Airport does not employ a dedicated airport manager, and operational decisions are made by the City Manager or Public Works Director. The Airport Aviation Board is comprised of local volunteers to collaborate with the City on policy, operational and facilities issues at the airport. The Rockdale City Council typically follows the recommendations of the Advisory Board and the City Manager on airport-related issues or projects.

The City Manager is the established point-of-contact for the Airport with TXDOT, the FAA in limited interactions, the general public and aviation patrons.

At some point in the near future, the hiring of an airport manager, whether part or full-time, as a city employee or independent-contract operator will be a significant step towards establishing a more professional managerial approach to operating the Airport.

## ***3.2 Situation Analysis***

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A quick review of the airport environment:

The H. H. Coffield Regional Airport is located approximately 2.5 miles southeast of downtown Rockdale in Milam County at the intersection of U.S. Highway 77 and Farm to Market Road 908. The Airport is well-situated at the confluence of U.S. Highways 77 and 79 to effectively serve a large triangular Texas metropolitan business market of Austin, College Station and Waco. The Airport is owned and operated as a general aviation airport by the City of Rockdale.

The City of Rockdale and the H.H. Coffield Regional Airport are well-positioned within this triangular region to become a prime business hub for commerce with a viable community airport to serve the region. This five-county area (Milam, Burleson, Brazos, Robertson and Williamson) has experienced modest population growth since 1990 and increasing retail sales which result from a strong, above average median household income.

H.H. Coffield Regional Airport is at an elevation of approximately 474 feet. The Airport has eight based aircraft that contribute to approximately 2,400 annual operations as of the September 2011 annual inspection. All aircraft are single engine, but anecdotal observation has witnessed occasional turbine operations. Aircraft annual operations comprise 1,600 local general aviation operations and 800 itinerant general aviation operations. Runway 17-35 is 2,962 feet long and 50 feet wide with unknown pavement strength. The runway is equipped with non-standard Low Intensity Runway Lights (LIRL) and markings and no VGSI, REIL, or airfield signage or supplemental wind cones.

The Airport encompasses approximately 41 acres dedicated to airport services, as well as future development. The airport facilities include three hangars; and non-self serve fuel. The airport does not offer any aircraft-related services, i.e. – flight instruction, aircraft rental, airframe and power plant maintenance.

### **3.3 Marketing Plan and Materials**

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#### **3.3.1. Airport Marketing Organizational Team**

Effective marketing begins with creating an organizational structure that establishes a strong team of professionals and clearly identifies each member's role within the team. The City of Rockdale has many skilled individuals which can contribute to a successful team.

The City Council, City employees, Rockdale Chamber of Commerce, Municipal Development District (MDD), Airport Advisory Board members and individuals from the community all have skill sets that can contribute to an effective and successful team. This community has demonstrated strong support for a viable community airport.

This team can be created in a variety of styles but a recommended structure is where key community leaders work to formulate the marketing strategy and select the appropriate channels to distribute key messages. The execution of the strategy through the requisite channels will fall to one or two individuals that either perform the necessary tasks or supervise employees or vendors based on a budget created just for airport marketing tasks.

Presently, the City is taking the lead on the majority of economic development activities with support from the Chamber of Commerce and MDD. Unless conflicts or objectives arise, it is suggested to recommend that the City also manage and execute economic development activities for the airport.

#### **3.3.2 Identifying Target Market Prospects**

Earlier in this plan, a range of identified aviation-related businesses categories were presented as prospects for location at the Airport. It is critical at the beginning of this process to develop and refine to create a focus of what type of businesses fit the community profile.

Before the team publishes the first ad or mails the first letter to a prospect, it should have a very clear picture of what type of business they want to recruit to the H.H. Coffield Regional Airport.

Important criteria to review may include:

- What business segment, or individual, generates the greatest ROI the fastest for the airport?;
- How many business segments can we take on initially to recruit?;
- What makes sense for the airport, and community?;

- What are their requirements to operate at the airport?;
- How much will the required facilities cost to attract that business?;
- What's the ROI for this prospect to our community?;
- What's the acquisition cost through our marketing strategy to successfully recruit this prospect?; and
- What's the most effective marketing channel spend to our limited marketing budget to effectively recruit legitimate prospects?.

Each distinct target market may require a different campaign strategy from one another and effective use of time and resources will require careful planning and execution to successfully recruit singular or multiple tenants from each group. Some target groups may align closely in strategy scope and message channel that budgets can be combined to achieve wider distribution in messaging channels.

### **3.3.3 Promotional Strategy**

A mixed-media campaign will begin when appropriate elements of the campaign are ready for channel implementation and funds secured to execute elements of the campaign. These elements should include Internet airport website, facebook, twitter, print and electronic advertising materials, printed collateral materials, trade show participation and development of a 'sales force' to deliver the message of locating to this region.

Many distribution channels exist to promote the Airport. The basic channels to be implemented will be:

- Direct mail;
- Direct sales;
- Giveaways;
- Sales promotion, including airport informational kits and brochures;
- Event promotion; and
- A strong Internet presence: airport website, facebook, twitter, etc.

The strategy to attract aviation-related business and non-airside business prospects is the same. The first step is to identify the potential companies, as outlined in 3.3.2, which may be target customers for the H.H. Coffield Regional Airport. Reference sources and market research will identify companies that match the business profile as developed by the Airport Marketing Team. The promotional program will need to create a special point of difference between air and non-air side businesses for the Airport that meets the needs of these prospective companies.

### **3.3.4 Reaching Business Prospects and Pilots**

Direct mail is the best medium to use for attracting new pilots and business prospects. It will be the primary marketing channel for this campaign in partnership with a distinct Internet site promoting business opportunities at the airport.

This website will provide a low-cost promotional information channel for prospective customers that is easily updated as new information evolves about development activities and new business tenants are announced at the airport.

An airport brochure will be developed describing the development opportunities available, as proposed under the Airport Development Plan/Airport Layout Drawing, for non-air and airside site development at the Airport. This brochure should be a high quality four-color piece with a mail-back card. The brochure would be included with a letter from the Marketing Team and addressed to the

President, or chief decision-maker, of the prospective company. The mail-back card will ask for more information on H.H. Coffield Regional Airport and Rockdale, and will include the name of the decision-maker at the company for contact.

When the mail-back card is received, a sales kit will be sent to the President or designated contact at the prospective company. The sales kit will include information on the airport and community, material from the economic development groups, plus a *special invitation*. The *special invitation* will be from the City and Marketing Team inviting the company President or the key contact person to visit the airport and spend a couple of days to get to know the region. This invitation could include two complementary nights at a local hotel, an escorted tour of the Airport by community leaders, and a special dinner/luncheon reception with designated community and government dignitaries.

Also, all the direct-mail, e-mail, advertising and collateral material will carry the website's URL for immediate reference and campaign identification. It is critical to create a simple, but powerful, URL campaign title that is easily remembered and leverages current Internet search engine optimization (SEO) best practices to place the site at the top of the page for any search results created by the Internet's leading search engine providers, i.e. – Google, Yahoo, Bing, etc. This URL can also be inserted into traditional news media communications for use in print publications around the globe.

### **Pilots**

A key target group to reach immediately is the registered aircraft in the multi-county region around the Airport as noted in the Airport Market Comparison chart at the end of Chapter 1. This FAA database is updated periodically so the records can be outdated but it is a reliable source to communicate with aircraft owners in the region.

The database can be located on the web at:

[http://registry.faa.gov/aircraftinquiry/StateCounty\\_Inquiry.aspx](http://registry.faa.gov/aircraftinquiry/StateCounty_Inquiry.aspx)

A low-cost postcard mailing inviting these aircraft owners to a hamburger fly-in or offering them a discount on a fuel purchase using a new self-serve fuel system are only a couple of reasons to engage pilots to fly to your airport. Once at the Airport, they will talk about their airplanes and swap information about other airports they frequent. This information is invaluable toward learning how the H.H. Coffield Regional Airport compares to other airports, and in what areas you can compete favorably and areas that require improvement.

The postcard campaign can also drive these aircraft owners to the Airport website where they can participate in online surveys, register for free prizes or sign in to the guest registry. While engaging with these potential new patrons, the Marketing Team has the opportunity to collect valuable contact information to keep the Team's list current.

### **3.3.5 Airport Image and Recognition**

H.H. Coffield Regional Airport maintains a low-profile among the regions' airport. As the marketing campaign begins, it is critical for the Airport to separate itself from its area competitors. A professionally designed identity element, or logo, can have a substantial impact toward creating a recognizable image of the Airport and begin to build market 'buzz.'

A logo can be simple or complex; but it must clearly tell the customer in an instant who you are and where you are located, like these logos from other airports.



### 3.3.6 Advertising and Collateral

The initial recruiting materials will include a full-color airport brochure, sales kit folders, airport pictures, and charts and maps to be used in the recruiting presentation. Additional advertising material will include a series of black and white and four-color advertising to be used in various periodicals and magazines. It is important to have ads on hand to take advantage of promotional opportunities.

An example of a simple, tri-fold brochure created for an airport client in Mississippi is located in the Appendix of this Chapter.

Presentation packages that include community data and information, airport information and activity forecasts, operating plans, airport layout plans and incentive programs are the best support tools for the direct sales program. These presentation packages are sent directly to the company president or CEO for review; and this information is used as presentation tools by airport leaders during community presentations as well.

Magazines are good mediums for advertising business relocation or new opportunities for the Airport. They can include airline/airport publications, trade magazines for specific industries, special business magazines that appear in the metropolitan areas, statewide business publications, and magazines supporting special interest groups. Additionally, many of these publications now offer e-mail publications to compliment their traditional print products as well as text messaging announcements and Really Simple Syndication (RSS), an Internet tool used to feed subscribers with free news updates.

Suggested publications titles could include:

#### **Aviation Industry:**

Aerospace America  
Aerospace Daily  
Air Transport World  
Aircraft Interiors  
Aircraft Maintenance Technology  
Air Cargo News  
Air Cargo World  
Airport Business  
Airport Press  
Airports  
AOPA  
ATC Market Report  
Aviation Maintenance  
Aviation Telephone Directory

Aviation Week  
Avionics Magazine  
Business & Commercial Aviation  
GPS World  
GSE Today  
NBAA  
Overhaul & Maintenance  
Professional Pilot  
Rotor & Wing  
Show News  
The Weekly of Business Aviation  
World Aviation Directory  
Airport Magazine

#### **Property Development:**

Site Selection Magazine

**Business Publications:**

Metropolitan Business Journals in: Atlanta, Birmingham, Chicago, Cincinnati, Dallas, Denver, Houston, Kansas City, Memphis, Nashville, New Orleans, St. Louis and others.

**Newspapers:**

Texas Press Association

USA Today

Wall Street Journal

Major regional metropolitan newspapers (Denver, Salt Lake City, Kansas City, Omaha, New Orleans, Dallas, Houston, Memphis, Atlanta, etc.)

A 12-15 minute video should be placed on the project horizon for creation and distribution when promotion funding becomes available. This video will visually articulate the benefits of locating to H.H. Coffield Regional Airport or Rockdale. The video can be easily replicated on DVD for distribution into the sales kits, use at public presentations and inserted into the new website to augment the site's information and visual appeal. A professionally scripted and produced video will add a significant level of creditability to the recruiting effort. Typically, the costs associated with this production will range from \$10-20,000.

Wall display ads, banners and promotional kiosks at regional/hub airport terminals are also cost effective. In-terminal advertising costs can be leveraged jointly by the airport, and the local Chamber of Commerce. Travelers have more time today at these airports due to security requirements and these travelers can be target customers. Target airports can include Los Angeles, San Diego, Kansas City, Omaha, Chicago, Jackson, Atlanta, Memphis, New Orleans, and Dallas-Fort Worth placed at the respective airline terminals that service the Austin, College Station and Waco region with incoming passengers and business prospects.

**3.3.7 Public Relations and Promotions**

A nimble and effective public relations program will be required to keep interest high and focused on developments at the Airport. Initial steps toward creating the program involve:

- Establishing a point-of-contact on behalf of the Marketing Team to handle media inquiries;
- Creation of a budget for promotional elements and PR events;
- Flexible timeline of PR media releases and events to bring focus on the development opportunities at the Airport and within Rockdale;
- Establish working relationships with industry and general assignment reporters to facilitate flow of information to promote the Airport and Rockdale;
- Establish a H.H. Coffield Regional Airport 'Go Team' to serve as a sales force for promoting development opportunities at local and regional events along with greeting and entertaining tenant prospects during site visits to the airport and Rockdale.

Media releases will serve as the primary announcement communication channel for major activities and events involving the Airport. Releases will be distributed using e-mail technology with a primary goal of driving prospect traffic back to the website.

As plans solidify for initial master planning and infrastructure development, with a goal of obtaining that first tenant, the H.H. Coffield Regional Airport requires a significant public relations and promotions campaign focused on driving local, national and global prospects to the airport website [to learn more about opportunities available at the Airport.](#)

### **3.3.8 Trade Shows**

The Marketing Team should allocate resources to attend one or two strategic industry trade shows annually to promote the H.H. Coffield Regional Airport. Shows such as the National Business Aviation Association (NBAA), Aviation Industry Expo, Sun-n-Fun, etc., can provide invaluable connections and leads for future tenants. Also, traditional economic development site development trade shows should also be included in the annual list to cultivate non-airside tenant prospects. If Team members are unable to attend, an alternative to attendance is the purchase of program ads and purchasing the attendance list from the conference organizers for use in a direct mail campaign.

### **3.3.9 Incorporating E-Mail into the Campaign**

A second direct contact strategy to disseminate information, and with lower costs, is to create and execute an electronic mail (e-mail) campaign to targeted prospects. List acquisition of targeted companies can be generated in-house or industry-specific lists can be purchased/rented from vendors.

The ability to directly contact decision-makers moments within sending information is cost effective and creates the opportunity for more rapid response for information inquiries on the Airport. An e-mail strategy creates a cost-effective alternative to the costs associated with creating four-color process brochures, information kits, and specialty items.

As with the traditional direct mail campaign, all electronic communications will be designed to reflect the overall campaign identity and drive response traffic back to the Airport website for additional information and contact with the 'Go Team.'

### **3.3.10 Telemarketing**

A telemarketing channel should be created to serve two key functions: 1) field incoming phone calls in a timely response and provide the caller with the appropriate information or attempt to schedule a site visitation; 2) engage in limited outbound telemarketing to designated prospects deemed high profile for potential location at the H.H. Coffield Regional Airport.

This small team will be coached on all elements of the airport development, capabilities and timelines; and also have at their disposal the most current information, contact numbers and team decision-makers to contact when a prospect is showing more than casual interest.

### **3.3.11 Recruiting Process**

The actual process of utilizing the Marketing Action Plan to effectively recruit new business is comprised of several elements: lists of Target Companies must be developed; Presentation packages, and a direct mail program to potential new clients must be built; Sales kits developed to be utilized when initial contact is made; and a 'Go Team' established that will meet directly with new companies interested in relocating, or learning more about the Airport.

Marketing Team assignments for the recruiting process are recommended at follows:

## ASSIGNMENTS FOR CAMPAIGN DEVELOPMENT

### **Assignments**

Complete Master Plan and establish date benchmarks  
Establish criteria for recruiting appropriate businesses  
Develop list of New Business Target Companies  
Develop Media Campaign Elements:  
    Budget  
    Web site  
    Promotional Video  
    Presentations: prospect, stakeholder, community  
    Direct mail campaign  
    Create advertising elements/strategy /buy schedules  
    Other collateral material  
    Recruit/train 'Go Team' members  
Send initial direct mail piece to target companies  
    Follow-up calls  
Follow up with Sales Kits to interested companies  
    Follow-up call  
Meet with new business opportunities  
    Presentations at their company location  
    Presentations/tour within El Paso County

### **3.3.12 Campaign Budget**

To effectively execute elements of the Marketing Action Plan, a project budget is required. An initial funding source could come from Municipal Development District (MDD).

As the plan moves through the development stages, elements can be executed as funds become available.

The following begins a first-pass look at identifying various campaign elements and their related costs. Based on the scope of the campaign, this list may not be all inclusive:

Website creation  
Website hosting and monthly updates (annual cost)  
Media Releases prepared, approved and distributed (\$200 ea) x 4/year  
Logo creation  
Direct-mail campaign sales kit - 200 kits @ \$20.00 / kit  
Postage for kit mailing (Est. \$7 ea.)  
Direct mail campaign creation  
Direct mail campaign postage  
Promotional collaterals/giveaways (folders, pens, notepads, etc.)  
Creative for advertising, media placement and evaluation  
'Go Team' recruitment and training  
Campaign support and administration (est. 15 hours/month/\$100/hr)  
**Optional** – DVD promotional video for Web and sales kit

A comprehensive 5-year estimated budget for review and discussion may look like this:

### Five-Year Estimated Marketing Campaign Budget

Item	Year 1	Year 2	Year 3	Year 5
Website creation	\$3,000	\$0	\$3,000	\$3,000
Annual Website hosting and monthly updates	\$1,000	\$1,100	\$1,200	\$1,300
Media Releases prepared, approved and distributed (\$200 ea) x 4/year	\$800	\$900	\$1,000	\$1,000
Logo Creation (1x expense)	\$2,000	-	-	-
Direct-mail campaign sales kit; 200 kits @ \$20.00/kit	\$4,000	\$5,000	\$5,000	\$5,000
Kit Mailing (USPS, FedEx, UPS) (Est. \$7/kit)	\$1,400	\$1,600	\$1,800	\$2,000
Direct mail campaign creation	\$1,000	\$1,200	\$1,200	\$1,500
Direct mail postage (Est. 500 pieces annually)	\$1,000	\$1,100	\$1,200	\$1,500
Promotional collaterals & giveaways (folders, pens, notepads, etc.)	\$3,000	\$3,000	\$4,000	\$6,000
Creative for advertising, media placement and evaluation	\$10,000	\$11,000	\$12,000	\$15,000
'Go Team' recruitment and training	\$3,000	\$3,000	\$3,000	\$4,000
Trade Show Participation (Est. 2x/yr)	\$15,000	\$16,000	\$18,000	\$20,000
Travel Expenses	\$10,000	\$10,000	\$11,000	\$15,000
Campaign support and administration	\$18,000	\$20,000	\$25,000	\$25,000
<b>Campaign Total</b>	<b>\$73,200</b>	<b>\$73,900</b>	<b>\$87,400</b>	<b>\$100,300</b>
<b>Optional Video on DVD</b>	<b>\$12,000</b>	<b>\$1,000</b>	<b>\$1,000</b>	<b>\$1,000</b>

## **SAMPLE LETTER FOR NEW BUSINESS RECRUITMENT**

*July 1, 2013*

Mr. Business Owner  
Alpha Aircraft Associates  
2222 South Aviation Blvd.  
Anytown, USA Zip

Dear Mr. Owner;

Enjoy the best of both worlds – clean living away from Austin and College Station and business success for your aviation company in a low-cost business environment that opens your markets to the world!

The H.H. Coffield Regional Airport is located about two miles south of Rockdale, Texas, in Milam County. This publically-owned general aviation has served the region for more than 40 years. H.H. Coffield Regional Airport has competitive ground leases for sites available for business development, and Rockdale has low business costs, and a skilled labor force to offer prospect employers.

Your employees will enjoy the high quality of living and regional business opportunities in Rockdale.

The enclosed material shares more information about the advantages of locating your aviation company to the H.H. Coffield Regional Airport. We will follow-up soon with a phone call to see how we can tailor a development strategy to assist your relocation to our community and airport.

If you would like more information or to set up a date to visit Rockdale, please contact us by phone (123) 123-1234; or e-mail us at [info@hhcoffieldairport.com](mailto:info@hhcoffieldairport.com).

Sincerely yours,

Name, Airport Manager  
H.H. Coffield Regional Airport

Enc.

Once the Marketing Team has created a targeted list of aviation-related business sectors to contact, the Team can create their own list by canvassing multiple industry directories, publications or web searches; or purchased professionally prepared prospect lists created by Direct Marketing Firms.

This sample list provides only an illustration of the type of lists necessary to generate sufficient interests and leads for business prospects across multiple aviation business sectors.

**Prospect list of potential aviation-related companies:**

**Aircraft Avionics Instruments**

Air Tech Coatings  
1 Paradise Park Rd  
Jacksonville, AR 72076  
(501) 985-1484

Burbank Aircraft Supply Incorporated  
117 E Rose Ave  
Foley, AL 36535  
(251) 943-4855

Central Flying Service  
1501 Bond Ave  
Little Rock, AR 72202  
(501) 375-3245

Gemini Aviation  
2899 S Mendenhall Rd  
Memphis, TN 38115  
(901) 795-5000

Solar Turbines Incorporated  
6128 Jefferson Hwy  
New Orleans, LA 70123  
(504) 734-8241

**Aircraft Dealers**

Craig Mike R and Associates Inc.  
1025 Harrington Ave  
Little Rock, AR 72202  
(501) 372-8071

M Squared Aircraft  
9900 Highway 90  
Irvington, AL 36544  
(251) 957-1533

Northrop Grumman Shipyard Inc.  
5100 River Rd  
Westwego, LA 70094  
(504) 436-9708

Signature Flight Support  
2488 Winchester Rd  
Memphis, TN 38116  
(901) 345-4700

Sportair USA  
LTR Airport  
North Little Rock, AR 72116  
(501) 833-2222

Tulsair Beechcraft  
8182 Hornet Ave  
Millington, TN 38053  
(901) 873-4144

**Aircraft Equipment Parts  
& Supplies**

Aerospace Industry Resources Inc  
1814 Fifteenth St  
Mobile, AL 36615  
(251) 432-8787

Aerospace Products International  
3778 N Distriplex Dr  
Memphis, TN  
(901) 365-3629

Aircraft Parts International  
5335 Mineral Wells Rd  
Memphis, TN 38141  
(901) 370-5781

Aircraft Service International Inc  
2491 Winchester Rd  
Memphis, TN 38116  
(901) 922-8280

Aviation Engines Inc  
249 Airport St

Centreville, AL 35042  
(205) 926-5186  
Audio Intl. Inc.  
7300 Industry Dr  
North Little Rock, AR 72117  
(501) 955-2929

Aviation LLC  
Serving Your Area  
(501) 371-8787

Aviall Inc  
5851 Advantage Cv  
Memphis, TN 38141  
(901) 362-6710

Avspar International Corporation  
5308 Cottonwood Rd  
Memphis, TN 38118  
(901) 365-1050

Bell-Memphis Inc  
1650 Channel Ave  
Memphis, TN  
(901) 947-1102

Corporate Aviation Service Inc  
2930 Winchester Rd  
Memphis, TN 38118  
(901) 345-9800

Crestview Aerospace  
16150 Greeno Rd  
Fairhope, AL 36532  
(251) 929-3420

Desser Tire & Rubber Co  
3400 Chelsea Ave  
Memphis, TN 38108  
(901) 380-9212

Diehl Avionics Inc  
Serving Your Area  
(205) 678-7101

Floats & Fuel Cells  
4010 Pilot Dr

Memphis, TN  
(901) 794-8431  
Gulf Thrust Air  
21530 Casril Dr  
Mandeville, LA 70471  
(985) 871-8080

Intersky Inc  
4005 S Mendenhall Rd  
Memphis, TN 38115  
(901) 366-6900

L A Aloft  
Foley, AL 36535  
(251) 981-2628

Linda Lou Inc  
3514 Winhoma Dr  
Memphis, TN 38118  
(901) 365-6611

M Squared Aircraft  
9900 Highway 90  
Irvington, AL 36544  
(251) 957-1533

Management Universal Asset  
6000 Poplar Pl  
Memphis, TN  
(901) 682-4064

Memphis Group, The  
3914 Willow Lake Blvd  
Memphis, TN 38118  
(901) 362-8600

Mid-South Aircraft  
Alton Rd  
Birmingham, AL  
(205) 836-5101

Milpar  
3914 Willow Lake Blvd  
Memphis, TN 38118  
(901) 360-9988

Qwest Air Parts Inc  
3960 Crowfarn Ave

Memphis, TN 38118  
(901) 797-9229

Razorback Aircraft Custom Cabinets  
1100 Harrington Ave  
Little Rock, AR 72202  
(501) 374-0497

River City Avionics  
2843 Business Park Dr  
Memphis, TN 38118  
(901) 366-7080

Signature Flight  
2488 Winchester Rd  
Memphis, TN 38116  
(901) 345-4700

Smith & Smith Aircraft International  
111 Veterans Memorial Blvd  
Metairie, LA 70005  
(504) 833-9915

Southwind Industries LLC  
2755 Windham Pl  
Germantown, TN 38138  
(901) 624-8922

Teledyne Continental Motors  
Serving Your Area  
(251) 438-3411

W W Insulate Inc.  
Serving Your Area  
(501) 227-8517

**Charter Rental Leasing**  
Alabama Air Shuttle Inc  
Serving Your Area  
(205) 408-9696

Air Charter Express  
8200 Remount Rd  
North Little Rock, AR 72118  
(501) 833-5600  
Air Logistics  
18594 Highway 3235  
Galliano, LA 70354

(985) 475-5400

Air Reldan Inc  
8219 Lloyd Stearman Dr  
New Orleans, LA 70126  
(504) 241-9400

Airborne Air Ambulance  
Serving Your Area  
(800) 247-3010

Aircraft Charters & Tours USA  
Serving Your Area  
(800) 585-5555

Aviation Department  
2540 Winchester Rd  
Memphis, TN 38116  
(901) 345-9745

Aviation Services Group  
4243 E Lake Blvd  
Birmingham, AL 35217  
(205) 849-3848

Bird of Paradise Biplane Rides  
3190 Airport Dr  
Gulf Shores, AL 36542  
(866) 687-8359

Central Flying Service  
1501 Bond Ave  
Little Rock, AR 72202  
(501) 375-3245

Centrion LLC  
209 N Main St  
Benton, AR 72015  
(501) 315-7228

Charter Direct  
1636 N Lopez St  
New Orleans, LA 70119  
(504) 947-8181

Charter Services Inc.  
2445 Woodland Rd

Mobile, AL 36693  
(800) 657-1555

East Tennessee Helicopters Inc.  
182 K And R Rd  
Butler, TN 37640  
(423) 727-0129

ExecuFlight LLC  
133 Airport Rd  
Monroeville, AL 36460  
(800) 251-0890

Executive Jet Management  
Serving Your Area  
(800) 609-5146

Flight works  
Serving Your Area  
(877) 749-1145

Helicopter Charter and Tours USA  
Serving Your Area  
(800) 585-5555

Louisiana Aircraft Inc  
Serving Your Area  
(800) 535-8129

Lucky Egg Charters LLC  
Serving Your Area  
(251) 747-2804

Maverick Aircraft Leasing LLC  
13301 Valentine Rd  
North Little Rock, AR 72117  
(501) 945-3854

Omni Air Charter  
2008 Beckenham Cv  
Little Rock, AR 72212  
(501) 374-5022

Palm Air  
2456 Winchester Rd

Memphis, TN 38116  
(901) 398-6900

Petroleum Helicopters Inc  
5804 River Rd  
New Orleans, LA 70123  
(504) 733-7673

Rotor Wing Inc  
Serving Your Area  
(205) 631-6531

Saint Tammany Aviation  
25048 Highway 36  
Abita Springs, LA 70420  
(985) 892-9936

Sanders Joey  
20 Ellis Haynes Dr  
Jasper, AL 35503  
(205) 384-4359

Shelby Aviation Inc  
3870 Fite Rd  
Millington, TN 38053  
(901) 873-3838

Southern Seaplane Inc  
Serving Your Area  
(504) 394-5633

Vectair USA  
11922 Airport Rd  
Olive Branch, MS 38654  
(901) 309-8079

### **Schools**

Air Charter Express  
8200 Remount Rd  
North Little Rock, AR 72118  
(501) 833-5600

Air Venture Flying Center  
8000 Terminal Dr  
Memphis, TN 38654  
(901) 521-1068  
Barrett Aviation Inc.  
8318 Remount Rd

North Little Rock, AR 72118  
(501) 835-7767

Central Flying Service  
1501 Bond Ave  
Little Rock, AR 72202  
(501) 375-3245

Country Air Flight Training  
1421 Lingo Rd  
Lonoke, AR 72086  
(501) 676-0320

Flight Training Of Mobile LLC  
2241 Michigan Ave  
Mobile, AL 36615  
(251) 441-0723

Fly By Knight Inc  
800 Judge Leon Ford Dr  
Hammond, LA 70401  
(985) 340-8800

Memphis Navy Flying Club  
5796 Eniwetok  
Millington, TN 38053

Pan Am International Flight Academy  
8150 T & B Blvd  
Memphis, TN 38125  
(901) 748-7500

Spartan College Of Aeronautics &  
Technology  
8820 E Pine  
Tulsa, OK 74115  
(918) 836-6886

### **Servicing & Maintenance**

92nd West Aviation Inc.  
1423 Lingo Rd  
Lonoke, AR 72086  
(501) 676-7529

Air Charter Express  
8200 Remount Rd  
North Little Rock, AR 72118  
(501) 833-5600

Aircraft Charters & Tours USA  
Serving Your Area  
(800) 585-5555

Aircraft Service International Inc.  
Kenner, LA 70062  
(504) 468-8740

Aircraft Service West Mobile  
8400 Airport Blvd  
Mobile, AL 36608

Avionics Specialist Inc  
3833 Premier Ave  
Memphis, TN 38118  
(901) 362-9700

Barnett Electronics  
330 Highway 236 W  
Lonoke, AR 72086  
(501) 676-5506

Barrett Aviation Inc.  
8318 Remount Rd  
North Little Rock, AR 72118  
(501) 835-7767

Blue Aviation  
1100 Harrington Ave  
Little Rock, AR 72202  
(501) 663-2583

Branham Ag Aviation  
33725 County Road 507  
Itta Bena, MS 38941  
(662) 254-7275  
Central Flying Service  
1501 Bond Ave  
Little Rock, AR 72202  
(501) 375-3245

Dassault Falcon Jet Corporation  
3801 E 10th St  
Little Rock, AR 72202  
(501) 372-5254

David Minton Trucking Inc.

13383 W Sardis Rd  
Bauxite, AR 72011  
(501) 557-9945

Diehl Avionics Inc  
Serving Your Area  
(205) 678-7101

Executive Jet Management  
Serving Your Area  
(800) 609-5146

Freeman Aircraft Painting Inc  
119 Airport Parkway Dr  
Covington, TN 38019  
(901) 476-1222

Garrett Aviation Services Centers  
3223 E 10th St  
Little Rock, AR 72202  
(501) 375-1650

Gulf Shores Aviation LLC  
Gulf Shores, AL 36542  
(251) 948-6480

Helicopter Charter and Tours USA  
Serving Your Area  
(800) 585-5555

Mid-South Aircraft  
Alton Rd  
Birmingham, AL  
(205) 836-5101

Morrow Aviation Company  
166 Fifth Ave  
Greenville, MS 38703  
(662) 332-0757

Onesky Jet Network  
1001 Elm Street, Suite 106 PO Box  
Manchester, NH 03105  
(866) 678-7089

Little Rock, AR 72201  
(501) 399-4500

Rotorcraft Leasing Co  
430 N Eola Rd  
Broussard, LA 70518  
(337) 839-9996

Saint Tammany Aviation  
25048 Highway 36  
Abita Springs, LA 70420  
(985) 892-9936

Select Aircraft Painting Incorporated  
700 Commerce Dr  
Gulf Shores, AL 36542  
(251) 967-1778

Signature Flight Support  
2488 Winchester Rd  
Memphis, TN 38116  
(901) 345-4700

Slidell Aviation Services Inc  
62512 Airport Rd  
Slidell, LA 70460  
(985) 641-4390

South -Central Aviation  
Downtown Airport  
Little Rock, AR 72215  
(870) 862-8622

Tech Services  
5306 Getwell Rd  
Memphis, TN 37501  
(901) 377-7394

TMG Airepairs  
3914 Willow Lake Blvd  
Memphis, TN 38118  
(901) 794-9898

Raytheon Aircraft Services Little Rock  
2400 Grundfest Dr Adams Fld

Tulsair Beechcraft  
8182 Hornet Ave

Millington, TN 38053  
(901) 873-4144

**Upholstery & Interiors**

Aircraft Acoustics Inc.  
14 Vista Dr  
Little Rock, AR 72210  
(501) 221-0300

Arloe Designs  
312 Aviation Way  
North Little Rock, AR 72116  
(501) 833-3633

Precision Aircraft Cabinets  
1310 S Highway 161  
Jacksonville, AR 72076  
(501) 982-3980

Skytravel Avionics Inc.  
2503 Frazier Pike  
Little Rock, AR 72206  
(501) 372-0600

Unlimited Upholstery Inc.  
7217 Ross Ln  
Benton, AR 72015  
(501) 316-3416

## Greenwood-Leflore Airport tri-fold promotional brochure:

### About Greenwood

Greenwood is situated in Leflore County at the eastern edge of the Mississippi Delta, approximately 98 miles north of Jackson, MS, and 130 miles south of Memphis, TN. Greenwood is the gateway to the Delta and has a vast array of things to do, places to visit, first-class shopping and wonderful world-renowned dining and lodging options.

It is home to such corporations as Viking Range, Milwaukee Electric Tool, Staploctn, America's Catch and Heartland Catfish, John-Richard, Balkamp and more. Greenwood is alive with cultural opportunities, including live blues music, live theater productions, museum exhibits, offerings of various art and culinary classes and much more.

#### Community Fast Facts:

Population: Greenwood - 18,425; Leflore County - 37,316  
Median Age of county population: 30.1  
Land Area: (County) 605 square miles  
Property Tax: Average County Millage = 99.75  
Transportation: Highways in Greenwood include MS Highway 7, U.S. Highway 49 and U.S. Highway 82  
Railroads: Columbus & Greenville, Canadian National-Illinois Central  
Labor Force: (Annual Average, 2001)  
Leflore County = 15,880; Commuting Area = 56,630  
Wages: (Annual Average, 2000)  
Manufacturing = \$408/wk; Services = \$431/wk  
Retail Sales: (2001) Greenwood \$306 million; Leflore Co. \$403 million  
Health Care: Greenwood Leflore Hospital (260 beds)  
Education: Greenwood Public Schools, Leflore County Public Schools, Pillow Academy, St. Francis of Assisi  
Largest Manufacturers in Leflore County: Viking Range Corp. (1,208); Greenwood Leflore Hospital (874); Greenwood Public Schools (477); Mississippi Valley State University (450); Heartland Catfish (420); America's Catch Catfish (372); John-Richard (350); Milwaukee Electric Tool Corp. (270); J.J. Ferguson Sand & Gravel (263); Staploctn (150).

Source: Greenwood, MS Chamber of Commerce

Our Industrial Park Development Team is ready to assist with creating a leasing and incentive package to meet your company's growth needs.

Please contact our team for more information:

#### Greenwood-Leflore Airport



502-A Airport Road  
Greenwood, MS 38930  
(662) 453-1526  
Fax (662) 453-1530  
Bardin Redditt,  
Airport Manager  
gwoairport@bellsouth.net  
www.gwoairport.com

#### Chamber of Commerce



Box 848  
Greenwood, MS 38935  
(662) 453-4152  
info@greenwoodms.com  
www.greenwoodms.com

#### Economic Development Foundation



402 Highway 82 Bypass  
Greenwood, MS 38935-0028  
1(800)844-SITE  
angcur@bellsouth.net  
www.glcedf.com

#### Mississippi Development Authority

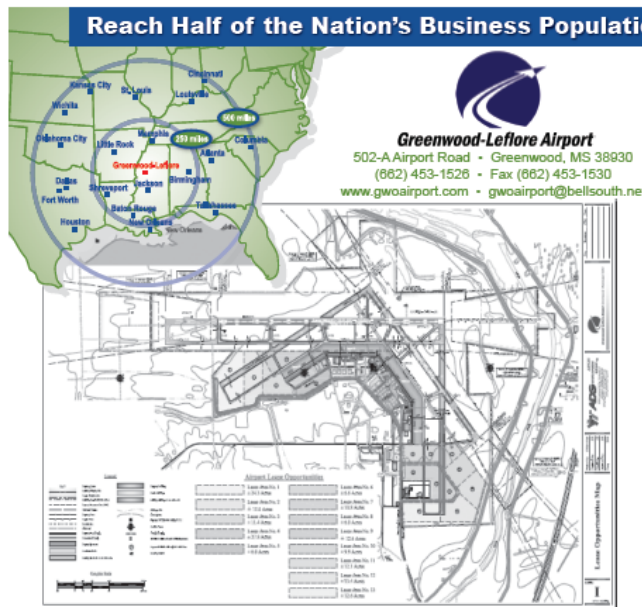


Post Office Box 849  
Jackson, MS 39205  
(601) 359.3449  
(601) 359.2832 fax  
www.mississippi.org

### It's Wheels Up with Your Business in the Delta



### Reach Half of the Nation's Business Population from Greenwood



#### Airport Fast Facts:

- All-weather navigation airport
- Heavy weight-bearing runway construction
- FBO
- More than 45,000 annual flight operations
- Commercial service acquisition in progress

#### Industrial Park Fast Facts:

- Competitive Lease Terms
- Flexible tract sizes
- Utility infrastructure complete
- Responsive economic development team
- Ready for construction & occupancy

In the heart of the Mississippi Delta, the Greenwood-Leflore Airport Industrial Park offers business owners the opportunity to enjoy hometown comfort with world-class impact.

GWO offers flexible sites for lease and development with the built-in advantages of an all-weather, heavy jet cargo airport, full-service fixed based operators and growing tenant list of aviation-related businesses. The airport is adjacent to U.S. Highway 82, and is just 20 minutes west of Interstate 55.

Greenwood's location, which is central to both U.S. coasts, is within a day's roundtrip flight of more than 50 percent of the U.S. business population, including such major markets as Atlanta, Birmingham, Dallas, Houston, Little Rock, Memphis, Mobile, Nashville, New Orleans and St. Louis.

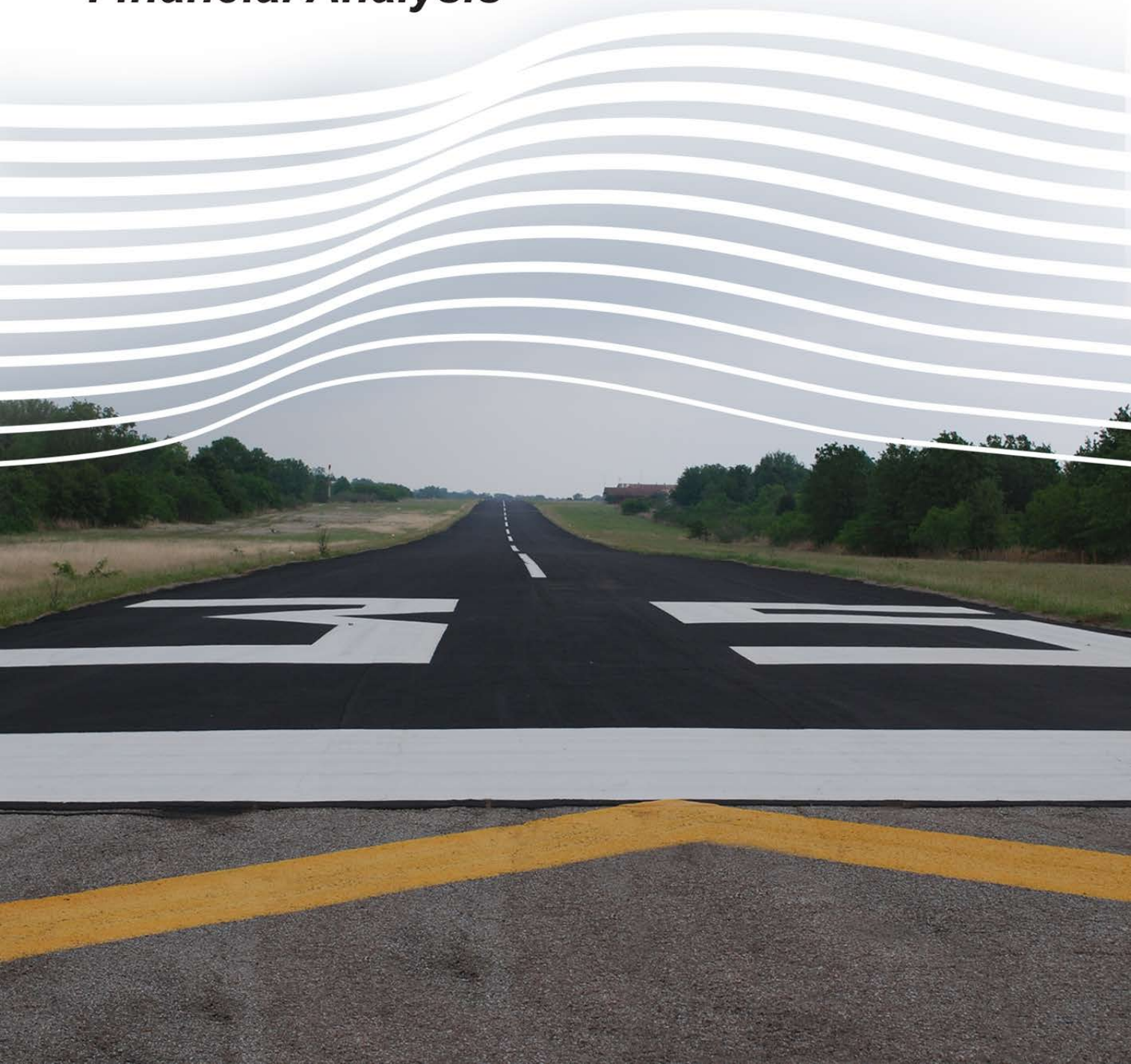
A strong educational system, combined with a growing pool of workers already trained in aerospace and aviation operations, ensures that your company will find a highly skilled workforce available to meet your needs.

Greenwood offers a strong, supportive business climate, where the cost of doing business is low, and many other tools to help your business compete in today's global economy. The cost of doing business in Greenwood offers substantial savings over many regions of the U.S.

Let our development team create a business package that provides the right incentives to locate your company in the Delta.

# Airport Action/Business Development Plan Section Four

## *Financial Analysis*



# Financial Analysis

## 4.0 Overview

The 2011 State of Texas Airport System Economic Impact Study calculated that H.H. Coffield Regional Airport has annual local economic impact of \$187,293. This value places the Airport in a competitive position with its four closest competing airports as noted in **Table 4-1**.

<b>TABLE 4-1 REGIONAL ECONOMIC AIRPORT IMPACT</b>			
<b>Airport</b>	<b>Jobs Supported</b>	<b>Salary, Wages &amp; Benefits</b>	<b>Economic Impact</b>
<b>H.H. Coffield Regional Airport</b>	<b>2</b>	<b>\$82,958</b>	<b>\$187,293</b>
Caldwell Municipal Airport*	1	N/A	\$51,748
Cameron Municipal Airpark	2	\$236,000	\$123,441
Hearne Municipal Airport*	.5	N/A	\$12,937
Taylor Municipal Airport*	N/A	N/A	N/A
Bryan – Coulter Field	49	\$2,242,120	\$7,813,759
Georgetown Municipal Airport	227	\$9,872,319	\$23,738,564
Austin Executive Airport (Private)	N/A	N/A	N/A
*Information Estimated from TXDOT Aviation.			
<b>Total Impacts</b>	<b>281.5</b>	<b>\$12,433,397</b>	<b>\$31,927,742</b>

It should be noted that FAA and TXDOT Aviation regulations require that all revenue generated on the Airport shall be retained in the airport's budget for future use in sustaining the Airport.

As the City of Rockdale is the prime operator of the Airport, its ability to generate revenue to pay for operations, maintenance and enhancements are derived from these primary revenue streams:

- Fuel Sales;
- Hangar Space Rental;
- Ground Lease; and
- Misc. Revenue at the Airport.

Additionally, funds from the City's budget Capital Improvement Budget are used to supplement these earnings to fund the airport projects when appropriate.

## 4.1 Fuel Sales

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Presently, the Airport offers 100LL aviation fuel to local and itinerant aircraft owners. However, the fuel serve is not a self-service facility with electronic card. The purchaser of fuel at the Airport must call a local number then wait for an individual to unlock the pump, fuel the aircraft and collect the transaction amount to complete the sale.

The majority of pilots do not have the patience or time to wait for fuel service so they typically fly to an airport that either has self-service with a card reader or an FBO that is available to provide the service.

Caldwell, Cameron, Hearne and Taylor airports all offer self-service fuel stations.



**The present fuel system is approximately 6,000 gallons and is not self-service.**

H.H. Coffield Regional Airport's current fuel station needs to be replacement promptly. It is an older model and the exterior appearance shows rust and an aged appearance.

TXDOT Aviation offers a fuel grant program and the City should make a grant request to acquire funds to replace this system with a new 6,000 or 8,000 gallon tank with electronic card reader to encourage 24/7 self-serve fueling with local and transient pilots. An 8,000 gallon tank may be the upper limit of reasonable sales capacity for the Airport but it will also help the City get the lowest per gallon supplier rate in the Austin area. With the larger tank, quality assurance practices become a higher priority to avoid stagnating fuel supplies which can lead to engine malfunctions and liability issues.

Competitive pricing and self-service availability coupled with aggressive promotion will result in a significant boost in fuel sales and flight operations at the airport. Depending on the size of tank, the pricing differential between full tanker load and a quarter of a load can be \$0.45 cents per gallon in today's wildly fluctuating aviation fuel market.

With a current listed Airport price of \$5.13 per gallon, the City can expand its profit margin and generate greater volume sales with a larger system.

## 4.2 Hangar Rental

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The Airport currently has three hangar buildings on the airport. One is owned by the City of Rockdale and the other two are privately owned.

In the public hangar are six based aircraft. The other two hangars hold a single aircraft in each. The City charges \$100 per month for hangar storage on a month-to-month commitment with no lease.

Across the country, many airports have moved to standardized long-term leases in return for stable rental fees to the lessee. The City of Rockdale apparently does not offer longer term hangar leases.

A quick survey with the surrounding airports in the marketing provided this information in **Table 4-2**.

**TABLE 4-2  
HANGAR RENTAL COMPARISON**

<b>Airport</b>	<b>Number of T-Hangars</b>	<b>Lease Terms</b>	<b>Monthly Rates</b>
<b>H.H. Coffield Regional Airport<sup>1</sup></b>	<b>0</b>	<b>Month-to-Month</b>	<b>\$100</b>
Caldwell Municipal Airport	14	Month-to-Month	\$125
Cameron Municipal Airpark <sup>2</sup>	10	?	?
Hearne Municipal Airport	14	Month-to-Month	\$125
Taylor Municipal Airport	56	Month-to-Month	\$125-\$356
<sup>1</sup> City-owned Community Hangar			
<sup>2</sup> New Hangars to open in 2013			

The H.H. Coffield Regional Airport would benefit from the installation of a 6 or 10-unit T-Hangar complex. The City's present community hangar is very old and should be considered for either major renovation or replacement.

A grant request can be submitted to TXDOT for T-Hangars under their airport grants program. The additional storage capacity will aid in the recruitment of based aircraft and generate fuel sales. Another benefit of the based aircraft is property tax collected on the value of the aircraft.

The Airport Development Plan / Airport Layout Drawing denote locations on the airport for the installation of new hangar facilities. The City could perform the necessary ground clearing and basic site preparation to be in a position to accept a TXDOT grant during the next grant cycle.

### **4.3 Ground Leases**

The foundation piece of the revenue equation at airports is the collecting of ground leases from individuals or companies when they invest in the airport to build hangars or office complexes. Federal and state regulations prohibit the outright sale of airport property if it was purchased with federal or state grant funds.

In 1987, the estate of the late H.H. Coffield transferred ownership of the Airport to the City of Rockdale with the express provision that the property be retained and used as an airport for the community. This deeded gift exempts the city from federal and state regulations but it is advisable to follow that practice.

The art of establishing 'fair market value' for airport property is an inexact science. Sometimes the airport sponsor will commission a dedicated land appraisal to formulate a market rate upon which they

can lease the property, or the sponsor will just negotiate to what the market will bear.

A key component of the value is whether the airport property is deemed 'improved' or 'unimproved' – thus indicating whether local utilities and infrastructure are in place to allow the lease holder to focus on just the construction of the building.

In our survey of competing area airports, Caldwell, Hearne and Taylor airports all have 'improved' property to accommodate a prospective private tenant. Cameron did not have 'improved' airport property. The H.H. Coffield Regional Airport has infrastructure but would require additional investment to properly accommodate new building activity.

Only Caldwell and Hearne Municipal Airports have established a ground lease rate and term. Hearne collects \$0.27 cents per square foot for land on a 25-year lease. Caldwell collects a flat \$200 annual fee with no lease agreement. The other airports indicated that rates and terms are negotiated on an individual basis.

The H.H. Coffield Regional Airport generates \$400 a month in lease revenue from the two hangars on the property with lease terms unknown.

## ***4.4 Airport Balance Sheet***

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The H.H. Coffield Regional Airport has turned a modest profit over the past three City budget cycles, as detailed from the City's published budget report.

### **4.1 Balance Sheet Observations**

**Hangar Rental** – A robust revenue number considering the Airport only has eight officially based aircraft according to the FAA's 5010 Master Record. The amount recorded in the budget is more indicative of 13 aircraft renting from the City, or the rental rate varies among aircraft owners.

**Lease Revenue** – Again another robust number considering the small number of private buildings on the Airport property. This revenue total would indicate an above average per square foot term rate or special considerations for the tenant on terms.

**Fuel Sales** – A very strong number again considering the low number of annual operations listed with on the 5010 record. Also, the Airport is an uncontrolled airfield so actual operational counts are impossible to calculate. The implementation of a new fuel system with electronic card will open the Airport to new patrons as pilots constantly search for the best fuel price in the wildly changing commodity market.

Conversely, the fuel product costs exceed revenue with is a possible indicator of two issues: 1) insufficient sales to turn over inventory purchased at higher per gallon cost against prevailing retail prices. If the inventory remains in the tank longer than 150 days, product deterioration may occur which can create a liability issue for the airport sponsor with tainted aviation fuel; 2) insufficient monitoring of competing airports' fuel pricing to remain competitive and leverage profitably against cost of product.

**Maintenance and Operating Expenses** – At first blush, it appears the H.H. Coffield Regional Airport is a low-maintenance facility based on the published budget numbers. Expenses are extremely low which could be interpreted either as very little maintenance is required or the City is not spending much

money to do maintenance. The 5010 record lists the Low Intensity Runway Lighting system as out indefinitely. Earlier conversations with airport patrons indicated this is a frequent repair issue and eliminates night flight operations.

During one airport visit while preparing the Airport Development Plan, it appeared the Airport property had not been mowed and trimmed for an extended period. Grass and weeds covered the runway lights and provided wildlife habitat very close to the runway. Implementing a mowing schedule will eliminate some of those issues as well as creating a more inviting appearance to first airport visitors.

**Table 4-3** highlights the airport's balance sheet as published in the City's annual budget.

<b>TABLE 4-3 AIRPORT BALANCE SHEET FOR THE H.H. COFFIELD REGIONAL AIRPORT</b>				
	2009-10 Actual	2010-11 Budget	2010-11 Amended	2011-12 Proposed
<b>Airport Revenue</b>	<b>\$25,754.93</b>	<b>\$22,583.33</b>	<b>\$27,226.27</b>	<b>\$26,278.00</b>
Donations/Grants	\$	\$	\$	\$
Hangar Rental	\$11,851.47	\$16,000.00	\$16,000.00	\$16,000.00
Aviation Fuel Sales	\$4,174.64	\$1,783.33	\$6,495.83	\$5,478.00
Lease	\$8,400.00	\$4,800.00	\$	\$4,800.00
Misc. Revenue	\$1,328.82	\$	\$4,730.44	\$
<b>Airport Expenses</b>	<b>\$8,264.21</b>	<b>\$12,475.71</b>	<b>\$16,375.66</b>	<b>\$18,100.00</b>
Operating Supplies	\$48.69	\$100.00	\$50.00	\$100.00
General Maintenance	\$41.68	\$2,000.00	\$2,000.00	\$2,000.00
TML Insurance	\$2,195.23	\$1,95.71	\$5,757.53	\$5,800.00
Treatment Chemicals	\$200.00	\$200.00	\$200.00	\$200.00
Professional Fees	\$	\$300.00	\$50.00	\$
Aviation Fuel Costs	\$4,094.48	\$5,500.00	\$5,918.13	\$7,500.00
Capital Improvements	\$	\$	\$	\$
Grant/Local Effort	\$	\$	\$	\$
<b>Profit (Loss)</b>	<b>\$17,490.72</b>	<b>\$10,107.62</b>	<b>\$10,850.61</b>	<b>\$8,178.00</b>

## 4.5 Summary

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The balance sheet was a pleasant surprise to review during the creation of the business plan. Not too many airports nationwide can boast of turning a consistent profit at their facility.

A positive fiscal balance sheet is an indicator that strong financial stewardship of the Airport is in place, and the opportunity to enhance the bottom line is eminent.

As discussed earlier in this Chapter, generating revenue from hangar rental, fuel sales and ground leases are the three lowest hanging fruit financial elements an airport can capitalize upon. H.H. Coffield Regional Airport and the City of Rockdale have these elements in place.

The next steps for the City and Airport are to better monitor fuel sales for a positive cash flow while being more aggressive in soliciting business from itinerant pilots in the region and flying cross-county. Websites like AirNav, FBOWeb, globalair.com, 100LL.com and other allow airport management to publish current fuel prices as well as monitor their area competitors.

Investment in more hangar space for singles and twins will reap multiple benefits as noted earlier. If the City is able to secure grant funding from TXDOT to construct new hangar space, the lower acquisition cost for City to build these hangars will immediately return increased revenue to the balance sheet.

The next phase of development will follow soon when the Marketing Team begins its campaign to recruit new based pilots and aviation-related businesses.

All of the elements are aligning for the H.H. Coffield Regional Airport to become a regional leader in the Texas aviation market.

And, a friendly reminder that all revenue and profit generated at the airport needs to remain in the Airport budget to support operations and growth at the H.H. Coffield Regional Airport.

# Airport Action/ Business Development Plan Section Five

## *Recommendations and Next Steps*



# Recommendations and Next Steps

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## 5.0 Recommendations

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### 5.1 Fiscal Overview

The City of Rockdale, Texas has initiated a comprehensive review and examination of its community airport – the H.H. Coffield Regional Airport – with potential interest to modernize and develop the facility as a community asset for economic growth.

A 2011 Texas Department of Transportation, Division of Aviation (TXDOT Aviation) economic impact study calculated that the Airport presently has an estimated annual economic contribution to the City and County of \$187,293. Community leaders have a positive desire to see that level of activity increase through an extensive capital improvement project plan.

This modernization effort was detailed in a companion Airport Development Plan which suggested multiple scenarios in 2013 that offered community leaders a range of investment to bring the Airport up to current industry regulatory compliance and safety standards. This investment will be substantial for the City.

The H.H. Coffield Regional Airport does not benefit from grant funding opportunities from the Federal Aviation Administration (FAA) due to its lack of acceptance into the FAA's National Plan of Integrated Airport Systems (NPIAS). This exclusion costs the City of Rockdale a minimum of \$150,000 annually in FAA Airport Improvement Program (AIP) grant funds.

Rockdale must fund its own improvements and make application for limited TXDOT state grants to maintain and enhance the Airport. Due to the City's limited financial resources, investment has been sporadic to maintain the Airport. TXDOT invested in a runway seal coat project approximately three years ago to maintain and extend the working life of the runway.

The City of Rockdale's ability to finance sustained investment at the airport will come down to a prioritization of its own fiscal resources and the political agendas of its City Council.

**Recommendation:** The City of Rockdale must make a financial commitment to fund capital improvement projects at the Airport to meet: 1) compliance and safety standards; 2) develop the Airport asset as an economic development for the City.

### 5.2 Tax Increment Reinvestment Zone

The State of Texas allows for the creation of a local taxing district known as a Tax Increment Reinvestment Zone (TIRZ). When approved and active, the TIRZ becomes a political subdivision of the county or local municipality where it originated. Typically, TIRZs are enacted by property owners wishing to develop blighted properties within a community but the county and municipality may hold the right to the TIRZ.

The statutes governing tax increment financing are located in Chapter 311 of the Texas Tax Code. In its current structure, TIRZs were created 50 years ago as a taxing mechanism to help local units of government redevelop blighted or underutilized areas of a community when funding shortages occurred at the federal and state levels.

A TIRZ may not simply be created without justification. In its current state, the designated zone must have a deleterious effect on the economic future of the creating body.

The zone must substantially arrest or impair the sound growth of the municipality or county creating the zone, retard the provision of housing accommodations, or constitute an economic or social liability and be a menace to the public health, safety, morals, or welfare in its present condition and use.

However, this does not restrict the use of TIRZs to poor areas. Among the conditions justifying creation of a TIRZ is "the predominance of defective or inadequate sidewalk or street layout," and wealthy areas may be included in a TIRZ; for example, Uptown Houston is a TIRZ.

A county may not create a TIRZ for economic development (for example, infrastructure improvements around a new stadium), but a city may create a TIRZ for this purpose and turn the increment over to the county.

Tax increment financing may be initiated by the city council without the need for a petition. If not initiated by petition, an area may be considered for tax increment financing only if it meets at least one of the following three criteria:

1. The area's present condition must substantially impair the city's growth, retard the provision of housing, or constitute an economic or social liability to the public health, safety, morals or welfare. Further, this condition must exist because of the presence of one or more of the following conditions: a substantial number of substandard or deteriorating structures, inadequate sidewalks or street layout, faulty lot layouts, unsanitary or unsafe conditions, a tax or special assessment delinquency that exceeds the fair market value of the land; defective or unusual conditions of title, or conditions that endanger life or property by fire or other cause; or
2. The area is predominately open, and because of obsolete platting, deteriorating structures or other factors, it substantially impairs the growth of the city; or
3. The area is in or adjacent to a "federally assisted new community" as defined under Tax Code Section 311.005(b).

With regards to potential application by the City of Rockdale at the H.H. Coffield Regional Airport, the property is owned by the City and has been underutilized for years. As owner/sponsor of the Airport, the City of Rockdale is obligated regardless for financing improvements. Presently, the City is funding airport projects from its annual budget as funds are accrued and available.

An alternative to the lengthy and cumbersome process to initiate a TIRZ, and its subsequent reporting obligations, the City of Rockdale could assess a mil levy designation for the Airport much easier and accomplish a similar outcome. This mil assessment would be spread evenly across the property base and justification is the airport is a community assessment.

Many smaller communities across the nation rely on this revenue generation strategy to fund the Airport. In most cases, the community vote initially to adopt this new mil levy category and it could have a designated sunset date. Over time, the mil rate can be adjusted to fit the needs of the Airport budget which demonstrates strong fiscal management to the community.

The Airport is probably about two years away from reasonably accepting substantial business development on the property. The City should concentrate on investing in compliance and safety projects to bring the Airport closer to current compliance standards. Additionally, land must be prepared and infrastructure established to support new building and facility development.

The rate of progress will fall squarely upon what level of priority, and commitment to funding, the City of Rockdale places on the H.H. Coffield Regional Airport.

**Recommendation:** The City of Rockdale needs to establish the Airport as a development priority if it wishes to effectively compete with its regional competitors and emerge as an economic development asset for Rockdale.

In the short-term (1 -3 years), generating revenue for the Airport through a mil levy assessment is potentially the shortest path to sustained revenue for financing improvements.

In the mid and long-term ( 5 years and beyond), examining the application of Tax Increment Financing through the establishment of a Tax Increment Reinvestment Zone would be the appropriate path to leveraging emerging business development revenue at the airport.

It would also provide ample study time for the City to examine all angles of implementing a TIRZ and its impact on City and Airport finances with the end goal of developing self-sustaining revenue streams to support maintenance and growth.

## **5.1 Next Steps**

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Upon acceptance of the Airport Development Plan/Airport Layout Drawing and companion Airport Business Plan by the City of Rockdale and TXDOT, implementation of next steps in the revitalization of the Airport as an economic development tool for the City should be:

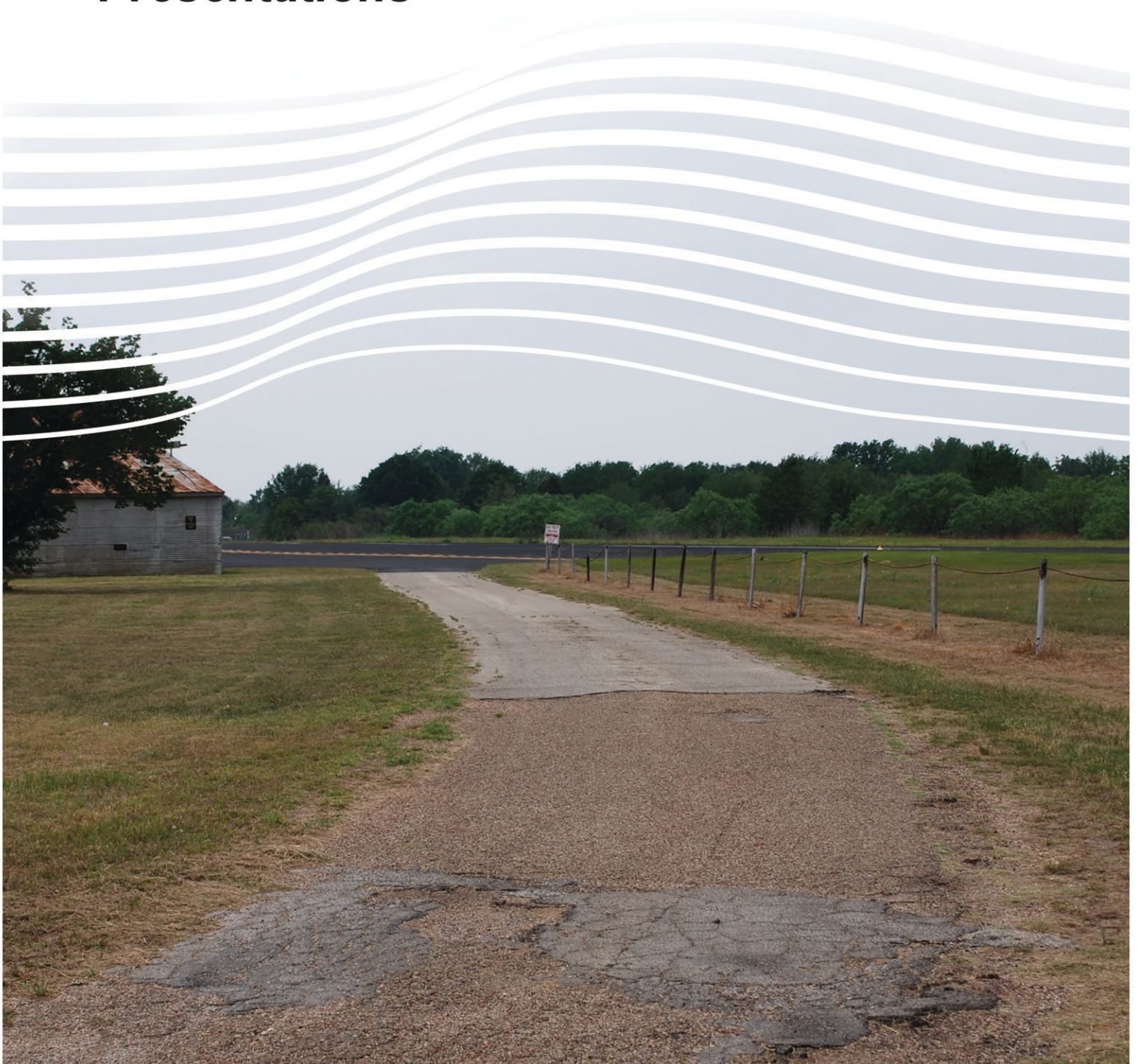
- Prioritize the top three needed airport capital improvement projects which will meet compliance and safety standards over the next three years.
- Make applications for TXDOT grants to purchase and install a new self-serve fuel system with electronic card reader, and new T-Hangars. Both of these investments have a high rate of return with the pilot community and demonstrate the vitality of an airport.
- Within the City of Rockdale's annual budget, allocate the necessary matching funds to demonstrate interest and capacity to compete for TXDOT state grants for these improvements. If TXDOT does not issue grant funds, then the City should be prepared to fund these projects.
- Create the Airport Marketing Team and direct the Team to establish target market priorities and marketing channels within three months of formation. The highest priority market should be the recruitment of aircraft owners from the FAA database to base their aircraft at H.H. Coffield Regional Airport.
- A request from the City of Rockdale to the Municipal Development District to commit project funding over a three-year period toward supporting the Marketing Team's budgets to promote the Airport and recruit new aviation-related businesses.
- Promote the Airport to both the community and aviation groups through an annual event to build interest in the Airport and demonstrate community support for aviation.

- Continue to use the Airport Development Plan to prioritize modernization and compliance projects, and provide the requisite City funding to accomplish these projects.
- Dedicate a City employee or contract services to an individual or firm to directly manage/promote the Airport on either a half or full-time contract. This avoids fragmentation of duties with the City Manager or Public Works Director to directly manage the Airport asset.

Of all the airports in this region, the H.H. Coffield Regional Airport has the greatest potential to emerge as a significant player in service delivery and facilities to the aviation community. The greatest challenge to the Airport's development is garnering the necessary local and political support to follow through on the outcomes generated from the Airport Development Plan and Airport Business along with committing the requisite funds to modernized and enhance this community asset.

# Appendix A

## ***Presentations***





CITY OF ROCKDALE  
Rockdale City Hall  
505 West Cameron Avenue  
Rockdale, Texas 76567

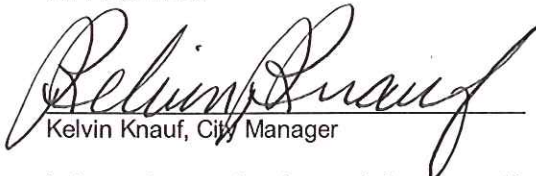
**AIRPORT DEVELOPMENT PLAN  
COMMITTEE MEETING  
Wednesday, August 29, 2012  
City Council Chambers  
505 W. Cameron Avenue  
6:00 p.m.**

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**Airport Development Planning Committee Meeting – AGENDA**

1. Introduction of Airport Development Group, Inc. and project team
2. Working roles between ADG, Rockdale and TxDOT Aviation on project
3. Purpose of Airport Development Plan
4. Project Timeline (handout)
5. Introduction of ADP Advisory Committee and Role
6. Airport Survey
7. Discussion about airport issues and roles in the community
8. Wish List
9. Wrap Up

**APPROVED:**

  
Kelvin Knauf, City Manager

I, the undersigned authority, do hereby certify that this Notice of Meeting was posted on the bulletin board at the City Hall of the City of Rockdale, Texas, a place convenient and readily accessible to the general public at all times, and said notice was posted on the following: 8-24-12, 4:22 AM/PM and remained so posted at least 2 hours after said meeting was convened.

  
Terry Blanchard, City Secretary

A majority of members of the **ROCKDALE CITY COUNCIL, the MDD, and the AIRPORT BOARD** may attend this meeting. No action will be taken by the Council, MDD, or Airport Board during this meeting.

Airport Development Plan  
Kick-off Meeting for the  
H.H. Coffield Regional Airport

Wednesday, Aug. 29 • 6 – 7:30 p.m.  
Rockdale City Council Chambers

Working Agenda

1. Introduction of Airport Development Group, Inc. and project team
2. Working roles between ADG, Rockdale and TxDOT Aviation on project
3. Purpose of Airport Development Plan
4. Project Timeline (handout)
5. Introduction of ADP Advisory Committee and Role:
  - City Manager Kelvin Knauf
  - Public Works Director (currently vacant)
  - Councilwoman Toby Johnson (Airport Committee liaison)
  - Chamber President Deedra Jacob
  - MDDA Exec Tom Manskey
  - Collier Perry, MDD Board Member
  - Local Pilot Lon Williams, Code Enforcement Officer/Planning
  - Doug Williams, Member Planning and Zoning Commission member
  - Airport Board Representative Ray Kuchera
  - Airport Board Representative Jimmie Cox
  - Pilot - TBD
  - Public Member - TBD
6. Airport Survey
7. Discussion About Airport Issues and Role in the Community
8. Wish List
9. Wrap Up

ADG Contacts:

Rick Bryant

rbryant@adgairports.com

785-424-3050

Steve Marshall

smarshall@adgairports.com

303-782-0882

## Summary – Project Meeting No. 1

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### Introduction

Project Meeting No. 1 for the H.H. Coffield Regional Airport's Airport Action/Business Plan was held at Rockdale City Hall on August 29, 2012 at 6:00 PM. Mr. Rick Bryant and Mr. Steve Marshall guided the presentation and discussion.

The City of Rockdale as owner, operator and sponsor of the H.H. Coffield Regional Airport (RCK) initiated this project to assess the Airport's existing and future role and to provide direction and guidance related to short- and long-term development.

### Project Discussion

Airport Development Group (ADG) appeared before the Airport Development Plan Committee to discuss the proposed project. ADG indicated that a formal planning document for the airport had not been recently prepared.

ADG indicated that the scope of services for the project includes a full narrative report along with presentation materials covering these project chapters/tasks: (1) Introduction, (2) Inventory, (3) Forecasts, (4) Facility Requirements, (5) Alternatives Analysis (6) Phased Development and Costs, (7) Airport Layout Plan drawings update, and (8) Airport Business Analysis.

ADG indicated that this planning effort will not obligate the City, nor TxDOT, to any specific future project or financial obligation. It is plan in spirit and intent.

ADG indicated that project progress would be coordinated with TxDOT and presented to the Committee in three phases.

- ⇒ Phase One; Introduction, Inventory, Forecasts, Facility Requirements, Alternatives Analysis, resulting in Working Paper No. 1

- ⇒ Phase Two: Phase One materials plus Phased Development and Costs, Airport Layout Plan drawings update, resulting in the Draft Airport Layout Plan.
- ⇒ Phase Three: Consummation of a Final Airport Master Plan with the addition of the Airport Business Analysis, and with all narrative comments addressed.

### Committee Discussion

ADG and the Committee agreed that the airport has been a bit of an underutilized asset and that this planning could be a starting point for renewing discussion, and establishment of some new opportunities. ADG and the Committee agreed that RCK is a valuable public asset and necessary facility. ADG discussed, very generally, the evolution of the airport and how it can best serve the City and the region in the future.

Committee consensus was very positive about enhancing their community airport but optimism was guarded over the potential significant fiscal impact to the City for ongoing matching funds requirement.

A Milam County Commissioner attended this meeting and announced their interest as a potential partner with the city of Rockdale in support of enhancing the airport, and making it a more valuable regional public asset. This announcement was not expected by the Committee, or by ADG. Summarily, some sort of joint-use arrangement may be of interest.

During the course of the discussion, the Committee and ADG fielded a preliminary offer from a local resident to sell land, some 600 acres 1.5 miles southeast of the present airport location for an expanded airport. The proponent indicated that the property is presently along the same county road as RCK, developed with water and

electrical infrastructure and is fairly level with minimal tree coverage.

A representative of the local surveying firm hired by ADG attended the meeting per ADG's request. This individual has significant time and history with the airport property and its adjacent properties. He shared with the Committee and ADG that property owners south and west of RCK are extensively involved with oil and gas development and that multiple land owners have either existing oil/gas production or will be undertaking drilling operations very soon.

A representative of the Rockdale Municipal Development District (MDD) attended this meeting and announced their interest as a potential partner with the city of Rockdale in support of enhancing the airport, and making it a more valuable regional public asset.

Within the context of the planning, the Committee and ADG briefly discussed landside development at RCK and existing challenges. Without specific information and based upon anecdotal evidence, the Committee agreed that the existing runway length was not sufficient to accommodate the kinds of aircraft associated with the type of economic development envisioned. This same disposition was generally felt for the airfield overall.

### ***ADG Project Notes and Site Visit***

ADG visited the airport site and made the following observations. These observations were made pursuant to completion of the upcoming inventory, facility requirements and alternatives analysis tasks:

- ⇒ Pavement markings are in good condition, but in a non-standard configuration given some of the following issues.
- ⇒ Runway 17-35's longitudinal gradient exceeds FAA's required two percent; and, the runway's transverse grade may not reach FAA's required one percent in select locations.
- ⇒ The holdline is at a non-standard separation ( $\pm 65$  feet for runway centerline)

- ⇒ The well for the City of Rockdale is located approximately 60 feet from runway centerline within ROFA. The city has estimated the cost to relocate at \$3 million.
- ⇒ Property associated with an abandoned rail line easement within the ROFA may have recently been sold by the City.
- ⇒ An underground gas line may exist just beyond ( $\pm 500$  feet) the south runway end.
- ⇒ ROFA/RSA overlap Road 908 on north runway end. ROFA/RSA likely overlap property line on the south runway end.
- ⇒ Runway 17 20:1 approach surface likely penetrated by roads, powerlines, trees, buildings. Incompatible land uses likely within the immediate area with insufficient property ownership for 35-foot BRL.
- ⇒ Runway 35 20:1 approach surface likely penetrated by powerlines, trees, buildings. Incompatible land uses likely within the immediate area with insufficient property ownership for 35-foot BRL.
- ⇒ The East-side 7:1 surface is penetrated by trees, hangars, fueling station/tanks, powerlines. The West-side 7:1 is penetrated by trees, rail line ROW, and the city well. Incompatible land uses likely within the immediate area with insufficient property ownership for 35-foot BRL.
- ⇒ All aircraft parking apron/ramp and the southern-most hangar within ROFA. Auto access within ROFA.
- ⇒ The two historical hangars may have reached the end of their useful lives, as unsafe conditions have been noted within.
- ⇒ Runway crossing conditions potentially created with hangars on both sides of the runway.
- ⇒ Non-standard LIRL (and other existing airfield lighting) in sub-optimal condition.
- ⇒ RNAV IAPs, Beacon, AWOS, PAPI, REIL, other airfield signage absent.

- ⇒ Segmented circle in non-standard location.
- ⇒ ADG understands that RCK was donated by Mr. H.H Coffield himself a number of years ago, and that upon his passing the title for the properties upon which the airport currently rests were transferred to the City with the express understanding that the property would remain City property as long as its use remained an airport. In short, it is unclear if the City holds sufficient title per the grant assurances.

It is possible that non-standard condition disposition and airspace/obstruction removal will require substantial investment. Also, property acquisition of existing residential dwellings west of airport property and abandon railroad right of way may prove difficult, given existing property owner prerogative.

Our visual inspection, cursory review of the airport property and discussion with the surveying firm previously mentioned left us with expandability concerns. It appears that selecting and developing an airport on a new property might be less costly than fixing the existing airfield and then expanding it to accommodate the types of economic development envisioned by the Committee.

Given the potential need to accommodate larger, faster and more expensive aircraft in the long-term, this planning effort could provide the ability to maintain B-II design standards compliance.

Given that the Committee is considering landside development with runway access for business development purposes, now may be an appropriate time to also consider additional property envelope beyond that, primarily because no such property now exists.





*Airport Action/Business Plan  
Project Meeting No. 2 and  
Working Paper No. 1 Presentation*

*October 2012*

**HH COFFIELD REGIONAL AIRPORT**



# Project Meeting No. 2

## Introduction

*The primary purpose of this planning project is to narrate and illustrate the airport's planned, phased development.*

*This will be done based upon direction from the City and with guidance and assistance from ADG.*



# Review of Our Thoughts...

- 1. The Airport may change somewhat over the next few years and a new plan should be done. Although some amount of airfield investment has been made, other future investments may be necessary.*
- 2. The Plan will evaluate and develop airport planning concepts and recommendations that are workable. The Plan is intended to be an integral part of overall City planning efforts, and is intended to see that airport development occurs in a coordinated manner that enhances the airport and makes it a more valuable public asset.*
- 3. The planning process will use industry standard methods to objectively evaluate airport users needs and City priority and perspective.*
- 4. The planning will provide a framework for City decision makers to sort through the difficult questions and then use the framework to guide choices regarding airport investment decisions.*
- 5. The H.H. Coffield Regional Airport is part of the state of Texas's system of airports. It is valuable on both a local and statewide basis.*



# Review of Project Objectives

1. *Airport planning for the H.H. Coffield Regional Airport and its surrounds should complement existing operations and facilities.*
2. *Airport planning should minimize off-site impacts, particularly those affecting adjacent, neighboring areas.*
3. *Airport planning should accommodate businesses and industry to the greatest extent feasible, or per City prerogative.*
4. *Development of the Airport and its properties should occur in a coordinated and comprehensive manner, taking maximum advantage of City assets.*
5. *The airport planning process and deliverables should be flexible enough to accommodate a range of potential aviation and non-aviation uses.*





# Review of Project Objectives

6. *Airport planning and development should be conducted to achieve the 'highest and best' use of the Airport site. Specific users and uses should be evaluated on a case-by-case basis for general conformity to City perspective. Highest and best use should be interpreted in terms of the following factors: use of physical assets, economic benefit, jobs and salaries created, fiscal impact and contribution of Parish priorities.*
7. *City and regional economic goals should be an important consideration in conducting the planning and preparing a development strategy for the Airport.*
8. *Planned airport development should be evaluated relative to both long and short-term costs and benefits.*
9. *Planned airport development should contribute to the positive image and commercial activity of the City and the region.*



# *Review of Project Meetings*

## *Three Formal Planned Meetings*

- 1. August's Kick-off Meeting*
- 2. Today's Meeting for ADG to present Working Paper No. 1*
- 3. Upcoming Meeting for ADG to present Draft Airport Plan*

**H.H. COFFIELD**  
REGIONAL AIRPORT

PHONE  
446-2511



NIGHT  
446-3436

**RCK**  
H H COFFIELD REGIONAL AIRPORT



# *Project Deliverables*

## *Three Formal Deliverables*

- 1. Working Paper No. 1*
- 2. Draft Airport Plan*
- 3. Final Airport Plan including Airport Business Analysis*

**H.H. COFFIELD**  
REGIONAL AIRPORT

PHONE  
446-2511



NIGHT  
446-3436

**RCK**  
H H COFFIELD REGIONAL AIRPORT



# Airport Inventory

1. *Eight based aircraft exist along with approximately 2,400 annual operations as of the September 16, 2011 annual inspection. All aircraft are single engine. Aircraft operations count consists of 1,600 local general aviation operations and 800 itinerant general aviation operations.*
2. *Runway 17-35 is  $\pm 2,962$  feet long and 50 feet wide with unknown pavement strength. The runway is equipped non-standard LIRL and markings and no VGSI, REIL, or airfield signage or supplemental windcones. Grades non-standard in specific locations.*
3. *The main apron abuts the runway, approximates 3,000 square yards, and is entirely within the ROFA. The holdline is marked  $\pm 65$  feet from runway centerline. Access from F/M Road 908 to this area within ROFA. Two hangars (165'x130', 60'x55') abut apron with self-service fueling between. Hangars are near the end of their useful lives without substantial rehabilitation.*



# Airport Inventory

5. A newer, third hangar (65'x50') is accessed from the north runway end via a  $\pm 30'$  wide taxiway and Highway 77 and is within ROFA.
6. Proximity of runway to: hangars, fueling station, holdline, city well, rail ROW, gas line, roads, power lines and trees is noteworthy.
7. No AWOS or supplemental windcones. Segmented circle in non-standard location, configuration.
8. Land uses surrounding the airport are primarily agricultural, with sparsely scattered residences there upon.
9. No instrument approach/departure procedures are in force.
10. Wind information from the nearest reporting station (at KAUS) indicates that the runway alignment covers a sufficient amount of crosswinds, regardless of aircraft type.
11. No compatible land use ordinance/overlay zoning in effect.



# Airport Design Standards

## Airfield Design Criteria is Based Upon the Type of Aircraft Using or Expected to Use the Field

1. Aircraft Approach Category (A-E), based upon the design speed on final approach
2. Airplane Design Group (I-VI), based upon aircraft wingspan
3. Pavement Strength (Utility: pavements designed for less than 12,500 pounds maximum gross certificated, Non-Utility: greater than 12,500 pounds)
4. Instrument Approach Capability (Visibility: either greater than or equal to  $\frac{3}{4}$  mile or less than  $\frac{3}{4}$  mile)

FAA Guideline: 500 operations by aircraft type or group of aircraft with similar operational and performance characteristics

RCK is currently: A-I, Utility, Greater Than  $\frac{3}{4}$  mile



# Airport Design Standards

## Notable Airfield Design Standards

1. *Runway Safety Area (RSA): Graded area around runways and taxiways that functions like a highway shoulder.*
2. *Object Free Area (OFA): Area to be cleared around runways and taxiways (i.e. no parked aircraft, poles, etc.)*
3. *Runway Protection Zone (RPZ): Trapezoidal area beyond each runway end designed to protect people and property on the ground (i.e. no buildings, airplanes, etc.)*
4. *FAR Part 77 Surfaces (Primary, Approach, Transitional): Imaginary surfaces which slope up and away from the runway, designed to protect aircraft from natural or man-made obstructions.*
5. *This is not a complete listing...*



# Forecasts of Aviation Demand

## Forecasts are Prepared for:

1. *Based Aircraft and Based Aircraft By Type*
2. *General Aviation Operations and GA Operations By Type*
3. *Aircraft Operations Mix*
4. *Peak Period Aircraft Operations*
5. *Instrument Operations*

## Forecast Summary and Notes:

1. *Forecasts estimate aviation activity for the upcoming 5, 10 and 20 year periods.*
2. *Strictly subjective and based upon factors regionally and nationally known to correspond to aviation activity.*
3. *TxDOT approves forecasts, may have comments or recommend changes.*

H.H. COFFIELD  
REGIONAL AIRPORT

PHONE  
446-2511



NIGHT  
446-3436

RCK  
H H COFFIELD REGIONAL AIRPORT

# Forecasts of Aviation Demand

## H.H. Coffield Regional Airport

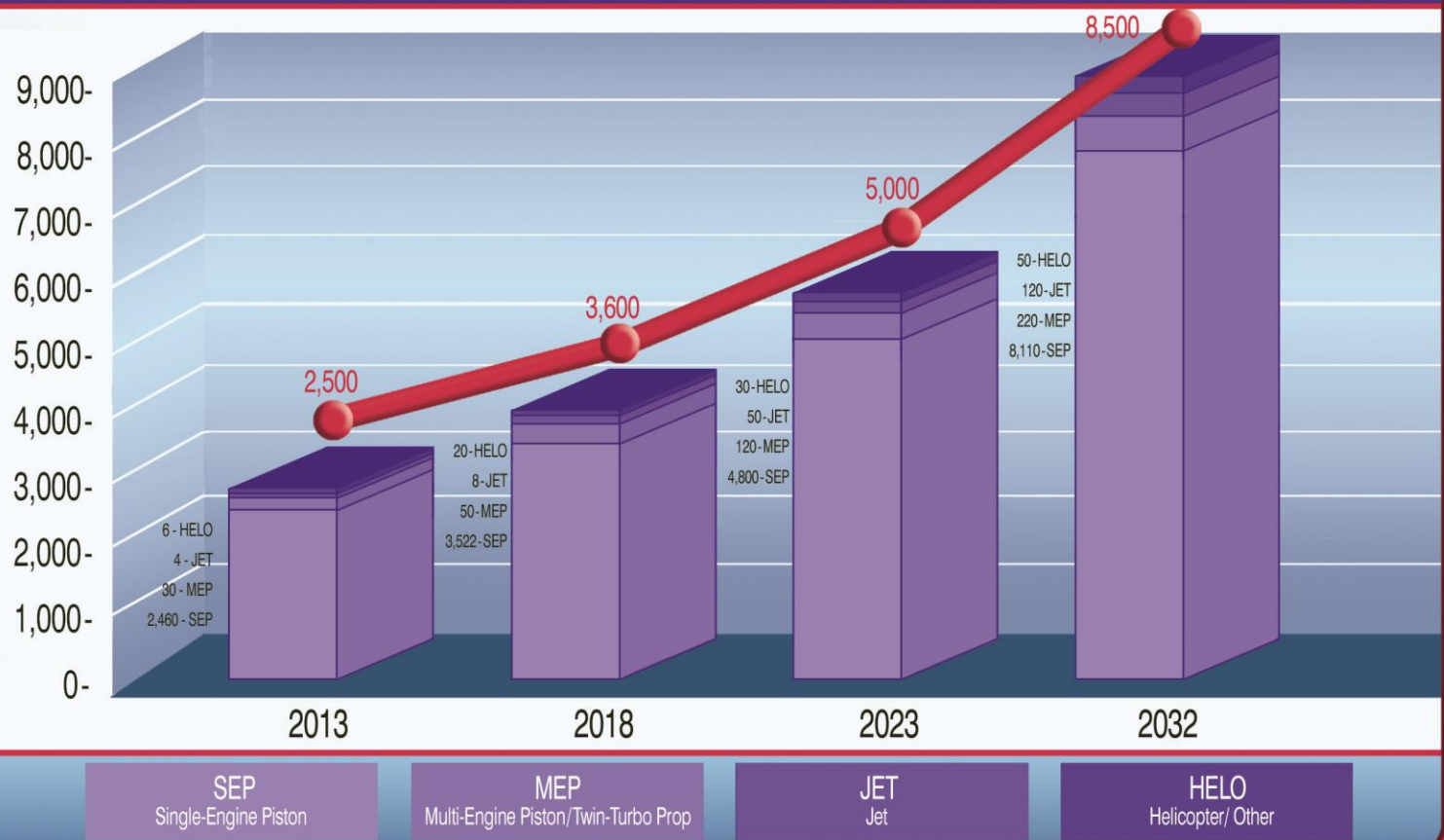
## Based Aircraft Forecast by Type



# Forecasts of Aviation Demand

## H.H. Coffield Regional Airport

## Aircraft Operations Forecast by Type



# Facility Requirements

## Facility Requirements (Five Subject Areas):

1. *Airport role and service level: Now: Basic, Future: Community*
2. *Local airspace capacity: Sufficient*
3. *Airside (Runways, Taxiways, NavAids, etc.)*
4. *Landside (Apron, Hangars, Roads/Parking, etc.)*
5. *Compliance: on-going grant assurance requirements*

## 3. Airside Requirements:

- i. *Wind analysis: 95% coverage via AUS winds*
- ii. *IAP capability: recommend GPS RNAV both runway ends*
- iii. *Airfield design and standards:*
  - a. *Short Term: A-I, Utility (<12,500 lbs.), 1 Mile Visibility*
  - b. *Intermediate Term: A/B-I, Utility (<12,500 lbs.), 1 Mile Visibility*
  - c. *Long-Term/Ultimate: B-II, Non-Utility (>12,500 lbs.),  $\frac{3}{4}$  Mile Visibility*
- iv. *Runway Length: Not a 'typical' standard*
  - a. *Short Term: Existing sufficient, with changes*
  - b. *Intermediate Term: Consider 4,400'*
  - c. *Long-Term and Ultimate: Consider 5,500'*





# Facility Requirements

## 3. Airside Requirements (Continued):

- v. *Clear FAR Part 77 surfaces via phased obstruction removal or threshold relocation*
- vi. *Consider overlay zoning ordinance*
- vii. *Consider ODALS for southern approach*
- viii. *Full-parallel taxiway not recommended*
- ix. *Other Non-Standards Conditions disposal*

## 4. Landside Requirements

- i. *Based/Itinerant apron/ramp: all new, phased for future*
- ii. *Terminal: all new*
- iii. *T-hangars best use of space*
- iv. *Consider ground leasing, stub utilities for box hangars*
- v. *Minimize runway crossings*
- vi. *Maintain perimeter fencing as development necessitates*
- vii. *Site AWOS, PAPIs, REILs, MIRL, Segmented Circle and windcones*

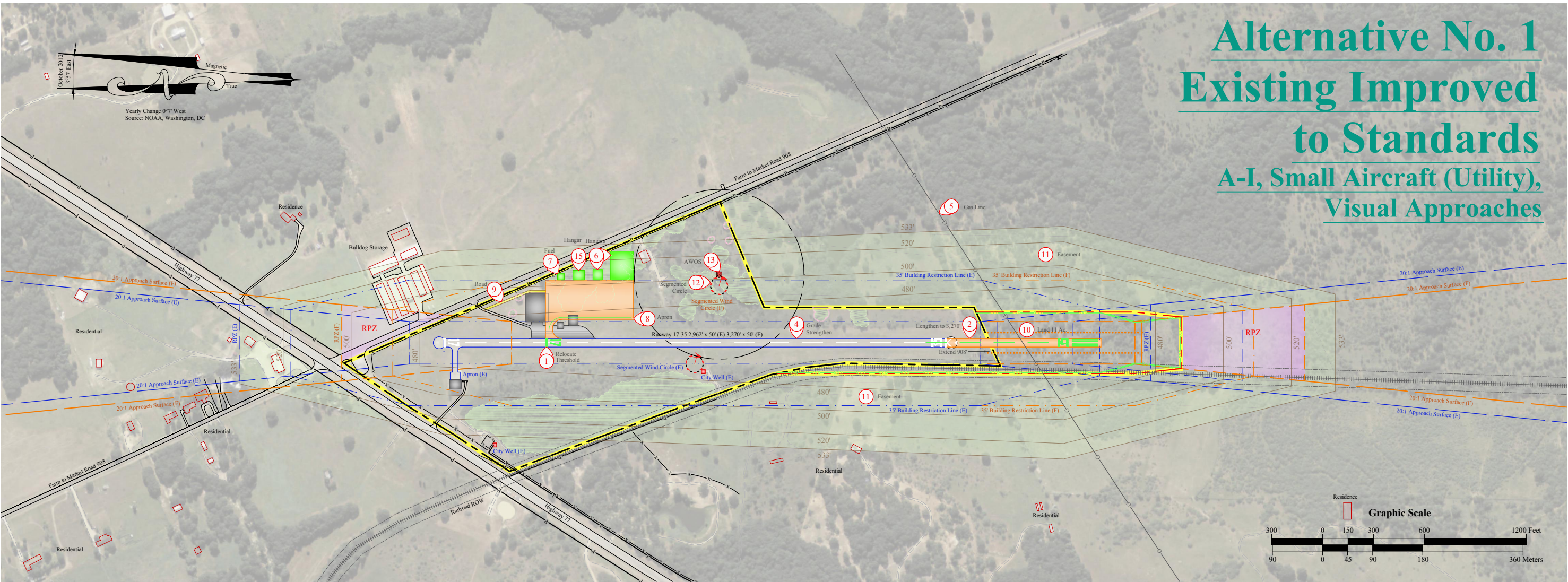


# Alternatives

## Rules of Road

1. We painting with a broad brush in this portion of the plan.
2. We are not doing detained design... yet, generalizing at this point in the project is appropriate, specifics may be lost.
3. Total costs are primarily for comparison purposes.
4. As a matter of course we recommend all airport sponsors acquire RPZ and 35' BRL. However, this is not required.
5. As a matter of course we recommend all airport sponsors maintain a perimeter fence for security and wildlife control.
6. Improvements recommended for all scenarios are generally not shown, we are trying to highlight differences.
7. Trees: height survey not completed, green area indicates clearing necessary for trees up to 80' tall.





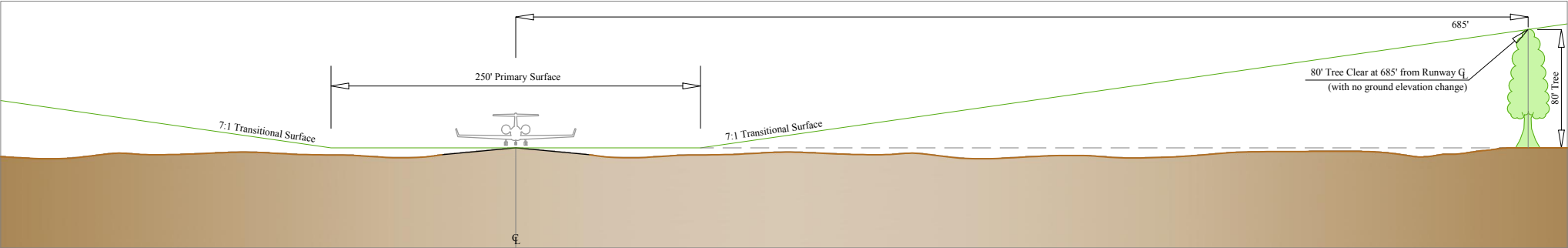
Alternative No. 1  
Existing Improved  
to Standards  
A-I, Small Aircraft (Utility),  
Visual Approaches

No.	Revision	Ckd	Date

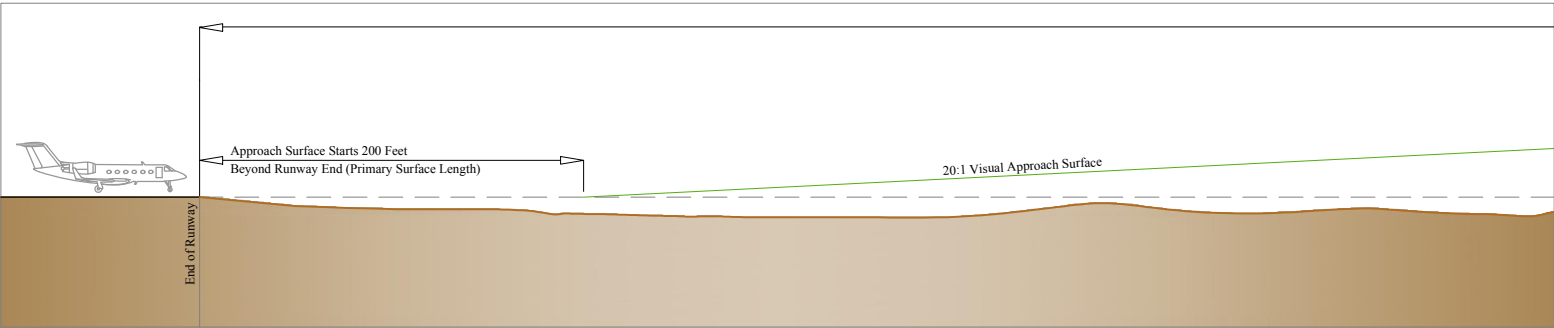
H.H. Coffield  
Regional Airport  
Rockdale, TX

ADG  
AIRPORT DEVELOPMENT GROUP, INC.  
1776 South Jackson Street / Suite 950  
Denver, Colorado 80210-3802  
303.782.0882 / 303.782.0842 fax  
www.ADGairports.com

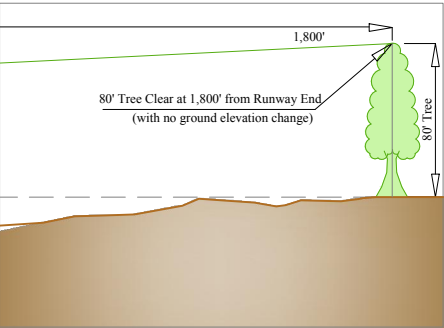
TXDOT Contract Number: 2X1AV064



Typical Cross-Section View; Primary and Transitional Surface Clearances



Typical Profile View; Approach Surface Clearances



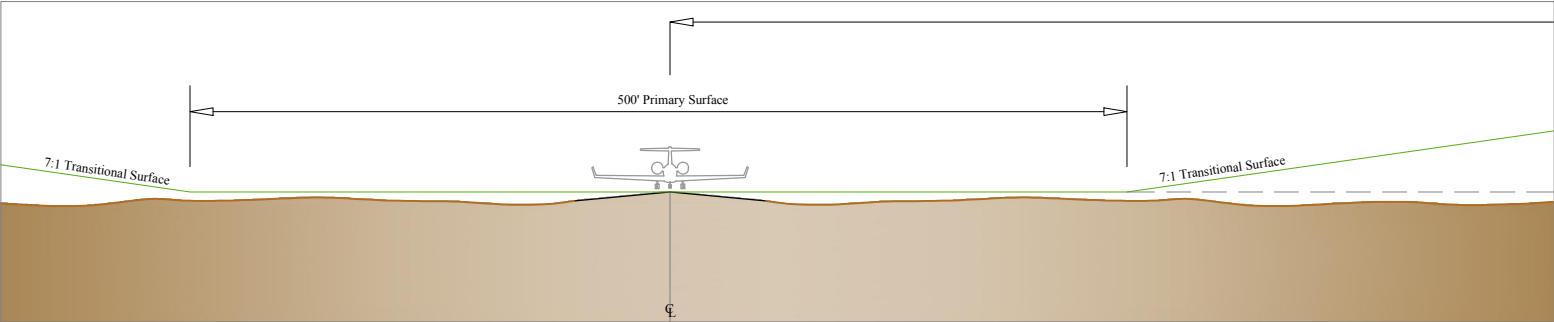
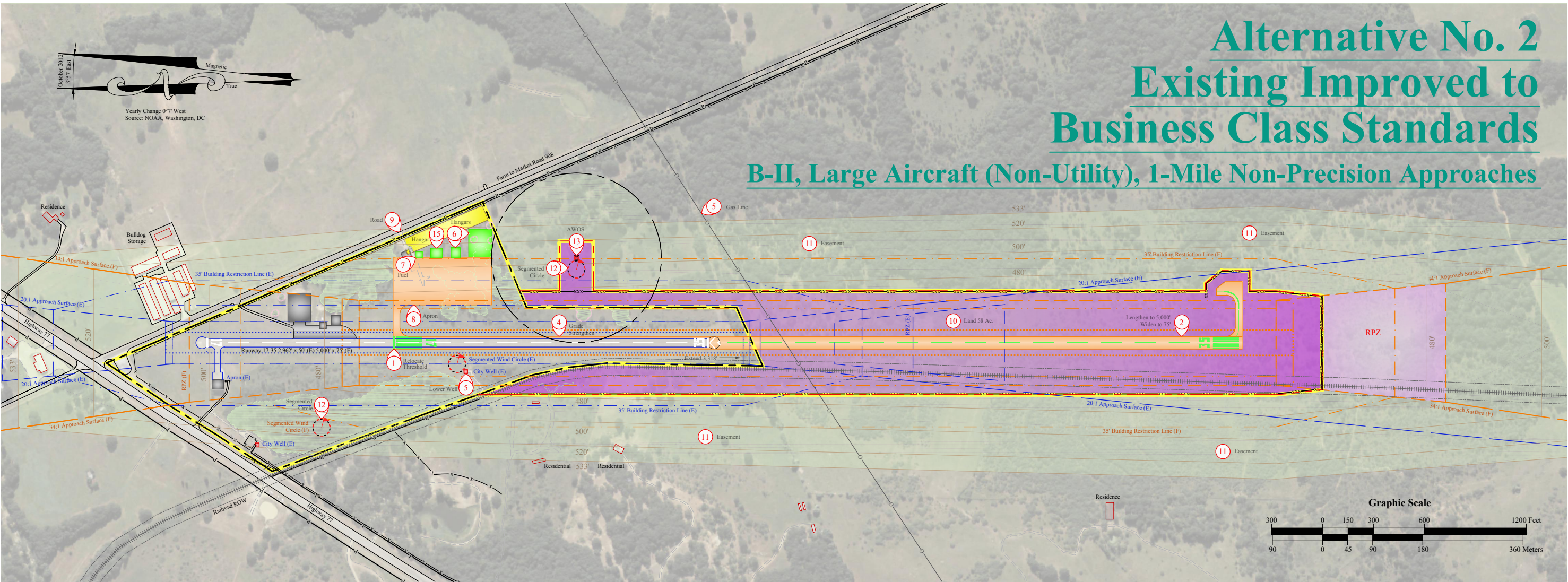
(E), (F)  
Existing, Future  
Existing Property Line  
Building Restriction Line (BRL)  
Runway Protection Zone (RPZ)  
Approach Surface  
Existing Pavement  
Future Pavement  
Existing Pavement To Be Removed

Existing Buildings  
Future Buildings  
Existing Buildings To Be Removed  
Dirt Road  
Existing Paved Roads  
Future Paved Roads  
Drainage Line

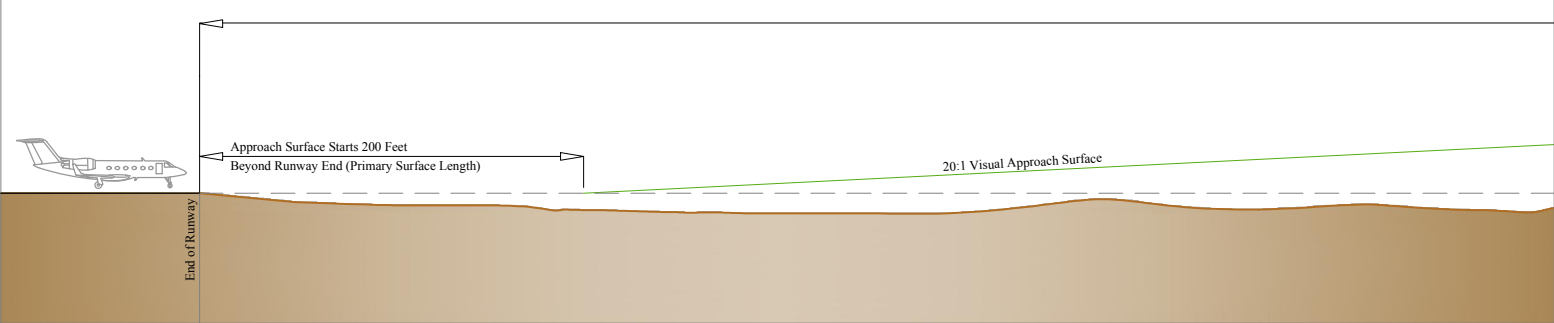
Improvement Costs	
Improvement	Rough Cost Estimate
<b>Reconstruct Runway 17-35:</b> 1. Relocate Runway 17 Threshold 600' 2. Lengthen to 3,270' 4. Fix Longitudinal Grade, Fix Transverse Grade, Strengthen to 12,500 SWG 5. Relocate/Lower Gas Line	\$2,550,000
<b>New Hangar/Apron Area:</b> 6. Relocate/Build 2 New Hangars 7. Relocate Self-Serve Fueling 8. Relocate Apron 9. Relocate Entrance Road	\$1,675,000
10. Acquire Land To Clear Fence (11 Ac.) 11. Airspace/Tree Clearing Easement (±91 Ac.) (Clear 80' Tree)	\$255,000
12. Relocate Segmented Circle	\$6,000
13. Install Beacon, AWOS, Supplemental Windcones	\$185,000
14. Install MIRL, REILs and PAPI (17 and 35), Airfield Signage	\$1,220,000
15. Relocate West-side Hangar (requires inline taxiway)	\$520,000
<b>TOTAL ESTIMATE</b>	<b>\$6,411,000</b>

Project No.:	RCK1400M
Designed By:	SPM
Drawn By:	MTP
Approved By:	SMP
Date:	October 2012

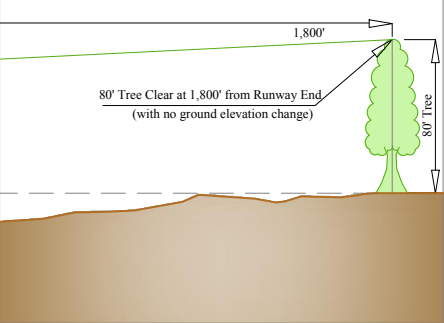
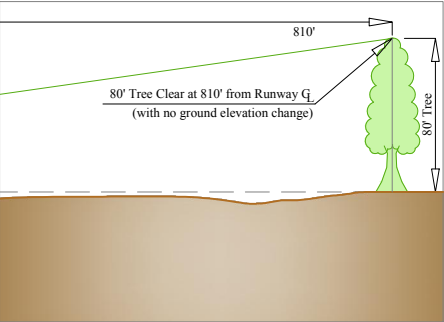
Alternative No. 1  
Existing Improved  
To Standards



Typical Cross-Section View; Primary and Transitional Surface Clearances



Typical Profile View; Approach Surface Clearances



**Legend**

(E), (F)	Existing, Future	Existing Buildings
Existing Property Line	Future Buildings	
Building Restriction Line (BRL)	Existing Buildings To Be Removed	
Runway Protection Zone (RPZ)	Dirt Road	
Approach Surface	Existing Paved Roads	
Existing Pavement	Future Paved Roads	
Future Pavement	Drainage Line	
Existing Pavement To Be Removed		

Improvement Costs	
Improvement	Rough Cost Estimate
<b>Expand Runway 17-35:</b> 1. Relocate Runway 17 Threshold 1,100' 2. Lengthen to 5,000' and widen to 75' 4. Fix Longitudinal Grade, Fix Transverse Grade, Strengthen to 30,000 DWG 5. Relocate/Lower Gas Line and City Well	\$4,510,000
<b>New Hangar/Apron Area:</b> 6. Relocate/Build 2 New Hangars 7. Relocate Self-Serve Fueling 8. Relocate Apron 9. New Entrance Road	\$2,800,000
10. Acquire Land To Clear Fence (58 Ac.) 11. Airspace/Tree Clearing Easement (±195 Ac.) (Clear 80' Tree)	\$1,020,000
12. Relocate Segmented Circle	\$6,000
13. Install Beacon, AWOS, Supplemental Windcones	\$185,000
14. Install MIRL, REILs and PAPI (17 and 35), Airfield Signage	\$1,650,000
15. Relocate West-side Hangar (requires inline taxiway)	\$520,000
<b>TOTAL ESTIMATE</b>	<b>\$10,691,000</b>

**Alternative No. 2**  
**Existing Improved to**  
**Business Class Standards**

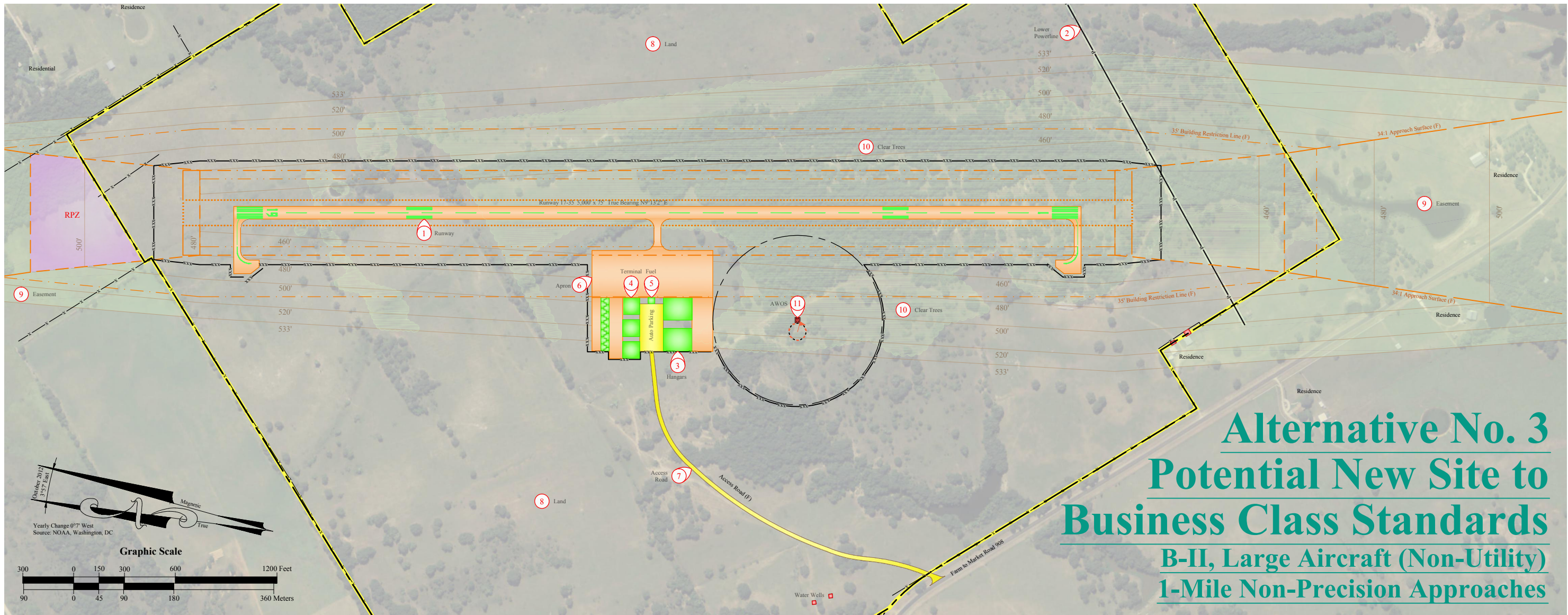
Exhibit: **A2**  
of 4 Exhibits

**H.H. Coffield**  
**Regional Airport**  
Rockdale, TX

**ADG** AIRPORT DEVELOPMENT GROUP, LLC  
1776 South Jackson Street / Suite 950  
Denver, Colorado 80210-3802  
303.782.0882 / 303.782.0842 fax  
www.ADGairports.com

Project No.: RCK1400M  
Designed By: SPM  
Drawn By: MTP  
Approved By: SMP  
Date: October 2012

TxDOT Contract Number: 2X1A1064



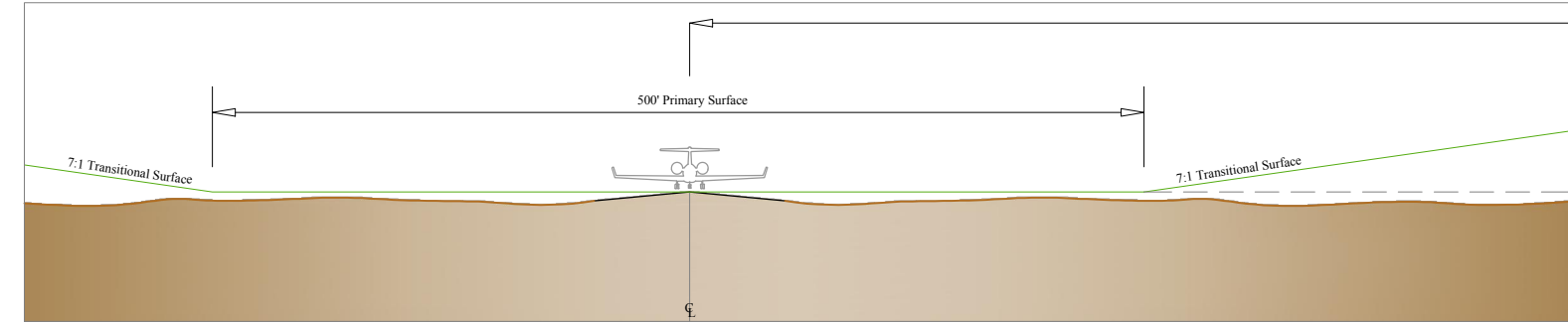
# Alternative No. 3

## Potential New Site to

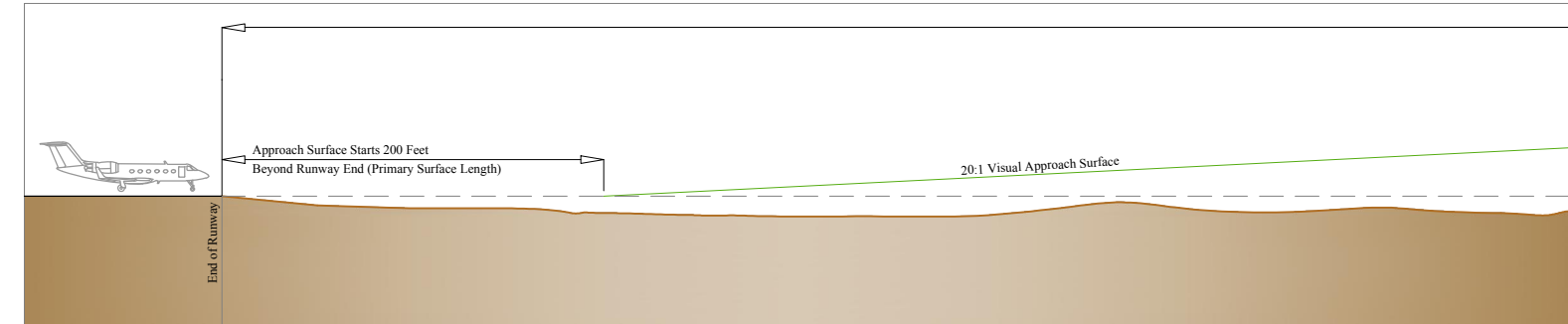
### Business Class Standards

#### B-II, Large Aircraft (Non-Utility)

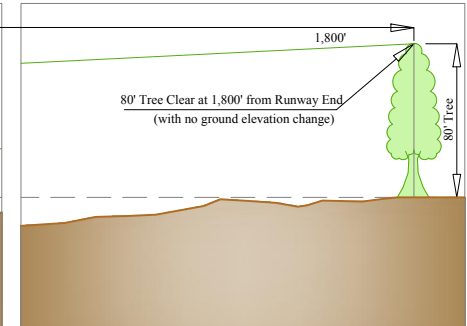
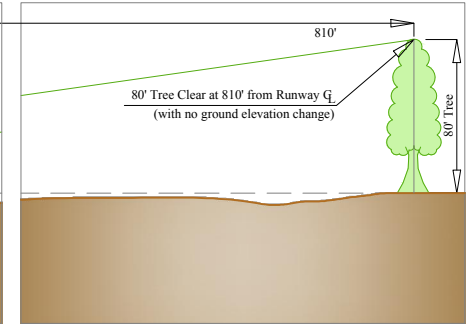
#### 1-Mile Non-Precision Approaches



Typical Cross-Section View; Primary and Transitional Surface Clearances



Typical Profile View; Approach Surface Clearances



**Legend**

(E), (F)	Existing, Future	Existing Buildings
Existing Property Line	Future Property Line	Future Buildings
Building Restriction Line (BRL)	Runway Protection Zone (RPZ)	Existing Buildings To Be Removed
Approach Surface	Existing Pavement	Dirt Road
Future Pavement	Future Pavement	Existing Paved Roads
Existing Pavement To Be Removed		Future Paved Roads
		Drainage Line

Improvement Costs	
Improvement	Rough Cost Estimate
<b>New Runway 1-19:</b>	
1. Construct Runway 17-35 to 5,000 feet by 75 feet at 30,000 DWG Strength	\$5,125,000
2. Relocate/Lower Power Line	
<b>New Hangar/Apron Area:</b>	
3. Build 2 New Hangars (and Relocate 1 Existing Hangar)	\$3,250,000
4. New Terminal	
5. Install Self-Serve Fueling	
6. Construct New Apron	
7. New Entrance Road	
8. Acquire Land (Existing Ranch for Sale (±600 Ac.)	\$1,500,000
9. Airspace/Tree Clearing Easement (±120 Ac.) (Clear 80' Tree)	
10. Clear Trees on Ranch for 80' Clearance (±133 Ac.)	\$120,000
11. Install Beacon, AWOS, Supplemental Windcones	\$195,000
12. Install MIRL, REILs and PAPI (17 and 35), Airfield Signage	\$1,650,000
<b>TOTAL</b>	<b>\$11,840,000</b>

No.	Revision	Ckd	Date

**H.H. Coffield**  
**Regional Airport**  
Rockdale, TX

**ADG** AIRPORT DEVELOPMENT GROUP, LLC  
1776 South Jackson Street / Suite 950  
Denver, Colorado 80210-3802  
303.782.0882 / 303.782.0842 fax  
www.ADGairports.com

Project No.: RCK1400M  
Designed By: SPM  
Drawn By: MTP  
Approved By: SMP  
Date: October 2012

**Alternative No. 3**  
**Potential New Site with**  
**Business Class Standards**

Exhibit:  
**A3**  
of 4 Exhibits



# Wrap-Up

## Topics for Next Time

1. *Revisit project introduction, including schedule, deliverables and decision points.*
2. *Revisit Inventory of Airport*
3. *Revisit Forecasts of Aviation Demand*
4. *Revisit Facility Requirements*
5. *Revisit Alternatives Analysis*
6. *Consider DRAFT Airport Plan and Narrative, including Phased Development and Cost Estimates, Airport Layout Plan and Drawings and Airport Business Analysis.*

# Appendix B

## *Ordinance*



# AIRPORT COMPATIBILITY GUIDELINES



## Compatibility Planning Compatible Land Use Zoning Hazard Zoning For Airports in Texas

January 2003

Texas Department of Transportation  
Aviation Division





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# INTRODUCTION

The Texas Department of Transportation (TxDOT) developed these guidelines as a reference source for elected officials, zoning board members, and city and county staff members responsible for assuring compatibility between an airport and the community it serves. While zoning may be the first thing considered, there are other measures that a community may take to enhance compatibility.

**Officials are urged to review Chapters 1 and 2 of these guidelines before deciding which measures are best suited for their airport and community.**

These guidelines are an update and revision of the first edition of “Airport Compatibility Guidelines” published by the Texas Department of Transportation, Division of Aviation, in 1992. That original document was modeled after and borrowed heavily from similar documents developed by agencies of two other States: the Wisconsin Department of Transportation, Division of Aeronautics, and the Oregon Department of Transportation. The Texas Department of Transportation, Aviation Division, continues to acknowledge these two organizations for portions of the information used herein.



# CHAPTER 1: PLANNING FOR TOMORROW'S AVIATION NEEDS

Texans are people on the move, and more and more frequently they travel by air. The statistics are impressive. Nine percent of air travelers in the United States board at a Texas airport. Thirty-eight different airline companies serve the state with 26 Texas cities receiving commercial airline service. Airports in Texas annually enplane over 62 million passengers.

To meet this demand, Texas has approximately 400 unrestricted public-use airports, with 300 included in the state airport system plan. Ten million operations (takeoffs and landings) are made annually at these public-use airports.

Maintaining these facilities is a challenge to the many local governments and private organizations that own and operate airports. As if the current challenge were not sufficient, the demand for air services and the use of these facilities are projected to grow steadily. The Texas Airport System Plan forecasts that by the year 2012, boardings at Texas airports will have increased to 102 million passengers. Total operations will more than double during the same period.

## A Cloud on the Horizon

The Texas Department of Transportation (TxDOT) Aviation Division is committed to encouraging and assisting airport sponsors with the continued development of a statewide airport system that can provide for this anticipated growth. Providing new airport facilities is vitally important, but even more important is the need to insure that existing facilities can be developed to their maximum feasible utility.

Unfortunately, the encroachment of incompatible land uses or tall structures that are incompatible with airport operations threaten the continued usefulness of many airports. The result of incompatible land use may be community opposition to increased levels of traffic or even current traffic volumes. The results of incompatible tall structures may be the raising of approach minimums or the loss of instrument approaches altogether. The problem of airport land use conflicts will become apparent in many more locations as both urban populations and the need for airport facilities continue to grow.

These guidelines have been developed to explain what can be done to create an environment compatible with airport uses. They are written to give the reader an understanding of compatibility issues as well as instructions for implementing compatibility plans.

- Chapter 1, the remainder of describes how airport land use conflicts have developed, why solutions to the problem are the responsibility of the airport sponsor, and what in general can be done to prevent conflicts.
- Chapter 2 describes what is involved in planning for an airport-compatible environment.
- Chapter 3 outlines the preparation of compatible land use and hazard zoning regulations to insure airport compatible development.
- Chapter 4 explains the procedures for adopting airport zoning.

## **An Asset to the Community**

Airports have become increasingly important to the economy of the area they serve. While this has long been true for major urban areas, many smaller communities are finding that an airport is their open door to economic development. This is due in large part to the way in which many companies now do business. Rather than locating all of their facilities in one city, a company may establish branch offices throughout the country and use corporate aircraft to shuttle between the various sites.

In this way, even relatively small communities with a good general aviation airport are candidates for companies seeking to take advantage of the community's resources. In evaluating the community, prospective businesses often look at an airport as they do the community's other transportation services, schools, and utilities. Therefore, any airport can be an important and valuable asset to a community.

## **Conflicts Produced by Growth**

Growth in the demand for aviation services coincided with the rapid growth of many urban areas. Land use conflicts were often the result. New high-rise buildings and communication towers protruding into an airport's airspace appeared on drawing boards and planning documents. Figure 1-1 illustrates how population growth and the demand for new housing can bring residential development to the doorstep of a once more remote airport.

Simultaneously, airports needed to expand to accommodate larger aircraft and more flights. Residents of areas exposed to the frequent overflights, especially by larger jet aircraft, found airport operations to be incompatible with their urban and suburban standard of living.

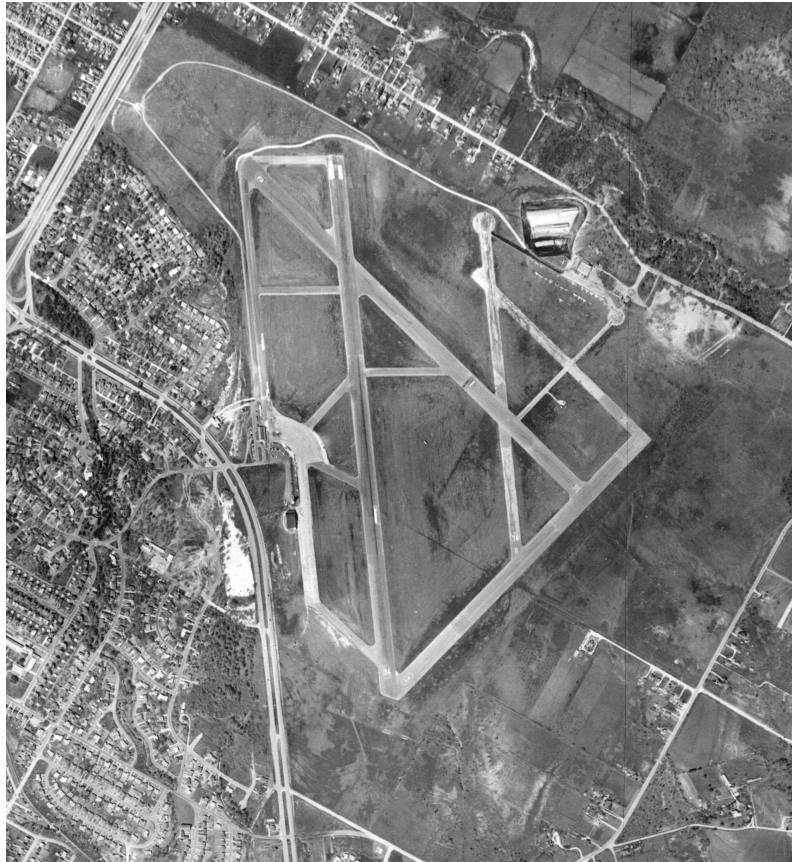
The initial response was to relocate the airport farther from the central city. However, with a few notable exceptions, the new airport sites were soon subject to encroachment by incompatible uses as development followed the airport. The process of relocation might have continued except that today there are few, if any, environmentally acceptable new sites for major airports. Acceptable sites are often located beyond reasonable access distances from the cities the airports are intended to serve. Even if suitable sites were readily available, many communities have found the multimillion-dollar cost investment required for a new airport to be prohibitive. Consequently, many major airports are affected today by incompatible development and must operate with certain restrictions to mitigate the impact of aircraft operations.

Though the more serious instances of airport land use conflicts are associated with larger air carrier airports, smaller facilities may have their own compatibility problems. The same increased use of business aircraft at general aviation airports that may offer economic opportunity may also introduce land use conflicts that previously were not apparent. Aircraft used by today's businesses do not generate so much noise as commercial transports, but in the quieter surroundings of smaller communities, their noise may be considered just as disruptive.

## **Prevention Preferable to Cure**

Fortunately, many opportunities exist for Texas communities to forestall the development of incompatible uses around their airport. Suburbanization has not reached many airport sites serving general aviation. These guidelines will be most beneficial in these situations by recommending planning measures that can be implemented now to prevent what has happened at other locations.

**Figure 1-1. Encroachment Around an Urban Airport**



*Without sufficient compatibility planning or enforceable zoning restrictions, the use of land surrounding this airport changed to a point that the airport was closed in 1999.*

Hazard zoning should protect all airports, regardless of the airport's size. Apparently, our State Legislators also feel this is important because they have tied the requirement of hazard zoning to the State's airport grant program. In addition, any airport capable of serving jet transports, business jets, or large propeller aircraft, now or in the twenty-year planning period, should consider the compatible land use planning and zoning measures outlined herein.

Too frequently, airport sponsors have failed to plan for compatible development because land use conflicts are presently apparent. In certain cases, conflicts could have been prevented, but once conflicts develop, there is little that can be done to satisfactorily resolve them. The time to act is now, before incompatible land uses develop.

### **The Airport Sponsor's Responsibility**

The responsibility for insuring the compatible development of the airport environment and preventing tall structures that negatively affect airports rests primarily on the airport sponsor for two reasons. The first and foremost reason is that decisions on how land is developed are made at the local level. State statutes give municipalities and counties the authority to regulate land development and tall structures near airports through planning and zoning. State agencies, such as the Texas Department of Transportation, can recommend appropriate controls to be used by local governments, but the responsibility and authority for implementing such controls lie squarely and solely with local governments.

The other reason compatibility planning is a local responsibility has to do with numerous legal decisions that have placed the liability for airport operations on the local airport sponsor. The noise produced by airport operations has been the basis of various lawsuits by nearby residents and the courts have generally held that the airport sponsor is the appropriate body to be sued. The U.S. Supreme Court, in *Griggs v. Allegheny County*, has ruled that when an airport sponsor had the ability to acquire property impacted by aircraft noise but failed to do so, the airport sponsor could be held liable for the diminution of property values.

### **The Airport Sponsor's Dilemma**

Airport sponsors have responded to these rulings by attempting to limit the noise impact on surrounding areas by such measures as restricting the types of aircraft using the airport, noise standards for aircraft using the facility, and prohibitions (curfews) on nighttime use of the airport. In most cases, courts have found that these measures violate parts of the U.S. Constitution. The Federal Government's right and obligation to regulate the operation of aircraft in flight are frequently cited in striking down local attempts to limit noise. This means that the authority to regulate the flight of aircraft is under the jurisdiction of the Federal Government, not local governments. Courts have also found that bans on the use of airports by some types of aircraft, as well as some curfews, interfered with interstate commerce and were, therefore, illegal. Furthermore, the terms and conditions of various airport improvement grant contracts could prevent local governments from discriminating between different types of aircraft.

Airport sponsors find themselves in a judicial no-man's-land. On one side, courts have found them liable for the environmental impacts due to airport operation and, on the other side, have invalidated many of the actions airport sponsors have taken to limit those impacts. Avoiding confrontations between airport users and community residents is by far the most productive approach because once incompatible land uses develop, confrontation and legal challenges are

likely to follow with uncertain outcomes. Such confrontations can best be avoided by proper planning.

### **Resolving the Dilemma**

The key to avoiding confrontation is, as previously suggested, advanced planning. Many of the existing conflicts are due to the absence of proper planning that considered the land use needs of an airport as part of a growing community. In some cases, airports may have been located outside of the jurisdictional limits of the community they serve. As the urban area population increased, extraterritorial airport sites came in contact with the urban growth which, without some sort of restrictions to protect the airport environment, could develop up to the boundary of the airport.

Recognizing the problem and the shortcomings of the standard community planning and zoning laws as they applied to airports, the Texas Legislature created and over the years enhanced the Texas Airport Zoning Act (AZA), Chapter 241 of the Texas Local Government Code. The AZA provides an effective tool for local governments to regulate the development of land and protect the airspace surrounding an airport.

### **A Cooperative Effort**

As will be seen in the following chapter, the AZA is only one way to promote a compatible airport environment. Other ways, such as replacing the noisiest aircraft with quieter ones and voluntary actions on the part of aircraft pilots also can be beneficial.

A cooperative effort on the part of the airport sponsor, aircraft operators, the Federal Aviation Administration, and community residents is essential for compatibility planning to be successful. The effort admittedly may require compromise and some difficult decisions; however, the long term results should help insure an airport's continued service to the community.



## CHAPTER 2: PLANNING THE AIRPORT ENVIRONMENT

This chapter describes what is involved in planning for an airport-compatible environment. Though you may be primarily interested in how to go about implementing airport compatible land use zoning or hazard zoning under the provisions of the Texas Airport Zoning Act (AZA), Chapter 241 of the Texas Local Government Code, **please read this chapter before turning to the chapters on zoning procedures. Zoning is only one of many actions that might be taken to develop airport compatible land uses.** It is important to understand when and where various actions would be appropriate.

### Options to Consider

Each airport environment is unique, therefore, planning for compatible land use must be tailored specifically for each individual airport. Actions to achieve compatible development are not equally effective at all airports. Where the airport environment is already developed with many incompatible uses or structures, there are, quite frankly, few actions that can be taken to improve the situation significantly. On the other hand, where the land around an airport is largely undeveloped, there will be many opportunities for positive action.

The following explains how aircraft operations affect the land adjacent to an airport and the process for determining what land uses are compatible with these operations. The explanation is intended to give airport sponsors, airport operators, and adjacent landowners a basic understanding of airport compatible land use planning.

### Airport Compatible Development

Airport compatible land uses are uses of adjacent properties that are not adversely affected by airport operations. Residential development is most sensitive to airport operations and is nearly always an incompatible land use if located close to an airport. Land uses where people congregate such as schools, churches, theaters, and hospitals also may be incompatible.

Some uses are incompatible because they actually represent a danger to aircraft using an airport. Examples of these include tall structures as well as commercial or industrial activities that generate bright lights, smoke, or electronic interference that may affect aircraft radios and navigation equipment. Landfills, which attract birds and other wildlife, can also be dangerous. The most serious hazards are tall structures that extend into the air around airports where aircraft are operating close to the ground.

There are many land uses that are considered to be compatible with an airport, as can be seen in Figure 2-1. These uses should be encouraged. It is important to understand that airport compatible development does not mean that land cannot be put to profitable use. Compatibility requirements may dictate that some parcels be developed less profitably, while other land that may have little development value may increase in value due to its proximity to an airport.

**Figure 2-1: Examples of Compatible Land Uses**

Airport Compatible Activities		Open Areas
Aerial survey companies	Convention centers *	Arboretum
Air cargo facilities	Gas stations	Botanical gardens
Air freight terminals	Hotels and motels *	Cemeteries
Aircraft manufacturing	Night clubs *	Farming and ranching
Aircraft repair facilities	Office buildings *	Game preserve
Aviation research and testing	Restaurants *	Golf courses
Aviation schools	Selected recreational activities	Landscape nurseries
Auto parking lots	Shopping centers *	Picnic areas
Auto storage areas	Taxi and bus terminals	Riding academies
Banks *	Trucking terminals	Sewage treatment facilities
Car rental agencies	Warehouse distribution centers	Water treatment facilities

\* May require acoustical treatment

## **ASSESSING LAND USE COMPATIBILITY**

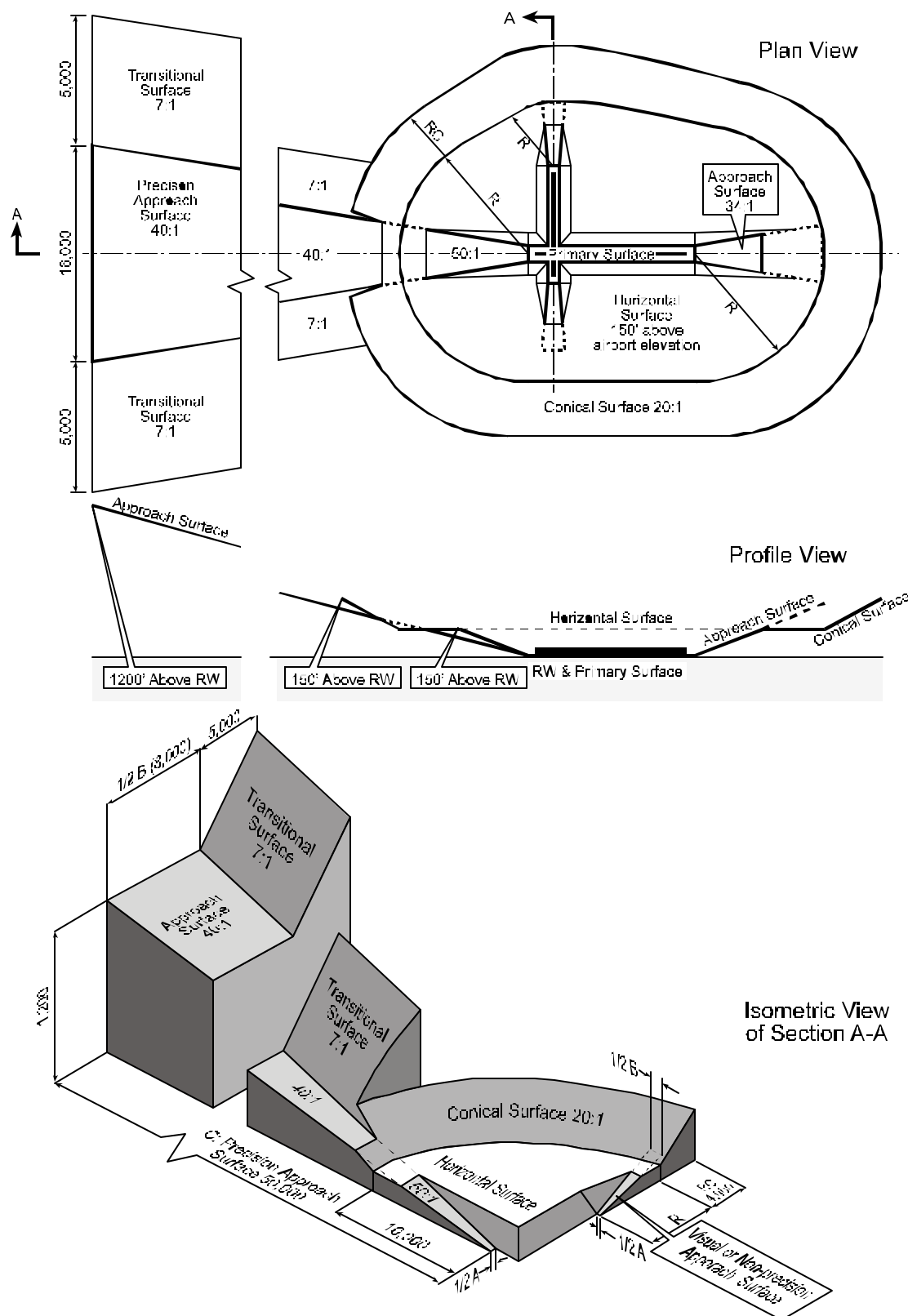
Two principal factors must be assessed to determine how a particular piece of land can be developed for airport compatible use: (1) the height limitations on structures and, (2) the level of airport noise to which the land is exposed. Both assessments require a technical analysis of the layout of the airport and the airport's operational characteristics. Chapters 3 and 4 discuss these assessments in some detail. However, a basic understanding of the factors is sufficient now.

### **Height Limitations**

The majority of takeoffs and landings follow a path represented by the extended centerline of a runway. Approaching and departing aircraft normally enter or continue along this path from one to five miles from an airport. If aircraft always followed this path, limiting the heights of objects along that path would be the only solution necessary. However, variables such as the volume of air traffic, weather conditions, or instructions from an air traffic control tower often cause aircraft to deviate from this path. Aircraft may also circle an airport fairly close to the ground, particularly during bad weather, in preparation for landing at airports without an air traffic control tower.

The Federal Aviation Administration (FAA) has determined the maximum heights that structures in the vicinity of an airport may be before they are identified as obstructions to air navigation. These heights are contained in Federal Aviation Regulations (FAR) Part 77 and are discussed in more detail in Chapter 4. Figure 2-2 illustrates the basic concept.

**Figure 2-2: Typical Imaginary Surface Height Limitations, FAA Part 77**



*Depiction shows an other-than-utility airport with instrument approach procedures to each runway end, and each procedure having one-mile minimum visibility minimums.*

Structures obstructing any of the various Part 77 surfaces shown in Figure 2-2 may limit the airspace pilots normally expect to be clear. Those structures may also cause the published instrument approach procedures for an airport to be adjusted in order for a pilot to avoid those structures. Some states, including Texas, permit local governments to limit the height of structures around an airport by way of hazard zoning regulations.

## Noise Exposure

Noise, by definition, is sound that is loud, unpleasant, unexpected, or undesired. The sound produced by aircraft becomes noise when it disturbs people. The best way to minimize the adverse impact of noise is to separate people from that noise.

Aircraft noise is greatest along the flight paths on which aircraft take off and land at airports. Ideally, these are the areas where noise-sensitive land uses should be excluded. Alternatively, restricting aircraft operations over these areas can also limit noise. To be able to predict the land area where aircraft operations may be a disturbance, we need to know: (1) the sound level at which a significant number of people can be expected to be disturbed, and (2) the areas exposed to that level of sound.

Precision instruments are used to measure and record sound levels. The instruments are often set to “hear” the way the human ear hears. Sound levels measured with an instrument calibrated for human hearing are expressed in units of A-weighted decibels (dBA), such as sound level of 60 dBA. The dBA scale is logarithmic which means that a sound level of 70 dBA will be perceived as twice as loud as a 60 dBA sound. Figure 2-3 identifies some common sounds and their relative loudness expressed in dBA.

**Figure 2-3: Decibel (dBA) Levels of Common Sounds**

Sound	Sound Level (dBA)*	Relative Loudness (Approx.)
Jet Plane, 100 feet	130	128
Rock Music, with amplifier	120	64
Thunder, danger of permanent hearing Loss	110	32
Power Mower; Boiler Shop	100	16
Orchestral Crescendo, 25 feet; Noisy Kitchen	90	8
Busy Street	80	4
Interior of Department Store	70	2
Ordinary Conversation, 3 feet	60	1
Quiet Automobile, at low speed	50	1/2
Average Office	40	1/4
City Residence	30	1/8
Quiet Country Residence	20	1/16
Rustle of Leaves	10	1/32
Threshold of Hearing	0	1/64

\* U.S. Department of Housing and Urban Development Circular 1390.2

The sound created by the overflight of an aircraft can be measured in dBA at any point on the ground. Using known information about the type of airplane and its elevation, the sound level can also be calculated. Research has shown that while people may react to single noise event, the degree to which they are disturbed is related to the sound level exposure over a period of time. Therefore, a measure of dBA over time is needed.

The measure most frequently used to describe sound levels over a period of time is the “day-night average sound level” or DNL. DNL represents the average noise received at a given location during the time measured or the yearly average of dBAs integrated over 24 hour periods. For

flights occurring between 10 pm and 7 am, a 10 dBA penalty is added to the actual dBA value for each event because of the increased annoyance from overflights during the quieter periods when most people sleep. Noise exposure measured in DNL has been correlated with community disturbance in many studies. Plotting on a map the locations around the airport where DNL levels are high enough to cause annoyance can identify areas where residential development would be incompatible.

## **Mapping Noise Exposure**

The measurement of noise events in the vicinity of an airport for a year would be time consuming and expensive. The FAA has developed a computer program to simulate the results of actual measurements. It is called the Integrated Noise Model (INM). Detailed field calibration studies have proven this program to be remarkably accurate. The program is maintained by the FAA and updated as frequently as necessary in order to reflect aircraft characteristics as the fleet evolves.

The INM computer program calculates the DNL levels associated with the type, frequency, and flight tracks of aircraft using an airport. Points having the same DNL can be connected to establish sound level exposure contours. These contours can then be used for land use compatibility planning, as illustrated in Figure 3-2. The program can also be used to estimate noise exposure for future airport conditions. For example, the expected changes in operations due to a new runway can be input into the computer program, which will produce contours for the new airport configuration. The contour map may then be used to plan for land uses that are compatible with the proposed airport improvement. Similarly, noise contours can be generated for alternative runway improvements to analyze which options would minimize the effect of aircraft operations on surrounding areas.

## **Determining Land Use Compatibility**

There has been extensive research on community attitudes toward noise. Most of this research has been based on the number of complaints made by groups of residents exposed to similar noise levels. Other factors such as the audibility of normal speech, levels of annoyance, and general community attitudes have been included in the research.

Figure 2-4 summarizes the results of the research on the effects of noise on people in an urban residential environment. From this table, it becomes apparent that residents exposed to DNL levels in excess of 65 dBA will experience interference with normal levels of speech, complain more frequently, and consider noise to be a significant adverse aspect of the community environment. The effects of noise summarized in this table form the basis for the recommendation found in Federal guidelines that residential uses should be restricted within the 65 DNL contour.

**Figure 2-4: Effects of Noise on People in an Urban Residential Environment**

	Effects ➤					
Day-Night Average Sound Level (dBA) ▼	Hearing Loss	Indoor Speech Interference <sup>2</sup>	Outdoor Speech Interference <sup>3</sup>	Annoyance <sup>4</sup>	Average Community Reaction	General Community Attitude Towards Area
75 & above	May Begin to Occur	98%	0.5	37%	Very Severe	Noise is likely to be the most important of all adverse aspects of the community environment.
70	Will Not Likely Occur	99%	0.9	25%	Severe	Noise is one of the most important adverse aspects of the community environment.
65	Will Not Occur	100%	1.5	15%	Significant	Noise is one of the important aspects of the community environment.
60	Will Not Occur	100%	2.0	9%	Moderate to Slight	Noise may be considered an adverse aspect of the community environment.
55 & less	Will Not Occur	100%	3.5	4%	Moderate to Slight	Noise considered no more important than various other environmental factors

1. Qualitative Description
2. % Sentence Intelligibility
3. Distance in Meters for 95% Sentence Intelligibility
4. % of Population Highly Annoyed

Figure 2-5 lists land uses and the DNL levels at which those uses are compatible. The table has been reproduced from FAA Advisory Circular 150/5020-1 and constitutes FAA's recommended land uses normally compatible with various sound levels. This is an expanded version of the compatible land uses identified in Federal Aviation Regulations (FAR) Part 150. Below the 65 DNL level, all land uses are normally compatible. Above 65 DNL level, residences and places of public assembly are not compatible unless sound level reduction paraphernalia are installed. Most sound level reduction paraphernalia, whether installed during original construction or after the fact, are only effective in reducing noise exposure if windows are closed at all times. Because residents often open windows during mild weather, it is questionable whether residential buildings are compatible in areas above the 65 DNL exposure levels. Where possible, residential use should be prevented within the 65 DNL contour and **under no circumstances should residential uses other than sound-insulated transient lodging be permitted within the 75 DNL contour.**

**Figure 2-5: Land Uses Normally Compatible with Various Noise Levels**

Land Uses	Yearly Day-Night Average Sound Level (dBA)					
	<65	65-70	70-75	75-80	80-85	>85
<b>Residential</b>						
Residential, other than mobile homes and transient lodgings <sup>1</sup>	Y	N <sup>2</sup>	N <sup>2</sup>	N	N	N
Mobile home parks (14)	Y	N	N	N	N	N
Transient lodgings	Y	N <sup>2</sup>	N <sup>2</sup>	N <sup>2</sup>	N	N
<b>Public Use</b>						
Schools, education services (68); hospitals, and nursing homes (65.13, 65.16)	Y	25	30	N	N	N
Churches, auditoriums, and concert halls (71, 72.1)	Y	25	30	N	N	N
Governmental Services	Y	Y	25	30	N	N
Transportation <sup>3</sup>	Y	Y	Y <sup>4</sup>	Y <sup>5</sup>	Y <sup>6</sup>	Y <sup>6</sup>
Parking	Y	Y	Y <sup>4</sup>	Y <sup>5</sup>	Y <sup>6</sup>	N
<b>Commercial Use</b>						
Offices, business, and professional <sup>7</sup>	Y	Y	25	30	N	N
Wholesale and retail – building materials, hardware and farm equipment <sup>8</sup>	Y	Y	Y <sup>4</sup>	Y <sup>5</sup>	Y <sup>6</sup>	N
Retail trade – general <sup>9</sup>	Y	Y	25	30	N	N
Utilities (48)	Y	Y	Y <sup>4</sup>	Y <sup>5</sup>	Y <sup>6</sup>	N
Communication (47)	Y	Y	25	30	N	N
<b>Manufacturing and Production</b>						
Manufacturing, general <sup>10</sup>	Y	Y	Y <sup>4</sup>	Y <sup>5</sup>	Y <sup>6</sup>	N
Photographic and optical – professional instruments, optical goods, watches (35)	Y	Y	25	30	N	N
Agriculture (except livestock) (84), Agricultural activities (82), Forestry activities (83)	Y	Y <sup>12</sup>	Y <sup>13</sup>	Y <sup>14</sup>	Y <sup>14</sup>	Y <sup>14</sup>
Livestock farming and breeding (81.5 to 81.7)	Y	Y <sup>12</sup>	Y <sup>13</sup>	N	N	N
Mining and fishing, resource production and extraction (84, 85, and 89)	Y	Y	Y	Y	Y	Y
<b>Recreational</b>						
Outdoor sports arenas and spectator sports (72.2)	Y	Y <sup>11</sup>	Y <sup>11</sup>	N	N	N
Outdoor music shells, amphitheaters (72.11)	Y	N	N	N	N	N
Nature exhibits and zoos (71.2)	Y	Y	N	N	N	N
Amusement parks, resorts, and camps (73, 76, 72, 75, 70)	Y	Y	Y	N	N	N
Golf courses, riding stables and water recreation (74)	Y	Y	25	30	N	N

**Key to Table**

Number in () Standard Land Use Coding Manual (SLUCM)

Y (yes) Land use and related structures compatible without restrictions

N (no) Land use and related structures are not compatible and should be prohibited

25, 30, or 35 Land use and related structures generally compatible; measures to achieve Noise Level Reduction (NLR), outdoor to indoor, of 25, 30, or 35 must be incorporated into design and construction of structure.

**Notes for Table**

- Includes: Household units (11), Single units – detached (11.11), Single units – semidetached (11.12), Single units – attached row (11.13), Two units – side-by-side (11.21), Two units – one above the other (11.22), Apartments – walk up (11.31), Apartments – elevator (11.32), Group quarters (12), Residential hotels (13), and Other residential (19)
- Where the community determines that residential uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated

as 5, 10, or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.

3. Includes Railroad, rapid rail transit and steel railway transportation (41), Motor vehicle transportation (42), Air craft transportation (44), Marine craft transport (44), and Highway and street right-of-way (45).
4. Compatible where measures to achieve NLR of 25 are incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
5. Compatible where measures to achieve NLR of 30 are incorporated into the design and construction of portions of these buildings where the public is received, office areas noise sensitive areas or where the normal noise level is low.
6. Compatible where measures to achieve NLR of 35 are incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
7. Includes Finance, insurance and real estate services (61), Personal services (62), Business services (63), Professional services (65), Other medical facilities (65.1), and Miscellaneous services (69).
8. Includes Wholesale trade (51), Retail trade – building materials, hardware and farm equipment (52), Repair services (64), and Contract construction services (66).
9. Includes Retail trade – general merchandise (53), Retail trade – food (54), Retail trade – automotive, marine craft, aircraft, and accessories (55), Retail trade – apparel and accessories (56), Retail trade – furniture, home furnishings and equipment (57), Retail trade – eating and drinking establishments (58), and Other retail trade (59).
10. Includes Food and kindred products – manufacturing (21), Textile mill products – manufacturing (22), Apparel and other finished products made from fabrics, leather, and similar materials – manufacturing (23), Lumber and wood products (except furniture) – manufacturing (24), Furniture and fixtures – manufacturing (25), Paper and allied products – manufacturing (26), Printing, publishing, and allied industries (27), Chemicals and allied products – manufacturing (28), Petroleum refining and related industries (29), Rubber and misc. plastic products – manufacturing (31), Stone, clay and glass products – manufacturing (32), Primary metal industries (33), Fabricated metal products – manufacturing (34), and Miscellaneous manufacturing (39).
11. Land use compatible provided special sound reinforcement systems are installed.
12. Prime use only, any residential buildings require an NLR of 25 to be compatible.
13. Prime use only, any residential buildings require an NLR of 30 to be compatible.
14. Prime use only, NLR for residential buildings not normally feasible, and such uses should be prohibited.

*Source: U.S. Department of Transportation, Federal Aviation Administration, AC 150/5020-1, "Noise Control and Compatibility Planning for Airports", August 5, 1983.*

## **PLANNING FOR AIRPORT COMPATIBILITY**

Information on height limitation and noise exposure can be put to use in a comprehensive review of land uses in the airport environs. This is especially true if a community that owns an airport, or in which an airport is located, is contemplating compatible land use zoning regulations based on noise data. It is important that all reasonable means of achieving land use compatibility be examined including those that provide restrictions on the use of the airport. Airport officials should participate in the planning process along with community leaders and local officials to ensure the airport's interests are made known. Comprehensive community plans in the past have not always considered the relationship of an airport to neighboring land uses. It is vital that community planners incorporate the information developed in airport master plans and airport land use compatibility studies into comprehensive land use plan updates.

### **Airport Master Plans**

The basic information needed for airport/land use compatibility planning can be provided through an airport master plan. A master plan includes a wealth of data on past and current airport operations as well as the socioeconomic characteristics of the region served by the airport. This data is used to forecast the level of activity at the airport for 5, 10, even 20 years in the future.

Airport improvements are then planned to meet the demand forecast for the airport and programmed as funds become available.

Airport master plan studies also include an analysis of the noise impact with noise contour maps, see Figure 3-2, showing the effects of different planning and development scenarios for the 5 and 20 year forecast periods. These contours are overlaid on a map of the community showing existing land uses. Existing as well as potential land use conflicts can be identified and various ways in which the airport operator, the airport sponsor, and community leaders may eliminate incompatible uses or prevent future incompatible uses from developing can be explored.

A master plan should also contain detailed plan and profile views of the approach surfaces as well as a plan view drawing of the complete FAR Part 77 imaginary surfaces pertinent to the airport similar to Figure 2-2. These drawings can be used to develop height restriction zoning regulations.

If the master plan contains well-prepared land use scenarios, the community has the primary information needed to initiate airport land use compatibility planning. The airport operator may use this information to plan actions that limit the noise made by the aircraft using the airport. These aviation controls can then be combined with the land use controls to produce a compatibility plan. A warning should be added here that for compatibility planning, the airport master plan must be current. If area population and aircraft operation forecasts appear to be out of date, the airport master plan data should not be used in the compatibility plan. Airport master plans more than five years old should be reviewed carefully.

## **Part 150 Compatibility Studies**

The FAA has published guidelines for noise control and compatibility planning for airports. These planning studies are called “Part 150” studies in reference to Federal Aviation Regulations (FAR) Part 150 that authorizes them. Part 150 studies follow the same procedures for analyzing airport impacts as previously described master plan studies. However, where the emphasis of master planning is on the airport improvement program, the sole purpose of the Part 150 study is airport/land use compatibility. Therefore, the Part 150 study will be far more detailed in its analysis of noise abatement and compatibility planning measures.

Part 150 studies ideally are undertaken concurrently with, or shortly after, the completion of an airport master plan. This assures that the base data for forecasts is current and that improvement alternatives are evaluated with respect to their impact on the community. At airports where master plans are outdated, a modified master plan update should be undertaken prior to a Part 150 study. Acceptance by the FAA of the noise compatibility program qualifies the airport sponsor for consideration of Federal funding for noise abatement measures identified in the compatibility program. Abatement measures that could be funded include acoustical construction and land acquisition.

It is highly recommended that airport sponsors considering use of the AZA’s compatible land use zoning provisions pursue a Part 150 or similar study of noise abatement and compatibility planning measures. Federal funding is available to cover 90 percent of the cost of Part 150 studies for most airports. Information on Part 150 studies is available from the FAA or TxDOT.

## **DOD Compatibility Analysis**

The Department of Defense has developed a compatibility analysis similar to the Part 150 study for military airports. It is referred to as an **Air Installation Compatible Use Zone Program** (AICUZ). The AICUZ study will contain noise maps similar to those contained in a master plan or

Part 150 study. The AZA permits cities and counties to zone around military installations and AICUZ noise exposure maps can be used for this purpose, if they are current. Communities should consider the AICUZ analysis during the development of community comprehensive land use plans where applicable. However, the primary responsibility for noise abatement at a military installation remains with the military. AICUZ plans also identify Accident Potential Zones (APZ) which extend along the runway centerline beginning 3000 feet from the end of the runway and extending out as far as 15,000 feet. Communities should consider APZs when planning land uses in the vicinity of military installations.

## ***IMPLEMENTING PLANS FOR AIRPORT/LAND USE COMPATIBILITY***

Once land uses compatible with airport operations have been identified, success in implementing a compatible land use plan will depend on the cooperation and support of all affected parties. This cooperation may best be achieved by including representatives of the affected parties in all phases of the plan's development. The affected parties would include political subdivision officials, airport operator, airport users (especially air carriers), and neighboring landowners and residents. All parties should reach general agreement that the compatibility plan is fair and represents the best that can be accomplished under the circumstances. It will not represent 100% of each participant's desires or needs, but will be a compromise of all parties.

There are limits to what can be achieved. For example, the airport operator cannot require pilots to make noise reducing maneuvers that might be considered unsafe or demand specific flight procedures in order to minimize noise impact. Courts have held that only the FAA can dictate what procedures aircraft must follow once airborne. An airport operator and the airport users may voluntarily agree on preferred operating procedures, but mandatory procedures require FAA actions.

The amount of control municipalities have over the land in the areas affected by the airport is similarly limited by state statutes. Political subdivisions may be authorized to enact zoning regulations, building codes, and condemnation, but these measures are subject to constitutional and judicial limitations on the public taking of private property and other requirements of due process.

Still, most of the actions that might be taken by political subdivisions fall under their police powers, which allow them significant authority to provide for the public health, safety, and general welfare. The validity of a political subdivision's police powers is strengthened when the State legislature specifically invokes the use of such power for a defined purpose. Such is the case of the AZA where the use of zoning has been specifically authorized by the legislature for compatible land use regulation and height limitation.

Land use compatibility planning procedures fall into two overall categories: measures to reduce noise exposure and actions to forestall incompatible development. Measures to reduce noise exposure may be undertaken by the aviation sector, i.e., the airport operator and the airport users. Actions to forestall the development of incompatible uses may be implemented by the political subdivisions representing the affected areas. The following sections briefly describe the measures to be considered in preparing compatibility plans.

### **Measures to Reduce Noise Exposure**

Noise abatement measures that the airport operator and pilots may undertake include facility changes, changes in operational procedures, restrictions on operations, or other measures.

## **Facility Changes**

Changes in the design of the airport facilities, most importantly runways, are one method of reducing off-airport noise impacts. Such changes are very expensive alternatives and may take several years to implement. There are many airports where design changes are not a practical remedy due to physical limitations on new construction. Where takeoffs and landings on a particular runway result in DNL levels incompatible with existing off-airport development, consideration can be given for the construction of a new runway from which overflights will avoid such development. However, since runways are oriented based on the prevailing wind direction, a new runway will likely require an orientation similar to the existing runway. If a new or replacement runway is to be constructed for the purpose of avoiding noise sensitive areas, the new runway would require significant lateral separation. This will limit where the new runway could be located because, without sufficient separation, the flight paths will likely continue to go over the same general areas or neighborhoods.

An alternative to the construction of a new runway for noise abatement is the redesign of a secondary runway to serve as the primary runway. This may involve lengthening and strengthening runway pavement and improving the landing aids. This alternative is viable only if the orientation of the secondary runway will permit its use a majority of the time based on the prevailing wind direction.

If new runway construction is not possible, the threshold of the existing runway can be moved to a point farther down the runway. That portion of the runway beyond the new threshold would then be removed or used as a clearway or stopway. By moving the threshold away from noise sensitive areas, aircraft will normally be at a higher altitude as they pass over those areas on both takeoff and landing. Thresholds can be moved only if the shortened runway remains long enough to support the aircraft using the airport. Runway length can be maintained if the runway is extended on the opposite end to compensate for the new threshold. Moving thresholds may not achieve significant levels of noise reduction but are generally less expensive to implement than the construction of a new runway.

Noise barriers in the form of earthen berms or concrete structures may reduce noise levels on nearby land at those locations on the airport where engine run-ups (engine tests before takeoff) occur. However, because such barriers cannot be located in the landing or takeoff areas, such barriers would have little or no effect on noise generated during takeoff or landing.

## **Changes in Operational Procedures**

Changes in the way aircraft use an airport can also contribute to noise reductions over sensitive areas. For example, instead of the standard left turn upon final approach, special procedures can be enacted so that a pilot begins final landing procedures on the opposite side of the runway making a right turn to align with the runway. Nonstandard flight procedures can be suggested by the airport operator or airport sponsor but require approval of the FAA. Consultation with airport users is vital when considering implementation of nonstandard flight procedures for the purpose of noise abatement.

Large aircraft are generally less sensitive to wind direction than smaller airplanes. Under calm and low wind speed conditions, large aircraft can normally use any of the available runway ends. Airports can adopt preferential runway use plans in which specific aircraft are directed to use a certain runway or runway end during calm wind conditions. Such use could minimize noise impacts in sensitive areas off one end of the runway.

The paths that aircraft follow as they approach and depart an airport may also be modified somewhat to avoid noise sensitive areas. Especially on takeoff, when aircraft are loudest,

procedures can be developed for the aircraft to maneuver away from developed areas once clear of the airport. Large aircraft have less flexibility on landing because they descend on an extended glide slope. Minor modifications to the glide slope may be possible but will likely not increase the height of descending aircraft enough to provide significant noise reduction. Any deviations from the standard approach or departure procedures require FAA approval.

Engines are the primary source of airplane noise. Maximum noise is generated on takeoff. The rate at which airplanes climb can be adjusted somewhat to reduce noise. Airlines are usually receptive to adopting these procedures where necessary and several standard procedures for this purpose have been developed.

Airport operators may establish restrictions on engine run-ups without FAA approval. These restrictions could indicate where run-ups take place on the airport. Run-ups on engines being overhauled in maintenance facilities could be restricted to acoustically isolated structures and/or during daytime hours.

### **Restrictions on Operations**

Restricting use of the airport for noise abatement purposes generally should be a last-resort measure. Shutting the door to the airport during certain times of the day (curfews) could inadvertently limit economic growth and development and will likely be contrary to the airport sponsor's State and Federal airport improvement grant obligations. There may be instances, however, when restrictions are necessary due to excessive noise levels and few alternatives for abatement procedures or compatible land use programs. For example, communities with more than one airport might establish a curfew for one facility without denying air access to the community as a whole. However, in cases challenged, courts have usually sided with airport users. Airport sponsors considering any type of curfew should consult closely with the airport users and the FAA.

Use restrictions can be used for noise abatement by limiting the noise level or the frequency of noise events. As stated above, DNL levels are partially a function of the number of operations. Therefore, it is possible to contain the area of noise exposure by establishing a limit on the number of operations. Use of the airport also can be limited to those aircraft meeting FAA noise standards, although most aircraft now meet these standards. A limit could also be considered on the maximum noise level generated by a single aircraft operation. Landing fees based on noise levels (noisier aircraft pay a higher fee) can be implemented. Landing fees are a small part of airline operating costs and an increase for noise exposure would not likely change aircraft operating procedures. Likewise, fees generated would likely not be sufficient to aid in noise abatement actions.

### **Other Measures**

Relocating and closing an airport are other alternatives. These should only be considered in extreme cases where use and development of the airport are absolutely limited by uncorrectable, incompatible development. Relocating an airport is a very radical and expensive alternative and usually beyond a community's financial resources. Closing an airport altogether is likewise a radical maneuver and it too could actually become quite expensive for a community. Airport improvement grants from the FAA or the State as well as the deed of transfer for an airport given to community under the U.S. Government's surplus property program all contain terms and conditions requiring the airport sponsor to keep the airport open. If those terms and conditions are not met, the grant monies may need to be refunded or, under the surplus property agreement, the complete airport property may revert in ownership to the government.

## **Actions to Forestall Incompatible Development**

Political subdivisions (a city or a county government) owning the airport or served by the airport must implement all of the measures to insure land use compatibility off the airport property because municipal zoning powers and eminent domain authority lie solely with political subdivisions. Therefore, it is important for the airport staff and planners to work closely with the planning, zoning, and code enforcement officials of the communities involved.

There are a wide variety of actions that can be taken to insure development around an airport is compatible with airport use. They include the acquisition of property, implementation of restrictive covenants, review of land development plats, condemnation procedures, subdivision regulations, establishment of building codes, consideration of capital improvements, and adoption of zoning regulations. Airport land use compatibility plans may recommend various combinations of these techniques. Again, it is important to emphasize that these measures are far more effective in preventing the development of incompatible uses than removing or mitigating existing uses. Once incompatible uses are in place, options for achieving compatibility are greatly reduced.

The following paragraphs describe the actions that may be considered in achieving land use compatibility. In all cases they should be taken judiciously and with careful planning. Though the legislature has given municipalities flexibility in their use of the police power to achieve orderly development of the community, there are limits to the measures that can be taken and how they are undertaken. It is highly recommended that your city or county attorney or other legal counsel be consulted when considering compatibility plans using the techniques described below.

### **Acquisition of Property**

Property acquisition may include complete ownership of the land, the right to use the land or deny others from using the land for a certain purpose or length of time, and the right to cross through or over the property. Any one or all of these property interests might be acquired for compatibility planning purposes. Acquisition can be made through purchase, condemnation, or by grant. Public ownership of the property and all its rights is the best way to insure compatible development. Since few developed uses of land are compatible within the 75 DNL contour, it is recommended that property within in the 75 DNL contour be acquired.

### **Restrictive Covenants**

Public ownership of land in the airport-affected area is the best way to insure compatible development; however, this technique can be expensive. A municipality may not have to retain actual ownership of property to achieve the compatibility desired. The property can be acquired then resold or leased with deed restrictions that prohibit incompatible use of the property.

### **Plat Review**

Local regulations might require airport noise contour lines be drawn on any land use development plat map when it is reviewed. This would allow the reviewing authority to consider the proposed land uses of land near an airport and either disapprove the plat or require special acoustic paraphernalia before approval is issued. If approved, showing the airport noise contours on the plat would allow perspective buyers to determine whether their proposed development plans mesh with the noise exposure generated by the airport.

### **Condemnation**

Eminent domain is the right of a governmental unit to acquire property needed for public use. One method of acquiring property for eminent domain is called condemnation. Condemnation may be used to acquire an easement as well as total rights to property.

### **Subdivision Regulations**

The State legislature has given municipalities authority to regulate the manner in which land is subdivided and developed. Subdivision regulations may specify the way streets are laid out, how drainage should be handled, or they may require the developer to dedicate easements or land for public purposes. One such public easement could be the overflight of aircraft along with their associated noise. A subdivision ordinance also might restrict residential housing or require special acoustical construction within certain DNL contours.

The Cities of Irving and Grapevine have subdivision regulations that require the dedication of aviation easements. Both cities are next to the Dallas-Fort Worth International Airport and have some of their jurisdiction lying within the airport's 65 DNL contour. The aviation easement effectively protects the cities from lawsuits by people who move into the noise impacted areas.

### **Building Codes**

Building codes are designed to insure the safe construction and reconstruction of buildings. Most cities adopt a standard building code. Codes adopted for local use can be modified to specify construction techniques to reduce internal noise levels. These techniques may be specified for structures within a 65 DNL contour. The application of a building code cannot be retroactive. Existing buildings would not be subject to the construction provisions of the code unless they were being substantially reconstructed.

Communities using building codes to insure compatible use near an airport should consider these drawbacks:

- a) There is no accepted "standard" building code for achieving noise reduction. Acoustical expertise is needed to determine the level of noise reduction that can be achieved by certain building construction methods. Many factors affect the level of sound that can be transmitted through the exterior of a building.
- b) Noise reduction achieved through building construction is effective only if windows are closed at all times. With the mild climate and attractiveness of outdoor activities during certain times of the year in Texas, using special construction to minimize interior sound levels is usually not a practical means for assuring airport noise compatibility.

### **Capital Improvements**

The extension of public utilities such as water and sewer lines and streets into undeveloped areas normally proceeds the development of that property. If the land is within an area impacted by the airport, certain development may not be desirable from an airport compatible use perspective. This potential problem may be resolved by the installation of public utilities that support airport compatible development. For example, in an area within the 65 DNL contour, public utilities that only support airport compatible uses could be installed instead of utilities designed to support residential use. Airport officials should monitor capital improvement programs near the airport and notify officials of their concerns.

### **Zoning Regulations**

Zoning gets its name from the practice of dividing a municipality into various zones with varying land uses permitted in each zone. Zoning schemes normally include residential, commercial, and industrial zones. In sophisticated zoning schemes these districts may be subdivided into far more specific districts. Within each zone, the regulation implementing the zoning scheme may specify such things as building size, lot size, the separation between buildings, and the number of residential units permitted per acre. The zoning may also identify some uses that are not normally permitted.

The authority to zone is based on police powers that permit communities to plan their development in a way that will promote public health, safety, and general welfare. The zoning scheme is one of the major means of implementing the municipality's comprehensive land use plan. Courts of law have held that zoning regulations that place reasonable restrictions on the use of property in order to implement a plan for orderly community development are lawful.

Zoning is a powerful tool in guiding compatible land use development. Since it restricts the way in which a property owner may use the land, zoning must be established with care.

Zoning became a common municipal practice several decades in the past and certain rules have developed to insure that the administration and enforcement of zoning is fair. Among the more important rules are the requirements that zoning be based on a reasonable plan for community development, permit the owner some economic use of his/her property, allow for the affected owner to participate in the zoning process, and allow property owners to have redress for unfavorable decisions. A caveat is that zoning (a use of the police power) cannot be a substitute for eminent domain (condemnation). This means that a municipality may not zone land that it wishes to acquire in such a manner that the property's value is deliberately diminished to the benefit of the community. This is called "inverse condemnation." When this issue has been raised in courts of law, the courts have generally supported the municipality if it was shown that the zoning in question was reasonably related to the community's police powers, even if some diminution of property value took place. The line between legitimate use of zoning and inverse condemnation is frequently very fine. Officials should be aware of this distinction when implementing airport compatible land use zoning regulations.

Zoning has other limitations that make it less than the ultimate technique to achieve airport compatible land use development. Zoning cannot be applied retroactively. When a new zoning regulation is enacted, existing nonconforming uses are "grandfathered." Therefore, zoning cannot create compatibility where incompatibility exists. Zoning regulations generally apply only to the jurisdiction that adopts the ordinance. Zoning regulations also can vary among municipalities in the way they are written. Some regulations are exclusive; meaning that in a commercial zone only commercial uses are permitted. Other regulations are cumulative; meaning a commercial zone permits commercial and "higher" uses. The general hierarchy of uses from high to low is residential, commercial, industrial, then agriculture. While commercial development is usually compatible with airport operations, one can see that commercial zoning would be ineffective if applied under a cumulative zoning ordinance that permitted residential uses in commercial zones. Cumulative zoning is generally out of date, but such regulations do exist.

### **Compatible Land Use and Hazard Zoning Under the Airport Zoning Act**

The Texas Legislature has recognized the potential usefulness of zoning to protect airports from incompatible development that would tend to diminish the airport's usefulness. The Airport Zoning Act (AZA) enables municipalities to adopt airport compatible land use and hazard zoning regulations. Airport zoning is not based on the same authority as the comprehensive community zoning discussed above. Though both forms of zoning have much in common, airport zoning overcomes some of the limitations of comprehensive zoning as applied to airport compatible land use planning.

One of the principal differences between the two types of zoning is in airport zoning's use of overlay zones. An overlay zone may be superimposed on comprehensive zoning. The overlay method of zoning does not specify what land uses are permitted, only those that are not permitted. For example, the height limit specified in an overlay zone for hazard zoning would supersede height limits of comprehensive zoning for the same area unless the height restrictions in the

comprehensive zone were equal to or more restrictive than the limitations for the hazard zone. Similarly, a land use permitted by comprehensive zoning might be prohibited or restricted by a compatible land use zone. Where the overlay zone includes areas with no comprehensive zoning, the requirements of the overlay still apply and constitute the only land use restrictions. These overlay zones may be shown on zoning maps that are prepared for each airport in question and those maps may be attached to and become a part of the adopted compatible land use or hazard zoning regulations.

The AZA also differs from comprehensive zoning in that it can be extraterritorial and multi-jurisdictional. The AZA permits two or more political subdivisions in the vicinity of an airport to form a joint airport zoning board. Compatible land use or hazard zoning regulations adopted by a joint airport zoning board are then effective in each of the jurisdictions represented on the board. Cities of 45,000 or more population having an airport within their territorial limits may unilaterally adopt compatible land use or hazard zoning regulations, which are effective in all jurisdictions covered by the overlay zones.

The AZA does not identify specific standards that must be used in determining what constitutes incompatible land uses or airport hazards. However, it is generally accepted that contours based on varying levels of noise generated by an airport and the various imaginary surfaces established in the Federal Aviation Regulations (FAR) Part 77 are the preferred standards to be used in airport zoning. These different types of zoning are further covered in Chapters 3 and 4.

## **Planning - The Key to Compatible Uses**

This chapter has provided an important overview of the conflicts that can develop between compatible and incompatible airport land uses and how those conflicts may be avoided by advanced planning through acquisition of property, property rights, and/or zoning. It was pointed out that acquisition of property and property rights are the best way to ensure compatible land uses near an airport, but in the real world, zoning may actually be the only practical choice.

The main drawback to zoning is that it can be amended as local officials find it necessary or politically expedient to do so or at the discretion of new officials after each election. Easements, deed restrictions, and covenants on the other hand cannot be changed quite so easily.

Once again, it is important to understand that the prevention of potential conflicts is a far more productive approach to airport compatible land use than attempting to resolve existing conflicts.

The remainder of this document contains more detailed information on the procedures to be followed in the preparation, adoption, and administration of airport compatible land use and hazard zoning. Model zoning regulations are included in Appendixes B and C.

## CHAPTER 3: DEVELOPMENT OF AIRPORT ZONING

This chapter provides specific information on how to develop airport compatible land use or hazard zoning regulations under the provisions of the Airport Zoning Act (AZA), Chapter 241 of the Texas Local Government Code, and a discussion of the specific items to be included in each type of regulation. Note that airport compatible land use zoning under the AZA refers to the “...use of land adjacent to an airport that does not endanger the health, safety, or welfare of the owners, occupants, or users of the land because of the levels of noise or vibrations or the risk of personal injury or property damage created by the operations of the airport...” and airport hazard zoning refers to the regulation of “...a structure or object of natural growth that obstructs the air space required for the taking off, landing, and flight of aircraft...”.

In other words, airport compatible land use zoning protects adjacent property from the airport and hazard zoning protects the airport from adjacent properties.

The procedures for properly adopting airport compatible land use or hazard zoning regulations, other general contents not covered in this chapter, and the administration of zoning regulations are covered in Chapter 4 of these guidelines.

### ***THE AIRPORT ZONING ACT***

Successful implementation of airport zoning requires a clear understanding of the AZA. A copy is included in Appendix A. The following paragraphs should help clarify the applicability of the various sections of the AZA in adopting airport zoning regulations.

#### **When Is Airport Zoning Applicable**

Airport compatible land use zoning regulations or hazard zoning regulations may be adopted for airports or other areas used in the tracking or data acquisition of flights. Such areas may be owned by cities, towns, counties, the Federal Government, or the State of Texas or be privately owned and used in the interest of the public.

#### **What Areas Are Eligible for Zoning**

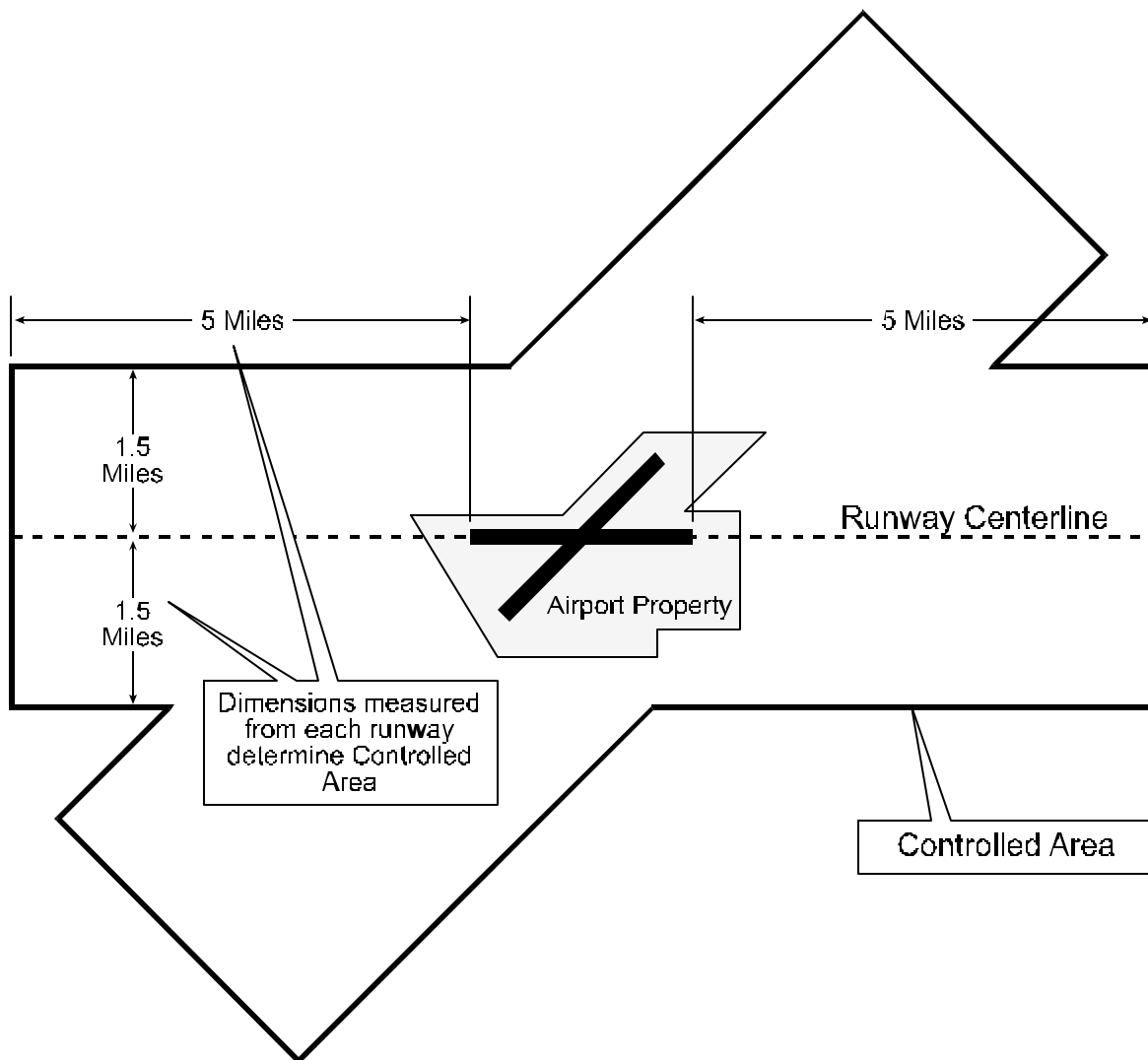
The area that can be zoned for airport compatible land uses is called the “controlled compatible land use area” and is applicable to any instrument or primary runway. An instrument runway is defined in the AZA as a runway of at least 3,200 feet in length for which there is an existing or planned standard instrument approach procedure. A primary runway is defined as a runway also at least 3,200 feet in length on which a majority of an airport’s operations take place. To be eligible for compatible land use zoning under the AZA, an instrument and/or primary runway must have or be planned to have a paved surface. These eligibility criteria can, and often do, apply to the same physical runway. Future runways may also be zoned if they are identified on an approved airport layout plan (ALP) or other planning document and meet the above eligibility criteria.

The controlled compatible land use area extends 5 miles beyond each end of an eligible runway and 1.5 miles on each side of the extended runway centerline. See Figure 3-1. These are the

maximum limits of the area that **can** be zoned, not necessarily the limits of the areas that **must** be zoned.

The areas that can be hazard zoned are not specifically defined in the AZA. However, it is generally accepted that the imaginary surfaces described in the applicable sections of Federal Aviation Regulations (FAR) Part 77 are the minimum areas that should be protected under a hazard zoning regulation.

**Figure 3-1: Controlled compatible land use area.**



*For each instrument and primary runway, compatible land use zoning may be enacted within the controlled area and outside airport boundaries.*

## Participants in the Zoning Process

Airport compatible land use or hazard zoning regulations can certainly be expected to arouse the interest of various individuals and organizations, especially those directly affected by the zoning. These interested parties should be involved as much as possible in the zoning process. The

impetus for airport zoning will likely come from the airport sponsor; nevertheless, input and participation from airport staff, airport users, and adjacent landowners and/or tenants should be encouraged. Some of the participants may have little understanding of airport operations and will benefit from patient explanations by the airport staff. A cooperative effort among the all parties is essential.

The importance of involving the landowners and residents of the area to be zoned cannot be overemphasized. They need to understand why the zoning is necessary, what process is being used to assess noise impact and hazard areas, and how the zoning will affect their property. The support of property owners and residents will increase the likelihood that the zoning regulation will be adopted. Communication with these people should begin early in the process and continue on a regular basis.

## ***PREPARATION OF AIRPORT COMPATIBLE LAND USE ZONING REGULATIONS***

Airport compatible land use zoning regulations consist of the regulation text and a zoning map. The text describes the uses of land that are **not** permissible in the various overlay zones and the procedures for administering and enforcing the regulation. A model airport compatible land use zoning regulation is included in the Appendix B. The zoning map graphically shows the various overlay boundaries and is normally attached to and made part of the adopted regulations. Airport compatible land use zoning regulations may be incorporated into municipal zoning regulations or they may stand alone as independent regulations.

### **Preparation of Airport Compatible Land Use Zoning Regulation Text**

**Preface** - The regulation must be preceded with acknowledgement of the enabling legislation (the AZA) and a “declaration of purpose.” The AZA specifically requires that the airport being zoned “fulfills an essential community purpose” and a statement declaring such is required.

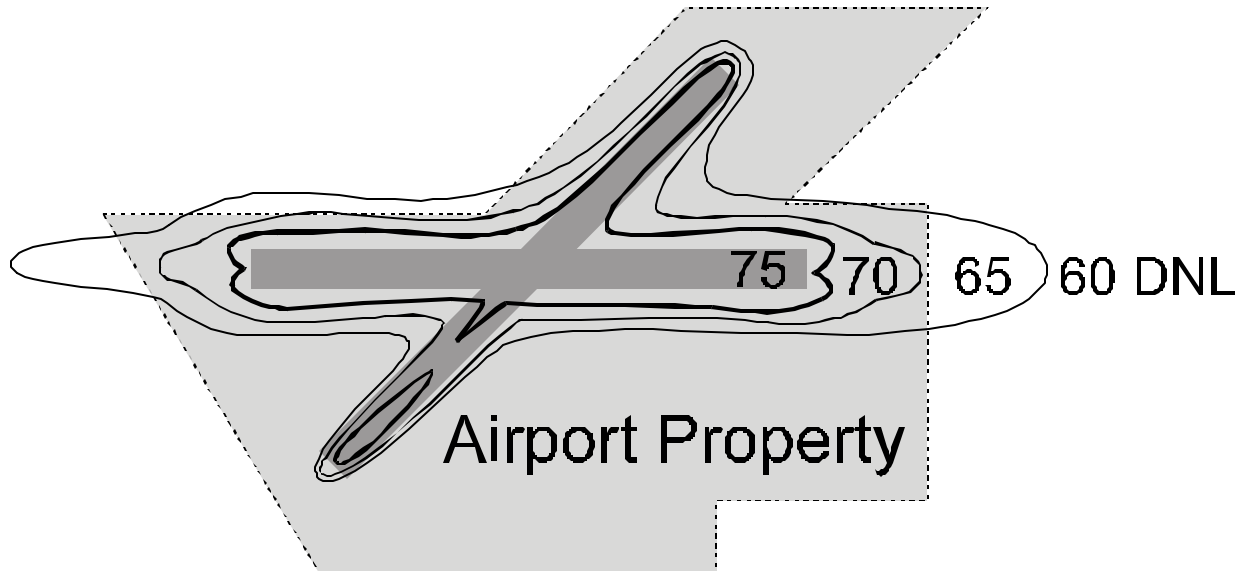
**Controlled Compatible Land Use Areas** - The zoning regulation should define the controlled compatible land use areas using the eligible runway(s) as reference points. The AZA does not specifically list how these areas may be regulated and it would seem unreasonable to include the whole 30+ square miles under one land use restriction. Areas closer to a runway are subject to higher levels of noise than those farther away. It is recommended that the areas be broken down into overlay zones based on each area’s exposure to noise. Airport overlay zones (AOZ) should be as follows:

- **Airport Overlay Zone 1 (AOZ-1):** that portion of the controlled compatible land use area outside the 65 DNL contour line.
- **Airport Overlay Zone 2 (AOZ-2):** that portion of the controlled compatible land use area between the 65 and 70 DNL contour lines.
- **Airport Overlay Zone 3 (AOZ-3):** that portion of the controlled compatible land use area between the 70 and 75 DNL contour lines.
- **Airport Overlay Zone 4 (AOZ-4):** that portion of the controlled compatible land use area between the 75 and 80 DNL contour lines.
- **Airport Overlay Zone 5 (AOZ-5):** that portion of the controlled compatible land use area between the 80 and 85 DNL contour lines.

- **Airport Overlay Zone 6 (AOZ-6):** that portion of the controlled compatible land use area inside the 85 DNL contour line.

Although six zones have been identified here, most regulations will contain fewer. At all but the busiest and noisiest airports, zones AOZ-5 and AOZ-6 will likely fall within a runway's primary surface where no structures of any type should be permitted and which should be completely within the airport property lines. The number of zones in the regulation should reflect the actual conditions at the airport being zoned. The model regulation in Appendix B and illustrated in Figure 3-1 contains only four overlay zones.

**Figure 3-2: Noise Contours – typical reliever GA airport**



**Permitted Uses** - Permitted uses in each AOZ are those allowed by any underlying comprehensive zoning, or lack of zoning, in effect for that zone, with the exception of those uses specifically prohibited by the airport compatible land use zoning regulations. The prohibited uses may be identified by incorporating a noise compatibility table based on Figure 2-5 in these regulations.

Residential use is not an appropriate use in AOZ-2 through AOZ-6, and should be restricted. Where such restriction is not feasible, a **noise level reduction (NLR)** of 25 dBA and 30 dBA through the installation of sound level reduction paraphernalia should be required for AOZ-2 and AOZ-3 respectively. Residential use in AOZ-4 through AOZ-6 would be a serious degradation of quality of life with any amount of NLR and it is strongly recommended such use be prohibited. Transient lodging is an acceptable use in AOZ-2 through AOZ-4 with NLRs of 25, 30, and 35 dBA respectively.

An airport compatible land use zoning regulation should contain or reference NLR measures that are considered appropriate for achieving the specified levels of noise reduction. The reference may be another regulation or be a part of the municipal building code. A community desiring to incorporate NLR measures in their building codes or in airport compatible land use zoning regulations should employ a qualified acoustical consultant to develop those measures.

Examples of the permitted uses and the NLRs for each overlay zone are shown in Figure 3-3. The table is for example purposes only. A qualified acoustical consultant should be employed to establish the standards for your community.

The remainder of the zoning regulation text is described in Chapter 4.

**Figure 3-3: Compatible Land Use Guidelines**

**Sample Ordinance No. 1234, Appendix A**  
**Airport Compatible Land Use Zoning**  
**City of Y, Texas**  
**Land Uses Prohibited in Designated Overlay Zones**

N (No) Land uses and related structures prohibited.  
 25, 30, 35 Measures to achieve noted levels of noise reduction shall be incorporated into designs and construction of structures as specified in Section 8(c) of the Building Code of the City of Y, Texas.  
 (1) – (7) Refer to the accompanying notes for this figure.

	<b>Airport Overlay Zones</b> <b>Sound level in DNL</b>		
<b>Land Use</b>	<b>AO-2 65-70 DNL</b>	<b>AO-3 70-75 DNL</b>	<b>AO-4 75-80 DNL</b>
<b>Residential</b>			
Single units – detached	N	N	N
Single units – semi-detached	N	N	N
Single units – attached row	N	N	N
Two units – side-by-side	N	N	N
Two units – one above the other	N	N	N
Apartments – walk up	N	N	N
Apartments – elevator	N	N	N
Group quarters	N	N	N
Residential hotels	N	N	N
Other residential	N	N	N
Mobile home parks	N	N	N
Transient lodgings	25	30	35
<b>Public Use</b>			
Educational services	25	30	N
Hospitals, nursing homes	25	30	N
Cultural activities (including churches)	25	30	N
Auditoriums, concert halls	25	30	N
Governmental services	25	30	N
Transportation services		(2)	(3)
Parking		(2)	(3)

<b>Commercial Use</b>			
Finance, insurance, and real estate services		25	30
Personal services		25	30
Business services		25	30
Professional services		25	30
Other medical facilities		25	30
Miscellaneous services		25	30
Wholesale trade		(2)	(3)
Retail trade – bldg. Materials, hardware, farm equipment		(1)	(2)
Repair services		(1)	(2)
Contract construction services		(1)	(2)
Retail trade – general merchandise		25	30
Retail trade – food		25	30
Retail trade – auto, marine, aircraft and accessories		25	30
Retail trade – apparel and accessories		25	30
Retail trade – furniture, home furnishings, and equipment		25	30
Retail trade – eating/drinking establishments		25	30
Other retail		25	30
Utilities		(1)	(2)
Communication		25	30
<b>Manufacturing and Production</b>			
Food and kindred products – manufacturing		(1)	(2)
Textile mill products – manufacturing		(1)	(2)
Apparel and other finished products made from fabrics, leather and similar materials – manufacturing		(1)	(2)
Lumber and wood products – manufacturing		(1)	(2)
Furniture and fixtures – manufacturing		(1)	(2)
Paper and allied products – manufacturing		(1)	(2)
Printing, publishing and allied industries		(1)	(2)
Chemicals and allied products		(1)	(2)
Petroleum refining and related industries		(1)	(2)
Rubber and misc. plastics products – manufacturing		(1)	(2)
Stone, clay and glass products – manufacturing		(1)	(2)
Primary metal industries		(1)	(2)
Fabricated metal products		(1)	(2)
Miscellaneous manufacturing		(1)	(2)
Professional, scientific, and controlling instruments; photographic and optical goods; watches and clocks – manufacturing		25	30
Agriculture (except livestock)	(5)	(6)	(7)
Agriculture related activities	(5)	(6)	(7)
Forestry activities and related services	(5)	(6)	(7)
Livestock farming and breeding	(5)	(6)	(7)
<b>Recreational</b>			
Outdoor sports arenas and spectator sports	(4)	(4)	N
Outdoor music shells, amphitheaters	N	N	N
Nature exhibits and zoos		N	N
Amusements			N
Parks			N
Public assembly			N
Resorts and camps			N
Other cultural entertainment/recreation			N
Golf courses, riding stables, and water recreation		25	30

**Notes:**

1. Sound level reduction measures of 25 dB shall be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where normal noise level is low.
2. Sound level reduction measures of 30 dB shall be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where normal noise level is low.
3. Sound level reduction measures of 35 dB shall be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where normal noise level is low.
4. Permitted provided special sound reinforcement systems are installed.
5. Prime use only. Associated residential buildings require sound level reduction measures of 25 dB.
6. Prime use only. Associated residential buildings require sound level reduction measures of 30 dB.
7. Prime use only. Associated residential uses prohibited.

**Prerequisites for Preparing the Airport Compatible Land Use Zoning Map**

The AOZs should be shown on the airport compatible land use zoning map. These contours must be reasonable and technically accurate. A noise contour map prepared as part of an airport master plan may be used if it is up to date. If that data is not up to date, it can lead to improper identification of current or future overlay zones and should not be used. TxDOT recommends that a current airport land use compatibility study as outlined in Federal Aviation Regulations (FAR) Part 150 be undertaken before noise contours are used for airport compatible land use zoning.

Area population projections should be reviewed to assure they are consistent with current data and projections. Forecasts of air carrier enplanements and total operations should also be examined. If existing levels of enplanements, operations, and aircraft mix differ significantly from the master plan forecast, the differences should be reconciled. A good way of updating the parts of a master plan that are critical for noise exposure mapping is with a Part 150 study. That study would review existing forecasts and prepare new ones if necessary. The study would then develop a compatibility program that considers such things as reconfiguration of the airport facilities and noise abatement procedures along with possible land use restrictions.

Acceptance of the zoning can also be enhanced with a Part 150 study. The study allows those groups likely to be affected by an airport compatible land use zoning regulation to be involved in the planning process at an early date. Interested parties can see how the noise contours are developed and can provide input into the total compatibility program. To provide a solid political and legal basis for subsequent zoning, the governing body of the political subdivision owning the airport should formally accept the noise contours and compatibility plan prepared in the Part 150 study before adopting and implementing airport compatible land use zoning regulations based on that study.

**Preparation of the Airport Compatible Land Use Noise Exposure Map**

As explained in Chapter 2, noise contours may be prepared with a computer program called the Integrated Noise Model (INM) which makes calculations and draws contour lines. Consulting firms doing airport master plans and Part 150 studies have access to that program. It references a database containing the noise levels generated by most types of aircraft in use today. The user provides information on the characteristics of the airport being studied, such as altitude, mean temperature, runway configuration, type of aircraft, arrival and departure tracks and procedures, and the number of aircraft operations. The airport compatible land use noise exposure map

should be based on the present or forecasted level of operations that produces the largest (in terms of area covered) airport overlay zones.

The INM determines an aircraft's distance from points on the ground as it travels along its normal flight path. It then uses that data and the amount of noise generated by the aircraft to calculate the level of noise reaching any point on the ground. The noise from each aircraft operation is accumulated at each point on the ground. Noise exposure calculations can be displayed graphically with the use of an x-y coordinate grid. The runway configuration is first placed on the grid and points for which noise exposure is to be calculated are identified and plotted. Points on the grid with common noise exposure values are connected with a line creating a contour for that noise exposure level. Those contour lines are identified as the DNL contours. Generally, the INM user will generate 65, 70, and 75 DNL contours because these are the contours commonly used for zoning purposes. Additional contours may be generated if needed. The DNL contours are then overlaid on a base map showing the airport boundaries, the controlled compatible land use areas, and the boundaries of all political subdivisions in the area. Figure 3-4 illustrates how the noise contours might appear relative to the controlled compatible land use areas and airport boundaries. Note that the areas within the limits of the controlled compatible land use areas but outside the 65 DNL contour are identified as AOZ-1 and no specific land uses are prohibited for that zone. This is because those areas are outside the 65 DNL contour are determined not to be negatively affected by airport noise.

## ***PREPARATION OF HAZARD ZONING REGULATIONS***

Airport hazard zoning regulations also consist of the regulation text and a zoning map. The text describes the heights of objects and uses of land that are not permissible in the various overlay zones and the procedures for administering and enforcing the regulations. A model hazard zoning regulation is included in the Appendix C. The zoning map graphically shows the various overlay zone boundaries and is attached to and made part of the adopted regulations. Airport hazard zoning regulations may be incorporated into municipal zoning regulations or they may stand alone as independent regulations.

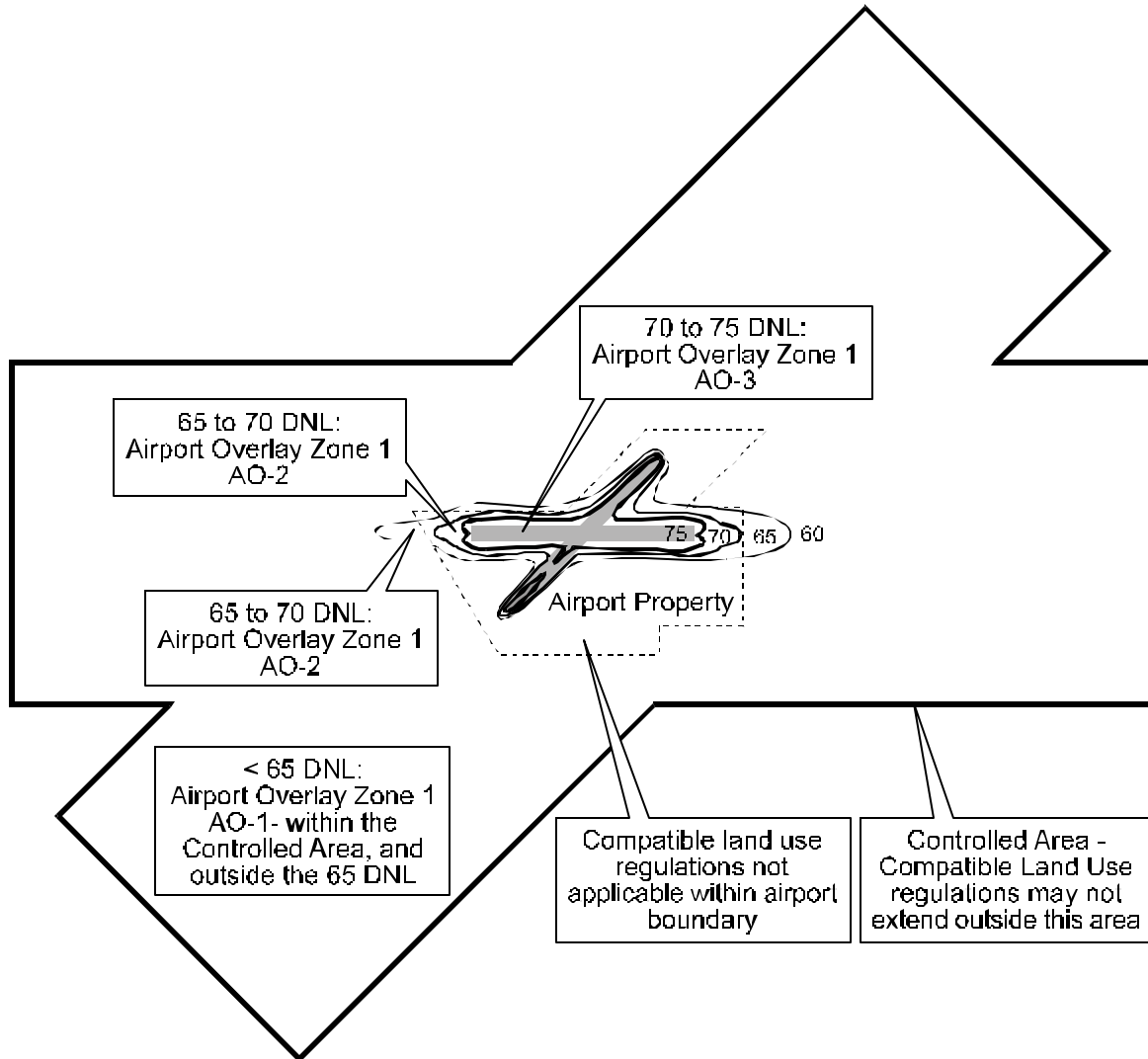
### **Necessity of Adopting an Airport Hazard Zoning Regulations**

Aircraft, especially the larger and more sophisticated aircraft used in commercial aviation, travel cross-country using air routes similar to highways. The FAA has regulatory control of these air routes and does whatever is necessary to protect the safety of the persons using them. This same regulatory authority is not provided for ground based hazards near airports. To ensure the safety of air travelers, pilots, and persons from these ground based hazards, it is vitally necessary that the areas surrounding airports be kept free of obstructions and land uses that would be hazardous to these persons. There are only two ways this control can be effectively exercised: acquisition of property rights or zoning.

Although the FAA has authority to regulate the flight of aircraft, it has only limited authority to insure that areas surrounding airports are free of hazards. Under provisions of FAR Part 77, persons constructing or altering structures that would penetrate the various surfaces or slopes defined therein must notify the FAA. It is not the purpose of Part 77 nor is it within the authority of the FAA to regulate or prohibit these structures, but only require that proper notice be provided so appropriate actions may be taken to lessen the possibility of contact between an aircraft and those structures. By definition, an object that penetrates any of the Part 77 surfaces

or slopes is an obstruction and the FAA, through an airspace study, will determine whether that obstruction is a “hazard” or “no hazard” to air navigation.

**Figure 3-4: Noise Contours and Controlled Area with Airport Overlay Zones**



The FAA’s finding of hazard or no hazard is advisory in nature. A determination of a hazard by the FAA may place some implied or perceived liability on the structure’s owner, but the FAA cannot prohibit its construction. If a proposed communications tower requiring a Federal Communications Commission (FCC) license is determined to be a hazard to air navigation by the FAA, the FCC will normally deny the application for license. Again, this will not absolutely prevent the tower from being constructed, only that the FCC will not issue a license to broadcast. Frequently, a structure is granted a “no hazard” determination although it has some adverse effect on one or more existing approaches to an airport. In order to issue this no hazard determination, the FAA may change published criteria for the partially obstructed approach or, in extreme cases, cancel the instrument approach altogether.

Without regulatory authority at the Federal or State level of government, the responsibility for insuring that areas surrounding an airport are free from hazards is left to the local government. In

Texas, the AZA permits political subdivisions, municipalities or counties, to regulate the height of structures and use of land in the vicinity of an airport in order to protect the safety of the airport users as well as the public investment in the airport.

The procedures for adopting hazard zoning are identical to those for airport compatible land use zoning. If desired, and the circumstances permit, the two types of zoning can be combined in a single regulation. This section is devoted to explaining how and what is required to prepare a hazard zoning regulation. The information in this section is intended to provide a basic understanding of hazard zoning. TxDOT recommends that assistance be obtained from a qualified aviation consultant or the TxDOT staff before attempting to prepare a hazard zoning regulation.

## **Basic Elements of Hazard Zoning**

The AZA does not dictate the areas that can be regulated by hazard zoning, but it is generally accepted that the imaginary surfaces defined in FAR Part 77.25 for civil airports, 77.28 for military airports, and 77.29 for heliports are the minimum areas that should be protected. To assure the most efficient use of the airport, as well as the safety of airport users, these surfaces should remain free of natural and man-made obstructions and incompatible uses of land. These surfaces are defined by a series of contiguous sloping and horizontal surfaces that establish a maximum height of any object. Land uses are further discussed in a later section of this chapter.

The size, slope, and elevation of the imaginary surfaces vary based on the classification of a runway and the type of existing or planned approaches for that runway. A single airport may have more than one type of runway and each end of a runway may have a separate classification. Figures 2-2 and 3-5 illustrate the imaginary surfaces for civil airports. For the purposes of these guidelines, only the imaginary surfaces pertinent to civil airports, which are found in FAR Part 77 Section 77.25, will be further discussed. The imaginary surfaces for military airports and heliports can be found in FAR Part 77 Sections 77.28 and 77.29.

## **Preparation of Hazard Zoning Regulations Text**

**Preface** - The regulations must be prefaced with acknowledgement of the enabling legislation (the AZA) and a “declaration of purpose.” The AZA does not specifically require that a hazard zoning regulation state that the airport “fulfills an essential community purpose” as required for airport compatible land use zoning. However, it does require that the airport be “used in the interest of the public” and the zoning should include such an affirmation.

**Airport Hazard Area** - The regulation should define the airport hazard area, which by definition is an area of land or water on which an airport hazard could exist. An airport hazard is defined as a structure or object of natural growth that obstructs the airspace required for the taking off, landing, and flight of aircraft or that interferes with visual, radar, radio, or other systems for tracking, acquiring data relating to, monitoring, or controlling aircraft.

The hazard area is not defined other than as listed above, but it is generally accepted that the applicable imaginary surfaces included in FAR Part 77. These surfaces are further explained in detail below, and are depicted in Figures 2-2 and 3-5.

**Permitted Heights of Objects or Uses of Land** - The elevations of the applicable surfaces of FAR Part 77 are based on the particular airport in question. Zoning regulations would establish those minimum elevations as the elevations of the zoning surfaces. Any objects that were not

existing or under construction at the time the regulations were adopted and would penetrate any of those surfaces would be regulated by the zoning. Uses of land could also be regulated under hazard zoning regulations, but only as they would affect the safety of the users of the airport. Examples might include land uses that created bright, distracting, or confusing lights; smoke; or wildlife attractants. No other uses of land except those that would affect the safety of the users of the airport should be included. It is important to note that hazard zoning is not intended to negatively affect the “normal” use of surrounding property such as farming, ranching, industrial, recreational, or residential.

The remainder of the zoning regulation text is described in Chapter 4.

### **Prerequisites for Preparing the Hazard Zoning Map**

The various surfaces on the zoning map are defined by the applicable sections of FAR Part 77. There are really no other prerequisites for preparing this map in contrast to those required for an airport compatible land use zoning map.

### **Preparation of the Hazard Zoning Map**

The hazard zoning map is usually prepared over a base map comprised of USGS 7.5 minute quad maps. These maps are available from various sources in “raster” format. Raster images are basically computer-scanned images of a paper map. The raster images can then be inserted into a computer aided design (CAD) program and used as the base map. The various FAR Part 77 surfaces representative of the airport are then drawn over the base map with the CAD program.

### **Runway Classifications**

Under FAR Part 77, runways are classified as either utility or other than utility, sometimes referred to as larger than utility. A utility runway is one constructed for and intended to be used by propeller driven aircraft with a maximum gross weight of 12,500 pounds or less. An other than utility runway would be a runway constructed for and intended to be used by any type of aircraft with a maximum gross weight of more than 12,500 pounds.

### **Types of Approaches**

Runways are also categorized based on the type of approach available for the runway. The three approach types are:

**Visual Approach** - Has no provisions for use of navigational aids. A pilot circles the airport and has visual contact with the runway before landing. This category includes "circling" instrument approaches.

**Non-Precision Instrument Approach** - Has provisions for use of navigational aids for horizontal guidance allowing a "straight-in" instrument approach. This permits landings to be made in weather conditions of lower cloud ceilings and reduced visibility.

**Precision Instrument Approach** - Has provisions for use of navigational aids for vertical and horizontal guidance. This added capability permits landings to be made in weather conditions of very limited visibility and low ceilings.

## **FAR Part 77 Imaginary Surfaces**

Once the runway classification and type of approach are determined, the dimensions of the imaginary surfaces can be identified. The various imaginary surfaces are defined below and shown in Figures 2-2 and 3-5.

**Primary Surface** - A primary surface is longitudinally centered on a runway. When the runway has a specially prepared hard surface, the primary surface extends 200 feet beyond each end of the runway. When the runway has no specially prepared hard surface, or planned hard surface, the primary surface ends at the runway end. The width of the primary surface ranges from 250 feet for utility runways with visual approaches to 1000 feet for precision instrument runways. The width of the primary surface will be the width prescribed for the most precise existing or planned approach for either end of that runway. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline. The primary surface should be free of any object or activity that does not have to be located there. Runway light fixtures are an example of objects that have to be located in the primary surface. Primary surfaces are normally completely within the boundaries of an airport and therefore under the direct control of the airport owner. Being under the direct control of the airport owner, these surfaces are usually not specifically listed in hazard zoning regulations.

**Approach Surface** - Approach surfaces are longitudinally centered on a runway centerline and extend outward and upward from either end of the primary surface. An approach surface is applied to each runway end based upon the most precise type of existing or planned approach for that runway end. The inner edge of the approach surface is the same width as the primary surface and expands uniformly to widths ranging from 1,250 feet to 16,000 feet depending on the runway classification and type of approach. Each approach surface extends for a horizontal distance varying from 5,000 feet to 50,000 feet with approach slopes ranging from 20:1 (20 feet horizontally for each 1 foot vertically) to 50:1, also depending on the runway classification and type of approach.

**Transitional Surface** - Transitional surfaces extend outward and upward at a slope of 7:1 from the edges of the primary surface and approach surfaces to the horizontal surface. For a precision approach surface that projects through and beyond the limits of the conical surface, a transitional surface also extends 5000 feet horizontally from the edges of those portions of the approach surface.

**Horizontal Surface** - The horizontal surface is a horizontal plane 150 feet above the established airport elevation that extends from the transitional surface to the conical surface. The perimeter is constructed by swinging arcs from the center of each end of the primary surface of each runway and then connecting the arcs with tangent lines. The radius of each arc is 5,000 feet for utility or visual runways and 10,000 feet for all others. The radii of the arcs at each runway end are the same and are determined by the higher value for either end of the runway.

**Conical Surface** - The conical surface extends outward and upward from the periphery of the horizontal surface at a slope of 20:1 for a horizontal distance of 4000 feet.

Figure 3-5: Imaginary surfaces

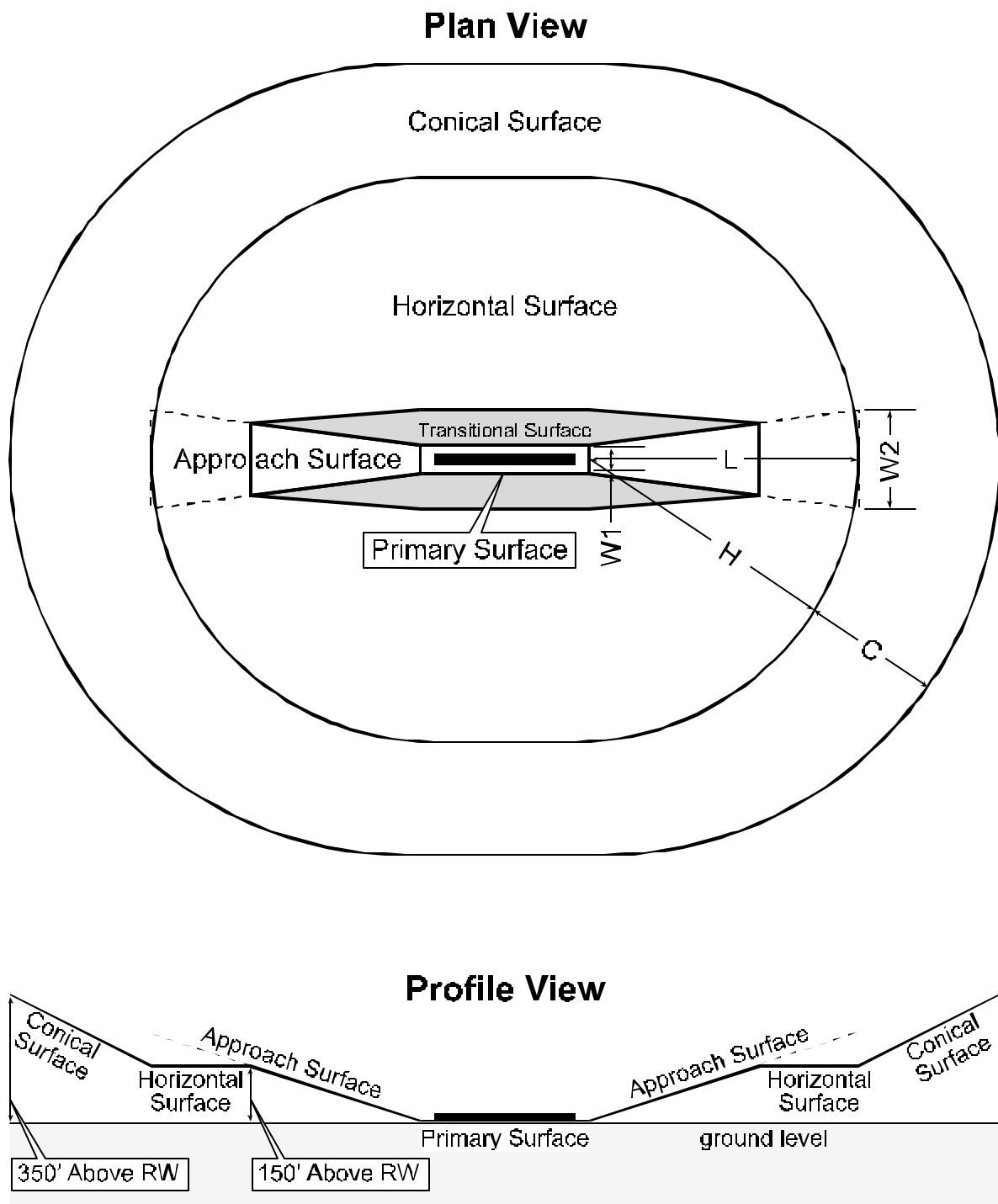


Figure 3-6: Imaginary Surface Technical Matrix

## Imaginary Surface Possible Combinations

	End 1	End 2	Inner Width (W1)	Outer Width (W2)	Length (L)	Slope	Primary Surface (P)	Horizontal Surface (H)	Conical Surface (C)
<b>U</b>	<b>V</b>	<b>V</b>	250	1,250	5,000	20:1	250	5,000	4,000
			250	1,250	5,000	20:1			
<b>U</b>	<b>V</b>	<b>NPI</b>	500	1,250	5,000	20:1	500	5,000	4,000
			500	2,000	5,000	20:1			
<b>U</b>	<b>NPI</b>	<b>NPI</b>	500	2,000	5,000	20:1	500	5,000	4,000
			500	2,000	5,000	20:1			
<b>OTU</b>	<b>V</b>	<b>V</b>	500	1,500	5,000	20:1	500	10,000	4,000
			500	1,500	5,000	20:1			
<b>OTU</b>	<b>V</b>	<b>NPI 1</b>	500	1,500	5,000	20:1	500	10,000	4,000
			500	3,500	10,000	34:1			
<b>OTU</b>	<b>V</b>	<b>NPI ¾</b>	1,000	1,500	5,000	20:1	1000	10,000	4,000
			1,000	4,000	10,000	34:1			
<b>OTU</b>	<b>V</b>	<b>P</b>	1,000	1,500	5,000	20:1	1000	10,000	4,000
			1,000	16,000	50,000	40/50:1*			
<b>OTU</b>	<b>NPI 1</b>	<b>NPI 1</b>	500	3,500	10,000	34:1	500	10,000	4,000
			500	3,500	10,000	34:1			
<b>OTU</b>	<b>NPI 1</b>	<b>NPI ¾</b>	1,000	3,500	10,000	34:1	1000	10,000	4,000
			1,000	4,000	10,000	34:1			
<b>OTU</b>	<b>NPI 1</b>	<b>P</b>	1,000	3,500	10,000	34:1	1000	10,000	4,000
			1,000	16,000	50,000	40/50:1*			
<b>OTU</b>	<b>NPI ¾</b>	<b>NPI ¾</b>	1,000	4,000	10,000	34:1	1000	10,000	4,000
			1,000	4,000	10,000	34:1			
<b>OTU</b>	<b>NPI ¾</b>	<b>P</b>	1,000	4,000	10,000	34:1	1000	10,000	4,000
			1,000	16,000	50,000	40/50:1*			
<b>OTU</b>	<b>P</b>	<b>P</b>	1,000	16,000	50,000	40/50:1*	1000	10,000	4,000
			1,000	16,000	50,000	40/50:1*			

U = Utility runway, planes less than 12,500 pound gross weight.

OTU = Other-than-utility, planes greater than 12,500 pounds gross weight.

V = visual or Circling approaches

NPI 1 = Non-Precision Instrument procedure approaches with 1 mile minimum visibility

NPI ¾ = Non-Precision Instrument procedure approaches with ¾ mile minimum visibility

P = Precision Instrument procedure approaches (with horizontal and vertical guidance)

\*40/50:1 slope = 50:1 – 1,000 x 4,000 x 10,000 feet, then 40:1 – 4,000 x 16,000 x 40,000 feet

## Land Uses

In addition to regulating the heights of objects, the AZA permits regulation of land uses that would interfere with a pilot's ability to safely use the airport. Examples include land uses that generate bright lights or reflections, attract wildlife, create smoke, generate electrical interference, or otherwise affect the safety of an aircraft. Light directed upward can distract a pilot and hamper his/her ability to identify the airport at night. Street lights or lighting associated with uses such as restaurants and car dealerships may be mistaken for runway lights. The sun's reflection off some types of roofing and siding also can produce a distracting glare. Landfills attract birds and other wildlife. Smoke generated by industrial activities can limit visibility and obscure the visual sighting of a runway. Transmissions from nearby radio and television transmitters can interfere with airport communications and navigation equipment in the aircraft.

Provisions for regulating these uses should be included in the height hazard zoning regulation.

## ***Relationship Between Airport Compatible Land Use or Hazard Zoning And Comprehensive Zoning***

It is recommended that overlay zones be used to implement airport compatible land use and/or hazard zoning because this zoning technique can be very specific in listing the type of construction, heights of objects, or uses of land in each zone. Overlay zoning can also be very specific as to the conditions that must be met before a certain use is permitted in each zone, e.g. NLR or obstruction evaluation study. Furthermore, under the provisions of the AZA, each affected political subdivision would not necessarily have to amend its comprehensive zoning regulations to include airport compatibility measures. Under certain situations, the AZA also makes it possible for one political subdivision to effectively regulate land uses and heights of objects in other political subdivisions that are not able or not willing to adopt comprehensive zoning regulations favorable to the airport.

### **Ordinance Conflicts**

Where there is no underlying comprehensive zoning, or where the uses of land or heights of objects prohibited by the AZA zoning regulation are also prohibited by the underlying comprehensive regulation, the regulations are consistent. However, where the underlying comprehensive zoning permits uses of land or heights of objects that are prohibited by AZA zoning regulations, the regulations are in conflict and airport compatible land use and hazard zoning regulations adopted under the provisions of the AZA would prevail. This prevailing authority is specifically included in the wording of the AZA.

### **Limitations of the Airport Zoning Act**

The AZA does not authorize the “taking” of property. If adjacent property must be regulated to a point where the property owner could not enjoy the normal use of that property, the property or property rights should be acquired through other means.

The AZA does not to give the authority to mandate changes in pre-existing structures or uses of land that would normally be prohibited by the airport zoning. Those nonconforming uses may continue as they were at the time the zoning was adopted.

## ***Activities Not Authorized by the Airport Zoning Act***

### **Prohibitions vs. Restrictions**

TxDOT recommends that where uses of land or heights of objects would be incompatible with aircraft noise or safety, they should be **prohibited** by a zoning regulation. There will be situations, nonetheless, where the absolute prohibition of certain uses of land or heights of objects will not be possible. This may be the case where extensive residential or tall structure development already exists within one or more of the airport overlay zones under consideration. It may not be possible under zoning to disallow development on a particular property where similar pre-existing uses or objects are located nearby. If these adjacent properties are similar in use and value to the properties being considered for zoning, it could be that the zoning would be considered as preventing the normal use of the property or the “taking” of property. As stated above, zoning should not prevent the normal use of property.

When it is not practical or possible to prohibit certain uses or structures, **restrictions** should be implemented to reduce the level of noise exposure or require tall structures to be marked and/or lighted. Those restrictions might require noise level reductions be added or the object in question be marked and/or lighted.

### **Existing Uses or Structures**

As previously stated, the AZA does not provide for retroactive compliance with newly adopted standards, so existing nonstandard uses of land or tall structures would not be required to adhere to the newly adopted zoning. In those cases, other local actions could allow for or require certain noise level reduction actions or provide for the installation of marking and/or lighting.

### ***Assistance with the Preparation of Airport Zoning Regulations***

While most communities are familiar with the comprehensive zoning process, there are, as explained in this chapter, a number of features unique to airport compatible land use and hazard zoning under the AZA. Communities are encouraged to seek the assistance of a qualified aviation consultant or the Texas Department of Transportation Aviation Division before initiating these zoning processes.

The procedures for adoption and administration of zoning regulations are described in detail in Chapter 4. It is important that they be followed precisely and in conformity with municipal law. The guidance of legal counsel should be sought. Again, the TxDOT staff is available to provide assistance during any stage of the airport compatible land use or hazard zoning process.

## **CHAPTER 4: ADOPTION OF AIRPORT ZONING REGULATIONS**

The Texas Airport Zoning Act (AZA), Chapter 241 of the Texas Local Government Code, enables a city, a county, or combinations of cities and/or counties to adopt, administer, and enforce airport zoning regulations.

As stated in a previously, airport compatible land use zoning may restrict the use of land surrounding an airport to uses that will not be adversely affected by the airport. Hazard zoning may restrict the uses of land or heights of objects to uses and heights so the airport is not adversely affected by the use of adjacent land. In other words, airport compatible land use zoning protects adjacent property and hazard zoning protects the airport.

Chapters 2 and 3 explain the necessity of compatible land use planning and airport compatible land use and hazard zoning. This chapter discusses the procedural steps necessary for airport zoning regulations to be properly adopted and what should be included in those regulations.

Under certain circumstances, a city may choose to accomplish airport zoning through the comprehensive zoning process. This would incorporate airport zoning into the city's overall zoning ordinances to ensure all zoning throughout the community is connected and consistent and that the airport zoning does not conflict with other zoning. However, this would not be absolutely required because the AZA provides that in cases of conflict between airport compatible land use zoning and other zoning, airport compatible land use zoning will control. And in cases of conflict between hazard zoning and other zoning, the more restrictive limitations shall control. A county normally has no other zoning authority except airport zoning, so the option of including all zoning in their comprehensive zoning would not be afforded to county governments.

Once an airport owner establishes that an airport needs to be zoned, whether it be airport compatible land use or hazard zoning, the owner should contact legal counsel, a qualified aviation consultant, or the TxDOT Aviation Division for assistance or advice in the preparation of the zoning procedural forms, the zoning regulations, and a zoning map. Assistance from the TxDOT Aviation Division is normally limited to airports currently included in the Capital Improvement Program (CIP). However, anytime that office will attempt to answer in a timely manner any questions pertaining to zoning.

### ***Adopting Zoning Regulations***

The required procedural steps to be taken under the AZA are basically the same whether the zoning pertains to airport compatible land use or hazard zoning. The following is a generic procedure that is applicable to either. However, the requirements and text of the actual zoning regulations are different and will be individually addressed.

### **Selection of the Appropriate Zoning Strategy**

The adoption of zoning regulations must be accomplished by the legislative body of a city (city council) or county (county commissioners court) or by a joint airport zoning board (JAZB)

comprised of representatives of the cities and counties affected by the zoning. The appropriate zoning strategy will be one of the following:

1. When the zoning areas lie exclusively within a single city or county's political subdivision boundaries, the legislature body of that city or county regardless of population may act unilaterally as the airport zoning authority.
2. When the zoning areas extend beyond a single city or county's political subdivision boundaries, the adoption, administration, and enforcement of the zoning regulations may be accomplished as a coordinated effort of all jurisdictions involved. To assure this coordination, the AZA provides for the creation of a joint airport zoning board (JAZB).
3. When an airport is located within the boundaries of a city or county which has a population of more than 45,000 persons, that city or county may choose to act unilaterally in the adoption of the zoning although the areas affected by the zoning extend beyond its normal jurisdictional limits.

### **Implementation of the Selected Zoning Strategy**

The AZA requires that when a city or county acts unilaterally in adopting airport zoning, they must appoint an Airport Zoning Commission (AZC) to recommend the boundaries of the various zones to be established and the regulations for those zones. In this situation, the AZC performs some of the duties that would otherwise be accomplished by the JAZB. Whether the zoning is accomplished unilaterally with the appointment of an AZC or by a JAZB without an AZC, the actions required to be done before the zoning regulations may be actually adopted are basically the same. The only differences are whether certain actions are done by the AZC or the JAZB and whether the actual zoning regulations are adopted by a city council or the county commissioners court or by the JAZB. Instead of listing each complete procedure separately, the details below will address the most common situations and actions taken when a JAZB is used. If information is needed about unilateral zoning by a single political subdivision, it is suggested you contact a qualified aviation consultant or the TxDOT Aviation Division.

### **Procedural Steps**

Figure 4-1 contains a checklist of the procedural steps required to adopt airport zoning regulations. It is necessary that these procedures be followed precisely to comply with provisions of the AZA; otherwise, if challenged in court, noncompliance with the proper procedures could be sufficient reason for the courts to overturn the zoning regulations.

***Figure 4-1: Procedural Checklist for Airport Zoning Regulations Adoption***

#### **Checklist of Procedural and Legal Actions required for the Adoption of an Airport Zoning Ordinance**

Note: The following procedures assume that a Joint Airport Zoning Board (JAZB) will be created. If more than 2 political subdivisions are involved, steps 1 and 2 are repeated as necessary and the number of persons comprising the JAZB will be increased.

**IMPORTANT:** Do not deviate from the numerical order of procedural steps and assure no step is taken before the preceding step is finished.

1. City Ordinance creating a JAZB and appointing city's representatives to that board.  
Date passed: \_\_\_\_\_

2. County Order creating a JAZB and appointing county's representative to that board.  
Date passed: \_\_\_\_\_
  3. Oaths of office administered to members of the JAZB.  
Date administered: \_\_\_\_\_
  4. Election of 5th member of the JAZB who shall serve as chairperson of that board.  
Date elected: \_\_\_\_\_
  5. Oath of office administered to chairperson of the JAZB  
Date administered: \_\_\_\_\_
  6. JAZB sets date of public hearing.  
Date procedural form is signed: \_\_\_\_\_
  7. Notice of public hearing published in local newspaper(s).  
Date published: \_\_\_\_\_
- Note: The above step should be repeated for each political subdivision affected by the zoning.*
8. Proof of publication collected for each newspaper.  
Date notarized: \_\_\_\_\_
- Note: The above step should be repeated for each political subdivision affected by the zoning.*
9. Notice of public hearing posted in city hall.  
Date posted: \_\_\_\_\_
- Note: The above step should be repeated for each city participating the zoning.*
10. Notice of public hearing posted in county courthouse.  
Date posted: \_\_\_\_\_
- Note: The above step should be repeated for each county participating the zoning.*
11. Conduct public hearing.  
Date of public hearing: \_\_\_\_\_
  12. Adopt zoning ordinance.  
Date adopted: \_\_\_\_\_
  13. Attorney's certification.  
Date certified: \_\_\_\_\_
  14. Adopted ordinance filed with County Clerk.  
Date filed: \_\_\_\_\_
- Note: The above step should be repeated for each county participating in the zoning.*
15. Copy of procedural forms and adopted ordinance provided to each political subdivision participating in the zoning process.  
Date copies provided: \_\_\_\_\_
- Note: The above step should be repeated for each political subdivision participating in the zoning.*

The following numbered paragraphs correspond to the procedural steps shown in Figure 4-1 plus offer a brief explanation:

- 1-2. Each political subdivision underlying the various areas to be zoned will appoint 2 members to a JAZB. These members should be carefully considered before appointment because they will be given the authority to represent their appointing authority in all

matters having to do with the zoning and will comprise the board that will actually adopt the zoning regulations. The members may be any persons whosoever; however, it is recommended that they not be members of the agencies that appointed the JAZB and they cannot be a member of the board of adjustment for airport zoning.

3. The appointed JAZB members will be issued an oath of office. The wording of the oath is prescribed by State law and should be repeated verbatim.
4. The JAZB will meet and elect an additional member who will act as the chairperson of the JAZB. Like the appointed members of the JAZB, the chairperson may be any person whosoever with the above noted exceptions.
5. The elected chairperson will be issued an oath of office. Again, the oath is prescribed by State law and should be repeated verbatim. The chairperson's oath is slightly different than the members because one oath is prescribed for appointed positions (members) and a different one for elected positions (chairperson).
6. The JAZB will set a date for a public hearing. The public hearing should be at a place and time normally accessible by members of the general public.
7. Notices of the public hearing will be published in the newspapers where the affected cities and counties normally publish public notices. The publications must be at least 15 days before the public hearing. The first day is considered to be the day after the papers are published and circulated. It is not necessary to include the notice in every edition of the papers for 15 days, only one time more than 15 days before the public hearing.
8. A proof of publication form for each newspaper publication is collected. These should be signed by an authority of the newspaper and notarized. An actual clipping of the published notice from each paper should be attached to each proof of publication.
- 9-10. Notices of the public hearing will be posted in the city halls and county courthouses of the affected cities and counties at least 3 days before the public hearing. Posting of notices is not actually listed in the AZA but conforms to municipal law that requires 3-day public notice any time that a public body meets.
11. The public hearing will be conducted by the JAZB. Any members of the public wishing to speak should be allowed to speak and may make pertinent statements either for or against the proposed zoning.
12. After the public hearing, the JAZB considers the statements made at the public hearing plus any other requirements to adopt the zoning such, as the terms and conditions of various airport improvement grant contracts. It then decides whether to adopt or not adopt the regulations. If not adopted, the procedures end. If adopted, the JAZB will proceed to step number 13.
13. A copy of each procedural form and the adopted zoning regulations are provided to an attorney for review. This is normally the city or county attorney. The attorney reviews the actions taken up to this point and, if deemed to have been done correctly, signs a form certifying that each procedural step was accomplished in accordance with applicable laws, ordinances, rules, and/or regulations and the adopted zoning regulations are binding and enforceable. If the zoning is associated with the requirements of an airport improvement grant contract from the State, the attorney also certifies the zoning regulations fulfill the requirements of the appropriate sections of the Texas Administrative Code.

14. Copies of the adopted regulations are provided to the county clerks of each affected county in order that the zoning regulations may be entered into the county records. This is done so various properties underlying the zoned areas will be properly “flagged” as being under a zoning regulation when a deed search is done.
15. Copies of each procedural form and the adopted zoning regulations are provided to each political subdivision that participated in the zoning for their records.

It is not necessary for each individual political subdivision that participated in the appointment of the JAZB to adopt or confirm the adopted zoning regulations, but if they desire to do so, it will not have any adverse effects on the zoning. The zoning regulations should carry the same legal weight whether adopted or confirmed by each individual political subdivision or not.

### **Airport Compatible Land Use Zoning Regulations**

Airport compatible land use zoning regulations should contain the following:

1. A statement that the airport being zoned fulfills an essential community purpose.
2. An administrator of the zoning regulations. It is recommended that an office of the city or county owning the airport, such as the city manager or the commissioner's court, be appointed as the administrator of the zoning. It is recommended that the JAZB **not** be appointed as the administrator. This is because the members of the JAZB are appointed and elected by name. If one or more of those members moves from the area, is not able to serve, becomes deceased, or resigns, the JAZB may not be able to perform its assigned duties. On the other hand, there will always be an office of the city manager or the commissioner's court. The individuals serving may change, but the office or political body will continue.
3. The applicable areas included in the zoning. These areas are established in the AZA and must be identified and the restrictions to those areas established. The zoning regulations should not identify the types of uses that are permissible, but list the types of uses that are **not** permissible.
4. A statement defining and exempting nonconforming uses. Uses that are contrary to the requirements of the zoning but are existing before the adoption of the zoning regulations are considered to be “nonconforming.” The AZA does not give the authority to make the zoning restrictions retroactive.
5. A board of adjustment (BOA). A new BOA may be appointed or an existing zoning BOA of one of the political subdivisions participating in the zoning may be designated as the BOA for this zoning. It is recommended that an existing and ongoing BOA of the political subdivision that owns the airport be so appointed. This is because the BOA members have term limits of 2 years and if the JAZB appoints a new board of adjustment for the airport zoning, only that JAZB can appoint or reappoint members as the existing members’ terms expire. If the members of the JAZB move, are not able to serve, become deceased, or resign, only the political subdivisions that appointed the JAZB may replace those members. In order to simplify these potential problems, an existing and perpetuating BOA should be selected.
6. A procedure for issuing variances. A variance may be issued by the BOA and is required for any proposed land use that would otherwise be prohibited by the zoning. A variance may be issued if it is found that the requested use, which technically would be in

violation of the zoning, is determined not to be contrary to the public interest and in accordance with the spirit of the zoning regulations. In issuing a variance, the BOA may impose any reasonable condition that it considers necessary to accomplish the purposes of the AZA

7. An appeals process for persons aggrieved by the BOA. This will require involvement of the courts.
8. Penalties for violations. The AZA does not provide for the authority to levy fines, therefore, the zoning regulations can only set a fine amount. An actual sentence to pay a fine can only be at the discretion of the courts.

## **Hazard Zoning Regulations**

Hazard zoning regulations should contain the following:

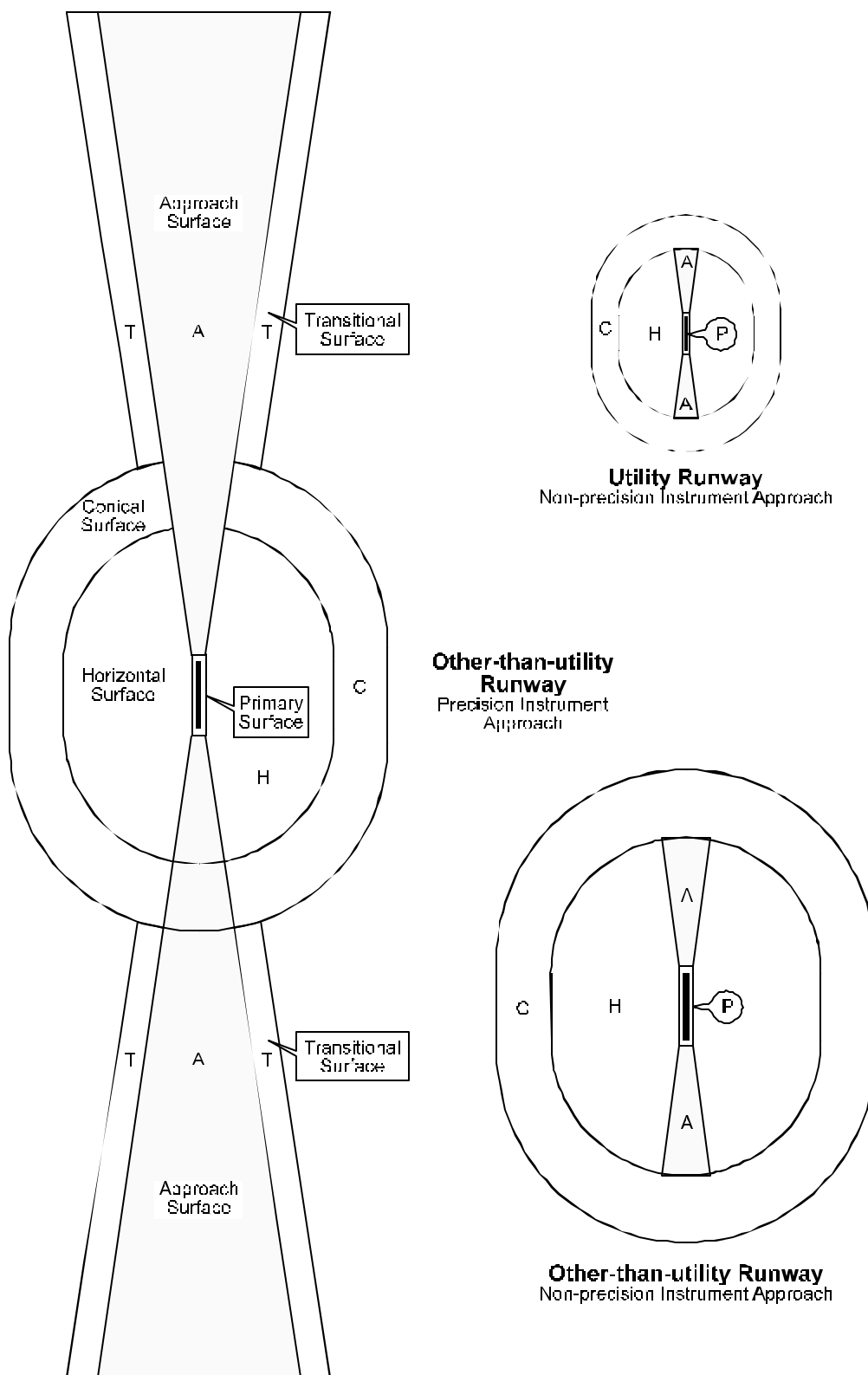
1. A statement that the airport being zoned is used in the interest of the public.
2. An administrator of the zoning regulations. It is recommended that an office of the city or county owning the airport, such as the city manager or the commissioner's court, be appointed as the administrator of the zoning. It is recommended that the JAZB **not** be appointed as the administrator. This is because the members of the JAZB are appointed and elected by name. If one or more of those members moves from the area, is not able to serve, becomes deceased, or resigns, the JAZB may not be able to perform its assigned duties. On the other hand, there will always be an office of the city manager or the commissioner's court. The individuals serving may change, but the office or political body will continue.
3. The applicable zones and the restrictions to each such zone. These are normally based on the applicable provisions of Federal Aviation Regulations (FAR) Part 77.
4. An excepted height limitation. This is a maximum height that objects could be and not be regulated by the zoning even if that height would obstruct any the zoning surfaces. By law, zoning cannot prevent the normal use of property or unreasonably take value from that property. The excepted height incorporated into most zoning regulations is 50 feet because the normal use of property surrounding most airports would be less than that amount. This 50 foot exception would allow the normal farming, ranching, housing, or recreational use of the surrounding properties to continue without interference from the airport zoning or decreasing the value of that property. However, abnormal uses such as tall antennas would be regulated. Certainly, airports in urban areas would require different excepted height limitations because restricting the heights of structures on one property when an adjacent property has an existing multi-story building could dramatically alter the normal use and value of that property.
5. Land use restrictions. As previously stated, hazard zoning may restrict the use of land underlying the zoned surfaces to uses that would not jeopardize the safety of the airport. Zoning could prevent or restrict uses such as landfills, which attract birds and other wildlife, activities that generate confusing lights, smoke, or electrical interference, or any other use that could jeopardize the safety of persons using the airport.
6. A statement defining and exempting nonconforming land uses, structures, or trees. Uses of land, structures, or trees that are contrary to the requirements of the zoning but are existing before the adoption of the zoning regulations are considered to be

“nonconforming.” The AZA does not give the authority to make the zoning restrictions retroactive.

7. A board of adjustment (BOA). A new BOA may be appointed or an existing zoning BOA of one of the political subdivisions participating in the zoning may be designated as the BOA for this zoning. It is recommended that an existing and ongoing BOA of the political subdivision that owns the airport be so appointed. This is because the BOA members have term limits of 2 years and if the JAZB appoints a new board of adjustment for the airport zoning, only that JAZB can appoint or reappoint members as the existing members’ terms expire. If the members of the JAZB move, are not able to serve, become deceased, or resign, only the political subdivisions that appointed the JAZB may replace those members. In order to simplify these potential problems, an existing and perpetuating BOA should be selected.
8. A procedure for issuing permits and variances. A permit may be issued by the administrator of the zoning regulations for any structure or tree that is taller than the excepted height limitation but would not obstruct a zoned surface. A permit should require the location and height of the structure in question be listed. The AZA states that a permit for a qualifying structure or tree “shall be issued.” The permit process therefore serves only as a method of gathering information about these objects and getting that information into the public record. Any structure or tree that exceeds the excepted height limitation and is located in the vicinity of an airport needs to be made known to the airport owner and the FAA. Published approach procedures could be affected. A variance is required before any structure, tree, or use of land that is normally prohibited by the zoning can be established. A variance may be issued by the BOA if it is found that the structure, tree, or use of land in question, which technically would be in violation of the zoning restrictions, is determined not to be contrary to the public interest and would be in accordance with the spirit of the zoning regulations. Confirmation from the FAA as to the effect on the airport would be required before a variance could be issued. In issuing a variance, the BOA may impose any reasonable condition that it considers necessary to accomplish the purposes of the AZA.
9. An appeals process for persons aggrieved by the BOA. This will require involvement of the courts.
10. Penalties for violations. The AZA does not provide for the authority to levy fines, therefore, the zoning regulations can only set a fine amount. An actual sentence to pay a fine can only be at the discretion of the courts.

The above lists and explains the procedural actions and the contents of zoning regulations for publicly owned airports. The AZA also provides that zoning may be adopted for privately owned airports. Even though privately owned airports are eligible to be zoned, only cities and counties have the authority to adopt zoning regulations or appoint a JAZB. Therefore, a privately owned airport must have a public sponsor. A community may zone any privately owned airport if that airport meets the “fulfills an essential community purpose” or the “used in the interest of the public” requirement and all other requirements of the AZA.

**Figure 4-2: Comparison of areas under imaginary surfaces for each type of approach – plan views**



**Figure 4-3: Comparison of acreage under imaginary surfaces for each type of approach\***

<b>Surface</b>	<b>Type</b>	<b>Utility Visual</b>	<b>Other than Utility NPI</b>	<b>Other than Utility Precision</b>
<b>A</b>	Approach surfaces	200 acres	900 acres	19,500 acres
<b>P</b>	Primary surface	15	60	160
<b>T</b>	Transitional Surface**	300	500	17,000
<b>H</b>	Horizontal Surface	2,400	8,000	8,300
<b>C</b>	Conical Surface	4,700	7,800	8,100
	<b>Total Area</b>	<b>7,635 acres</b>	<b>17,320 acres</b>	<b>53,210 acres</b>

\* Total excludes overlapping surfaces, assumes typical runway lengths, single runway.

\*\*Not all transitional surfaces are depicted in Figure 4-2.

Source: Airport Compatibility Guidelines, Oregon Department of Transportation, 1981.



# **APPENDIX A**

## **CHAPTER 241. MUNICIPAL AND COUNTY ZONING AUTHORITY AROUND AIRPORTS**

### **SUBCHAPTER A. GENERAL PROVISIONS**

#### **§ 241.001. Short Title**

This chapter may be cited as the Airport Zoning Act.  
Acts 1987, 70th Leg., ch. 149, § 1, eff. Sept. 1, 1987.

#### **§ 241.002. Legislative Findings**

The legislature finds that:

- (1) An airport hazard endangers the lives and property of users of the airport and of occupants of land in the vicinity of the airport;
- (2) An airport hazard that is an obstruction reduces the size of the area available for the landing, taking off, and maneuvering of aircraft, tending to destroy or impair the utility of the airport and the public investment in the airport;
- (3) The creation of an airport hazard is a public nuisance and an injury to the community served by the airport affected by the hazard;
- (4) It is necessary in the interest of the public health, public safety, and general welfare to prevent the creation of an airport hazard;
- (5) The creation of an airport hazard should be prevented, to the extent legally possible, by the exercise of the police power without compensation; and
- (6) The prevention of the creation of an airport hazard and the elimination, the removal, the alteration, the mitigation, or the marking and lighting of an airport hazard are public purposes for which a political subdivision may raise and spend public funds and acquire land or interests in land.

Acts 1987, 70th Leg., ch. 149, § 1, eff. Sept. 1, 1987.

#### **§ 241.003. Definitions**

In this chapter:

- (1) “Airport” means an area of land or water, publicly or privately owned, designed and set aside for the landing and taking off of aircraft and used or to be used in the interest of the public for that purpose. The term includes an area with installations relating to flights, including installations, facilities, and bases of operations for tracking flights or acquiring data concerning flights.
- (2) “Airport hazard” means a structure or object of natural growth that obstructs the air space required for the taking off, landing, and flight of aircraft or that interferes with visual,

radar, radio, or other systems for tracking, acquiring data relating to, monitoring, or controlling aircraft.

- (3) “Airport hazard area” means an area of land or water on which an airport hazard could exist.
- (4) “Airport zoning regulation” means an airport hazard area zoning regulation and an airport compatible land use zoning regulation adopted under this chapter.
- (5) “Centerline” means a line extending through the midpoint of each end of a runway.
- (6) “Compatible land use” means a use of land adjacent to an airport that does not endanger the health, safety, or welfare of the owners, occupants, or users of the land because of levels of noise or vibrations or the risk of personal injury or property damage created by the operations of the airport, including the taking off and landing of aircraft.
- (7) “Controlled compatible land use area” means an area of land located outside airport boundaries and within a rectangle bounded by lines located no farther than 1-1/2 statute miles from the centerline of an instrument or primary runway and lines located no farther than five statute miles from each end of the paved surface of an instrument or primary runway.
- (8) “Instrument runway” means an existing or planned runway of at least 3,200 feet for which an instrument landing procedure published by a defense agency of the federal government or the Federal Aviation Administration exists or is planned.
- (9) “Obstruction” means a structure, growth, or other object, including a mobile object, that exceeds a limiting height established by federal regulations or by an airport hazard area zoning regulation.
- (10) “Political subdivision” means a municipality or county.
- (11) “Primary runway” means an existing or planned paved runway, as shown in the official airport layout plan (ALP) of the airport, of at least 3,200 feet on which a majority of the approaches to and departures from the airport occur.
- (12) “Runway” means a defined area of an airport prepared for the landing and taking off of aircraft along its length.
- (13) “Structure” means an object constructed or installed by one or more persons and includes a building, tower, smokestack, and overhead transmission line.

Acts 1987, 70th Leg., ch. 149, § 1, eff. Sept. 1, 1987.

#### **§ 241.004. Airport Used in Interest of Public**

For the purposes of this chapter, an airport is used in the interest of the public if:

- (1) The owner of the airport, by contract, license, or otherwise, permits the airport to be used by the public to an extent that the airport fulfills an essential community purpose; or
- (2) The airport is used by the state or an agency of the state or by the United States for national defense purposes or for any federal program relating to flight.

Acts 1987, 70th Leg., ch. 149, § 1, eff. Sept. 1, 1987.

#### **§ 241.005. Adoption of Regulation Includes Amendment or Other Change**

A reference in this chapter to the adoption of an airport zoning regulation includes the amendment, repeal, or other change of a regulation. A reference to the adoption of an airport zoning regulation also includes the amendment of an airport zoning regulation existing on the date the law codified by this chapter took effect, which was September 5, 1947.

Acts 1987, 70th Leg., ch. 149, § 1, eff. Sept. 1, 1987.

### **SUBCHAPTER B. ADOPTION OF AIRPORT ZONING REGULATIONS**

#### **§ 241.011. Airport Hazard Area Zoning Regulations**

- (a) To prevent the creation of an airport hazard, a political subdivision in which an airport hazard area is located may adopt, administer, and enforce, under its police power, airport hazard area zoning regulations for the airport hazard area.
- (b) The airport hazard area zoning regulations may divide an airport hazard area into zones and for each zone:
  - (1) Specify the land uses permitted;
  - (2) Regulate the type of structures; and
  - (3) Restrict the height of structures and objects of natural growth to prevent the creation of an obstruction to flight operations or air navigation.

Acts 1987, 70th Leg., ch. 149, § 1, eff. Sept. 1, 1987.

#### **§ 241.012. Airport Compatible Land Use Zoning Regulations**

- (a) A political subdivision may adopt, administer, and enforce, under its police power, airport compatible land use zoning regulations for the part of a controlled compatible land use area located within the political subdivision if the airport is:
  - (1) used in the interest of the public to the benefit of the political subdivision; or
  - (2) located within the political subdivision and owned or operated by a federal defense agency or by the state.
- (b) The political subdivision by ordinance or resolution may implement, in connection with airport compatible land use zoning regulations, any federal law or rules controlling the use of land located adjacent to or in the immediate vicinity of the airport.
- (c) The airport compatible land use zoning regulations must include a statement that the airport fulfills an essential community purpose.

Acts 1987, 70th Leg., ch. 149, § 1, eff. Sept. 1, 1987.

#### **§ 241.013. Extraterritorial Zoning in Political Subdivisions With Population of More Than 45,000**

- (a) A political subdivision with a population of more than 45,000 in which an airport used in the interest of the public to the benefit of the political subdivision is located may adopt, administer, and enforce:
  - (1) Airport hazard area zoning regulations applicable to an airport hazard area relating to the airport and located outside the political subdivision; and
  - (2) Airport compatible land use zoning regulations applicable to a controlled compatible

land use area relating to the airport and located outside the political subdivision.

- (b) The political subdivision has the same power to adopt, administer, and enforce airport hazard area zoning regulations or airport compatible land use zoning regulations under this section as that given a political subdivision by Sections 241.011 and 241.012.
- (c) The airport hazard area zoning regulations or airport compatible land use zoning regulations must include a statement that the airport fulfills an essential community purpose.

Acts 1987, 70th Leg., ch. 149, § 1, eff. Sept. 1, 1987. Amended by Acts 1991, 72nd Leg., ch. 98, §§ 1, 2, eff. Aug. 26, 1991.

**§ 241.014. Joint Airport Zoning Board**

- (a) A political subdivision to whose benefit an airport is used in the interest of the public or in which an airport owned or operated by a defense agency of the federal government or the state is located 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.
- (b) The joint airport zoning board has the same power to adopt, administer, and enforce airport hazard area zoning regulations or airport compatible land use zoning regulations under this section as that given a political subdivision by Sections 241.011 and 241.012.
- (c) The joint airport zoning board must consist of two members appointed by each of the political subdivisions creating the board and, in addition, a chairman elected by a majority of the appointed members.
- (d) If an agency of the state owns and operates an airport located within an airport hazard area or controlled compatible land use area governed by a joint airport zoning board, the agency is entitled to have two members on the board.
- (e) The joint airport zoning board for an airport that is owned or operated by a defense agency of the federal government and that is closed by the federal government may provide that zoning regulations adopted by the board continue in effect until the fourth anniversary of the date the airport is closed.

Acts 1987, 70th Leg., ch. 149, § 1, eff. Sept. 1, 1987. Amended by Acts 1997, 75th Leg., ch. 352, § 1, eff. May 27, 1997.

Amended by Acts 1999, 76th Leg., ch. 1176, § 1, eff. June 18, 1999.

**§ 241.015. Incorporation of Airport Zoning Regulation Into Comprehensive Zoning Ordinance**

A political subdivision may incorporate an airport zoning regulation in a comprehensive zoning ordinance and administer and enforce it in connection with the administration and enforcement of the comprehensive zoning ordinance if:

- (1) The two zoning regulations apply, in whole or in part, to the same area; and
- (2) The comprehensive zoning ordinance includes, among other matters, a regulation on the height of buildings.

Acts 1987, 70th Leg., ch. 149, § 1, eff. Sept. 1, 1987.

**§ 241.016. Airport Zoning Commission**

- (a) Before an airport zoning regulation may be adopted, a political subdivision acting unilaterally under Section 241.013 must appoint an airport zoning commission. If the political subdivision has a planning commission or comprehensive zoning commission, that commission may be designated as the airport zoning commission.
- (b) The commission shall recommend the boundaries of the zones to be established and the regulations for these zones.
- (c) The commission shall make a preliminary report and hold public hearings on the report before submitting a final report.
- (d) Before the 15th day before the date of a hearing under Subsection (c), notice of the hearing shall be published in an official newspaper or a newspaper of general circulation in each political subdivision in which the airport hazard area or controlled compatible land use area to be zoned is located.
- (e) A joint airport zoning board created under Section 241.014 is not required to appoint a commission under this section.

Acts 1987, 70th Leg., ch. 149, § 1, eff. Sept. 1, 1987. Amended by Acts 1995, 74th Leg., ch. 697, § 1, eff. Sept. 1, 1995.

**§ 241.017. Procedural Limitations Applying to Adoption of Zoning Regulations**

- (a) The governing body of a political subdivision may not hold a public hearing or take other action concerning an airport zoning regulation until it receives the final report of the airport zoning commission.
- (b) An airport zoning regulation may not be adopted except by action of the governing body of the political subdivision or a joint airport zoning board after the political subdivision or joint airport zoning board holds a public hearing on the matter at which parties in interest and citizens have an opportunity to be heard.
- (c) Before the 15th day before the date of a hearing under Subsection (b), notice of the hearing must be published in an official newspaper or a newspaper of general circulation in each political subdivision in which the area to be zoned is located.

Acts 1987, 70th Leg., ch. 149, § 1, eff. Sept. 1, 1987. Amended by Acts 1995, 74th Leg., ch. 697, § 2, eff. Sept. 1, 1995.

**§ 241.018. Reasonableness of Airport Zoning Regulations**

- (a) An airport zoning regulation must be reasonable and may impose a requirement or restriction only if the requirement or restriction is reasonably necessary to achieve the purposes of this chapter.
- (b) In determining which airport zoning regulations to adopt, the governing body of a political subdivision or a joint airport zoning board shall consider, among other things:
  - (1) The character of the flying operations expected to be conducted at the airport;
  - (2) The nature of the terrain within the airport hazard area;
  - (3) The character of the neighborhood; and
  - (4) The current and possible uses of the property to be zoned.

Acts 1987, 70th Leg., ch. 149, § 1, eff. Sept. 1, 1987.

**§ 241.019. Nonconforming Uses and Structures**

Except as provided by Section 241.035, airport zoning regulations may not require:

- (1) Changes in nonconforming land use existing on the date of the adoption of the regulations;
- (2) The removal, lowering, or other change of a structure that does not conform to the regulations on the date of their adoption, including all phases or elements of a multiphase structure, regardless of whether actual construction has commenced, that received a determination of no hazard by the Federal Aviation Administration under 14 C.F.R., Part 77, before the regulations were adopted;
- (3) The removal, lowering, or other change of an object of natural growth that does not conform to the regulations on the date of their adoption; or
- (4) Any other interference in the continuation of a use that does not conform to the regulations on the date of their adoption.

Acts 1987, 70th Leg., ch. 149, § 1, eff. Sept. 1, 1987.

**§ 241.020. Permits**

- (a) Airport zoning regulations may require that a permit be obtained before:
  - (1) A new structure is constructed;
  - (2) An existing structure is substantially changed or repaired;
  - (3) A new use is established; or
  - (4) An existing use is substantially changed.
- (b) Airport zoning regulations must provide that a permit be obtained from the administrative agency authorized to administer and enforce the regulations before:
  - (1) A nonconforming structure may be replaced, rebuilt, or substantially changed or repaired; or
  - (2) A nonconforming object of natural growth may be replaced, substantially changed, allowed to grow higher, or replanted.
- (c) A permit may not allow:
  - (1) The establishment of an airport hazard;
  - (2) A nonconforming use to be made;
  - (3) A nonconforming structure or object of natural growth to become higher than it was at the time of the adoption of the airport zoning regulations relating to the structure or object of natural growth or at the time of the application for the permit; or
  - (4) A nonconforming structure, object of natural growth, or use to become a greater hazard to air navigation than it was at the time of the adoption of the airport zoning regulations relating to the structure, object of natural growth, or use or at the time of the application for the permit.
- (d) Except as provided by Subsection (c), an application for a permit shall be granted.

Acts 1987, 70th Leg., ch. 149, § 1, eff. Sept. 1, 1987.

## **SUBCHAPTER C. ADMINISTRATIVE AGENCY AND BOARD OF ADJUSTMENT**

### **§ 241.031. Administrative Agency**

- (a) Airport zoning regulations must provide for the administration and enforcement of the regulations by an administrative agency. The administrative agency may be:
  - (1) An agency created by the regulations;
  - (2) An existing official, board, or agency of the political subdivision adopting the regulations; or
  - (3) An existing official, board, or other agency of a political subdivision that participated in the creation of a joint airport zoning board adopting the regulations, if satisfactory to that political subdivision.
- (b) The administrative agency may not be the board of adjustment or include any member of the board.
- (c) The administrative agency shall hear and decide all applications for permits under Section 241.020.
- (d) The agency may not exercise any of the powers delegated to the board of adjustment.

Acts 1987, 70th Leg., ch. 149, § 1, eff. Sept. 1, 1987.

### **§ 241.032. Board of Adjustment**

- (a) Airport zoning regulations must provide for a board of adjustment.
- (b) If a zoning board of appeals or adjustment exists, it may be designated as the board of adjustment under this chapter.
- (c) If a zoning board of appeals or adjustment does not exist or is not designated as the board of adjustment under this chapter, a board of adjustment must be appointed. The board must consist of five members to be appointed for terms of two years. The appointing authority may remove a board member for cause on a written charge after a public hearing. A vacancy on the board shall be filled for the unexpired term.
- (d) The concurring vote of four members of the board is necessary to:
  - (1) Reverse an order, requirement, decision, or determination of the administrative agency;
  - (2) Decide in favor of an applicant on a matter on which the board is required to pass under an airport zoning regulation; or
  - (3) Make a variation in an airport zoning regulation.
- (e) The board shall adopt rules in accordance with the ordinance or resolution that created it.
- (f) Meetings of the board are held at the call of the chairman and at other times as determined by the board. The chairman or acting chairman may administer oaths and compel the attendance of witnesses. All hearings of the board shall be open to the public.
- (g) The board shall keep minutes of its proceedings that indicate the vote of each member on each question or the fact that a member is absent or fails to vote. The board shall keep

records of its examinations and other official actions. The minutes and records shall be filed immediately in the board's office and are public records.

Acts 1987, 70th Leg., ch. 149, § 1, eff. Sept. 1, 1987.

**§ 241.033. Authority of Board**

The board of adjustment shall:

- (1) hear and decide an appeal, as provided by Section 241.036, from an order, requirement, decision, or determination made by the administrative agency in the enforcement of an airport zoning regulation;
- (2) hear and decide special exceptions to the terms of an airport zoning regulation when the regulation requires the board to do so; and
- (3) hear and decide specific variances under Section 241.034.

Acts 1987, 70th Leg., ch. 149, § 1, eff. Sept. 1, 1987.

**§ 241.034. Variances**

- (a) A person who desires to erect or increase the height of a structure, permit the growth of an object of natural growth, or otherwise use property in violation of an airport zoning regulation, may apply to the board of adjustment for a variance from the regulation.
- (b) The board shall allow a variance from an airport zoning regulation if:
  - (1) A literal application or enforcement of the regulation would result in practical difficulty or unnecessary hardship; and
  - (2) The granting of the relief would:
    - (A) Result in substantial justice being done;
    - (B) Not be contrary to the public interest; and
    - (C) Be in accordance with the spirit of the regulation and this chapter.
- (c) The board may impose any reasonable conditions on the variance that it considers necessary to accomplish the purposes of this chapter.

Acts 1987, 70th Leg., ch. 149, § 1, eff. Sept. 1, 1987.

**§ 241.035. Hazard Marking and Lighting**

If the administrative agency or board of adjustment considers it reasonable in the circumstances and advisable to accomplish the purposes of this chapter, the agency or board may require in a permit or a variance granted under this chapter that the owner of a structure or object of natural growth allow the political subdivision, at its own expense, to install, operate, and maintain on the structure or object of natural growth any markers and lights necessary to indicate to flyers the presence of an airport hazard.

Acts 1987, 70th Leg., ch. 149, § 1, eff. Sept. 1, 1987.

**§ 241.036. Appeal to Board**

- (a) A decision of the administrative agency made in its administration of an airport zoning regulation may be appealed to the board of adjustment by:
  - (1) A person who is aggrieved by the decision;

- (2) A taxpayer who is affected by the decision; or
- (3) The governing body of a political subdivision or a joint airport zoning board that believes the decision is an improper application of the airport zoning regulation.
- (b) The appellant must file with the board and the administrative agency a notice of appeal specifying the grounds for the appeal. The appeal must be filed within a reasonable time as determined by the rules of the board. On receiving the notice, the administrative agency shall immediately transmit to the board all the papers constituting the record of the action that is appealed.
- (c) An appeal stays all proceedings in furtherance of the action that is appealed unless the administrative agency certifies in writing to the board facts supporting the agency's opinion that a stay would cause imminent peril to life or property. In that case, the proceedings may be stayed only by an order of the board, after notice to the administrative agency, if due cause is shown.
- (d) The board shall set a reasonable time for the appeal hearing and shall give public notice of the hearing and due notice to the parties in interest. A party may appear at the appeal hearing in person or by agent or attorney. The board shall decide the appeal within a reasonable time.
- (e) The board may reverse or affirm, in whole or in part, or modify the administrative agency's order, requirement, decision, or determination from which an appeal is taken and make the correct order, requirement, decision, or determination, and for that purpose the board has the same authority as the administrative agency.

Acts 1987, 70th Leg., ch. 149, § 1, eff. Sept. 1, 1987.

## **SUBCHAPTER D. JUDICIAL REVIEW AND OTHER REMEDIES**

### **§ 241.041. Judicial Review of Board Decision**

- (a) A person who is aggrieved or a taxpayer who is affected by a decision of a board of adjustment, or the governing body of a political subdivision or a joint airport zoning board that believes a decision of a board of adjustment is illegal, may present to a court of record a verified petition stating that the decision of the board of adjustment is illegal in whole or in part and specifying the grounds of the illegality. The petition must be presented within 10 days after the date the decision is filed in the board's office.
- (b) On the presentation of the petition, the court may grant a writ of certiorari directed to the board of adjustment to review the board's decision. Granting of the writ does not stay the proceedings on the decision under appeal, but on application and after notice to the board the court may grant a restraining order if due cause is shown.
- (c) The board's return must be verified and must concisely state any pertinent and material facts that show the grounds of the decision that is appealed. The board is not required to return the original documents on which the board acted but may return certified or sworn copies of the documents or parts of the documents as provided by the writ.

Acts 1987, 70th Leg., ch. 149, § 1, eff. Sept. 1, 1987.

#### **§ 241.042. Trial by Court**

(a) The court, in an appeal from a decision of a board of adjustment as provided by Section 241.041, shall try and determine the case de novo on the basis of the facts adduced in the trial of the case in the court. The court shall independently rule on the facts and the law as in an ordinary civil suit.

(b) The court has exclusive jurisdiction to reverse or affirm, in whole or in part, or modify the decision that is appealed and, if necessary, may order further proceedings by the board.

(c) Costs may not be assessed against the board unless the court determines that the board acted with gross negligence, in bad faith, or with malice in making its decision.

Acts 1987, 70th Leg., ch. 149, § 1, eff. Sept. 1, 1987.

#### **§ 241.043. Effect of Holding of the Court**

If the court holds that an airport zoning regulation, although generally reasonable, interferes with the use or enjoyment of a particular structure or parcel of land to such an extent that, or is so onerous in its application to a particular structure or parcel of land that, the application of the regulation constitutes a taking or deprivation of property in violation of the state or federal constitution, the holding does not affect the application of the regulation to any other structure or parcel of land.

Acts 1987, 70th Leg., ch. 149, § 1, eff. Sept. 1, 1987.

#### **§ 241.044. Additional Remedies**

(a) A political subdivision or joint airport zoning board adopting airport zoning regulations may bring an action in a court of competent jurisdiction to prevent, restrain, correct, or abate a violation of:

(1) This chapter;

(2) An airport zoning regulation adopted by the political subdivision or board; or

(3) An order or ruling made in connection with the administration or enforcement of an airport zoning regulation adopted by the political subdivision or board.

(b) The court shall grant any relief, including an injunction which may be mandatory, as may be proper under all the facts and circumstances of the case to accomplish the purposes of this chapter and the regulations adopted and orders and rulings made under it.

Acts 1987, 70th Leg., ch. 149, § 1, eff. Sept. 1, 1987.

### **SUBCHAPTER Z. MISCELLANEOUS PROVISIONS**

#### **§ 241.901. Conflict of an Airport Hazard Area Zoning Regulation With Another Regulation**

(a) If an airport hazard area zoning regulation conflicts with any other regulation applicable to the same area, the more stringent limitation or requirement controls.

(b) Subsection (a) applies to any conflict with respect to the height of a structure or object of natural growth or any other matter.

(c) Subsection (a) applies to any regulation that conflicts with an airport hazard area zoning regulation whether the regulation was adopted by the political subdivision that adopted the airport zoning regulation or by another political subdivision.

Acts 1987, 70th Leg., ch. 149, § 1, eff. Sept. 1, 1987.

**§ 241.902. Conflict of an Airport Compatible Land Use Zoning Regulation With Another Regulation**

- (a) If an airport compatible land use zoning regulation conflicts with any other regulation applicable to the same area, the airport compatible land use zoning regulation controls.
- (b) Subsection (a) applies to any conflict with respect to the use of land or any other matter.
- (c) Subsection (a) applies to any regulation that conflicts with an airport compatible land use zoning regulation, whether the regulation was adopted by the political subdivision that adopted the airport compatible land use zoning regulation or by another political subdivision.

Acts 1987, 70th Leg., ch. 149, § 1, eff. Sept. 1, 1987.

**§ 241.903. Acquisition of Air Rights or Other Property**

- (a) A political subdivision may acquire from a person or other political subdivision an air right, aviation easement, or other estate or interest in property or in a nonconforming structure or use if:
  - (1) the acquisition is necessary to accomplish the purposes of this chapter;
  - (2) the property or nonconforming structure or use is located within the political subdivision, the political subdivision owns the airport, or the political subdivision is served by the airport; and
    - (A) the political subdivision desires to remove, lower, or terminate the nonconforming structure or use;
    - (B) airport zoning regulations are not sufficient to provide necessary approach protection because of constitutional limitations; or
    - (C) the acquisition of a property right is more advisable than an airport zoning regulation in providing necessary approach protection.
- (b) An acquisition under this section may be by purchase, grant, or condemnation in the manner provided by Subchapter B, Chapter 21, Property Code.

Acts 1987, 70th Leg., ch. 149, § 1, eff. Sept. 1, 1987.

# APPENDIX B

## AIRPORT COMPATIBLE LAND USE ZONING REGULATIONS

### \_\_\_\_\_ Airport Compatible Land Use Zoning Regulations

Regulating and restricting the use of property in the vicinity of the \_\_\_\_\_ Airport, \_\_\_\_\_, Texas, by creating the appropriate overlay zones and establishing the boundaries thereof; providing for restrictions of such zones and the enforcement of such restrictions; defining certain terms used herein; referring to the \_\_\_\_\_ Airport Compatible Land Use Zoning Map prepared by \_\_\_\_\_, dated \_\_\_\_\_, and Table 1, Prohibited or Regulated Land Uses, both of which are incorporated in and made parts of these regulations; providing for a board of adjustment; and imposing penalties.

**Whereas**, these regulations are adopted pursuant to the authority conferred by the Airport Zoning Act, Texas Local Government Code, §§241.001 et seq.

**Accordingly**, it is declared that the City of \_\_\_\_\_ benefits from the use of the \_\_\_\_\_ Airport and the City Council of the City of (or: the Commissioners Court of the County of) \_\_\_\_\_, Texas, permits the \_\_\_\_\_ Airport to be used by the public to an extent that the **airport fulfills an essential community purpose**; therefore, the \_\_\_\_\_ Airport is used in the interest of the public.

**Therefore**, be it ordered by the \_\_\_\_\_ Joint Airport Zoning Board of the City Council of the City of \_\_\_\_\_, Texas, and the Commissioners Court of \_\_\_\_\_ County, Texas:

#### **Section 1. Short Title**

These regulations shall be known and may be cited as the “\_\_\_\_\_ Airport Compatible Land Use Zoning Regulations.”

#### **Section 2. Definitions**

As used in these regulations, unless the context otherwise requires:

- A. Administrative Agency** — The appropriate person or office of a political subdivision which is responsible for the administration and enforcement of the regulations prescribed herein. The administrative agency is set forth in Section 3 of these regulations.
- B. Airport** — The \_\_\_\_\_ Airport, \_\_\_\_\_, Texas; including the ultimate development of that facility.
- C. Board of Adjustment** — A board so designated by these regulations as provided in Texas Local Government Code, §241.032. Provisions for the board of adjustment are set forth in Section 7 of these regulations.
- D. Compatible Land Use** — Any use of land adjacent to or in the immediate vicinity of the airport that does not endanger the health, safety, and welfare of the owners, occupants, or users of the land because of levels of noise or vibrations or the risk of personal injury or

property damage created by the operations of the airport, including the taking off or landing of aircraft.

- E. Controlled Compatible Land Use Area** — An area of land located outside the boundaries of the \_\_\_\_\_ Airport and within a rectangle bounded by lines located no farther than 1½ statute miles from the centerline and lines no farther than 5 statute miles from each end of Runway \_\_\_\_\_.
- F. Instrument Runway** — An existing or planned paved runway of at least 3200 feet in length for which there is an existing or planned instrument landing procedure published by the Federal Aviation Administration or a defense agency of the Federal Government. Runway(s) \_\_\_\_\_ is(are) considered as an instrument runway(s) at the \_\_\_\_\_ Airport.
- G. DNL (Yearly Day-Night Average Sound Level)** — The 24-hour average sound level, in decibels, for the period from midnight to midnight obtained after the addition of 10 decibels for the periods between midnight and 7 AM and 10 PM and midnight (local time) as averaged over a span of 1 year. A mathematical definition of DNL may be found in Federal Aviation Regulations (FAR) Part 150, Section 150.201.
- H. Noise Level Reduction (NLR)** — The amount of reduction in noise for any given point as achieved through the incorporation of noise attenuation measures incorporated into the design and construction of buildings. These reductions may be incorporated during initial construction or as additional construction for existing buildings.
- I. Nonconforming Land Use** — Any use of land which is inconsistent with the provisions of these regulations and which is existing as of the effective date of these regulations.
- J. Person** — An individual, firm, partnership, corporation, company, association, joint stock association, or body politic and includes a trustee, receiver, assignee, administrator, executor, guardian, or other representative.
- K. Primary Runway** — An existing or paved runway of at least 3200 feet in length as shown on the official Airport Layout Plan for the airport and on which a majority of the approaches to and departures from the airport occur.
- L. Runway** — A defined area on the airport prepared for the landing and taking off of aircraft along its length. The zoned length of Runway \_\_\_\_\_ at the \_\_\_\_\_ Airport is \_\_\_\_\_ feet.

### **Section 3. Administrative Agency**

It shall be the duty of the office of \_\_\_\_\_ to administer and enforce the regulations prescribed herein and is hereby designated as the administrative agency.

### **Section 4. Airport Overlay Zones**

- A. Creation of Airport Overlay Zones (AOZ)** — In order to carry out the provisions of these regulations, there are hereby created and established certain Airport Overlay Zones for the purposes of regulating and developing uses of land within each zone that do not endanger the health, safety, and general welfare of the owners, occupants, or users of the land because of noise or vibrations or the risk of personal injury or property damage created by the operations of the airport, including the taking off and landing of aircraft. The controlled compatible land use area is hereby divided into 4 zones, shown on the \_\_\_\_\_ Airport Compatible Land Use Zoning Map dated \_\_\_\_\_,

which is attached to and made a part of these regulations. The AOZs are hereby established as follows:

**Airport Overlay Zone 1 (AOZ-1):** that portion of the controlled compatible land use area outside the 65 DNL contour line.

**Airport Overlay Zone 2 (AOZ-2):** that portion of the controlled compatible land use area between the 65 and 70 DNL contour lines.

**Airport Overlay Zone 3 (AOZ-3):** that portion of the controlled compatible land use area between the 70 and 75 DNL contour lines.

**Airport Overlay Zone 4 (AOZ-4):** that portion of the controlled compatible land use area between the 75 and 80 DNL contour lines.

- B. Permitted Uses** — All uses are permitted within each applicable AOZ that are permitted by other existing zoning ordinances except as prohibited or regulated by these zoning regulations. Where there is a conflict between the AOZ restrictions and other zoning ordinances or where there are no other existing zoning ordinances, the provisions of the AOZ shall prevail. Uses within the AOZs that are not permitted and uses that are hereby regulated are shown in the attached Table 1, Prohibited or Regulated Land Uses, which is attached to and made a part of these zoning regulations.

#### **Section 5. Nonconforming Uses**

The regulations prescribed herein shall not be construed as to require changes in the use of any land or other change or alteration of any structure not conforming to these regulations as of the effective date of these regulations or otherwise interfere with the continuance of any nonconforming use. Nothing contained herein shall be construed as to require any change in the construction, alteration, or intended use of any nonconforming structure, the construction of which was begun prior to the effective date of these regulations and is diligently prosecuted.

#### **Section 6. Variances**

Any person who desires to use his property in violation of any of the regulations contained herein may apply to the board of adjustment for a variance. Such variances may be allowed where it is duly found that a literal application or enforcement of these regulations will result in practical difficulty or unnecessary hardship and the granting of relief would result in substantial justice, not be contrary to the public interest, and be in accordance with the spirit of these regulations. Any variance granted may, at the discretion of the board of adjustment, impose **any reasonable conditions** as may be necessary to accomplish the purpose of these regulations.

#### **Section 7. Board of Adjustment**

- A.** The Board of Adjustment of \_\_\_\_\_ is hereby designated as the board of adjustment for the purposes of these regulations and shall have and exercise the following powers:
- (1) to hear and decide appeals from any order, requirement, decision, or determination made by the Administrative Agency in the administration or enforcement of these regulations;
  - (2) to hear and decide special exceptions to the terms of these regulations when the board is required to do so; and

(3) to hear and decide specific variances.

- B.** The board of adjustment shall be comprised of five (5) members and shall adopt rules for its governance and procedure in harmony with the provisions of these regulations. Meetings of the board of adjustment shall be held at the call of the chairman and at such times as the board of adjustment may determine. The chairman, or in his/her absence the acting chairman, may administer oaths and compel the attendance of witnesses. All hearings of the board of adjustment shall be public. The board of adjustment shall keep minutes of its proceedings showing the vote of each member upon each question or if any member is absent or fails to vote, indicating such fact and shall keep records of its examinations and other official actions, all of which shall immediately be filed in the office of the board of adjustment or in the office \_\_\_\_\_. All such records shall be public records.
- C.** The board of adjustment shall make written findings of fact and conclusions of law stating the facts upon which it relied when making its legal conclusions in reversing, affirming, or modifying any order, requirement, decision, or determination which comes before it under the provisions of these regulations.
- D.** The concurring vote of four (4) members of the board of adjustment shall be necessary to reverse any order, requirement, decision, or determination of the administrative agency, to decide in favor of the applicant on any matter upon which it is required to pass under these regulations, or to effect any variance to these regulations.

#### **Section 8. Appeals**

- A.** Any person aggrieved or any taxpayer affected by a decision of the administrative agency made in the administration of these regulations may appeal to the board of adjustment if that person or taxpayer is of the opinion that a decision of the administrative agency is an improper application of these regulations. This same right of appeal is extended to the governing bodies of the City of \_\_\_\_\_, Texas, and \_\_\_\_\_ County, Texas, and to the \_\_\_\_\_ Joint Airport Zoning Board.
- B.** All appeals hereunder must be taken within a reasonable time as provided by the rules of the board of adjustment by filing a notice of appeal with the board of adjustment and the administrative agency specifying the grounds for the appeal. The administrative agency shall forthwith transmit to the board of adjustment all papers constituting the record upon which the action appealed was taken.
- C.** An appeal shall stay all proceedings in furtherance of the action appealed unless the administrative agency certifies in writing to the board of adjustment that by reason of the facts stated in the certificate, a stay would, in the opinion of the administrative agency, cause imminent peril to life or property. In such case, proceedings shall not be stayed except by order of the board of adjustment on notice to the administrative agency and on due cause shown.
- D.** The board of adjustment shall fix a reasonable time for hearing appeals, give public notice and due notice to the parties in interest, and decide the same within a reasonable time. Upon the hearing, any party may appear in person, by agent, and/or by attorney.
- E.** The board of adjustment may reverse or affirm, in whole or in part, or modify the administrative agency's order, requirement, decision, or determination from which an appeal is taken and make the correct order, requirement, decision, or determination, and

for this purpose the board of adjustment has the same authority as the administrative agency.

**Section 9. Judicial Review**

Any person aggrieved or any taxpayer affected by a decision of the board of adjustment may present to a court of record a petition stating that the decision of the board of adjustment is illegal and specifying the grounds of the illegality. This same right of appeal is extended to the governing bodies of the City of \_\_\_\_\_, Texas, and \_\_\_\_\_ County, Texas, and to the \_\_\_\_\_ Joint Airport Zoning Board.

**Section 10. Enforcement and Remedies**

The governing bodies of the City of \_\_\_\_\_, Texas, or \_\_\_\_\_ County, Texas, or the \_\_\_\_\_ Joint Airport Zoning Board may institute in a court of competent jurisdiction an action to prevent, restrain, correct, or abate any violation of these regulations or of any order or ruling made in connection with their administration or enforcement including, but not limited to, an action for injunctive relief.

**Section 11. Penalties**

Each violation of these regulations or of any order or ruling promulgated hereunder shall constitute a misdemeanor and upon conviction shall be punishable by a **fine of not more than \$200** and each day a violation continues to exist shall constitute a separate offense.

**Section 12. Conflicting Regulations**

Where there exists a conflict between any of the regulations or limitations prescribed herein and any other regulation applicable to the same area, whether the conflict be with respect to the use of land, or any other matter, the more stringent limitation or requirement shall control.

**Section 13. Severability**

If any of the provisions of these regulations or the application thereof to any person or circumstance is held invalid, such invalidity shall not affect other provisions or application of these regulations which can be given effect without the invalid provision or application and to this end, the provisions of these regulations are declared to be severable.

**Section 14. Adherence with State Laws**

Any actions brought forth by any person or taxpayer as a result of the administration, enforcement, or the contesting these regulations will be in accordance with the provisions of Texas Local Government Code, §§241.001 and other applicable State laws.

**Section 15. Effective Date**

**Whereas**, the immediate operation of the provisions of these regulations is necessary for the preservation of the public health, safety, and general welfare, an **emergency** is hereby declared to exist and these regulations shall be in full force and effect from and after their adoption by the \_\_\_\_\_ Joint Airport Zoning Board.

Adopted by the \_\_\_\_\_ Joint Airport Zoning Board this \_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_

\_\_\_\_\_  
Chairman, \_\_\_\_\_ Joint Airport Zoning Board

\_\_\_\_\_  
Member

\_\_\_\_\_  
Member

\_\_\_\_\_  
Member

\_\_\_\_\_  
Member

Attest: \_\_\_\_\_

City Secretary of the City of \_\_\_\_\_, Texas

## **AIRPORT COMPATIBLE LAND USE ZONING REGULATIONS: TABLE 1**

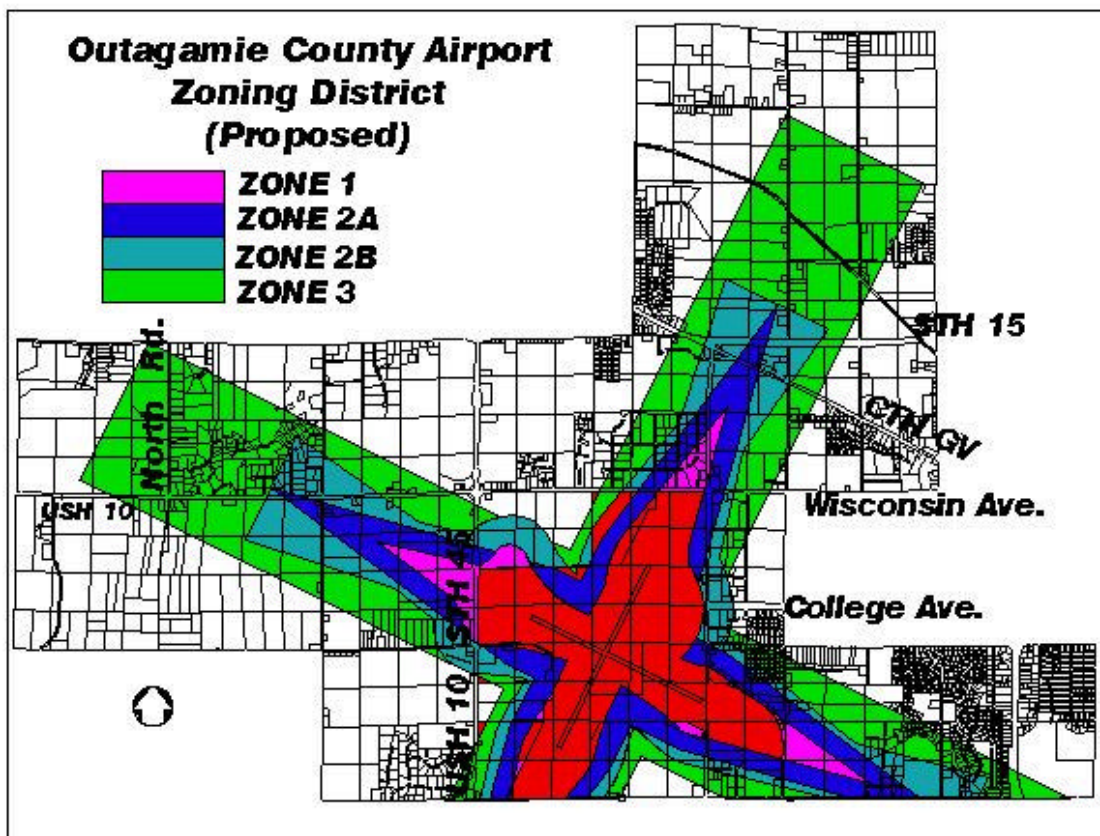
### **PROHIBITED OR REGULATED LAND USES**

**NOTE:** This table should be created using FAA Advisory Circular 150/5020-1 as a guide and tailored to fit the particular needs of your community. It is highly recommended that a qualified acoustical expert be contacted for advice in the creation of this table.

	<b>Airport Overlay Zones</b> <b>Sound Level in DNL</b>		
<b>Land Use</b>	<b>AO-2</b> 65-70 DNL	<b>AO-3</b> 70-75 DNL	<b>AO-4</b> 75-80 DNL
<b>Residential</b>			
Single Units - detached	N	N	N
Single Units - semi-detached	N	N	N
Single Units - attached row	N	N	N
Two Units - side-by-side	N	N	N
Two Units - one above the other	N	N	N
Apartments - walk up	N	N	N
Apartments - elevator	N	N	N
Group Quarters	N	N	N
Residential Hotels	N	N	N
Other Residential	N	N	N
Mobile Home Parks	N	N	N
Transient Lodgings	25	30	35
<b>Public Use</b>			
Educational Services	25	30	N
Hospitals, Nursing Homes	25	30	N
Cultural Activities	25	30	N

## ***Airport Compatible Land Use Zoning Map***

**NOTE:** This map should be tailored to fit the particular needs of your community. If the City or County staff does not have the expertise to produce this map, it is recommended that a qualified aviation consultant be contacted.



# APPENDIX C

## AIRPORT HAZARD ZONING ORDINANCE

### \_\_\_\_\_ Airport Hazard Zoning Regulations

Regulating and restricting the height of structures and objects of natural growth and otherwise regulating the use of property in the vicinity of the \_\_\_\_\_ Airport, \_\_\_\_\_, Texas, by creating the appropriate zones and establishing the boundaries thereof; providing for restrictions of such zones and the enforcement of such restrictions; defining certain terms used herein; referring to the \_\_\_\_\_ Airport Hazard Zoning Map prepared by \_\_\_\_\_, dated \_\_\_\_\_1, which is incorporated in and made a part of these regulations; providing for a board of adjustment; and imposing penalties.

**Whereas**, these regulations are adopted pursuant to the authority conferred by the Airport Zoning Act, Texas Local Government Code, §§241.001 et seq.

**Whereas**, the Legislature of the State of Texas finds that:

- an airport hazard endangers the lives and property of users of the airport and of occupants of land in the vicinity of the airport;
- an airport hazard that is an obstruction reduces the size of the area available for the landing, taking off, and maneuvering of aircraft, tending to destroy or impair the utility of the airport and the public investment in the airport;
- the creation of an airport hazard is a public nuisance and an injury to the community served by the airport affected by the hazard;
- it is necessary in the interest of the public health, public safety, and general welfare to prevent the creation of an airport hazard;
- the creation of an airport hazard should be prevented, to the extent legally possible, by the exercise of the police power without compensation; and
- the prevention of the creation of an airport hazard and the elimination, the removal, the alteration, the mitigation, or the marking and lighting of an airport hazard are public purposes for which a political subdivision may raise and spend public funds and acquire land or interests in land.

**Accordingly**, it is declared that the City of \_\_\_\_\_ benefits from the use of the \_\_\_\_\_ Airport and the City Council of the City of \_\_\_\_\_ permits the \_\_\_\_\_ Airport to be used by the public to an extent that the airport fulfills an essential community purpose; therefore, the \_\_\_\_\_ Airport is **used in the interest of the public**.

Therefore, be it ordered by the \_\_\_\_\_ Joint Airport Zoning Board of the City Council of the City of \_\_\_\_\_, Texas, and the Commissioners Court of \_\_\_\_\_ County, Texas:

## **Section 1. Short Title**

These regulations shall be known and may be cited as the “\_\_\_\_\_ **Airport Hazard Zoning Regulations.**”

## **Section 2. Definitions**

As used in these regulations, unless the context otherwise requires:

- A. Administrative Agency** — The appropriate person or office of a political subdivision which is responsible for the administration and enforcement of the regulations prescribed herein. The administrative agency is set forth in Section 3 of these regulations.
- B. Airport** — The \_\_\_\_\_ Airport, \_\_\_\_\_, Texas; including the ultimate development of that facility.
- C. Airport Elevation** — The established elevation of the highest point on the runway, either existing or planned, at the airport measured in feet above mean sea level (MSL). The airport elevation of the \_\_\_\_\_ Airport is \_\_\_\_\_ feet above mean sea level (MSL).
- D. Airport Hazard** — Any structure, tree, or use of land which obstructs the airspace required for the flight of aircraft or obstructs or interferes with the control, tracking, and/or data acquisition in the landing, takeoff, or flight at an airport or any installation or facility relating to flight, tracking, and/or data acquisition of the flight craft; is hazardous to, interferes with, or obstructs such landing, takeoff, or flight of aircraft; or is hazardous to or interferes with tracking and/or data acquisition pertaining to flight and flight vehicles.
- E. Approach Surface** — A surface longitudinally centered on the extended runway centerline, extending outward and upward from each end of the primary surface and at the same slope as the approach zone height limitation slope set forth in Section 5 of these regulations. In plan, the perimeter of the approach surface coincides with the perimeter of the approach zone.
- F. Approach, Conical, Horizontal, and Transitional Zones** — These zones are set forth in Section 4 of these regulations.
- G. Board of Adjustment** — A board so designated by these regulations as provided in Texas Local Government Code, §241.032. Provisions for the board of adjustment are set forth in Section 9 of these regulations.
- H. Conical Surface** — A surface extending outward and upward from the periphery of the horizontal surface at a slope of twenty (20) feet horizontally for each one (1) foot vertically for a horizontal distance of four-thousand (4,000) feet.
- I. Hazard to Air Navigation** — An obstruction or use of land determined to have a substantial adverse effect on the safe and efficient utilization of navigable airspace.
- J. Height** — For the purpose of determining the height limits in all zones set forth in these regulations and shown on the hazard zoning map, the datum shall be height above mean sea level (MSL) elevation as measured in feet.
- K. Horizontal Surface** — A horizontal plane one-hundred fifty (150) feet above the established airport elevation which in plan coincides with the perimeter of the horizontal zone.

- L. Nonconforming Use, Structure, or Tree** — Any structure, tree, or use of land which is inconsistent with the provisions of these regulations and which is existing as of the effective date of these regulations.
- M. Nonprecision Instrument Runway** — A runway having an existing instrument approach procedure utilizing air navigation facilities or other equipment that provides only horizontal guidance or area type navigation equipment. This also includes a runway for which a nonprecision instrument approach procedure has been approved or planned. Runway \_\_\_\_\_ is considered a nonprecision instrument runway.
- N. Obstruction** — Any structure, tree, or other object, including a mobile object, which exceeds a limiting height set forth in Section 5 of these regulations or is an airport hazard.
- O. Other than Utility Runway** — A runway designed for and intended to be used by propeller driven aircraft of more than twelve-thousand five-hundred (12,500) pounds maximum gross weight and jet powered aircraft. Runway \_\_\_\_\_ at the \_\_\_\_\_ Airport is considered an other than utility runway.
- P. Person** — An individual, firm, partnership, corporation, company, association, joint stock association, or body politic and includes a trustee, receiver, assignee, administrator, executor, guardian, or other representative.
- Q. Precision Instrument Runway** — A runway having an existing instrument approach procedure utilizing air navigation facilities or other equipment which provide both horizontal and vertical guidance. This also includes a runway for which a precision instrument approach procedure has been approved or planned. Runway \_\_\_\_\_ at the \_\_\_\_\_ Airport is considered a precision instrument runway.
- R. Primary Surface** — A \_\_\_\_\_ foot wide surface longitudinally centered on the runway extending the full length of the ultimate runway configuration plus two-hundred (200) feet beyond each ultimate end of the runway. The elevation of any point on the primary surface is the same as the nearest point on the existing or ultimate runway centerline.
- S. Runway** — A defined area on the airport prepared for the landing and taking off of aircraft along its length. The zoned length of Runway \_\_\_\_\_ at the \_\_\_\_\_ Airport is \_\_\_\_\_ feet.
- T. Structure** — An object, including a mobile object, constructed or installed by man including, but not limited to, buildings, towers, cranes, smokestacks, poles, earth formations, overhead power lines, and traverse ways. Traverse ways are considered to be the heights set forth in 14 C.F.R. Part 77.23.
- U. Transitional Surfaces** — Surfaces extending perpendicular to the runway centerline and the extended runway centerline outward from the edges of the primary surface and the approach surfaces at a slope of seven (7) feet horizontally for each one (1) foot vertically to where they intersect the horizontal surface. Transitional surfaces for those portions of the precision approach surface which extend through and beyond the limits of the conical surface extend at a slope of seven (7) feet horizontally for each one (1) foot vertically for a distance of five-thousand (5,000) feet measured horizontally from either edge of the approach surface and perpendicular to the extended runway centerline.
- V. Tree** — Any type of flora and an object of natural growth.

### **Section 3. Administrative Agency**

It shall be the duty of the office of \_\_\_\_\_ to administer and enforce the regulations prescribed herein and is hereby designated as the administrative agency.

### **Section 4. Zones**

In order to carry out the provisions of these regulations, there are hereby created and established certain zones which include all of the land lying beneath the approach surfaces, conical surface, horizontal surface, and transitional surfaces as they apply to the airport. Such surfaces are shown on the \_\_\_\_\_ Airport Hazard Zoning Map consisting of one (1) sheet, prepared by \_\_\_\_\_ and dated \_\_\_\_\_, which is hereby attached to these regulations and made a part hereof. An area located in more than one of the following zones is considered to be only in the zone with the more restrictive height limitation. The various zones are hereby established and defined as follows:

- A. Approach Zones** — Approach zones are hereby established beneath the approach surfaces at each end of Runway \_\_\_\_\_ at the airport for an other than utility runway with \_\_\_\_\_ landings. The approach surface shall have an inner edge width of \_\_\_\_\_ feet, which coincides with the width of the primary surface, at a distance of two-hundred (200) feet beyond each runway end, widening thereafter uniformly to a width of \_\_\_\_\_ feet at a horizontal distance of \_\_\_\_\_ feet beyond the end of the primary surface. The centerline of the approach surface is the continuation of the centerline of the runway.
- B. Conical Zone** — A conical zone is hereby established beneath the conical surface at the airport which extends outward from the periphery of the horizontal surface for a horizontal distance of four-thousand (4,000) feet.
- C. Horizontal Zone** — A horizontal zone is hereby established beneath the horizontal surface at the airport which is a plane one-hundred fifty (150) feet above the established airport elevation, the perimeter of which is constructed by swinging arcs of ten-thousand (10,000) feet radii from the center of each end of the primary surface and connecting the adjacent arcs by lines tangent to those arcs.
- D. Transitional Zones** — Transitional zones are hereby established beneath the transitional surfaces at the airport. Transitional surfaces, symmetrically located on either side of the runway, have variable widths as shown on the \_\_\_\_\_ Airport Hazard Zoning Map. Transitional surfaces extend outward perpendicular to the runway centerline and the extended runway centerline from the periphery of the primary surface and the approach surfaces to where they intersect the horizontal surface. Where the precision instrument runway approach surface projects through and beyond the conical surface, there are hereby established transitional zones beginning at the sides of and at the same elevation as the approach surface and extending for a horizontal distance of five-thousand (5,000) feet as measured perpendicular to the extended runway centerline.

### **Section 5. Height Limitations**

Except as otherwise provided in Section 8 of these regulations, no structure shall be erected, altered, or replaced and no tree shall be allowed to grow in any zone created by these regulations to a height in excess of the applicable height limitations herein established for such zone except as provided in Paragraph E of this Section. Such applicable height limitations are hereby established for each of the zones in question as follows:

- A. Approach Zones — Slope one (1) foot in height for each \_\_\_\_\_ feet in horizontal distance beginning at the end of and at the same elevation as the primary surface and extending to a point \_\_\_\_\_ feet beyond the end of the primary surface.
- B. Conical Zone — Slopes one (1) foot in height for each twenty (20) feet in horizontal distance beginning at the periphery of the horizontal zone and at one-hundred fifty (150) feet above the airport elevation and extending to a height of three-hundred fifty (350) feet above the airport elevation, or to a height of \_\_\_\_\_ feet above mean sea level.
- C. Horizontal Zone — Established at one-hundred fifty (150) feet above the airport elevation, or at a height of \_\_\_\_\_ feet above mean sea level.
- D. Transitional Zones — Slope one (1) foot in height for each seven (7) feet in horizontal distance beginning at the sides of and at the same elevations as the primary surface and the approach surfaces.
- E. Excepted Height Limitation — *Nothing contained in these regulations shall be construed as prohibiting the growth, construction, or maintenance of any structure or tree to a height of up to fifty (50) feet above the surface of the land at its location.*

#### **Section 6. Land Use Restrictions**

Except as provided in Section 7 of these regulations, no use may be made of land or water within any zone established by these regulations in such a manner as to create electrical interference with navigational signals or radio communications between the airport and aircraft, make it difficult for pilots to distinguish between airport lights and others, result in glare in the eyes of pilots using the airport, impair visibility in the vicinity of the airport, create potential bird strike hazards, or otherwise in any way endanger or interfere with the landing, taking off, or maneuvering of aircraft intending to use the airport.

#### **Section 7. Nonconforming Uses, Structures, and Trees**

- A. **Nonconforming Uses** — Nothing contained in these regulations shall be construed as requiring changes in or interference with the continuance of any nonconforming use of land.
- B. **Nonconforming Structures** — Nothing contained in these regulations shall be construed as to require the removal, lowering, or other change to any existing nonconforming structure including all phases or elements of a multiphase structure the construction of which was begun prior to the effective date of these regulations and is diligently prosecuted.
- C. **Nonconforming Trees** — Nothing in these regulations shall be construed as to require the removal, lowering, or other change to any nonconforming tree. However, any nonconforming tree which grows to a greater height than it was as of the effective date of these regulations is subject to the provisions of these regulations as described in Section 5 herein above.

#### **Section 8. Permits and Variances**

- A. **Permits** — Any person who desires to replace, rebuild, substantially change, or repair a nonconforming structure or replace or replant a nonconforming tree must apply for and receive a permit, and **the permit shall be granted**. However, no permit shall be granted which would allow the establishment of an airport hazard or allow a nonconforming

structure or tree to exceed its original height or become a greater hazard to air navigation than it was at the time of the adoption of these regulations. Applications for permit shall be applied to and issued by the administrative agency.

- B. Variances** — Any person who desires to erect, substantially change, or increase the height of any structure or establish or allow the growth of any tree which would exceed the height limitations set forth in Section 5 of these regulations or change the use of property in such a way as to create a hazardous condition as described in Section 6 of these regulations must apply to the board of adjustment and receive a variance. The application for variance must be accompanied by a determination from the Federal Aviation Administration under 14 C.F.R. Part 77 as to the effect of the proposal on the operation of air navigation facilities and the safe, efficient use of navigable airspace. Such variances shall be allowed where it is duly found that a literal application or enforcement of the regulations will result in practical difficulty or unnecessary hardship and the granting of relief would result in substantial justice, not be contrary to the public interest, and be in accordance with the spirit of these regulations.

**C. Requirements and Reasonable Conditions**

- (1) Any permit granted may, at the discretion of the administrative agency, impose a requirement to allow the installation and maintenance, at the expense of the administrative agency, of any markers or lights as may be necessary to indicate to flyers the presence of an airport hazard.
- (2) Any variance granted may, at the discretion of the board of adjustment, impose **any reasonable conditions** as may be necessary to accomplish the purpose of these regulations.

**Section 9. Board of Adjustment**

- A.** The Board of Adjustment of \_\_\_\_\_ is hereby designated as the board of adjustment for the purposes of these regulations and shall have and exercise the following powers:
- (1) to hear and decide appeals from any order, requirement, decision, or determination made by the Administrative Agency in the administration or enforcement of these regulations;
  - (2) to hear and decide special exceptions to the terms of these regulations when the board is required to do so; and
  - (3) to hear and decide specific variances.
- B.** The board of adjustment shall be comprised of five (5) members and shall adopt rules for its governance and procedure in harmony with the provisions of these regulations. Meetings of the board of adjustment shall be held at the call of the chairman and at such times as the board of adjustment may determine. The chairman, or in his/her absence the acting chairman, may administer oaths and compel the attendance of witnesses. All hearings of the board of adjustment shall be public. The board of adjustment shall keep minutes of its proceedings showing the vote of each member upon each question or if any member is absent or fails to vote, indicating such fact and shall keep records of its examinations and other official actions, all of which shall immediately be filed in the office of the board of adjustment or in the office of \_\_\_\_\_. All such records shall be public records.

- C. The board of adjustment shall make written findings of fact and conclusions of law stating the facts upon which it relied when making its legal conclusions in reversing, affirming, or modifying any order, requirement, decision, or determination which comes before it under the provisions of these regulations.
- D. The concurring vote of four (4) members of the board of adjustment shall be necessary to reverse any order, requirement, decision, or determination of the administrative agency, to decide in favor of the applicant on any matter upon which it is required to pass under these regulations, or to effect any variance to these regulations.

#### **Section 10. Appeals**

- A. Any person aggrieved or any taxpayer affected by a decision of the administrative agency made in the administration of these regulations may appeal to the board of adjustment if that person or taxpayer is of the opinion that a decision of the administrative agency is an improper application of these regulations. This same right of appeal is extended to the governing bodies of the City of \_\_\_\_\_ and \_\_\_\_\_ County, Texas, and to the \_\_\_\_\_ Joint Airport Zoning Board.
- B. All appeals hereunder must be taken within a reasonable time as provided by the rules of the board of adjustment by filing a notice of appeal with the board of adjustment and the administrative agency specifying the grounds for the appeal. The administrative agency shall forthwith transmit to the board of adjustment all papers constituting the record upon which the action appealed was taken.
- C. An appeal shall stay all proceedings in furtherance of the action appealed unless the administrative agency certifies in writing to the board of adjustment that by reason of the facts stated in the certificate, a stay would, in the opinion of the administrative agency, cause imminent peril to life or property. In such case, proceedings shall not be stayed except by order of the board of adjustment on notice to the administrative agency and on due cause shown.
- D. The board of adjustment shall fix a reasonable time for hearing appeals, give public notice and due notice to the parties in interest, and decide the same within a reasonable time. Upon the hearing, any party may appear in person, by agent, and/or by attorney.
- E. The board of adjustment may reverse or affirm, in whole or in part, or modify the administrative agency's order, requirement, decision, or determination from which an appeal is taken and make the correct order, requirement, decision, or determination, and for this purpose the board of adjustment has the same authority as the administrative agency.

#### **Section 11. Judicial Review**

Any person aggrieved or any taxpayer affected by a decision of the board of adjustment may present to a court of record a petition stating that the decision of the board of adjustment is illegal and specifying the grounds of the illegality as provided by and in accordance with the provisions of Texas Local Government Code, §241.041. This same right of appeal is extended to the governing bodies of the City of \_\_\_\_\_, Texas, and \_\_\_\_\_ County, Texas, and to the \_\_\_\_\_ Joint Airport Zoning Board.

**Section 12. Enforcement and Remedies**

The governing bodies of the City of \_\_\_\_\_, Texas, or \_\_\_\_\_ County, Texas, or the \_\_\_\_\_ Joint Airport Zoning Board may institute in a court of competent jurisdiction an action to prevent, restrain, correct, or abate any violation of these regulations or of any order or ruling made in connection with their administration or enforcement including, but not limited to, an action for injunctive relief.

**Section 13. Penalties**

Each violation of these regulations or of any order or ruling promulgated hereunder shall constitute a misdemeanor and upon conviction shall be punishable by a **fine of not more than \$200** and each day a violation continues to exist shall constitute a separate offense.

**Section 14. Conflicting Regulations**

Where there exists a conflict between any of the regulations or limitations prescribed herein and any other regulation applicable to the same area, whether the conflict be with respect to the height of structures or trees, the use of land, or any other matter, the more stringent limitation or requirement shall control.

**Section 15. Severability**

If any of the provisions of these regulations or the application thereof to any person or circumstance is held invalid, such invalidity shall not affect other provisions or application of these regulations which can be given effect without the invalid provision or application and to this end, the provisions of these regulations are declared to be severable.

**Section 16. Adherence with State Laws**

Any actions brought forth by any person or taxpayer as a result of the administration, enforcement, or the contesting these regulations will be in accordance with the provisions of Texas Local Government Code, §§241.001 et seq and other applicable State laws.

**Section 17. Effective Date**

**Whereas**, the immediate operation of the provisions of these regulations is necessary for the preservation of the public health, safety, and general welfare, an **emergency** is hereby declared to exist and these regulations shall be in full force and effect from and after their adoption by the \_\_\_\_\_ Joint Airport Zoning Board.

**Adopted** by the \_\_\_\_\_ Joint Airport Zoning Board this \_\_\_\_ day of \_\_\_\_\_ 20\_\_.

\_\_\_\_\_  
Chairman, \_\_\_\_\_  
Joint Airport Zoning Board

\_\_\_\_\_  
Member

\_\_\_\_\_  
Member

\_\_\_\_\_  
Member

\_\_\_\_\_  
Member

**Attest:** \_\_\_\_\_  
City Secretary of the City of \_\_\_\_\_, Texas



## **Appendix D - Forms**

### **Texas Department of Transportation**

#### **Aviation Division**

#### **Airport Hazard Zoning**

The attached are procedural forms for enacting airport zoning regulations in accordance with the provisions of the Airport Zoning Act, Texas Local Government Code, §§241.001 et seq.

These forms were designed to utilize a City - County Joint Airport Zoning Board which can be created by cooperation between the City and County, in accordance with the provisions of the Airport Zoning Act, Texas Local Government Code, §241.014 for hazard zoning the airport, and the hazard areas appertaining to the airport extending beyond the city limits into the unincorporated areas the county.

**Ordinance of the City Council of \_\_\_\_\_, Texas**  
**Ordinance No. \_\_\_\_\_**

**An ordinance creating a joint airport zoning board and investing such joint airport zoning board with the powers such boards are authorized to exercise under the provisions of the Airport Zoning Act, Texas Local Government Code, §§241.001 et seq.**

**Be it Ordained by the City Council of Del Rio, Texas:**

**Section 1.** Subject to like provisions being made by the Commissioners Court of \_\_\_\_\_ County, Texas, by proper order, duly promulgated and entered on their minutes, and as authorized by the provisions of the Airport Zoning Act, Texas Local Government Code, §§241.001 et seq., there is hereby created a joint airport zoning board, to be known as the City of \_\_\_\_\_ - \_\_\_\_\_ County Joint Airport Zoning Board, which board shall have the powers and exercise the duties set forth in Texas Local Government Code, §241.014.

**Section 2.** The City of \_\_\_\_\_ - \_\_\_\_\_ County Joint Airport Zoning Board shall be composed of five (5) members; two (2) members to be appointed by this city council and two (2) members to be appointed by the Commissioners Court of \_\_\_\_\_ County, Texas; the fifth (5th) member shall be elected by a majority of the members so appointed and said fifth (5th) member shall serve as Chairman of the City of \_\_\_\_\_ - \_\_\_\_\_ County Joint Airport Zoning Board.

**Section 3.** Exercising its rights as an appointing authority, the City Council of the City of \_\_\_\_\_, Texas, so chooses to hereby appoint members to a new joint airport zoning board. Therefore, (Print or type names) \_\_\_\_\_ and \_\_\_\_\_ are hereby appointed as this city's members on said City of \_\_\_\_\_ - \_\_\_\_\_ County Joint Airport Zoning Board and may continue to serve solely at the discretion of this city council.

**Section 4.** Whereas, the immediate operation of the provisions of this ordinance is necessary for the preservation of the public health, safety, and general welfare, an **emergency** is hereby declared to exist and this ordinance shall be in full force and effect from and after its passage by this city council and its reading and posting as required by law.

**Enacted and passed this** \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, at a regular meeting of the City Council of \_\_\_\_\_, Texas, by the following vote:

\_\_\_\_\_ members voting **Aye**, and \_\_\_\_\_ members voting **Nay**.

\_\_\_\_\_  
Mayor of the City of \_\_\_\_\_, Texas

\_\_\_\_\_  
City Council Member

\_\_\_\_\_  
City Council Member

\_\_\_\_\_  
City Council Member

\_\_\_\_\_  
City Council Member

\_\_\_\_\_  
City Council Member

\_\_\_\_\_  
City Council Member

**Attest:** \_\_\_\_\_  
City Secretary of the City of \_\_\_\_\_, Texas

**Order of the Commissioners Court of \_\_\_\_\_ County, Texas**

**On this** the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, there came on to be considered by the Commissioners Court of \_\_\_\_\_ County, Texas, at a regular term of such court, the matter of the creation of a joint airport zoning board to exercise the powers authorized such boards by the provisions of the Airport Zoning Act, Texas Local Government Code, §§241.001 et seq, to adopt and provide for the administration and enforcement of airport zoning regulations applicable to airport hazard areas in this county, and it further appearing to this court that the creating of such a joint airport zoning board is in the public interest of this county.

**It is therefore ordered**, subject to like provisions being made by the City Council of the City of \_\_\_\_\_, Texas, by proper ordinance, duly promulgated and entered on their minutes, and as authorized by the provisions of the Airport Zoning Act, Texas Local Government Code, §§241.001 et seq, there is hereby created a joint airport zoning board, to be known as the City of \_\_\_\_\_-\_\_\_\_\_ County Joint Airport Zoning Board, which board shall have the powers and exercise the duties set forth in Texas Local Government Code, §241.014.

**It is further ordered**, that the City of \_\_\_\_\_-\_\_\_\_\_ County Joint Airport Zoning Board shall be composed of five (5) members; two (2) members to be appointed by the City Council of the City of \_\_\_\_\_, Texas, and two (2) members to be appointed by this commissioners court; the fifth (5th) member shall be elected by a majority of the members so appointed and said fifth (5th) member shall serve as Chairman of the City of \_\_\_\_\_-\_\_\_\_\_ County Joint Airport Zoning Board.

**Exercising its rights as an appointing authority**, the Commissioners Court of \_\_\_\_\_ County, Texas, so chooses to hereby appoint members to a new joint airport zoning board.

**Therefore, it is ordered** that (print or type names) \_\_\_\_\_ and \_\_\_\_\_ are hereby appointed as this county's members on said City of \_\_\_\_\_-\_\_\_\_\_ County Joint Airport Zoning Board and may continue to serve solely at the discretion of this commissioners court.

**Whereas**, the immediate operation of the provisions of this order is necessary for the preservation of the public health, safety, and general welfare, an **emergency** is hereby declared to exist and this order shall be in full force and effect from and after its enactment by this commissioners court and reading and posting as required by law.

**Passed** by the Commissioners Court of \_\_\_\_\_ County, Texas, this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
County Judge of \_\_\_\_\_ County, Texas

\_\_\_\_\_  
Commissioner, Precinct #1

\_\_\_\_\_  
Commissioner, Precinct #2

\_\_\_\_\_  
Commissioner, Precinct #3

\_\_\_\_\_  
Commissioner, Precinct #4

**Attest:** \_\_\_\_\_  
County Clerk of \_\_\_\_\_ County, Texas

**City of \_\_\_\_\_ - \_\_\_\_\_ County Joint Airport Zoning Board  
Members' Oath of Office**

**I do solemnly swear** that I have not directly or indirectly paid, offered, or promised to pay, contributed, or promised to contribute any money, or valuable thing, or promised any public office or employment, as a reward to secure my appointment or confirmation thereof; and furthermore, I do solemnly swear that I will faithfully execute the duties of the office of Member of the City of \_\_\_\_\_ - \_\_\_\_\_ County Joint Airport Zoning Board and will to the best of my ability preserve, protect, and defend the Constitution and the laws of the United States and of this State, **so help me God.**

\_\_\_\_\_  
Member

\_\_\_\_\_  
Member

\_\_\_\_\_  
Member

\_\_\_\_\_  
Member

**Subscribed and sworn to before me** this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
City Secretary of the City of \_\_\_\_\_, Texas

**I, \_\_\_\_\_, City Secretary of the City of \_\_\_\_\_, Texas, hereby certify that this is a true and correct copy of the oath of office of the above as executed before me.**

\_\_\_\_\_  
City Secretary of the City of \_\_\_\_\_, Texas

**City of \_\_\_\_\_ - \_\_\_\_\_ County Joint Airport Zoning Board  
Election of Chairman**

**We the undersigned**, majority of the representatives of the City Council of the City of \_\_\_\_\_, Texas, and the Commissioners Court of \_\_\_\_\_ County, Texas, having been heretofore duly appointed as Members of the City of \_\_\_\_\_ - \_\_\_\_\_ County Joint Airport Zoning Board by said bodies and having qualified as Members of such board by acceptance of such appointments and duly taking and subscribing the oath of office, do hereby, in regular and open meeting, elect (print or type name) \_\_\_\_\_ as an additional Member who will also serve as Chairman of such board, as authorized and provided by the Airport Zoning Act, Texas Local Government Code, §241.014 (c).

**Such Chairman**, after taking and subscribing to the constitutional and statutory oath of office, shall have and exercise all the duties and powers prescribed by law in such cases made and provided.

**Dated** this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
Member

\_\_\_\_\_  
Member

\_\_\_\_\_  
Member

\_\_\_\_\_  
Member

**Attest:** \_\_\_\_\_  
City Secretary of the City of \_\_\_\_\_, Texas

**City of \_\_\_\_\_ - \_\_\_\_\_ County Joint Airport Zoning Board  
Chairman's Oath of Office**

**I do solemnly swear** that I have not directly or indirectly paid, offered, promised to pay, contributed, or promised to contribute any money or thing of value, or promised any public office or employment for the giving or withholding of a vote at the election at which I was elected; furthermore, I do solemnly swear that I will faithfully execute the duties of the office of Chairman of the City of \_\_\_\_\_ - \_\_\_\_\_ County Joint Airport Zoning Board, and will to the best of my ability preserve, protect, and defend the Constitution and laws of the United States and of this State, **so help me God.**

\_\_\_\_\_  
Chairman

**Subscribed and sworn to before me** this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
City Secretary of the City of \_\_\_\_\_, Texas

**I, \_\_\_\_\_**, City Secretary of the City of \_\_\_\_\_, Texas, hereby certify that this is a true and correct copy of the oath of office of the above as executed before me.

\_\_\_\_\_  
City Secretary of the City of \_\_\_\_\_, Texas

**Suggested Publication in the \_\_\_\_\_ *News-Herald*, \_\_\_\_\_, Texas**

**The State of Texas**

**City of \_\_\_\_\_**

**County of \_\_\_\_\_**

**Notice of a Hearing by the City of \_\_\_\_\_ - \_\_\_\_\_ County Joint Airport Zoning Board**

**Whereas**, pursuant to the provisions of Texas Local Government Code, §241.017 (b) and (c), notice is hereby given that a public hearing will be held before the City of \_\_\_\_\_ - \_\_\_\_\_ County Joint Airport Zoning Board on the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, in the City Council Chambers at the City Hall in \_\_\_\_\_, Texas, at the hour of \_\_\_\_\_, for the purpose of hearing all parties in interest and citizens who desire to be heard concerning airport zoning regulations to be considered for adoption by the City of \_\_\_\_\_ - \_\_\_\_\_ County Joint Airport Zoning Board pertaining to airport hazard areas within the city limits of the City of \_\_\_\_\_ and within the unincorporated areas of \_\_\_\_\_ County, Texas.

**Dated** this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
Chairman, City of \_\_\_\_\_ - \_\_\_\_\_ County  
Joint Airport Zoning Board

“This notice should be published in a newspaper with a wide distribution throughout the City of \_\_\_\_\_, Texas, and \_\_\_\_\_ County, Texas, at least 15 days prior to the public hearing, the first day being the day after the notice is published.”

**City of \_\_\_\_\_ - \_\_\_\_\_ County Joint Airport Zoning Board  
Notice of a Public Hearing**

**Whereas**, it appears to the City of \_\_\_\_\_ - \_\_\_\_\_ County Joint Airport Zoning Board that Texas Local Government Code, §241.017 (b), requires that the City of \_\_\_\_\_ - \_\_\_\_\_ County Joint Airport Zoning Board to hold a public hearing, at which hearing, parties in interest and citizens shall have an opportunity to be heard regarding the airport zoning regulations proposed to be adopted.

**Now therefore**, pursuant to the provisions of Texas Local Government Code, §241.017 (b), notice is hereby given that a public hearing will be held before the City of \_\_\_\_\_ - \_\_\_\_\_ County Joint Airport Zoning Board on the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, in the City Council Chambers at the City Hall in \_\_\_\_\_, Texas, at the hour of \_\_\_\_\_, for the purpose of hearing all parties in interest and citizens who desire to be heard concerning airport zoning regulations to be considered for adoption by the City of \_\_\_\_\_ - \_\_\_\_\_ County Joint Airport Zoning Board pertaining to airport hazard areas within the city limits of the City of \_\_\_\_\_ and within the unincorporated areas of \_\_\_\_\_ County, Texas.

**Dated** this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
Chairman, City of \_\_\_\_\_ - \_\_\_\_\_ County  
Joint Airport Zoning Board

**Attest:** \_\_\_\_\_  
City Secretary of the City of \_\_\_\_\_, Texas

“Copies of this notice should be posted in the City Hall in \_\_\_\_\_, Texas, and in the County Courthouse in \_\_\_\_\_, Texas, at least 3 days prior to the public hearing; the first day being the day after both notices are posted.”

City of \_\_\_\_\_ - \_\_\_\_\_ County Joint Airport Zoning Board

Proof of Publication of Notice of a Hearing

Before me, the undersigned authority, on this day personally appeared \_\_\_\_\_, known to me to be this person and being by me duly sworn, stated to me on his oath that the attached copy of printed notice is a true and correct copy of an original notice which was published in the issue of the newspaper known as the \_\_\_\_\_ *News-Herald*, \_\_\_\_\_, Texas, bearing as its date the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_; that such newspaper was on such date and all during the preceding twelve (12) months prior to such date a newspaper of general circulation in the city and county in which the proceedings mentioned in such were, and still are, pending; that a copy of such notice as so published on such date is attached hereto; that such issue of such newspaper was so published for distribution throughout the City of \_\_\_\_\_, Texas, and \_\_\_\_\_ County, Texas; that the affiant is the publisher of such newspaper and knows that what is stated in this affidavit is true; and that such notice was published as provided in Texas Local Government Code, §241.017 (c), for the service of notice by publication.

\_\_\_\_\_  
Publisher

**Subscribed and sworn to before me** by the said (print or type Publisher's name)

\_\_\_\_\_, this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, to certify  
which witness my hand and seal of office.

\_\_\_\_\_  
Notary Public for the State of Texas

“A clipping of the legal notice published in the newspaper  
should be attached to this form.”

**City of \_\_\_\_\_ - \_\_\_\_\_ County Joint Airport Zoning Board**  
**Adoption of the \_\_\_\_\_ International Airport Hazard Zoning Regulations**

**Whereas**, the City of \_\_\_\_\_ - \_\_\_\_\_ County Joint Airport Zoning Board did publish notice in the \_\_\_\_\_ *News-Herald*, \_\_\_\_\_, Texas, in the issue bearing as its date the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, and did post notices in the City Hall in \_\_\_\_\_, Texas, on the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, and in the \_\_\_\_\_ County Courthouse, \_\_\_\_\_, Texas, on the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, advising of a public hearing to be held before the City of \_\_\_\_\_ - \_\_\_\_\_ County Joint Airport Zoning Board on the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, in the City Council Chambers at the City Hall in \_\_\_\_\_, Texas, at the hour of \_\_\_\_\_, for the purpose of hearing all parties in interest and citizens who desire to be heard concerning proposed airport zoning regulations; and

**Whereas**, the City of \_\_\_\_\_ - \_\_\_\_\_ County Joint Airport Zoning Board assembled at the appointed place and time to hear all parties in interest desiring to be heard and considered all statements for and against airport zoning.

**Now therefore**, on a motion by \_\_\_\_\_ and seconded by \_\_\_\_\_, and by a majority vote of the City of \_\_\_\_\_ - \_\_\_\_\_ County Joint Airport Zoning Board,

\_\_\_\_\_ members voting **Aye**, \_\_\_\_\_ members voting **Nay**,

**It is therefore ordered** by the City of \_\_\_\_\_ - \_\_\_\_\_ County Joint Airport Zoning Board that the \_\_\_\_\_ International Airport Hazard Zoning Regulations be adopted.



**It is further ordered** by this board that \_\_\_\_\_, Attorney, review and certify the city ordinance adopted and county order enacted, board appointed and chairman elected, oaths of office administered, notices published and posted, public hearing conducted, and all legal actions completed in the adoption of the [insert Airport Name] Hazard Zoning Regulations were accomplished in accordance with the State statutes, rules, and regulations and local orders, ordinances, rules, and regulations; that the [insert Airport Name] Hazard Zoning Regulations adopted by the City of \_\_\_\_\_-\_\_\_\_\_ County Joint Airport Zoning Board contain provisions for injunctive relief according to the State Law of Texas and are in harmony and alike to a hazard zoning map prepared by the Texas Department of Transportation, Aviation Division, Austin, Texas, and dated September 28, 2001, as to the technical requirements of the various zones and heights as set out on such hazard zoning map, such map being made a part of the [insert Airport Name] Hazard Zoning Regulations; and that the adopted [insert Airport Name] Hazard Zoning Regulations are valid, binding and enforceable.

**Signed** this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
Chairman, City of \_\_\_\_\_-\_\_\_\_\_ County  
Joint Airport Zoning Board

\_\_\_\_\_  
Member

\_\_\_\_\_  
Member

\_\_\_\_\_  
Member

\_\_\_\_\_  
Member

**Attest:** \_\_\_\_\_  
City Secretary of the City of \_\_\_\_\_, Texas

## Attorney's Certificate

### **[insert Airport Name] Hazard Zoning Regulations**

I, (print or type name) \_\_\_\_\_ hereby certify that I have examined the [insert Airport Name] Hazard Zoning Regulations adopted by the City of \_\_\_\_\_ - \_\_\_\_\_ County Joint Airport Zoning Board on the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, relating to [insert Airport Name], \_\_\_\_\_, Texas, and said regulations together with the city ordinance enacted and county order adopted, board appointed and chairman elected, oaths of office administered, notices published and posted, public hearing conducted, and other legal actions were accomplished in accordance with applicable state and local laws, orders, and ordinances and that in my opinion said regulations comply with the provisions set out in the Texas Administrative Code §30.210(d)(13) and §30.215 together with all state and local laws and are valid, binding, and enforceable.

**Certified** at \_\_\_\_\_, Texas, this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
Attorney

# Appendix C

## *Draft Plan Presentation*





*Airport Action/Business Plan  
Project Meeting No. 3 and  
Draft Plan Presentation*

*May 2013*

**HH COFFIELD REGIONAL AIRPORT**



# *Project Meeting No. 3 (Final)*

## *Introduction*

*The primary purpose of this planning project is to narrate and illustrate the airport's planned, phased development.*

*This will be done based upon direction from the City and with guidance and assistance from ADG.*



# Review of Our Thoughts...

1. *The Airport may change somewhat over the next few years and a new plan should be done. Although some amount of airfield investment has been made, other future investments may be necessary.*
2. *The Plan will evaluate and develop airport planning concepts and recommendations that are workable. The Plan is intended to be an integral part of overall City planning efforts, and is intended to see that airport development occurs in a coordinated manner that enhances the airport and makes it a more valuable public asset.*
3. *The planning process will use industry standard methods to objectively evaluate airport users needs and City priority and perspective.*
4. *The planning will provide a framework for City decision makers to sort through the difficult questions and then use the framework to guide choices regarding airport investment decisions.*
5. *The H.H. Coffield Regional Airport is part of the state of Texas's system of airports. It is valuable on both a local and statewide basis.*



# Review of Project Objectives

1. *Airport planning for the H.H. Coffield Regional Airport and its surrounds should complement existing operations and facilities.*
2. *Airport planning should minimize off-site impacts, particularly those affecting adjacent, neighboring areas.*
3. *Airport planning should accommodate businesses and industry to the greatest extent feasible, or per City prerogative.*
4. *Development of the Airport and its properties should occur in a coordinated and comprehensive manner, taking maximum advantage of City assets.*
5. *The airport planning process and deliverables should be flexible enough to accommodate a range of potential aviation and non-aviation uses.*

H.H. COFFIELD  
REGIONAL AIRPORT

PHONE  
446-2511



NIGHT  
446-3436

RCK  
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# Review of Project Objectives

6. *Airport planning and development should be conducted to achieve the 'highest and best' use of the Airport site. Specific users and uses should be evaluated on a case-by-case basis for general conformity to City perspective. Highest and best use should be interpreted in terms of the following factors: use of physical assets, economic benefit, jobs and salaries created, fiscal impact and contribution of Parish priorities.*
7. *City and regional economic goals should be an important consideration in conducting the planning and preparing a development strategy for the Airport.*
8. *Planned airport development should be evaluated relative to both long and short-term costs and benefits.*
9. *Planned airport development should contribute to the positive image and commercial activity of the City and the region.*



# *Review of Project Meetings*

## *Three Formal Planned Meetings*

- 1. August 2012 Kick-off Meeting*
- 2. September 2012 Meeting for ADG to present Working Paper No. 1*
- 3. Today's Meeting for ADG to present Draft Plan*

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# *Project Deliverables*

## *Three Formal Deliverables*

- 1. Working Paper No. 1*
- 2. Draft Airport Plan*
- 3. Final Airport Plan including  
Airport Business Analysis*

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# Airport Inventory

1. *Eight based aircraft exist along with approximately 2,400 annual operations as of the September 16, 2011 annual inspection. All aircraft are single engine. Aircraft operations count consists of 1,600 local general aviation operations and 800 itinerant general aviation operations.*
2. *Runway 17-35 is  $\pm 2,962$  feet long and 50 feet wide with unknown pavement strength. The runway is equipped non-standard LIRL and markings and no VGSI, REIL, or airfield signage or supplemental windcones. Grades non-standard in specific locations.*
3. *The main apron abuts the runway, approximates 3,000 square yards, and is entirely within the ROFA. The holdline is marked  $\pm 65$  feet from runway centerline. Access from F/M Road 908 to this area within ROFA. Two hangars (165'x130', 60'x55') abut apron with self-service fueling between. Hangars are near the end of their useful lives without substantial rehabilitation.*



# Airport Inventory

5. A newer, third hangar (65'x50') is accessed from the north runway end via a  $\pm 30'$  wide taxiway and Highway 77 and is within ROFA.
6. Proximity of runway to: hangars, fueling station, holdline, city well, rail ROW, gas line, roads, power lines and trees is noteworthy.
7. No AWOS or supplemental windcones. Segmented circle in non-standard location, configuration.
8. Land uses surrounding the airport are primarily agricultural, with sparsely scattered residences there upon.
9. No instrument approach/departure procedures are in force.
10. Wind information from the nearest reporting station (at KAUS) indicates that the runway alignment covers a sufficient amount of crosswinds, regardless of aircraft type.
11. No compatible land use ordinance/overlay zoning in effect.



# Airport Design Standards

## Airfield Design Criteria is Based Upon the Type of Aircraft Using or Expected to Use the Field

1. Aircraft Approach Category (A-E), based upon the design speed on final approach
2. Airplane Design Group (I-VI), based upon aircraft wingspan
3. Pavement Strength (Utility: pavements designed for less than 12,500 pounds maximum gross certificated, Non-Utility: greater than 12,500 pounds)
4. Instrument Approach Capability (Visibility: either greater than or equal to  $\frac{3}{4}$  mile or less than  $\frac{3}{4}$  mile)

FAA Guideline: 500 operations by aircraft type or group of aircraft with similar operational and performance characteristics

RCK is currently: A-I, Utility, Greater Than  $\frac{3}{4}$  mile



# Airport Design Standards

## Notable Airfield Design Standards

1. *Runway Safety Area (RSA): Graded area around runways and taxiways that functions like a highway shoulder.*
2. *Object Free Area (OFA): Area to be cleared around runways and taxiways (i.e. no parked aircraft, poles, etc.)*
3. *Runway Protection Zone (RPZ): Trapezoidal area beyond each runway end designed to protect people and property on the ground (i.e. no buildings, airplanes, etc.)*
4. *FAR Part 77 Surfaces (Primary, Approach, Transitional): Imaginary surfaces which slope up and away from the runway, designed to protect aircraft from natural or man-made obstructions.*
5. *This is not a complete listing...*



# Forecasts of Aviation Demand

## Forecasts are Prepared for:

1. *Based Aircraft and Based Aircraft By Type*
2. *General Aviation Operations and GA Operations By Type*
3. *Aircraft Operations Mix*
4. *Peak Period Aircraft Operations*
5. *Instrument Operations*

## Forecast Summary and Notes:

1. *Forecasts estimate aviation activity for the upcoming 5, 10 and 20 year periods.*
2. *Strictly subjective and based upon factors regionally and nationally known to correspond to aviation activity.*
3. *TxDOT approves forecasts, may have comments or recommend changes.*

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# Forecasts of Aviation Demand

**H.H. Coffield Regional Airport**

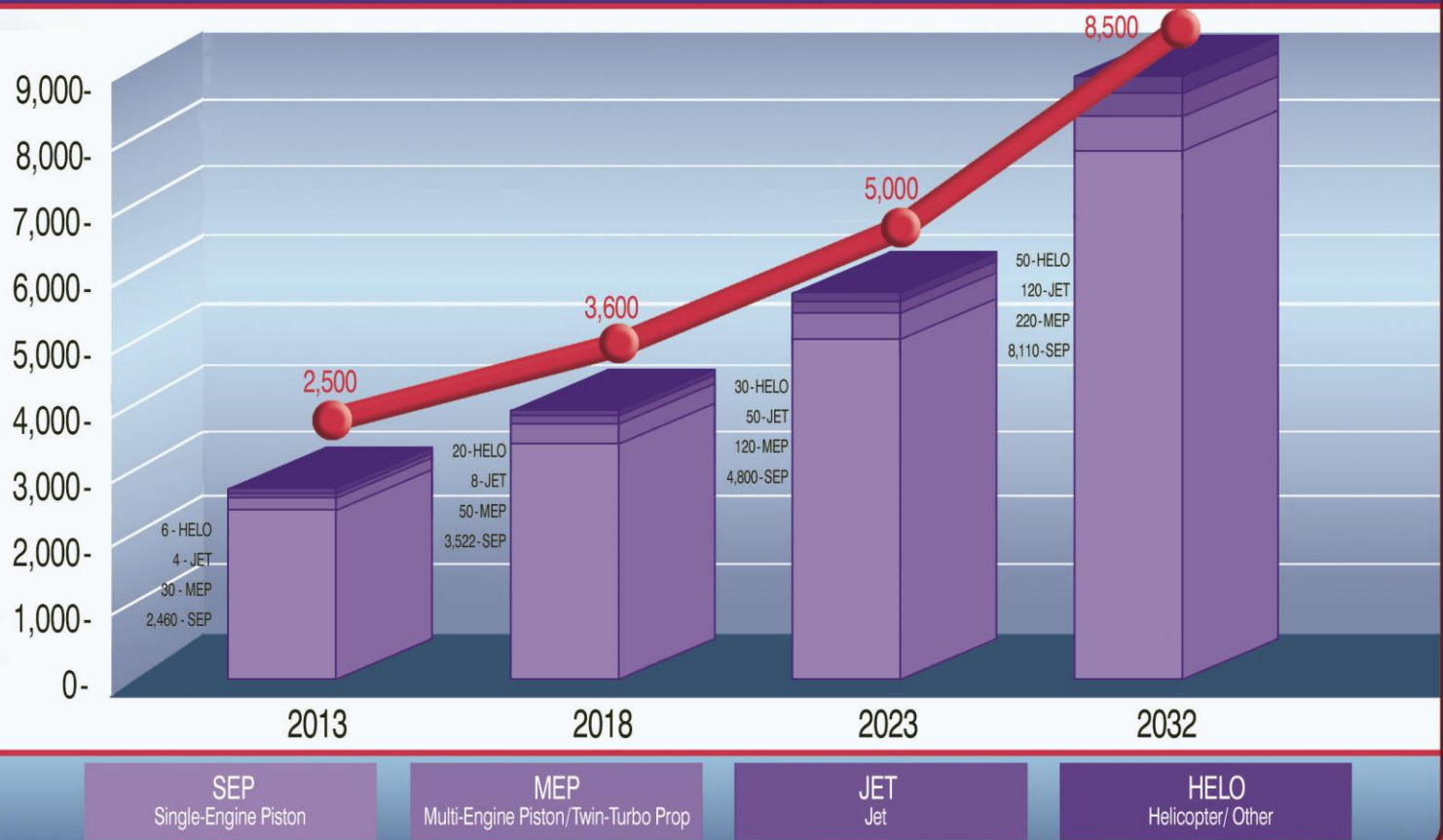
**Based Aircraft Forecast by Type**



# Forecasts of Aviation Demand

## H.H. Coffield Regional Airport

## Aircraft Operations Forecast by Type



# Facility Requirements

## Facility Requirements (Five Subject Areas):

1. *Airport role and service level: Now: Basic, Future: Community*
2. *Local airspace capacity: Sufficient*
3. *Airside (Runways, Taxiways, NavAids, etc.)*
4. *Landside (Apron, Hangars, Roads/Parking, etc.)*
5. *Compliance: on-going grant assurance requirements*

## 3. Airside Requirements:

- i. *Wind analysis: 95% coverage via AUS winds*
- ii. *IAP capability: recommend GPS RNAV both runway ends*
- iii. *Airfield design and standards:*
  - a. *Short Term: A-I, Utility (<12,500 lbs.), 1 Mile Visibility*
  - b. *Intermediate Term: A/B-I, Utility (<12,500 lbs.), 1 Mile Visibility*
  - c. *Long-Term/Ultime: B-II, Non-Utility (>12,500 lbs.), ¾ Mile Visibility*
- iv. *Runway Length: Not a 'typical' standard*
  - a. *Short Term: Existing sufficient, with changes*
  - b. *Intermediate Term: Consider 4,400'*
  - c. *Long-Term and Ultimate: Consider 5,500'*





# Facility Requirements

## 3. Airside Requirements (Continued):

- v. *Clear FAR Part 77 surfaces via phased obstruction removal or threshold relocation*
- vi. *Consider overlay zoning ordinance*
- vii. *Consider ODALS for southern approach*
- viii. *Full-parallel taxiway not recommended*
- ix. *Other Non-Standards Conditions disposal*

## 4. Landside Requirements

- i. *Based/Itinerant apron/ramp: all new, phased for future*
- ii. *Terminal: all new*
- iii. *T-hangars best use of space*
- iv. *Consider ground leasing, stub utilities for box hangars*
- v. *Minimize runway crossings*
- vi. *Maintain perimeter fencing as development necessitates*
- vii. *Site AWOS, PAPIs, REILs, MIRL, Segmented Circle and windcones*

# Alternatives

## Rules of Road

1. *We painting with a broad brush in this portion of the plan.*
2. *We are not doing detained design... yet, generalizing at this point in the project is appropriate, specifics may be lost.*
3. *Total costs are primarily for comparison purposes.*
4. *As a matter of course we recommend all airport sponsors acquire RPZ and 35' BRL. However, this is not required.*
5. *As a matter of course we recommend all airport sponsors maintain a perimeter fence for security and wildlife control.*
6. *Improvements recommended for all scenarios are generally not shown, we are trying to highlight differences.*
7. *Trees: height survey not completed, green area indicates clearing necessary for trees up to 80' tall.*





# Alternatives

1. *Modify existing airport for design standards compliance: \$6 Million $\pm$*
2. *Improve existing airport for larger, business class aircraft: \$10 Million $\pm$*
3. *Improve existing airport for larger, business class aircraft at an alternative site: \$12 Million $\pm$*

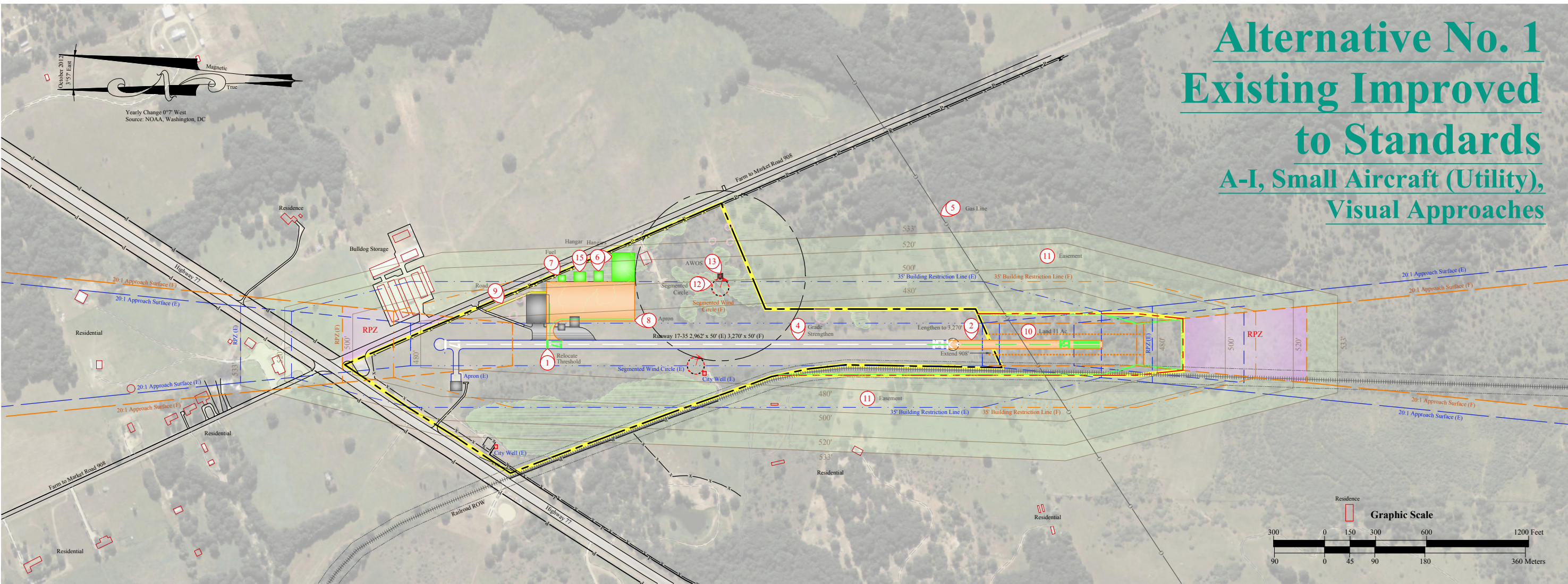
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446-3436

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# Alternative No. 1

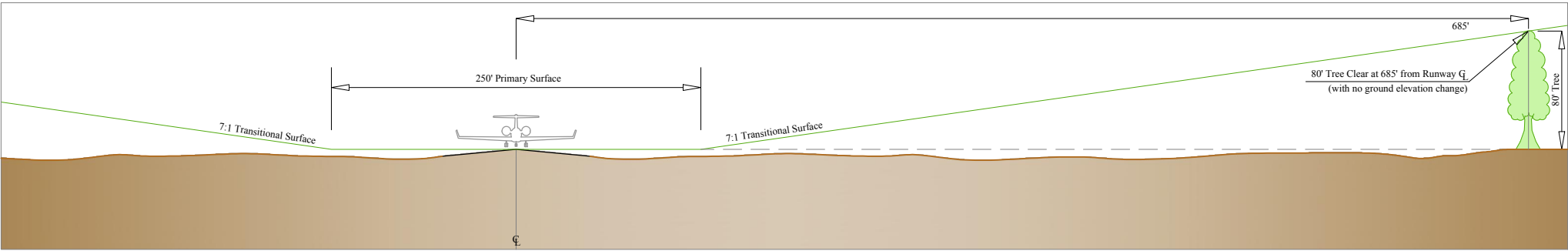
## Existing Improved to Standards

### A-I, Small Aircraft (Utility), Visual Approaches

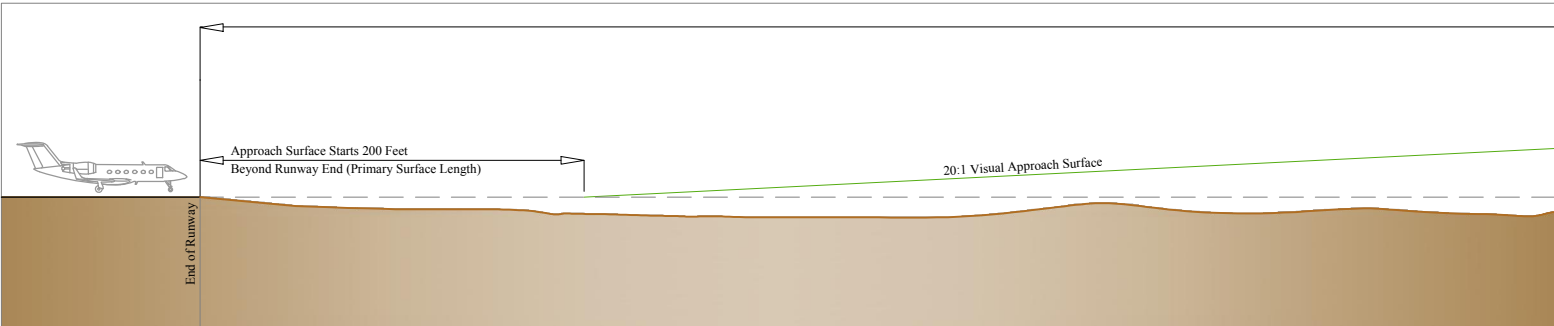
No.	Revision	Ckd	Date

**H.H. Coffield**  
**Regional Airport**  
Rockdale, TX

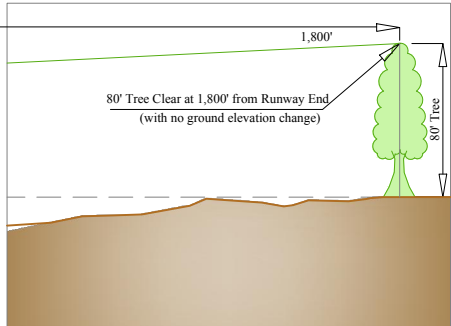
**ADG** AIRPORT DEVELOPMENT GROUP, INC.  
1774 South Jackson Street / Suite 250  
Denver, Colorado 80240-3822  
303.782.0882 / 303.782.0842 fax  
www.ADGairports.com  
TXDOT Contract Number: 2X1A1V064



Typical Cross-Section View; Primary and Transitional Surface Clearances



Typical Profile View; Approach Surface Clearances



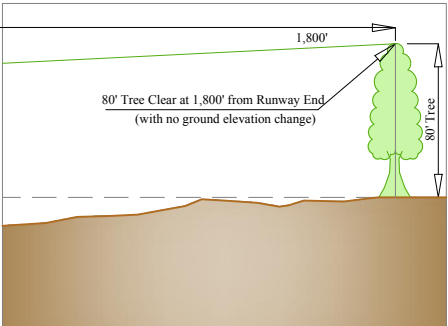
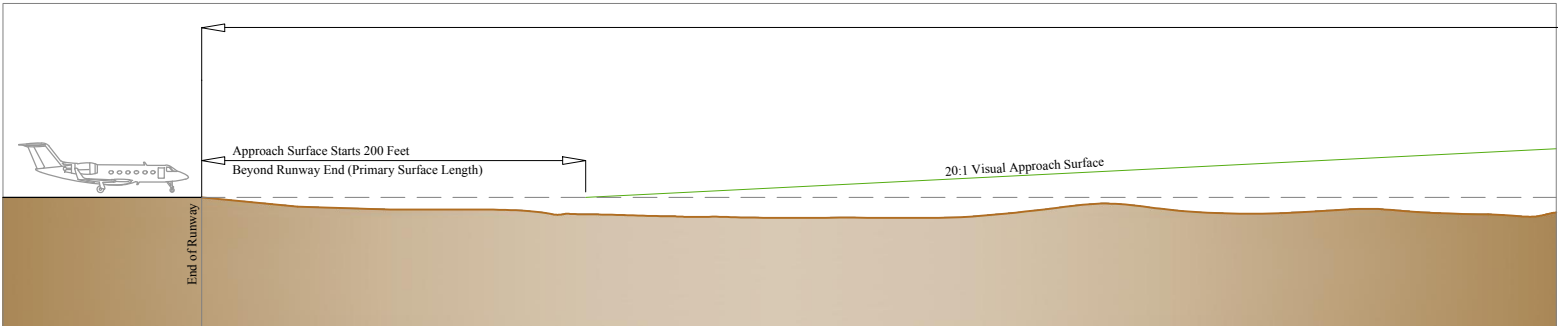
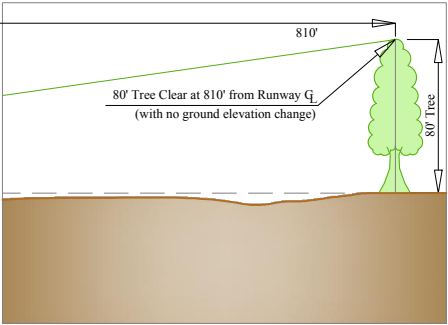
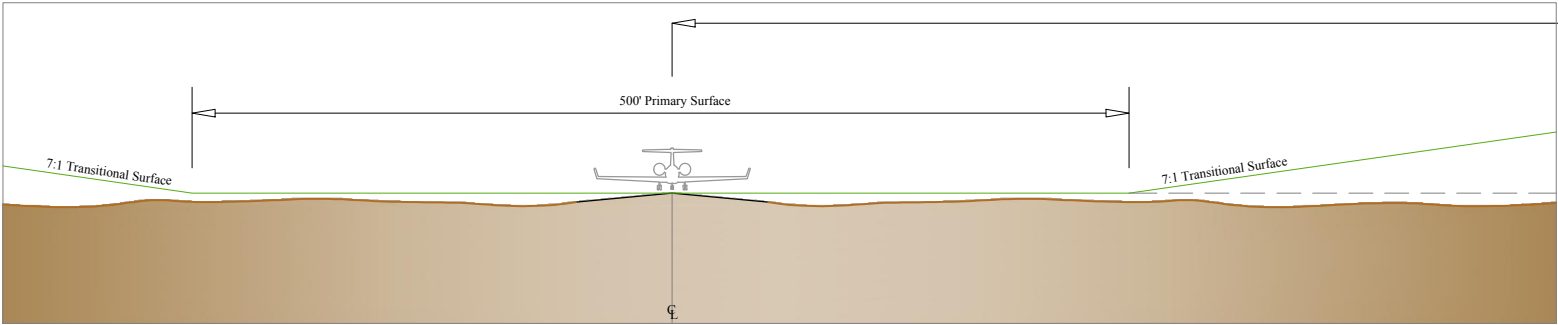
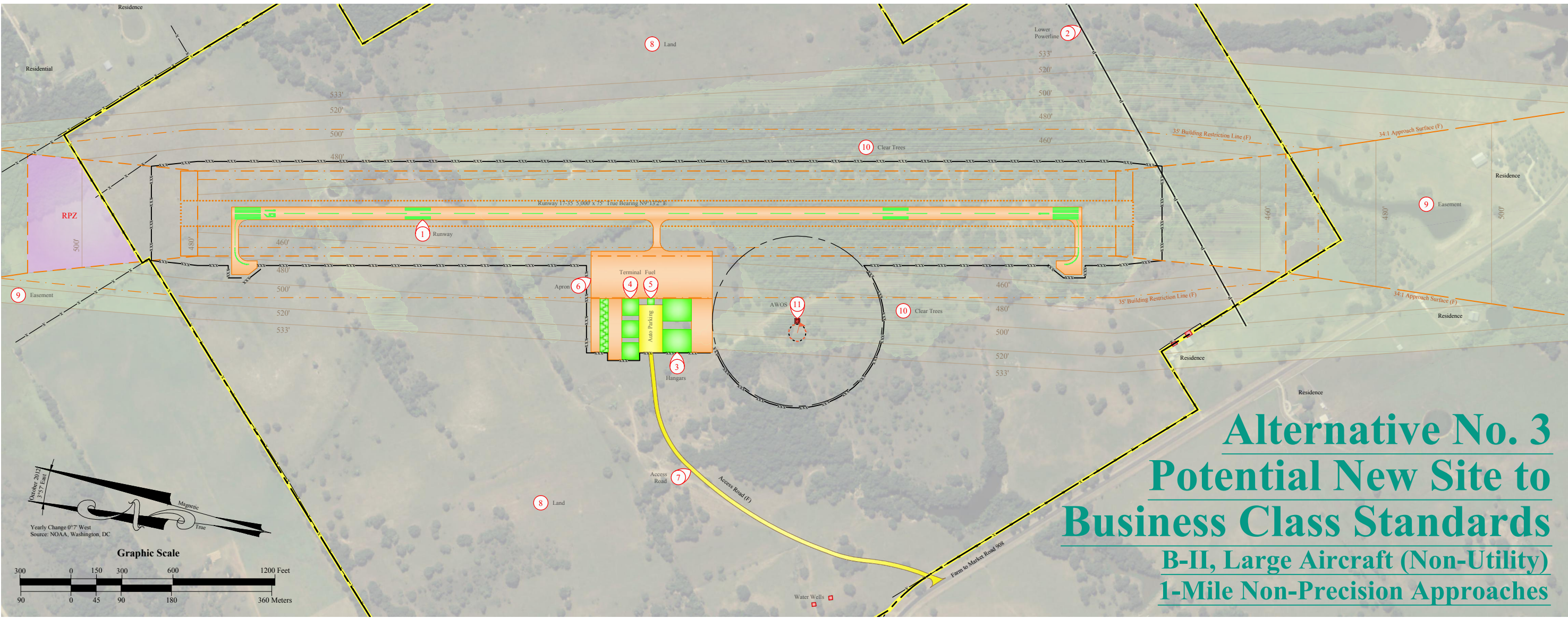
Legend			
(E), (F)	Existing, Future		Existing Buildings
	Existing Property Line		Future Buildings
	Future Property Line		Existing Buildings To Be Removed
	Building Restriction Line (BRL)		Dirt Road
	Runway Protection Zone (RPZ)		Existing Paved Roads
	Approach Surface		Future Paved Roads
	Existing Pavement		Drainage Line
	Future Pavement		
	Existing Pavement To Be Removed		

Improvement Costs	
Improvement	Rough Cost Estimate
<b>Reconstruct Runway 17-35:</b> 1. Relocate Runway 17 Threshold 600' 2. Lengthen to 3,270' 4. Fix Longitudinal Grade, Fix Transverse Grade, Strengthen to 12,500 SWG 5. Relocate/Lower Gas Line	\$2,550,000
<b>New Hangar/Apron Area:</b> 6. Relocate/Build 2 New Hangars 7. Relocate Self-Serve Fueling 8. Relocate Apron 9. Relocate Entrance Road	\$1,675,000
10. Acquire Land To Clear Fence (11 Ac.) 11. Airspace/Tree Clearing Easement (±91 Ac.) (Clear 80' Tree)	\$255,000
12. Relocate Segmented Circle	\$6,000
13. Install Beacon, AWOS, Supplemental Windcones	\$185,000
14. Install MIRL, REILs and PAPI (17 and 35), Airfield Signage	\$1,220,000
15. Relocate West-side Hangar (requires inline taxiway)	\$520,000
<b>TOTAL ESTIMATE</b>	<b>\$6,411,000</b>

Project No.:	RCK1400M	SPM	MTP	SMP
Designed By:				
Drawn By:				
Approved By:				
Date:	October 2012			

**Alternative No. 1**  
**Existing Improved To Standards**





Improvement Costs	
Improvement	Rough Cost Estimate
<b>New Runway 1-19:</b> 1. Construct Runway 17-35 to 5,000 feet by 75 feet at 30,000 DWG Strength 2. Relocate/Lower Power Line	\$5,125,000
<b>New Hangar/Apron Area:</b> 3. Build 2 New Hangars (and Relocate 1 Existing Hangar) 4. New Terminal 5. Install Self-Serve Fueling 6. Construct New Apron 7. New Entrance Road	\$3,250,000
8. Acquire Land (Existing Ranch for Sale (±600 Ac.) 9. Airspace/Tree Clearing Easement (±120 Ac.) (Clear 80' Tree)	\$1,500,000
10. Clear Trees on Ranch for 80' Clearance (±133 Ac.)	\$120,000
11. Install Beacon, AWOS, Supplemental Windcones	\$195,000
12. Install MIRL, REILs and PAPI (17 and 35), Airfield Signage	\$1,650,000
<b>TOTAL</b>	<b>\$11,840,000</b>

No.	Revision	Ckd	Date

**H.H. Coffield**  
Regional Airport  
Rockdale, TX

**ADG** AIRPORT DEVELOPMENT GROUP, INC.  
17746 South Jackson Street / Suite 200  
Denver, Colorado 80240-3822  
303.782.0842 / 303.782.0842 fax  
www.ADGairports.com

Project No.: RCK1400M  
Designed By: SPM  
Drawn By: MTP  
Approved By: SMP  
Date: October 2012

**Alternative No. 3**  
**Potential New Site with**  
**Business Class Standards**



# Alternatives Consultation

## Committee Consultation

*Committee and meeting participants generally supported development for larger aircraft in a unconstrained financial environment.*

*Several meeting participants discussed plans for a potential relocation of the airport.*

## TXDOT Consultation

*TXDOT identifies RCK a 'basic service' airport in its system of airports. TXDOT regularly prioritizes funding based upon service level and needs on a system-wide basis.*

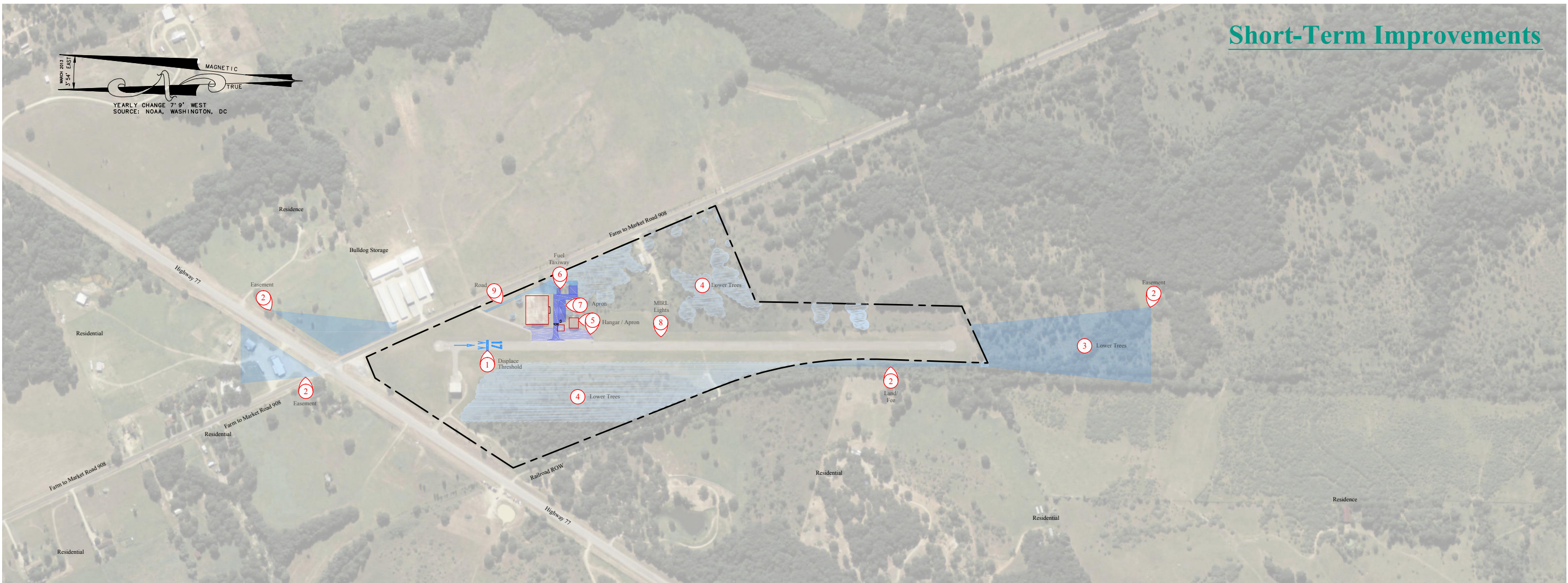
*TXDOT has limited funding for airport improvements as statewide need exceeds statewide funding. TXDOT will support RCK and will review annual proposals for improvements funding.*

*TXDOT recommended crafting a financially-constrained capital improvements plan as a consequence of this planning.*



# Phased Development

1. *Periods of phased development are as follows: Phase I: 2013-2017, Phase II: 2018-2022, Phase III: 2023-2032.*
2. *Costs developed using 2012 as basis.*
3. *The Draft Airport Layout Plan shows the desired alternative(s) or portions thereof per TxDOT direction.*
4. *Planned improvements and phased development as depicted on the Draft Airport Layout Plan are, by design, financially constrained.*
5. *Funding for near-term improvements occurs through continued TxDOT consultation.*
6. *TxDOT match requirement generally 90 percent, leaving 10 percent for the City to match.*
7. *In order to receive project funding an aeronautical need must be substantiated to TxDOT through the processes described in #5 above.*

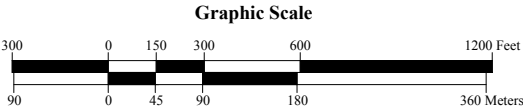


Short-Term Improvements

**Legend**

(E) Existing  
Property Line  
Existing Buildings

Short-Term Improvements (2013 - 2017)					
Number	Recommended Improvements	FAA	TxDot	City	Total
1	(2013) Displace (Mark) 17 threshold ±250' to clear 20:1 over Farm to Market Road 908	\$	\$ 20,250	\$ 2,250	\$ 22,500
2	(2014) Acquire Fee (OFA), (±1.2) Easement (±12 acres) for 17 and 35 RPZ		\$ 67,500	\$ 7,500	\$ 75,000
3	(2015) Lower Trees within acquired 35 RPZ			\$ 7,000	\$ 7,000
4	(2015) Lower On-Airport Trees			\$ 12,000	\$ 12,000
5	(2015) Raze smaller hangar (currently inside OFA), remove portion of existing apron		\$ 67,500	\$ 7,500	\$ 75,000
6	(2015) Construct access taxiway, relocate existing fueling system (currently within OFA)		\$ 459,000	\$ 51,000	\$ 510,000
7	(2016) Construct Phase I Apron; 625 sq. yds, (for maneuvering/fueling)		\$ 198,000	\$ 22,000	\$ 220,000
8	(2016) Construct MIRL		\$ 238,250	\$ 26,500	\$ 265,500
9	(2017) Relocate auto access road (currently within OFA)			\$ 17,000	
Totals:		\$	\$ 1,058,250	\$ 152,750	\$ 1,186,500



No.	Revision	Ckd	Date

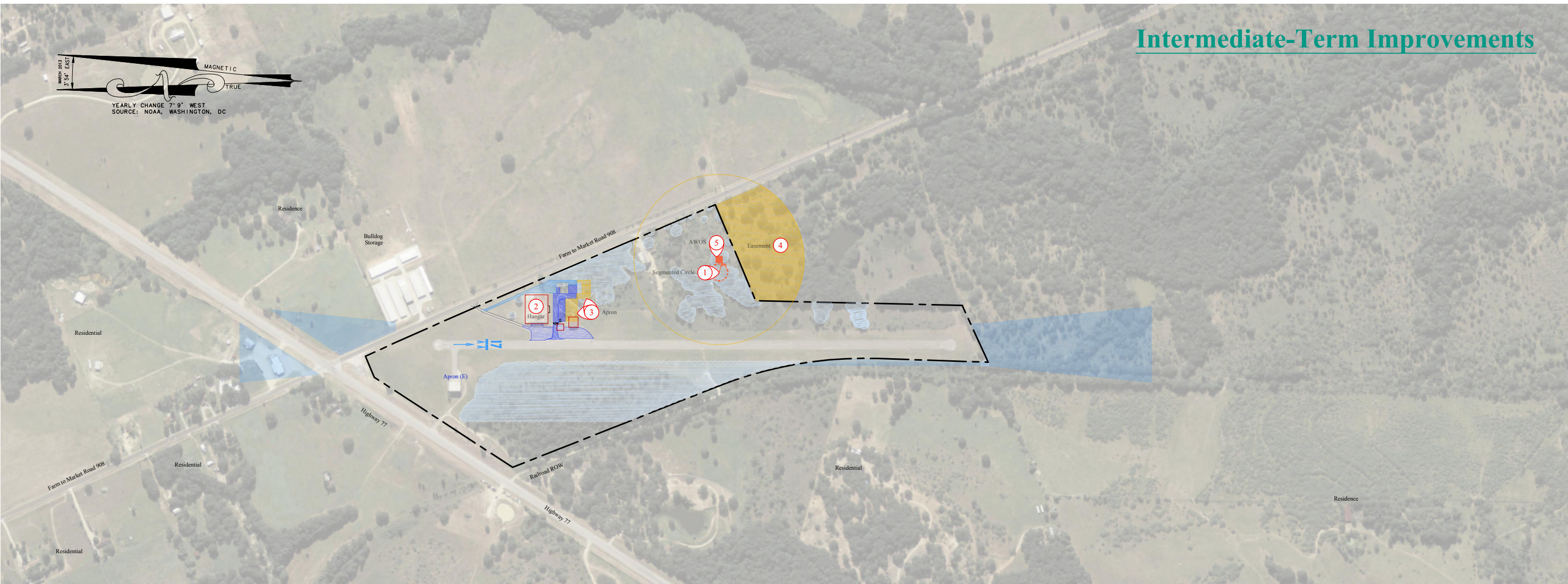
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Rockdale, TX

**ADG** AIRPORT DEVELOPMENT GROUP, PC  
1776 South Jackson Street / Suite 900  
Denver, Colorado 80210-3802  
303.782.0882 / 303.782.0842 fax  
www.ADGairports.com

TxDOT Contract Number: 2X1A V064

Project No.: RCK1400M	SPM	MTP	SMP	Date: April 2013
Designed By:				
Drawn By:				
Approved By:				

Short-Term Improvements  
(Years 2013 - 2017)



Intermediate-Term Improvements

**Legend**

(E)

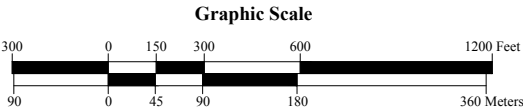
Existing

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Property Line

Existing Buildings

Intermediate-Term Improvements (2018 - 2022)					
Number	Recommended Improvements	FAA	TxDot	City	Total
1	(2018) Relocate Segmented Circle (Currently within OFA)	\$	\$ 22,500	\$ 2,500	\$ 25,000
2	(2019) Raze Larger Hangar			\$ 27,500	\$ 27,500
3	(2020) Construct Phase II Apron - 1025 sq. yds, (itinerant apron)		\$ 252,000	\$ 28,000	\$ 280,000
4	(2021) Acquire Avigation Easement (±5.4 acres) for AWOS Critical Area		\$ 10,800	\$ 1,200	\$ 12,000
5	(2022) Install AWOS		\$ 180,000	\$ 20,000	\$ 200,000
6	(2022) Update ALD (Non-AGIS compliant) (not shown)		\$ 67,500	\$ 7,500	\$ 75,000
Totals:		\$	\$ 532,800	\$ 86,700	\$ 619,500



No.	Revision	Ckd	Date

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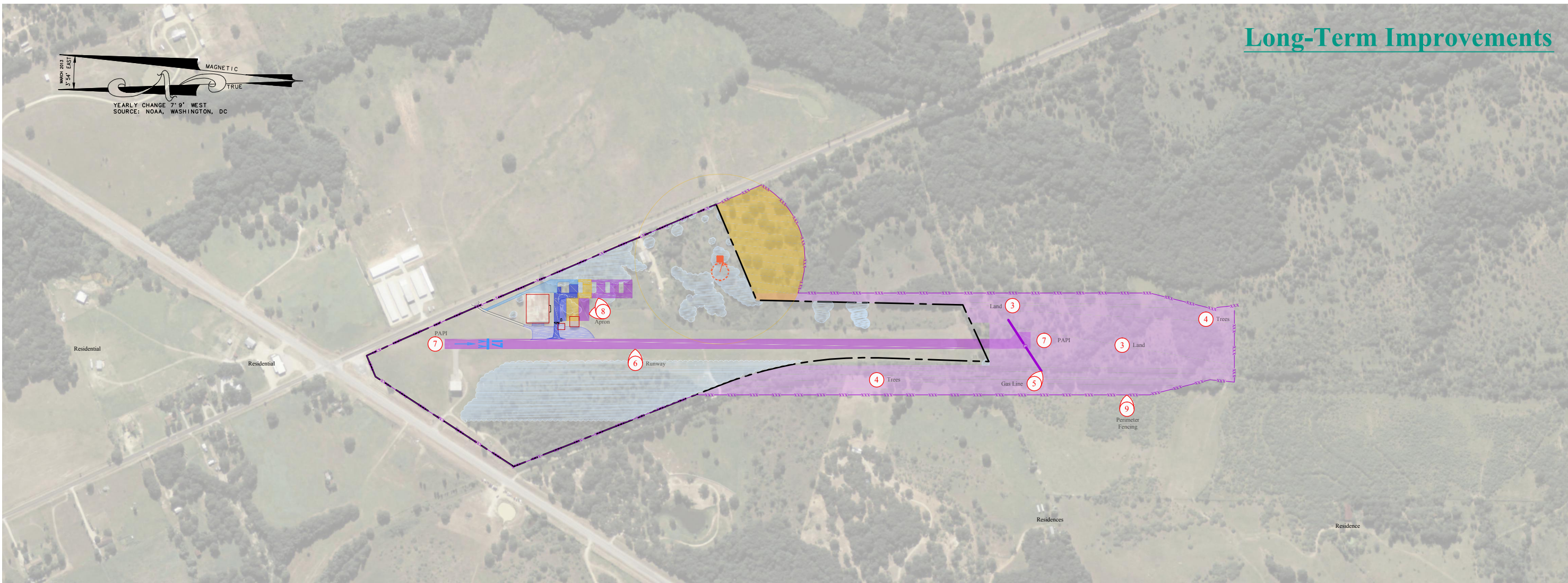
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Denver, Colorado 80210-3802  
303.782.0882 / 303.782.0842 fax  
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Intermediate-Term  
Improvements  
(Years 2018 - 2022)



Long-Term Improvements

**Legend**

(E)

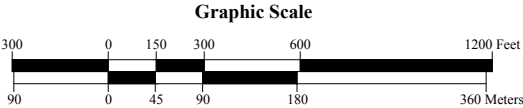
Existing

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Property Line

Existing Buildings

Long-Term Improvements (2023 - 2033)					
Number	Recommended Improvements	FAA	TxDot	City	Total
1	(2023) EA; Southerly Runway Extension (483' to 3,200') (not shown)	\$	\$ 76,500	\$ 8,500	\$ 85,000
2	(2024) EA mitigation (not shown)		Not Known		Not Known
3	(2025) Acquire Fee Land ( ±27 acres) for 483' Extension		\$ 175,500	\$ 1,950	\$ 195,000
4	(2026) Lower Trees within Acquired Property			\$ 14,000	\$ 14,000
5	(2026) Lower Gas Line		Not Known		Not Known
6	(2027) Rehabilitate Existing Runway (60' wide); construct 483' Extension (rehab will fix trans/long grade busts and build P-152 safety area)		\$ 1,462,500	\$ 162,500	\$ 1,625,000
7	(2028) Install MRL, PAPI and Beacon		\$ 531,000	\$ 59,000	\$ 590,000
8	(2030) Construct Phase III Apron (±1,750 square yards)		\$ 337,500	\$ 37,500	\$ 375,000
9	(2033) Construct Wildlife Perimeter Fencing		\$ 621,000	\$ 69,000	\$ 690,000
Totals:		\$ 0	\$ 3,204,000	\$ 352,450	\$ 3,574,000



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1776 South Jackson Street / Suite 900  
Denver, Colorado 80210-3802  
303.782.0882 / 303.782.0842 fax  
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Long-Term  
Improvements  
(Years 2023 - 2033)

Exhibit:  
**LT**  
of 4 Exhibits



# *Airport Layout Plan Drawings*

1. *Airport Layout Plan, Terminal Area Plan, Plan and Profiles, Land Use and Property Map.*
2. *The drawings show existing facilities and planned improvements per TxDOT direction.*
3. *Neither the drawings, nor this planning, obligates TxDOT funding.*
4. *FAA will perform an 'in-house review' of the drawings. TxDOT will thoroughly review the content and standards.*
5. *After reviews the City will sign the Airport Layout Plan and the plan becomes an informal agreement for the future of the airport.*
6. *The development depicted on the drawings is envisioned to accommodate small aircraft, primarily as a result of constrained funding.*
7. *This plan functionally does not accommodate larger business or corporate type aircraft.*



# *Airport Business Analysis*

- 1. Provides a cursory review of the RCK aviation marketplace.*
- 2. Completes an aviation market evaluation along with potential tenant/business identification.*
- 3. Phased development is the basis for the financial program, with the overall objective to 'make pluses equal minuses'.*
- 4. Includes City operating expenses.*
- 5. Considers rates and charges, now and in the future.*
- 6. Considers TIRZ and other regional-type financing methodologies.*
- 7. Considers minimum and development standards.*

**H.H. COFFIELD**  
**REGIONAL AIRPORT**

PHONE  
446-2511



NIGHT  
446-3436

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# Wrap-Up

## Draft Master Plan Complete

1. *This is the last of our meetings, but far from the conclusion of the project.*
2. *ADG will work with the Committee, the City and TxDOT to address questions and make necessary changes. This is typically no small effort; ADG will make every effort to ensure the plan is acceptable, meets needs and is responsive.*

H.H. COFFIELD  
REGIONAL AIRPORT

PHONE  
446-2511



NIGHT  
446-3436

RCK  
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# ***Airport Development Group, Inc.***

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Professionals in Aviation Development



**[www.adairports.com](http://www.adairports.com)**

[info@adgairports.com](mailto:info@adgairports.com)

## **Colorado / Corporate Office**

1776 South Jackson Street  
Suite 950  
Denver, CO 80210  
Tel: 800.541.3285  
Fax: 303.782.0842

## **Utah**

5522 South 600 East  
Ogden, UT 84405  
Tel: 801.479.6649  
Fax: 801.479.5566

## **Mississippi**

3900 Lakeland Drive, Suite 501C  
Jackson, MS 39232  
Tel: 601.932.6920  
Fax: 601.932.6901

## **Kansas**

1726 West 27<sup>th</sup> Terrace  
PO Box 3869  
Lawrence, KS 66046  
Tel: 785.856.2327  
Fax: 785.856.2327

## **Texas**

6709 Veal Station Road  
Weatherford, TX 76085  
Tel: 866.541.3285  
Fax: 888.541.3285

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