TEXARKANA
REGIONAL AIRPORT

MASTER PLAN STUDY UPDATE

◆

Final Report

PREPARED FOR

TEXARKANA REGIONAL AIRPORT AUTHORITY

PREPARED BY

URS Greiner Woodward Clyde

IN ASSOCIATION WITH

Leibowitz AMC, Inc.
John E. Hawkins & Associates, Inc.

◆ SEPTEMBER 2003 ◆

TABLE OF CONTENTS

SECTION 1 INTRODUCTION 1-1

1.0 PURPOSE AND NEED FOR A MASTER PLAN STUDY 1-1
1.1 FEDERAL ASSISTANCE 1-2
1.2 STUDY GOALS AND OBJECTIVES 1-3
1.3 PUBLIC COORDINATION 1-7
1.4 PROJECT ORGANIZATION 1-8

SECTION 2 FACILITY INVENTORY AND ASSESSMENT 2-1

2.0 INTRODUCTION 2-1
2.1 BACKGROUND 2-2
2.1.1 Airport Location 2-2
2.1.2 Airport History 2-5
2.1.3 Airport Management 2-13
2.2 EXISTING AIRPORT FACILITIES 2-16
2.2.1 Airfield Facilities 2-16
2.3 LANDSIDE FACILITIES 2-30
2.3.1 Terminal Building 2-33
2.3.2. Automobile Parking and Access 2-33
2.3.3 Airport Administration Building 2-35
2.3.4 General Aviation Facilities 2-35
2.3.5 Aircraft Fueling Facility 2-36
2.3.6 Aircraft Maintenance Facilities 2-37
2.3.7 Air Traffic Control Tower 2-37
2.3.8 Aircraft Rescue and Fire Fighting Station 2-37
2.4 BASED AIRCRAFT 2-37
2.5 UTILITIES 2-37
2.5.1 Electrical Service 2-38
2.5.2 Water Service 2-38
2.5.3 Sewer Service 2-38
2.5.4 Telephone Service 2-38
2.5.5 Natural Gas 2-38
2.6 PLANNING CONTEXT 2-38
2.6.1 The National Plan of Integrated Airport Systems 2-39
2.6.2 Arkansas Airport System Plan 2-40
2.6.3 TxDOT Small Market Air Service Needs Assessment 2-40
2.7 AIRSPACE AND AIR TRAFFIC CONTROL 2-42
2.7.1 FAR Part 77 Imaginary Surfaces 2-45
2.8 COMPLIANCE WITH CURRENT FAA DESIGN STANDARDS 2-47
2.9 METEOROLOGY 2-52

2.9.1 Temperature and Precipitation ... *2-53*
2.9.2 Wind Data ... *2-53*
2.10 OFF-AIRPORT LAND USE ... 2-58
2.10.1 Zoning ... *2-58*
2.10.2 Existing Land Use ... *2-61*
2.11 TRANSPORTATION NETWORK ... 2-63
2.11.1 Highways ... *2-63*
2.11.2 Railroads ... *2-65*
2.11.3 Inter-City Bus ... *2-66*
2.11.4 Industrial Parks ... *2-66*
2.11.5 Major Employers ... *2-66*

SECTION 3 AVIATION DEMAND - HISTORIC AND FORECAST ... 3-1

3.0 INTRODUCTION ... 3-1
3.1 FORECAST ASSUMPTIONS ... 3-1
3.2 ANALYSIS FOR FORECASTING ... 3-3
3.3 SOCIOECONOMIC OVERVIEW ... 3-4
3.3.1 Population ... *3-4*
3.3.2 Employment ... *3-8*
3.3.3 Retail Sales ... *3-11*
3.3.4 Income per Capita ... *3-14*
3.3 5 Effective Buying Income ... *3-17*
3.3.6 Summary ... *3-17*
3.4 COMMERCIAL AVIATION ACTIVITY ... 3-20
3.4.1 Air Carrier ... *3-20*
3.4.2 Regional Airlines/ Air Taxi ... *3-21*
3.4.3 Regional/ Commuter Airline Fleet Mix ... *3-32*
3.4.4 Scheduled Regional Airline/ Air Taxi Operations ... *3-32*
3.4.5 Airline Peaking Characteristics ... *3-41*
3.5 GENERAL AVIATION ACTIVITY ... 3-43
3.5.1 General Aviation Operations ... *3-44*
3.5.2 Based Aircraft ... *3-48*
3.5.3 Based Aircraft Fleet Mix ... *3-49*
3.5.4 General Aviation Peaking Characteristics ... *3-50*
3.6 MILITARY ACTIVITY ... 3-52
3.7 INSTRUMENT OPERATIONS ... 3-53
3.8 SUMMARY OF AVIATION DEMAND FORECAST ... 3-54

SECTION 4 DEMAND/CAPACITY ANALYSIS AND FACILITY REQUIREMENTS ... 4-1

4.0 INTRODUCTION ... 4-1
4.1 AIRFIELD ... 4-2
4.1.1 Design Criteria ... *4-2*

4.1.2 Demand/Capacity Analysis ... 4-3
4.1.3 Capacity Analysis Results ... 4-8
4.1.4 Facility Requirements ... 4-9
4.2 AIRSPACE ... 4-17
4.3 PASSENGER TERMINAL ... 4-18
4.3.1 Ticket Counters and Lobby ... 4-21
4.3.2 Airline Operations and Office Space ... 4-22
4.3.3 Baggage Operations Area ... 4-23
4.3.4 Baggage Claim Area ... 4-25
4.3.5 Passenger Waiting Lobby ... 4-27
4.3.6 Rental Car Agencies ... 4-29
4.3.7 Restaurant and Concessions ... 4-29
4.3.8 Restrooms ... 4-30
4.3.9 Telephones ... 4-30
4.3.10 Passenger Security Screening ... 4-31
4.3.11 Circulation / Building Mechanical and Maintenance Space ... 4-32
4.3.12 Consolidated Passenger Terminal Requirements ... 4-33
4.4 SURFACE TRANSPORTATION ... 4-35
4.4.1 Access Road ... 4-35
4.4.2 Automobile Parking ... 4-35
4.5 TERMINAL APRON AIRCRAFT PARKING APRON ... 4-37
4.6 GENERAL AVIATION AREA ... 4-39
4.6.1 General Aviation Terminal ... 4-39
4.6.2 Storage Hangars ... 4-41
4.6.3 General Aviation Aircraft Apron ... 4-43
4.6.4 Aircraft Maintenance ... 4-45
4.7 AIRCRAFT RESCUE AND FIREFIGHTING ... 4-46
4.8 AVIATION FUEL STORAGE FACILITIES ... 4-46
4.9 AIRPORT ADMINISTRATION ... 4-47
4.10 AIRPORT MAINTENANCE ... 4-48
4.11 SUMMARY OF FACILITY REQUIREMENTS ... 4-48

SECTION 5 ALTERNATIVES ANALYSIS ... 5-1

5.0 INTRODUCTION ... 5-1
5.1 AIRFIELD DEVELOPMENT ... 5-1
5.2 TERMINAL AREA DEVELOPMENT ... 5-4
5.2.1 Terminal Layout Alternative 1 (TL-1) ... 5-9
5.2.2 Terminal Layout Alternative 2 (TL-2) ... 5-11
5.2.3 Terminal Layout Alternative 3 (TL-3) ... 5-11
5.2.4 Terminal Layout Alternatives Evaluation ... 5-15
5.2.5 Terminal Layout Recommendations ... 5-17
5.2.6 Preferred Terminal Layout ... 5-18

5.3 GENERAL AVIATION DEVELOPMENT ALTERNATIVES 5-20
5.3.1 GA Alternatives Description 5-20
5.3.2 GA Alternatives Evaluation 5-26
5.3.3 GA Development Recommendations 5-30
5.4 ARFF DEVELOPMENT ALTERNATIVES 5-30
5.4.1 ARFF Alternatives Description 5-30
5.4.2 ARFF Alternatives Evaluation 5-36
5.4.3 ARFF Development Recommendations 5-39
5.5 SUMMARY OF ALTERNATIVES 5-39

SECTION 6 ENVIRONMENTAL OVERVIEW 6-1

6.0 INTRODUCTION 6-1
6.1 ENVIRONMENTAL PROCESS 6-2
6.2 IDENTIFICATION OF PROPOSED ACTION 6-3
6.3 EXAMINATION OF ENVIRONMENTAL IMPACT CATEGORIES 6-3
6.3.1 Noise 6-3
6.3.2 Compatible Land Use 6-12
6.3.3 Social Impacts 6-13
6.3.4 Induced Socioeconomic Impacts 6-14
6.3.5 Air Quality 6-14
6.3.6 Water Quality 6-15
6.3.7 Department of Transportation Act, Section 303(c) 6-16
6.3.8 Historic, Architectural, Archaeological and Cultural Resources 6-16
6.3.9 Biotic Communities 6-16
6.3.10 Endangered and Threatened Species 6-17
6.3.11 Wetlands 6-18
6.3.12 Floodplains 6-18
6.3.13 Coastal Zone Management Act 6-18
6.3.14 Coastal Barriers 6-18
6.3.15 Wild and Scenic Rivers 6-18
6.3.16 Prime and Unique Farmland 6-19
6.3.17 Energy Supply and Natural Resources 6-19
6.3.18 Light Emissions 6-20
6.3.19 Solid Waste 6-20
6.3.20 Construction Impacts 6-20
6.3.21 Hazardous Materials/Wastes 6-21
6.3.22 Environmental Justice 6-22
6.4 SUMMARY OF POTENTIAL IMPACTS 6-22

SECTION 7 FINAL DEVELOPMENT PLAN 7-1

7.0 INTRODUCTION........ 7-1
7.1 TITLE SHEET 7-1
7.2 DATA SHEET........ 7-1
7.3 AIRPORT LAYOUT PLAN 7-2
7.4 AIRPORT AIRSPACE DRAWINGS (2)........ 7-3
7.5 RUNWAY PROTECTION ZONE (RPZ) DRAWINGS (2) 7-3
7.6 TERMINAL AREA PLAN (2) 7-3
7.7 LAND USE AND ACCESS PLAN 7-4
7.8 AIRPORT PROPERTY MAP 7-4

SECTION 8 IMPLEMENTATION PLAN AND COST ESTIMATES 8-1

8.0 INTRODUCTION........ 8-1
8.1 CAPITAL IMPROVEMENT PROJECTS........ 8-1
8.1.1 Development Costs and Program Phasing........ 8-1
8.2 COST ESTIMATES........ 8-9

SECTION 9 FINANCIAL PLAN........ 9-1

9.0 FINANCIAL ANALYSIS OBJECTIVES 9-1
9.1 OVERALL APPROACH 9-1
9.2 CAPITAL FUNDING SOURCES........ 9-2
9.2.1 FAA Airport Improvement Program Grants........ 9-2
9.2.2 Passenger Facility Charges 9-3
9.2.3 Arkansas Department of Aeronautics 9-4
9.2.4 Private Third Party Financing........ 9-4
9.2.5 Cities' Capital Subsidies 9-5
9.2.6 Other Funding 9-6
9.2.7 Airport Operating Funds........ 9-6
9.3 FINANCIAL ANALYSIS AND IMPLEMENTATION PLAN FOR THE MASTER PLAN....... 9-6
9.3.1 Estimated Project Costs and Development Schedule 9-6
9.3.2 Sources and Uses of Capital Funding 9-7
9.3.3 Projected Operations and Maintenance Expenses........ 9-10
9.3.4 Projected Operating Revenues........ 9-11
9.3.5 Financial Plan Summary 9-15
9.4 FINANCIAL ANALYSIS EXHIBITS 9-17

LIST OF EXHIBITS

EXHIBIT 2.1 REGIONAL LOCATION MAP 2-3
EXHIBIT 2.2 VICINITY MAP 2-4
EXHIBIT 2.3 ORGANIZATIONAL CHART – AUTHORITY MEMBERS AND COMMITTEE 2-14
EXHIBIT 2.4 ORGANIZATIONAL CHART – MANAGEMENT STAFF 2-15
EXHIBIT 2.5 TEXARKANA REGIONAL AIRPORT AERIAL VIEW 2-17
EXHIBIT 2.6 FAA FORM 5010 2-18
EXHIBIT 2.7 FAA FORM 5010 – AIRPORT DIAGRAM 2-19
EXHIBIT 2.8 EXISTING AIRFIELD LAYOUT 2-20
EXHIBIT 2.9 APPROACH PLATE ILS RUNWAY 22 2-27
EXHIBIT 2.10 TERMINAL AREA PLAN 2-31
EXHIBIT 2.11 VEHICULAR PARKING 2-34
EXHIBIT 2.12 AIRSPACE CLASSES 2-43
EXHIBIT 2.13 VFR SECTIONAL CHART 2-44
EXHIBIT 2.14 PART 77 IMAGINARY SURFACES 2-46
EXHIBIT 2.15 ALL WEATHER WIND ROSE 2-55
EXHIBIT 2.16 VFR WIND ROSE 2-56
EXHIBIT 2.17 IFR WIND ROSE 2-57
EXHIBIT 2.18 ZONING DISTRICT 2-59
EXHIBIT 2.19 CITY OF TEXARKANA ANNEXATIONS 2-62
EXHIBIT 2.20 HIGHWAY NETWORK 2-64
EXHIBIT 3.1 HISTORIC AND FORECAST POPULATION 3-7
EXHIBIT 3.2 HISTORIC AND FORECAST EMPLOYMENT 3-10
EXHIBIT 3.3 HISTORIC AND FORECAST RETAIL SALES 3-13
EXHIBIT 3.4 HISTORIC AND FORECAST INCOME PER CAPITA 3-16
EXHIBIT 3.5 HISTORIC AND FORECAST EFFECTIVE BUYING INCOME 3-19
EXHIBIT 3.6 HISTORIC ENPLANEMENTS REGIONAL/SCHEDULED AIRLINE 3-23
EXHIBIT 3.7 REGIONAL/ SCHEDULED AIR CARRIER ENPLANEMENT FORECAST 3-30
EXHIBIT 3.8 REGIONAL/SCHEDULED AIRLINE HISTORIC OPERATIONS 3-34
EXHIBIT 3.9 REGIONAL/SCHEDULED AIRLINE OPERATIONS FORECAST 3-39
EXHIBIT 3.10 HISTORIC AND FORECAST GENERAL AVIATION OPERATIONS 3-47
EXHIBIT 4.1 AIRPORT REFERENCE CODES 4-4
EXHIBIT 4.2 TERMINAL BUILDING (2002) 4-20
EXHIBIT 5.1 PROPOSED AIRFIELD DEVELOPMENT 5-3
EXHIBIT 5.2 TERMINAL AREA DEVELOPMENT ALTERNATIVE 1 5-5
EXHIBIT 5.3 TERMINAL AREA DEVELOPMENT ALTERNATIVE 2 5-6
EXHIBIT 5.4 TERMINAL LAYOUT ALTERNATIVE 1 (TL-1) 5-10
EXHIBIT 5.5 TERMINAL LAYOUT ALTERNATIVE 2 (TL-2) 5-13
EXHIBIT 5.6 TERMINAL LAYOUT ALTERNATIVE 3 (TL-3) 5-14
EXHIBIT 5.7 PREFERRED TERMINAL LAYOUT 5-19

EXHIBIT 5.8 GENERAL AVIATION ALTERNATIVE 1 (GA-1) 5-23
EXHIBIT 5.9 GENERAL AVIATION ALTERNATIVE 2 (GA-2) 5-24
EXHIBIT 5.10 GENERAL AVIATION ALTERNATIVE 3 (GA-3) 5-25
EXHIBIT 5.11 ARFF DEVELOPMENT SITES 5-31
EXHIBIT 5.12 ARFF ALTERNATIVE 1 (ARFF-1) 5-33
EXHIBIT 5.13 ARFF ALTERNATIVE 2 (ARFF-2) 5-34
EXHIBIT 5.14 ARFF ALTERNATIVE 3 (ARFF-3) 5-35
EXHIBIT 6.1 EXISTING NOISE CONTOURS – YEAR 1999 6-8
EXHIBIT 6.2 FUTURE NOISE CONTOURS – YEAR 2020 6-9
EXHIBIT 7.1 TITLE SHEET 7-5
EXHIBIT 7.2 SHEET 1: AIRPORT LAYOUT PLAN DATA SHEET 7-6
EXHIBIT 7.3 SHEET 2: AIRPORT LAYOUT PLAN 7-7
EXHIBIT 7.4 SHEET 3: AIRPORT AIRSPACE DRAWING (WEST) 7-8
EXHIBIT 7.5 SHEET 4: AIRPORT AIRSPACE DRAWING (EAST) 7-9
EXHIBIT 7.6 SHEET 5: RUNWAY 4/22 RUNWAY PROTECTION ZONE PLANS/ 7-10
EXHIBIT 7.7 SHEET 6: RUNWAY 13/31 RUNWAY PROTECTION ZONE PLANS/ 7-11
EXHIBIT 7.8 SHEET 7: TERMINAL AREA PLAN WEST 7-12
EXHIBIT 7.9 SHEET 8: TERMINAL AREA PLAN MIDFIELD 7-13
EXHIBIT 7.10 SHEET 9: NOISE CONTOURS/ SURROUNDING LAND USE AND ACCESS PLAN 7-14
EXHIBIT 7.11 SHEET 10: AIRPORT PROPERTY MAP 7-15
EXHIBIT 8.1 AIRFIELD IMPROVEMENTS AND DEVELOPMENT PHASING 8-10
EXHIBIT 8.2 TERMINAL AREA/ SUPPORT FACILITY IMPROVEMENTS AND DEVELOPMENT PHASING 8-11
EXHIBIT 8.3 MIDFIELD/ GENERAL AVIATION IMPROVEMENTS AND DEVELOPMENT PHASING 8-12
EXHIBIT 9.1 ESTIMATED PROJECT COSTS DEVELOPMENT SCHEDULE 9-17
EXHIBIT 9.1A ESTIMATED PROJECT COSTS DEVELOPMENT SCHEDULE 9-18
EXHIBIT 9.2 PROJECTED CAPITAL FUNDING SOURCES 9-19
EXHIBIT 9.2A PROJECTED CAPITAL FUNDING SOURCES 9-20
EXHIBIT 9.3 ACTUAL, BUDGETED AND PROJECTED OPERATIONS & MAINTENANCE EXPENSES 9-21
EXHIBIT 9.4 ACTUAL, ESTIMATED, AND PROJECTED OPERATING REVENUES 9-22
EXHIBIT 9.5 FINANCIAL PLAN SUMMARY 9-23

LIST OF TABLES

TABLE 2.1	DECLARED DISTANCES	2-22
TABLE 2.2	AIRFIELD PAVEMENTS	2-24
TABLE 2.3	NAVAIDS	2-30
TABLE 2.4	TXK BUILDING INVENTORY	2-32
TABLE 2.5	OBSTRUCTIONS TO RUNWAY APPROACHES	2-47
TABLE 2.6	RUNWAY 4/22 FAA AIRPORT DESIGN STANDARDS COMPLIANCE	2-50
TABLE 2.7	RUNWAY 13/31 FAA AIRPORT DESIGN STANDARDS COMPLIANCE	2-52
TABLE 2.8	WIND COVERAGE RUNWAYS 4/22 AND 13/31	2-58
TABLE 2.9	TEXARKANA MAJOR EMPLOYERS – YEAR 2000	2-68
TABLE 3.1	HISTORIC AND FORECAST POPULATIONS	3-6
TABLE 3.2	HISTORIC AND FORECAST EMPLOYMENT	3-9
TABLE 3.3	HISTORIC AND FORECAST RETAIL SALES	3-12
TABLE 3.4	HISTORIC AND FORECAST INCOME PER CAPITA	3-15
TABLE 3.5	HISTORIC AND FORECAST EFFECTIVE BUYING INCOME	3-18
TABLE 3.6	HISTORIC SCHEDULED AIRLINE ENPLANEMENTS	3-22
TABLE 3.7	MULTIPLE VARIABLE REGRESSION ANALYSIS - TXK ENPLANEMENTS	3-25
TABLE 3.8	MARKET SHARE ANALYSIS – TXK ENPLANEMENTS	3-27
TABLE 3.9	TXK ENPLANEMENTS FORECAST GROWTH BY INDUSTRY PERCENT	3-28
TABLE 3.10	SUMMARY OF ENPLANEMENT FORECASTS	3-29
TABLE 3.11	SUMMARY OF PREVIOUS ENPLANEMENT FORECASTS	3-31
TABLE 3.12	HISTORIC SCHEDULED AIRLINE OPERATIONS	3-33
TABLE 3.13	ESTIMATED AVAILABLE SEATS	3-35
TABLE 3.14	FORECASTED REGIONAL SCHEDULE AIRLINE FLEET MIX AND LOAD FACTOR	3-36
TABLE 3.15	FORECAST OF SCHEDULED REGIONAL AIRLINE OPERATIONS	3-38
TABLE 3.16	SUMMARY OF PREVIOUS SCHEDULE AIRLINE OPERATIONS FORECASTS	3-40
TABLE 3.17	REGIONAL SCHEDULED AIRLINE – ENPLANED PASSENGERS PEAKING CHARACTERISTICS	3-42
TABLE 3.18	REGIONAL SCHEDULED AIRLINE – OPERATIONS PEAKING CHARACTERISTICS	3-43
TABLE 3.19	HISTORIC AND FORECAST OF GENERAL AVIATION OPERATIONS	3-46
TABLE 3.20	FORECAST OF BASED AIRCRAFT	3-48
TABLE 3.21	FORECAST OF BASED AIRCRAFT BY TYPE	3-49
TABLE 3.22	GENERAL AVIATION PEAKING CHARACTERISTICS – FORECAST	3-51
TABLE 3.23	MILITARY OPERATIONS – HISTORIC	3-52
TABLE 3.24	INSTRUMENT OPERATIONS – FORECAST	3-53
TABLE 3.25	SUMMARY OF ANNUAL AVIATION DEMAND FORECAST	3-55
TABLE 4.1	AIRPORT DESIGN AND AIRPORT REFERENCE CODE COMPOSITION	4-3
TABLE 4.2	TYPICAL CAPACITY AIRCRAFT MIX	4-6
TABLE 4.3	RUNWAY USE	4-7
TABLE 4.4	AIRPORT CAPACITY AND FORECAST ACTIVITY LEVELS	4-9
TABLE 4.5	TYPICAL AIRCRAFT IN THE FLEET MIX	4-11
TABLE 4.6	RUNWAY LENGTH ANALYSIS	4-12

TABLE 4.7 RUNWAY LENGTH REQUIREMENTS BY AIRCRAFT TYPE 4-13
TABLE 4.8 AIRLINE OPERATIONS AREA SPACE REQUIREMENTS 4-23
TABLE 4.9 BAGGAGE OPERATIONS SPACE REQUIREMENTS 4-25
TABLE 4.10 BAGGAGE CLAIM AREA REQUIREMENTS 4-27
TABLE 4.11 PASSENGER WAITING AREA.. 4-28
TABLE 4.12 CONCESSION SPACE REQUIREMENTS... 4-31
TABLE 4.13 CIRCULATION, MECHANICAL, AND MAINTENANCE REQUIREMENTS 4-33
TABLE 4.14 CONSOLIDATED TERMINAL AND SUPPORT AREA REQUIREMENTS.................................... 4-34
TABLE 4.15 AUTOMOBILE PARKING REQUIREMENTS.. 4-36
TABLE 4.16 COMMERCIAL SERVICE PARKING APRON REQUIREMENTS... 4-38
TABLE 4.17 GENERAL AVIATION TERMINAL BUILDINGS PASSENGER AREA REQUIREMENTS 4-40
TABLE 4.18 GENERAL AVIATION TERMINAL BUILDING MINIMUM SPACE REQUIREMENTS..................... 4-41
TABLE 4.19 T-HANGAR UNIT REQUIREMENTS 4-43
TABLE 4.20 GENERAL AVIATION PARKING APRON AREA REQUIREMENTS 4-45
TABLE 4.21 GENERAL AVIATION MAINTENANCE AREA REQUIREMENTS... 4-46
TABLE 4.22 AVIATION FUEL SALES 4-47
TABLE 4.23 SUMMARY OF CONSOLIDATED FACILITY REQUIREMENTS 4-49
TABLE 5.1 TERMINAL AND SUPPORT AREA SURPLUSES AND DEFICIENCIES.. 5-8
TABLE 5.2 TERMINAL LAYOUT... 5-16
TABLE 5.3 GENERAL AVIATION REQUIREMENTS.. 5-20
TABLE 5.4 GA ALTERNATIVES EVALUATION MATRIX 5-27
TABLE 5.5 ARFF ALTERNATIVES EVALUATION MATRIX.. 5-37
TABLE 6.1 LAND AREAS EXPOSED TO NOISE... 6-7
TABLE 6.2 LAND USE COMPATIBILITY WITH YEARLY DAY-NIGHT AVERAGE SOUND LEVELS 6-12
TABLE 8.1 PHASE I CAPITAL IMPROVEMENT PROJECTS 8-3
TABLE 8.2 PHASE II CAPITAL IMPROVEMENT PROJECTS 8-6
TABLE 8.3 PHASE III CAPITAL IMPROVEMENT PROJECTS 8-9
TABLE 8.4 SUMMARY OF COSTS 8-9
TABLE 9.1 SUMMARY OF BASE YEAR AND ESCALATED COSTS FOR THE CAPITAL PROGRAM 9-7
TABLE 9.2 SUMMARY OF SOURCES AND USES OF CAPITAL FUNDING 9-8
TABLE 9.3 SUMMARY OF UNCERTAIN FUNDING FROM THE CITIES AND OTHER FUNDING SOURCES.. 9-17

APPENDICES

Follows

APPENDIX A..9-21
APPENDIX B.. A-13
APPENDIX C B-8
APPENDIX D……………………………………………………………… C-2

SECTION 1 INTRODUCTION

1.0 PURPOSE AND NEED FOR A MASTER PLAN STUDY

Texarkana Regional Airport (TXK) is a full-service regional airport with commuter airline service. The Airport is physically located in the state of Arkansas, but serves the Twin Cities of Texarkana, which straddles the state line between Texas and Arkansas. Texarkana's unique geographic location gives it the distinction of being included in transportation plans for both the states of Texas and Arkansas.

The last Airport Master Plan for TXK was completed in 1988 in conjunction with an FAR Part 150 Noise Study. Since 1988, the aviation industry has seen significant changes to the airline fleet mix serving hub airports from origin-destination airports such as TXK. In the early 1990's, the airlines downsized aircraft in order to improve overall profitability. As a result, many airports experienced changes ranging from total loss of service to increased frequency of service by smaller aircraft. The airlines are currently in a transition from turboprop aircraft to regional jets, which will likely bring further changes to routing structure and frequency of service to many airports, including TXK.

In order to continue to improve the Airport's ability to serve the community, the Texarkana Airport Authority initiated this Airport Master Plan Update. This update will help determine the future role of the Airport and provide the City with information and direction in planning and continued development decisions. A new master plan study is necessary to provide TXK with a flexible and cost effective development program to accommodate current and future aviation demand requirements. The master plan study is being performed in accordance with FAA Advisory Circular 150/5070-6A, Airport Master Plans. It also incorporates results from a Small Market Air Service Needs Assessment study that was undertaken by TxDOT to evaluate air service demand at TXK and 30 other airports in Texas and New Mexico.

The primary objective of this Master Plan Update is to evaluate and update recommendations made in the previous master plan and determine long-range airport requirements. To accomplish this objective, it is necessary to establish the potential of the Airport, evaluate alternative development scenarios, and produce an Airport development/

improvement plan that yields a safe, efficient, economical and environmentally acceptable public Airport with capacity to respond to future air transport needs of the Cities of Texarkana.

The process of developing the master plan update will serve as a medium for recognizing community opinion, spirit, and concurrence. When approved by the local, regional, state, and federal agencies, the master plan update will provide the necessary guidance and permit long-range programming and budgeting, reduce lengthy review periods for each identified future project, and provide for orderly and timely development.

1.1 FEDERAL ASSISTANCE

The Federal government provides financial and technical assistance to airport proprietors for the planning and development of their facilities through many programs. One such program is the Airport Improvement Program (AIP) administered by the Federal Aviation Administration (FAA). The history of this program dates back to shortly after the end of World War II, when the Federal Government identified the need to promote the development of civil airports, organized into a system that meet the Country's needs. This initial program was known as the Federal-Aid Airport Program (FAAP) which was established by the Federal Airport Act of 1946. The current program known as the AIP was established in 1982 by the Airway Improvement Act. Funding for the AIP was established by the Airway Improvement Act of 1982 through the Airport and Airway Trust Fund, which has been amended through legislation. The Secretary of Transportation is authorized through legislation to make grants for airport planning and development under the AIP. Grants from this program can be made for planning, construction, or rehabilitation at a public-use airport for eligible work including safety and security equipment, airport fire fighting live-fire training structures, and land for that purpose. There are several criteria that an airport must meet to qualify for funding through the program. These criteria include:

1. It must be a public-use airport, open to the public,
2. Publicly owned, or
3. Privately owned but designated by the FAA as a reliever airport, or
4. Privately owned but having scheduled service and at least 2,500 annual passenger enplanements.

5. The airport must be included in the National Plan of Integrated Airport Systems (NPIAS).

Through the Cities' ownership and operation of TXK and the fact that the above criteria are satisfied, the Cities applied for a federal grant for the eligible amount of funds to conduct this Airport Master Plan Study Update. Typically this funding ranges between 75 and 90 percent of a study's estimated cost, with the remaining balance being provided by the airport sponsor. In this case the airport sponsors are the Cities of Texarkana.

1.2 STUDY GOALS AND OBJECTIVES

Upon initiation of the Airport Master Plan Study Update, key goals and objectives were developed to guide study development. These goals provided the framework with which the context of the study is built in detail, with specific identified information desired by the Cities and FAA. Goals are defined as broad policy statements representing conditions to be achieved, and objectives refer to specific, attainable and measurable actions that lead to the attainment of the goal.

Goal No. 1: Prepare a comprehensive and flexible Airport Master Plan for Airport Management that will provide information and direction in planning and guide development of the TXK for the next 20 years.

Objectives:

- ✈ Develop a clear and concise picture of the existing conditions at TXK through a Site Inventory and Conditions Survey.
- ✈ Develop aviation activity forecasts for the planning periods of 5, 10 and 20 years.
- ✈ Prepare a Demand/Capacity analysis by measuring the existing capacity of various operational elements and determine the adequacy of the existing facilities in the context of the new forecasts.
- ✈ Based on existing capacities and approved forecasts, develop a facilities requirements program for the three time periods: short-, intermediate- and long-range.
- ✈ Determine an optimum sequence for development at the Airport by preparing Capital Improvement Program (CIP) development scenarios that address airside and landside requirements.

- Prepare an environmental overview to provide information necessary for the consideration of the alternatives and understand the environmental consequences and constraints.
- Develop a financial analysis of development alternatives to consider the Airport Authority's overall capability to fund the CIP and finance Airport operations.
- Prepare and prioritize a list of recommended improvements necessary to implement the master plan, including a cost estimate for each project.
- Prepare a detailed Financial Implementation Plan to provide reasonable guidelines for matching projected financial resources with financial needs.

Goal No. 2: Based on the updated Airport Master Plan, develop airport facilities which will meet the future aviation needs of passengers, the community, and tenants; and provide for future enhanced levels of air service.

Objectives:

- Fully meet public travel demands and airline requirements for the next 20-years and beyond.
- Provide opportunities for development of services for business and corporate activities that support and interact with air carrier operations at the airport. These opportunities should promote appropriate use of airport property.
- Provide facilities needed to support a full range of aviation services and a high-level of service to the public. Continue to consolidate functions into specific land use areas.

Goal 3: Develop a Terminal Area Plan to address the future needs of the Airport.

Objectives:

- Assess shot-term terminal improvements relative to their long-range applicability.
- Provide the appropriate number of airline gates and facilities to meet the airlines' operational requirements.
- Determine the need for a new terminal building within the terminal area to meet the long-term needs. If required, develop a terminal building that provides efficient operation in response to user needs.

- ✈ Develop terminal facilities using concepts that will permit ready responses to fluctuations in demand, while maintaining passenger service.

Goal 4: Provide for an expanded regional jet aircraft maintenance facility.

Objectives:

- ✈ Assess the ability to provide for and identify potential impact of a regional jet aircraft maintenance facility will have on TXK and the region. This effort will be used to assure that a first class regional jet maintenance facility is planned for the Airport.

Goal 5: Minimize costs and maximize operational efficiency to users of the airport.

Objectives:

- ✈ Maintain an acceptable level of service at existing facilities for both passengers and other airport users.
- ✈ Minimize airside congestion through development of facilities that minimize operational delays and taxiing times.
- ✈ Provide an efficient on-airport roadway system, both public and secured.
- ✈ Assure equitable financial policies through an analysis of the airport's rates and charges, and a study of its Passenger Facility Charges (PFC) options.
- ✈ Avoid short-term "band-aid" solutions for long-term problems, which ultimately create a facility that operates inefficiently and does not offer an acceptable level of service for the passengers.

Goal 6: Develop the airport in a manner that is flexible and adaptable to changing conditions.

Objectives:

- ✈ Develop the airside in a manner such that options for development are retained to respond to future changes in the type or size of aircraft using the airport, passenger profiles, and changes in FAA standards.

Goal 7: Provide an airport that is safe and reliable.

Objectives:

- Develop all facilities in a manner that meets acceptable physical development standards as established by federal, state and local agencies.
- Design the airside facilities (runways and taxiways) to have adequate capacity and flexibility to accommodate all future operations and aircraft and to be capable of continuous operation.
- Enhance the IFR operating capabilities at the airport with particular attention paid to providing a precision instrument approach on Runway 13/31.

Goal 8: Develop the airport in a manner that continues to enhance the economic development of the region.

Objectives:

- Plan for a regional jet maintenance center that supports new jobs and business development at the airport.
- Coordinate this effort with appropriate parties to ensure program needs and requirements are satisfied.

Goal 9: Ensure that the public and airport users, along with federal, state, and local officials, have an opportunity to participate in the development of the Airport Master Plan.

Objectives:

- Identify which aspects of the Master Plan require community involvement.
- Create and develop a Community Involvement Program that assures public input to appropriate study items.
- Identify progress points during the study when community involvement reviews and coordination will be productive.
- Create a committee structure that allows users and neighbors of the airport to comment on planning decisions throughout the process.

These goals and objectives, in conjunction with direction received from the Texarkana Regional Airport Authority, will be used throughout the study to shape policy, influence technical criteria and standards, and guide the work efforts towards developing an implementable Airport Master Plan.

1.3 PUBLIC COORDINATION

As part of the master planning process, a comprehensive Community Involvement Program will be implemented to allow interested agencies, groups, and individuals an opportunity to review and comment on the TXK Master Plan Study Update. The public concerned with the development of TXK comprises many groups around the metropolitan area, including neighborhoods, airport users, state and local planning agencies, the FAA, and local media. During the course of the study, all views will be carefully weighed and solutions developed which will serve the common interests of all parties.

An Airport Master Plan Study Committee has been organized for the project. The primary role of this committee will be to assist in reviewing and advising the Consultant on technical and community issues related to the Study. Members of the Study Committee include:

✈	Texarkana Director of Aviation:	Steve Luebbert
✈	Airport Authority:	Chairmen 2000 -2003
✈	Texarkana AR City Manager:	Robert Wright
✈	Texarkana TX City Manager:	George Shackleford
✈	Texarkana Flying Club:	David Ryther
✈	Community Member:	Jill Jones
✈	Chamber of Commerce:	James Cherry
✈	ASA Delta Connection:	Rick Hutson
✈	American Eagle:	Lyle Grimes
✈	ATCT Tower Chief:	Terry French
✈	FAA SMO:	Terry Cooksey
✈	TACAir:	Mike Ryan

1.4 PROJECT ORGANIZATION

The Project Organization consists of representatives from the following Federal, State and Local agencies and organizations:

- Cities of Texarkana
- Federal Aviation Administration (FAA)
- Consultants:
  - URS Greiner Woodward Clyde
  - John E. Hawkins and Associates
  - Leibowitz AMC
  - Smith-Western Engineering, Inc.

The representatives from these various groups are responsible for providing input, reviewing the work of the Consultant team and providing comments on the study's elements.

SECTION 2 FACILITY INVENTORY AND ASSESSMENT

2.0 INTRODUCTION

The purpose of this section is to document the various facilities and their condition at TXK in 2000, the base year for this study. The physical condition inventory is a systematic and comprehensive data collection process used to provide an understanding of the nature and scale of aviation and airport related factors at the site. The information compiled is analyzed and used as a basis for the forecasts of aviation demand and in determining airport facility requirements.

The physical condition inventory for this study was conducted during several visits to the TXK by the project team. During these site visits, the team's activities included conducting a general photographic survey of the site, reviewing available drawings, maps, previous Airport studies, and review of available Fixed Base Operator (FBO) records. Meetings and discussions with the Airport Director, FBO operator and discussions with other current tenants and users of the facility were also accomplished. The physical condition of the Airport's facilities is a function of the age and quality of original construction and the quality of the maintenance the facility has received.

Every effort has been made to provide a comprehensive inventory of the facility, including the Airport history, description and inventory of the existing Airport facilities and support services, and a brief overview of the Texarkana region. In addition to the field survey data that was collected, some information contained in this chapter was obtained from previous studies and from available State and Federal documents. This information has been extensively updated through site visits, data research, and interviews and conversations with those involved with the Airport and its operations. The information compiled in this section has been analyzed and will be used as a basis for the other elements of this study.

2.1 BACKGROUND

2.1.1 Airport Location

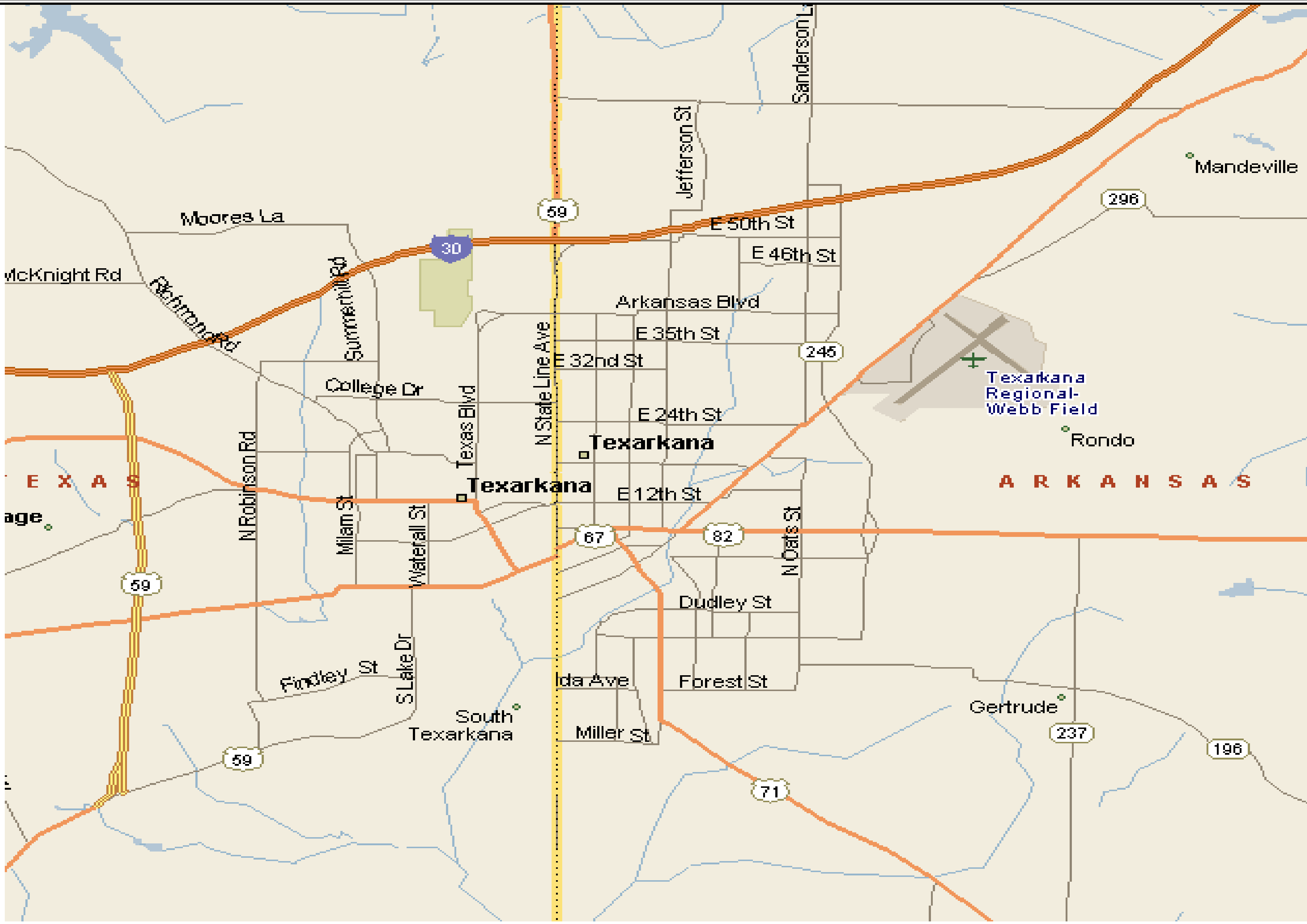
The Cities of Texarkana are located on the border of Texas and Arkansas and is comprised of two cities with the same name, connected by the state line that runs through the center of downtown. TXK is located in Miller County, Arkansas, and approximately 3 miles northeast of the downtown area. **Exhibit 2.1** illustrates the regional location of Texarkana and **Exhibit 2.2** provides a graphical depiction of the Airport's location relative to the Cities of Texarkana.

Regional Location Map

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

URS Greiner Woodward Clyde

Exhibit 2.1



Vicinity Map

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

TXK Texarkana Regional Airport

URS Greiner Woodward Clyde

Exhibit 2.2

2.1.2 Airport History

The City of Texarkana originally constructed TXK in 1929. The following is a synopsis of the Airport's history.

- **1928:** The City of Texarkana, Arkansas purchased 190 acres east of Highway 67 from Mr. and Mrs. B. H. Lathrop and Mr. and Mrs. J. W. Wheeler to establish an airport. The site was selected because of the large area of level ground with few trees or stumps. Mr. John Newbauer served as the first Airport Manager.
- **1929:** The new airport now has two sod runways--one 3,500 feet long and the other 3,000 feet long. Night flying is made possible by placing lanterns adjacent to the runway.
- **1931:** American Airways inaugurated commercial airline service transporting passengers and mail flying Ford Tri-Motor aircraft on June 15th. Several thousand citizens withstood midday heat to hear Senator Morris Shepherd talk on the importance of air transportation.
- **1932:** The first U.S. Airmail (Cotton States Mail) arrived at Texarkana Municipal Airport on a Ford Tri-Motor.
- **1933:** American Airways discontinued service. Howard Webb leased the former American Airways Building from the City and established an agreement to oversee the Airport activities. Mr. Webb purchased a hangar in New Orleans, Louisiana and moved it to Texarkana Municipal Airport to construct the Airport's first aircraft hangar. Howard Webb's oversight of the airport lasted until 1969.
- **1936:** The Airport's first Terminal Building was constructed as a WPA Project. This building still stands today serving as the Airport Administration Building.
- **1942:** The runways are paved and lighted.
- **1943:** American Airways returns to Texarkana with scheduled commercial airline service using DC-3 aircraft.
- **1945:** Braniff International Airways began commercial airline service.
- **1948:** American Airlines began service in new 40-passenger Convair aircraft; one aircraft was labeled "Flagship Texarkana."
- **1950:** American Airlines provided four connecting flights daily to Little Rock, Memphis, Nashville, and Dallas from Texarkana and Mid-Continental Airlines began service with

two connecting flights daily to Tulsa, Kansas City, Minneapolis, Shreveport, and New Orleans.

- **1953:** Trans Texas Airlines began commercial service with DC-3 aircraft.
- **1955:** The U. S. Air Force's 703rd Aircraft Control and Warning Squadron began air defense operations on a 30-acre site adjacent to the airport with a 30-person contingent commanded by Major William R. Ingram.
- **1956:** The ownership and operational management of Texarkana Municipal Airport was transferred to "The Texarkana Airport Authority" on December 27th by City Ordinances of Texarkana, Arkansas and Texarkana, Texas and by Arkansas State Statute.
- **1958:** The 703rd Aircraft Control and Warning Squadron constructed a recreation building, base exchange store, and a non-commissioned officers' dormitory. The airport constructed a 10,000 square foot Hangar #2 and leased the structure to Ralph Crosnoe and Corley Tedder.
- **1959:** The 703rd Aircraft Control and Warning Squadron constructed nine residences for Officer housing and added a tracking computer with radar scopes.
- **1960:** The airport constructed a new $200,000 Passenger Terminal Building.
- **1967:** The airport constructed Hangar #3 for a cost of $22,000.
- **1969:** The FAA Air Traffic Control Tower was constructed and staffed with controllers 24-hours daily. The Federal Government relinquished ownership of Building #1, all Quonset hut structures and nine former military residences to the Airport Authority. Mr. Garrett Jackson moved from Standiford Field in Louisville, Kentucky in January to assume duties as Airport Manager. Mr. Howard Webb retired after nearly 40 years of airport management and aviation business at Texarkana Municipal Airport--no one has accomplished as much for Texarkana Municipal Airport.
- **1970:** Texas International Airways began DC-9 commercial jet service. Runway 4/22 was lengthened from 5,200 feet to 6,601 feet. The U. S. Air Force used the airport to transport cargo from Lone Star Ammunition Plant using Lockheed C-141 Starlifter aircraft. The FAA funded and installed a Category I Instrument Landing System (ILS) and Medium Intensity Approach Lighting System with Runway End Identifier Lights (MALSR) on Runway 22.
- **1971:** Globe Union Battery Case Company of Milwaukee, Wisconsin, was the first company to locate in the Airport Industrial Park in a three million dollar 70,000 square foot facility on a 10 acre site. The Terminal Building underwent a $33,000 update.

- ✈ **1972:** Globe Avenue, the Airport Industrial Park thoroughfare was completed.
- ✈ **1973:** The first Crash/Fire/Rescue vehicle was obtained for $19,000 allowing the airport to meet Civil Aeronautics Board airline emergency rescue requirements. The vehicle was manned by Texarkana, Arkansas Fire Department personnel. The Airport Authority sold 10 acres of property to the Texarkana Chamber of Commerce for $45,000 to build a 32,000 square foot facility for Cowden Manufacturing. The Airport constructed two rows of 12 T-Hangars for $126,000 and Hangar #4 for $57,000.
- ✈ **1975:** An EDA Grant of $1,014,000 augmented $600,000 in Airport/City funds to expand the Airport Industrial Park from 100 to 420 acres. Rockwell International located in the Airport Industrial Park. The airport hosted an air show featuring the U. S. Navy Blue Angels. The Airport installed High Intensity Lighting on Runway 4/22 and lighting on the taxi ways for a cost of $125,000. The Airport accepted a $268,000 settlement from the Department of Defense for damages to Runway 13/31 by Air Force C-141 cargo aircraft. Rio Airlines began commercial passenger service to Dallas-Fort Worth with eight daily departures; however, they ceased flights after only four months of service when Texas International Airlines ended their labor strike.
- ✈ **1976:** The third set of 12 T-hangars was constructed for a cost of $99,000. On March 7th, the Air Force One Boeing 707 arrived at Texarkana Municipal Airport returning the late Senior U. S. Representative Wright Patman to his home town. The Airport's first Master Plan was completed for a cost of $114,000 by Talbot, Cox, and Associates of Louisville, Kentucky.
- ✈ **1977:** The Arkansas National Guard Armory completed an 11,500 square foot, $300,000 facility on a five-acre site on the northwest side of the airport. The Armory leased the site for a 50-year term. Flowers Bakery purchased 10-1/2 acres in the Industrial Park to construct a 23,000 square foot facility. The Federal Government transferred the 11,200 square foot Building #11 which housed the fortified utilities center for the 703rd Aircraft Control and Warning Squadron to the Airport Authority. The jet fuel farm was completed with one 10,000 gallon and two 8,000 gallon underground fuel storage tanks. ABC Airlines signed a five-year lease to provide fixed base operations. The airport constructed helipads, installed REIL lights and improved the runway and taxi way lights. Texas International Airlines began air service between Texarkana and Shreveport. The Airport Authority approved a 15-year ground use lease with Texarkana College to locate their Flight Technology Department on the airport.

- ✈ **1978:** Mr. Garrett Jackson resigned after nine years as Airport Manager to assume the position of Airport Manager at Columbus, Georgia Metropolitan Airport. Mr. Bud Grimieaux was hired as the next Airport Manager. The Airport Authority Board selected Rio Airlines over Metro Airlines to provide air service from Texarkana to Dallas-Fort Worth, Little Rock, and Memphis with 15-seat Beech 99 aircraft. Texas International discontinued DC-9 service but continued to provide service with Convair 600 aircraft.
- ✈ **1979:** The Airport installed a 10,000 gallon steel fuel tank in the jet fuel farm for a cost of $16,000.
- ✈ **1980:** The Passenger Terminal was expanded and the air conditioning system was overhauled for a total cost of $287,000. A new 14,000 square foot aircraft maintenance facility was completed for a cost of $326,000 and leased to Rio Airlines.
- ✈ **1981:** The Airport's rotating beacon was relocated from the Terminal Building parking area to its present location for a cost of $41,000. The City of Texarkana, Arkansas signed a 99-year contract to provide Aircraft Rescue and Fire Fighting service for the Airport. Under the terms of the agreement, the Airport sold their fire truck to the City for $10 and the Airport agreed to build a new state-of-the-art firefighting facility for the City's use until 2080.
- ✈ **1982:** Mr. Truman Arnold constructed the Road Runner Corporate Aviation Hangar and private fuel tank for a cost of $103,000. Rio Airlines expanded their service to seven flights daily using 48-seat DeHaviland aircraft. Skyways, a commuter airline based in Fayetteville, Arkansas, began service from Texarkana to Memphis and Shreveport.
- ✈ **1984:** The Airport Aircraft Rescue and Firefighting Facility was constructed for $662,000 using FAA Grant Funding. The segmented circle and windsock were installed for a cost of $68,000. Runway 13/31 lighting improvements cost $68,000. The main entrance road was constructed for a cost of $76,000. Mr. Roy Miller replaced Bud Grimieaux as Airport manager.
- ✈ **1985:** An Airport Maintenance Building was constructed for a cost of $20,300. FAA Grant Funding enabled the airport to purchase an Oshkosh P-19 Aircraft Rescue and Fire Fighting vehicle for $211,000. American Eagle/Metro Express II Airlines began service from Texarkana to Dallas-Fort Worth with four daily flights using 19-seat Jetstream 31 aircraft. Parking meters were installed in the parking area in front of the Passenger terminal--71 parking meters were purchased for $110 each.

- ✈ **1986:** Runway 4/22 was resurfaced with an overlay using FAA Grant Funding for a cost of $691,000. The Airport hosted an October air show featuring the Confederate Air Force. Truman Arnold took over the fixed base operations and constructed two large aircraft hangars at a cost of $181,000 and a 12,600 square foot General Aviation Terminal at a cost of $225,000. The Airport Authority voted to change the Airport's name from "Texarkana Municipal Airport - Webb Field" to "Texarkana Regional Airport." Republic Express Airlines began service to Memphis with four round trips daily flying 19 Jetstream 31 aircraft. Atlantic Southeast Airlines (ASA) leased the 14,000 square foot maintenance hangar and established ASA's Southwest System Aircraft Maintenance Base. Northwest Airlines bought Republic Airlines and Republic Express serving Texarkana changed its name to Northwest Airlink. The Airport completed the entrance sign on Airport Drive.
- ✈ **1987:** The U.S. Department of Transportation designated the Airport as a "Primary Airport" enabling the airport to receive passenger enplanement entitlement funds annually from the FAA. Northwest Airlink discontinued service due to inadequate passenger loads. The Airport hosted a June air show. The south ramp was reconstructed with drainage improvements and new taxi way signage for a cost of $500,000 using FAA Grant Funding.
- ✈ **1988:** Runway 13/31 was resurfaced with an overlay using FAA Grant Funding for a cost of $892,000. Mr. Roy Miller resigned as Airport Manager to assume duties as the Airport Manager of Shreveport Louisiana Regional Airport.
- ✈ **1989:** Mr. Jeff Vickers was appointed Director of Aviation at Texarkana Regional Airport. The Airport completed a $25,000 facelift of the Terminal Building's passenger lobby. The Airport purchased 80 acres of property on the east side of the Airport for a cost of $115,000 and completed a total property survey for a cost of $35,000.
- ✈ **1990:** The Airport implemented a paid parking system with 'round-the-clock Terminal Area Security provided by Republic Parking of Chattanooga, Tennessee. A $125,000 Airport boundary fencing project was completed using a $48,000 contribution from the Arkansas Aeronautics Commission. The U. S. Government deeded over the radome facility, the final piece of property used by the 703rd Aircraft Control and Warning Squadron. The Airport completed an overlay project that included all taxiways and most of the aircraft parking areas for $480,000. The FAA approved the Airport Master Plan

update and FAR Part 150 Noise Study completed by Barnard Dunkelberg and Associates of Tulsa, Oklahoma for the amount of $127,000.

- **1991:** The terminal parking lots and Airport Drive were overlaid using $54,174.18 collected from parking revenue. Mr. Jeff Vickers resigned as Director of Aviation to assume the same position for Panama City Bay County Airport, Florida. Paula Neeson (later known as Paula Jordon) was promoted from Administrative Assistant to Airport Director.
- **1992:** The Airport completed a terminal expansion project which added a second passenger boarding gate, handicapped accessible rest rooms, and a new baggage carousel. The Arkansas Air National Guard began using the Airport as a Lockheed C-130 Hercules training facility. The FAA Air Traffic Controllers worked out of a temporary tower on the ramp during a 6-month tower renovation. An Arkansas Department of Aeronautics grant funded half the $28,000 cost to remove trees extending up into the safety areas of both runways. An Emergency Generator and distance-to-go markers were installed, a new sign plan was approved, two new helipads were constructed, and the fuel farm was relocated.
- **1993:** A $400,000 FAA Grant allowed the airport to upgrade and relocate the runway electrical vault and complete Phase I of the Safety Area Improvements which included land acquisition and relocation of the perimeter road.
- **1994:** Safety Area Improvements continued. Several open storm water drainage ditches were filled in and replaced by underground drainage culverts. The City of Texarkana, Arkansas vacated the 1981 fire fighting contract and negotiated a new 5-year contract to share Airport fire fighting expenses with the City of Texarkana, Texas.
- **1995:** The airport was completely enclosed by security fencing. The runway lighting system was improved with a new Medium Intensity Approach Lighting System with Runway End Identifier Lights.
- **1996:** The final phase of the Safety Area Improvements was near completion including an extensive dirt fill project that eliminated a steep drop off at the end of runway 4. Additional property was purchased from ARKLA Gas to expand the safety area at the end of Runway 31.
- **1997:** Mr. Hugh Longino, a member of the Airport Authority, assumed duties as Acting Airport Director in December, after the dismissal of Paula Jordon. The Airport's "Wings" Restaurant underwent a complete remodeling and facelift.

- ✈ **1998:** Mr. Robert McDaniel, assumed duties as Airport Director in April. Runway 13/31 was crack sealed and repainted. Runway 4/22 received a complete resurfacing as a result of a $1.25 million Airport Improvement Program grant and a $49,000 T-Hangar drainage improvement project was completed. 1998 commercial enplanements posted a 10 percent growth, reversing a 5-year traffic decline.
- ✈ **1999:** A Self-Fueling station was added on the south ramp. LifeNet moved their emergency response helicopter, aircrew, and 24-hour Operations Center to the airport. URS Greiner began a 20-year Master Plan study. The 10-year contract with Republic Parking expired and the Airport began free daytime parking. The year's passenger enplanements grew by over 17 percent.
- ✈ **2000:** The terminal restaurant operated by the Airport Authority was leased to a private operator. A video surveillance system was installed to monitor the terminal, parking lots, and aircraft operating areas. On January 27th the region recorded a 9-inch snowfall. The airport was open and commercial service restored within 12 hours of the end of the snowfall. Delta Connection began limited regional jet flights each week along with their existing turboprop service. A new taxi-lane and the Warmack corporate hangar were constructed. Director McDaniel resigned in August and was replaced by Mr. Stephen Luebbert.

  A full scale triennial emergency exercise was conducted in early September. An air show in October suffered an $80,000 loss due to adverse weather and low attendance. The Cities of Texarkana transferred responsibility and cost-sharing for ARFF to the Airport Authority. The Authority convened in special session to address a financial shortfall due to concurrent construction costs and the air show loss. A $1.4M Apron rehabilitation project was begun. A partnership was formed to build an airframe and powerplant school. Christmas Day brought an ice storm that left the area without power for days. The Airport continued to operate. Commercial air service was restarted within three days and assisted in airlifting emergency supplies. The Airport lost approximately $30,000 in business and damaged property. Texarkana was declared a National Disaster Area.
- ✈ **2001** Texas DOT assessment reported Texarkana Regional Airport had captured its potential 44,000-enplanement market and is likely to remain at this level for the foreseeable future. The apron project was completed and construction was begun on the $1.6M Texarkana Airframe and Powerplant School. The fuel farm experienced failure of

a 20,000 gallon jet fuel tank; FEMA subsequently approved funding to complete repairs. A soft economy and the airport's weak financial position necessitated an aggressive budget recovery program. Airport loans were consolidated and refinanced. E-Z Mart opened a convenience store in the terminal as a public service after numerous restaurants failed. The September terrorist attacks closed the airport for three days. Multiple security initiatives were enacted with the help of the Cities and National Guard. Transportation Security Administration (TSA) created after the September terrorist attacks. The Airport reached agreement with ASA Delta and the Arkansas Aeronautics Commission to repair H-3 for $120K. Broke ground in December on the A&P School.

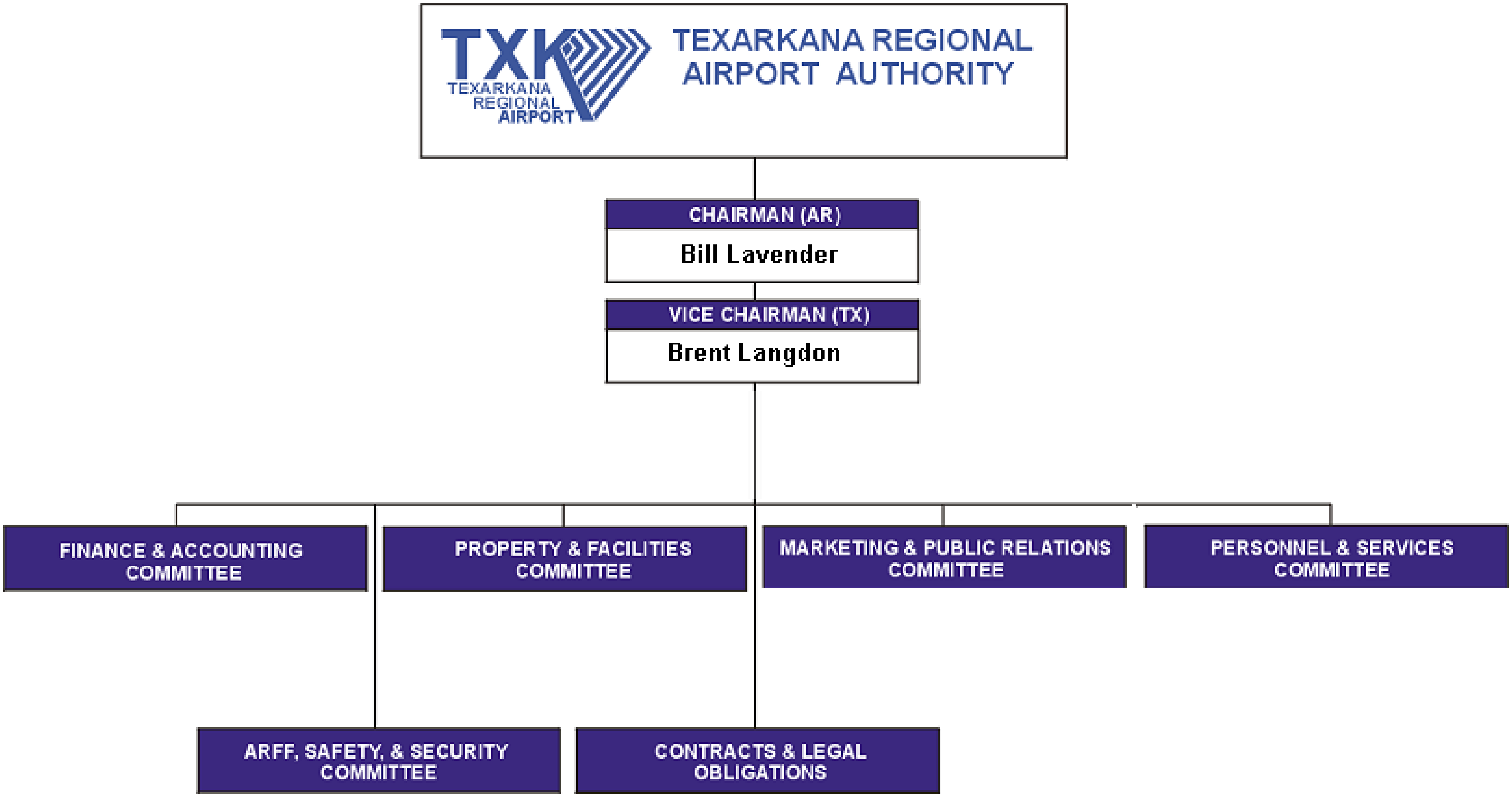
- **2002** City of Texarkana, AR withdrew their structural firefighting units and crew from the ARFF station. A new Precision Approach Path Indicator (PAPI) system was installed on Runway 31. Tower cost-share was avoided after successfully challenging the FAA calculations. Rewiring runway 4/22 HIRL system was completed at a cost of $250K. The Runway 31 Safety Area was completed for $1.1M. A three-year contract with TSA and the Texarkana Arkansas Police Department for law enforcement services at the Airport was executed. A new lease with ASA Delta Maintenance was signed for a three-year term. A 15-year lease was executed with Southern Arkansas University-Tech to operate the A&P School. The school opened in August with a class of 70 students. Over sixty-five acres of ice-storm damaged timber was harvested. Fuel farm repairs and H-3 renovation ($300K) was completed. New rental car leases went into effect with a pass-through fee and minimum annual guarantee. On 3 October, a Texarkana-based, single-engine aircraft crashed on the airport killing a student pilot. The instructor pilot sustained non-life threatening injuries; An NTSB investigation followed. The rehabilitation of runway 13/31 to include new medium intensity lighting ($2.3M) was begun in October. Both P-19 ARFF vehicles were refurbished. Terminal baggage screening upgrades were completed in December.
- **2003** ASA Delta withdrew passenger service and maintenance operations in April. National and Budget rental car agencies also ended operations. May Air ceased operations and liquidated assets; Texarkana Flying Club relocated to the vacated hangar. Airport submitted a revised deficit budget to both Cities and requested cost-share subsidies. Runway 13/31 was reopened and the new PAPI serving runway 13 was commissioned. Eagle Jet Charter leased H-3 to maintain EMB-120s. SkyWest Airlines began service to Houston and Enterprise Rental Car began operations. Over

8,000 feet of new security fencing and upgraded all automatic gates ($300K) were installed and the Master Plan was completed.

2.1.3 Airport Management

The Texarkana Regional Airport Authority is an eight-member board that governs the Airport. There are four members appointed by the Mayor of Texarkana, TX and four members appointed by the Mayor of Texarkana, AR, with the members serving three-year terms. The Airport Authority meets monthly, usually on the fourth Thursday of the month, to consider all matters pertaining to the business, operation, conduct and use of the Airport. The Airport Authority has several sub-committees to ensure proper review of Airport issues including Financial and Accounting, Properties and Facilities, Marketing and Public Relations, Personnel and Services and Special Events. The current organizational chart for the Airport Authority is depicted in **Exhibit 2.3**.

Reporting to the Airport Authority, the Airport Director and his staff oversee the Airport's daily operations. The current Airport Management Team consists of the Airport Director, Safety and Security Director, Maintenance Director, Terminal Supervisor and Financial Administrator. The current organizational chart for the Airport Management Team is depicted in **Exhibit 2.4**.

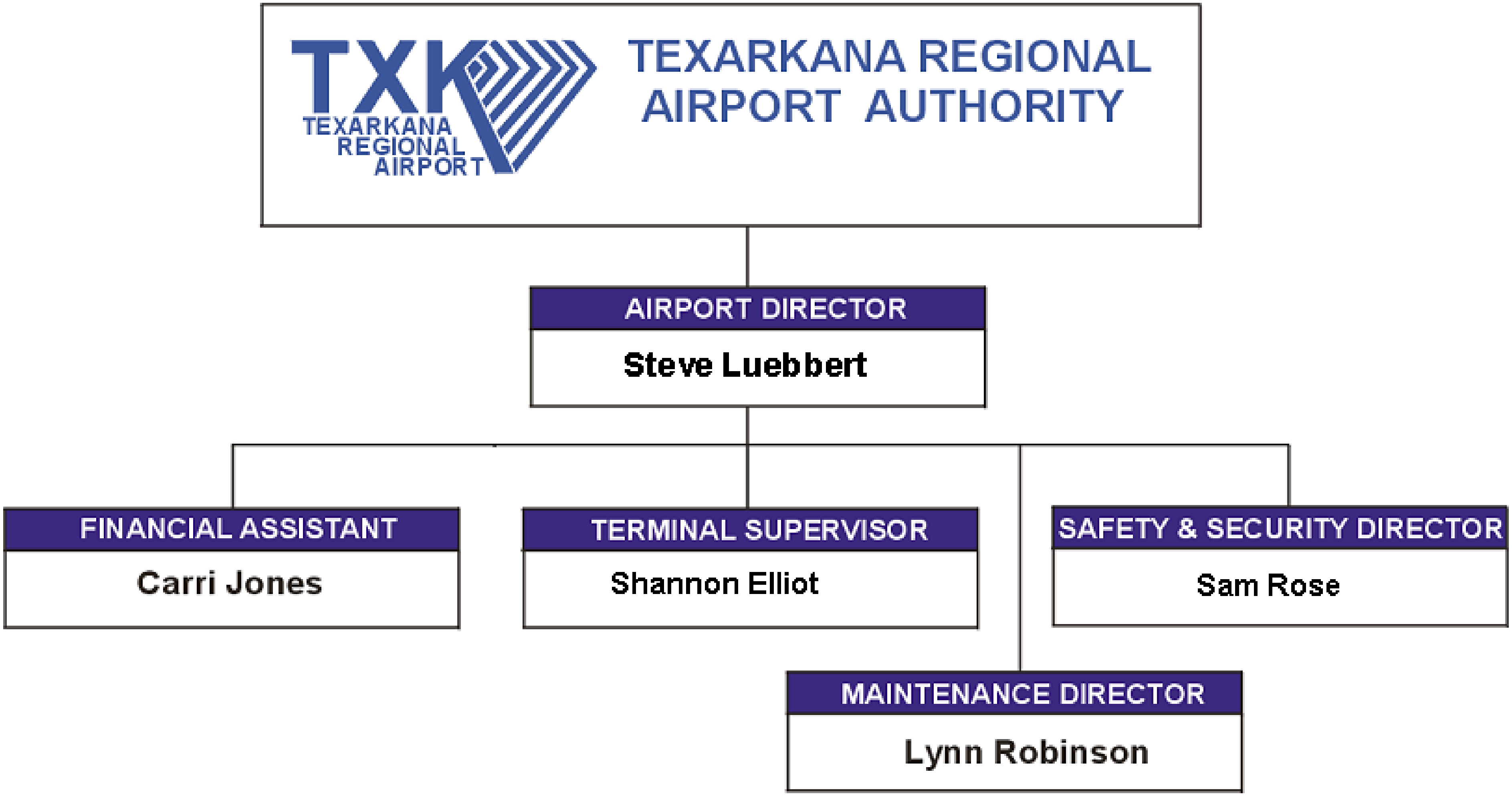


Organizational Chart – Authority
Date: August 2003

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

URS Greiner Woodward Clyde

Exhibit 2.3



Organizational Chart – Management Staff

Date: August 2003

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

URS Greiner Woodward Clyde

Exhibit 2.4

2.2 EXISTING AIRPORT FACILITIES

The Airport, including the airfield, hangars, terminal building and safety areas, encompasses approximately 950 acres over four separate tracts of land. A recent aerial photo of the Airport, taken in May 2003, is depicted in **Exhibit 2.5**. Texarkana Regional Airport's three letter airport identifier is **TXK**, a unique designator given to each airport by the Federal Aviation Administration (FAA). TXK has an airport elevation of 389 feet above Mean Sea Level (MSL) and the coordinates of the Airport Reference Point (ARP) is latitude 33^0-27'-13.35" N (estimated) and longitude 93^0-59'-27.672" W. The Airport Master Record, FAA Form 5010-1, is presented in **Exhibit 2.6** and contains information about the airport's runways, facilities, and operations. The form was updated and completed by the State Airport Inspector in May 2003. The Form 5010-1 Airport Diagram is depicted in **Exhibit 2.7**.

2.2.1 Airfield Facilities

Included in this inventory section are the runway, taxiway and apron network; the navigational and landing aids associated with each runway, airfield lighting, signage and fencing. **Exhibit 2.8** shows the current airfield layout for the TXK.

2.2.1.1 Runways

There are two runways at TXK. The runways are identified based on their magnetic compass orientation, to the closest tenth of a degree and thus named accordingly. The current magnetic compass orientation of the runways results in the runway ends to be named 04 for 40 degrees, and 22 for 220 degrees. Runway 4/22, which is the primary runway, oriented in a Northeast to Southwest direction, and the secondary runway, Runway 13/31, is oriented in a Northwest to Southeast direction. These names represent the fact that aircraft take-off and land to the Northeast, towards 40 degrees, or to the Southwest, towards 220 degrees on the primary runway. For the secondary runway, aircraft take-off and land towards the Northwest at 310 degrees, or towards the Southeast, at 130 degrees. Based on wind and weather conditions, Runway 4/22 is used approximately 90 percent of the time, with aircraft utilizing Runway 22 approximately 60 percent of that time. The remaining 10 percent of the time Runway 13/31 is in use with Runway 13 in use 98 percent of this time.

Texarkana Regional Airport Aerial View
Date: May 2003

TXK TEXARKANA REGIONAL AIRPORT

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

URS Greiner Woodward Clyde

Exhibit 2.5

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

AIRPORT MASTER RECORD

PRINT DATE: 08/26/2003
AFD EFF 07/10/2003
Form Approved OMB 2120-0015

> 1 ASSOC CITY: TEXARKANA
4 STATE: AR
LOC ID: TXK
FAA SITE NR: 01188.*A
> 2 AIRPORT NAME: TEXARKANA REGIONAL-WEBB FIELD
5 COUNTY: MILLER AR
3 CBD TO AIRPORT (NM): 03 NE
6 REGION/ADO: ASW/NONE
7 SECT AERO CHT: MEMPHIS

GENERAL

10 OWNERSHIP: PUBLIC
> 11 OWNER: TEXARKANA ARPT AUTHORITY
> 12 ADDRESS: 201 AIRPORT DR
TEXARKANA, AR 71854
> 13 PHONE NR: 870-774-2171
> 14 MANAGER: STEPHEN P. LUEBBERT
> 15 ADDRESS: 201 AIRPORT DR
TEXARKANA, AR 71854
> 16 PHONE NR: 870-774-2171
> 17 ATTENDANCE SCHEDULE:

MONTHS	DAYS	HOURS
ALL	ALL	0600-2200

18 AIRPORT USE: PUBLIC
19 ARPT LAT: 33-27-13.400N ESTIMATED
20 ARPT LONG: 093-59-27.700W
21 ARPT ELEV: 390 SURVEYED
22 ACREAGE: 964
> 23 RIGHT TRAFFIC: NO
> 24 NON-COMM LANDING: NO
25 NPIAS/FED AGREEMENTS:NGPXY3
26 FAR 139 INDEX: AS 05/1973

SERVICES

> 70 FUEL: 100LL A
> 71 AIRFRAME RPRS: MAJOR
> 72 PWR PLANT RPRS: MAJOR
> 73 BOTTLE OXYGEN: HIGH
> 74 BULK OXYGEN:
75 TSNT STORAGE: HGR TIE
76 OTHER SERVICES:
AFRT CHTR INSTR RNTL SALES

FACILITIES

> 80 ARPT BCN: CG
> 81 ARPT LGT SKED: DUSK-DAWN
> 82 UNICOM:
> 83 WIND INDICATOR: YES-L
84 SEGMENTED CIRCLE: YES
85 CONTROL TWR: YES
86 FSS: JONESBORO
87 FSS ON ARPT: NO
88 FSS PHONE NR: 870-935-3471
89 TOLL FREE NR: 1-800-WX-BRIEF

BASED AIRCRAFT

90 SINGLE ENG:	46
91 MULTI ENG:	9
92 JET:	8
TOTAL:	63
93 HELICOPTERS:	3
94 GLIDERS:	1
95 MILITARY:	0
96 ULTRA-LIGHT:	0

OPERATIONS

100 AIR CARRIER:	16
101 COMMUTER:	6,823
102 AIR TAXI:	0
103 G A LOCAL:	9,810
104 G A ITNRNT:	18,414
105 MILITARY:	1,930
TOTAL:	36,993

OPERATIONS FOR
MOS ENDING

RUNWAY DATA

> 30 RUNWAY IDENT:	04/22	13/31	H1
> 31 LENGTH:	6,601	5,199	60
> 32 WIDTH:	150	100	60
> 33 SURF TYPE-COND:	ASPH-G	ASPH-G	CONC-G
> 34 SURF TREATMENT:	GRVD	GRVD	
35 GROSS WT: SW	50	25	21
36 (IN THSDS) DW	86		
37 DTW	120		
38 DDTW			
LIGHTING/APCH AIDS			
> 40 EDGE INTENSITY:	HIGH	MED	PERI
> 42 RWY MARK TYPE-COND	PIR - F / PIR - G	NPI - G / NPI - G	- / -
> 43 VGSI	V4L /	P4L / P4L	/
44 THR CROSSING HGT	52 /	/ 40	/
45 VISUAL GLIDE ANGLE	3.00 /	/ 3.00	/
> 46 CNTRLN-TDZ	- / -	- / -	- / -
> 47 RVR-RVV	- / -	- / -	- / -
> 48 REIL	/	/	/
> 49 APCH LIGHTS	/ MALSR	/	/
OBSTRUCTION DATA			
50 FAR 77 CATEGORY	C / PIR	C / B(V)	/
> 51 DISPLACED THR	/	641 /	/
> 52 CTLG OBSTN	TREES / TREES	ROAD / TREE	/
> 53 OBSTN MARKED/LGTD	/	/	/
> 54 HGT ABOVE RWY END	31 / 17	15 / 40	/
> 55 DIST FROM RWY END	263 / 358	350 / 1,313	/
> 56 CNTRLN OFFSET	505L / 511L	0B / 239R	/
57 OBSTN CLNC SLOPE	2:1 / 9:1	10:1 / 27:1	:1 / :1
58 CLOSE-IN OBSTN	N / N	N / N	N / N
DECLARED DISTANCES			
> 60 TAKE OFF RUN AVBL (TORA)	/	/	/
> 61 TAKE OFF DIST AVBL (TODA)	/	/	/
> 62 ACLT STOP DIST AVBL (ASDA)	/	/	/
> 63 LNDG DIST AVBL (LDA)	/	/	/

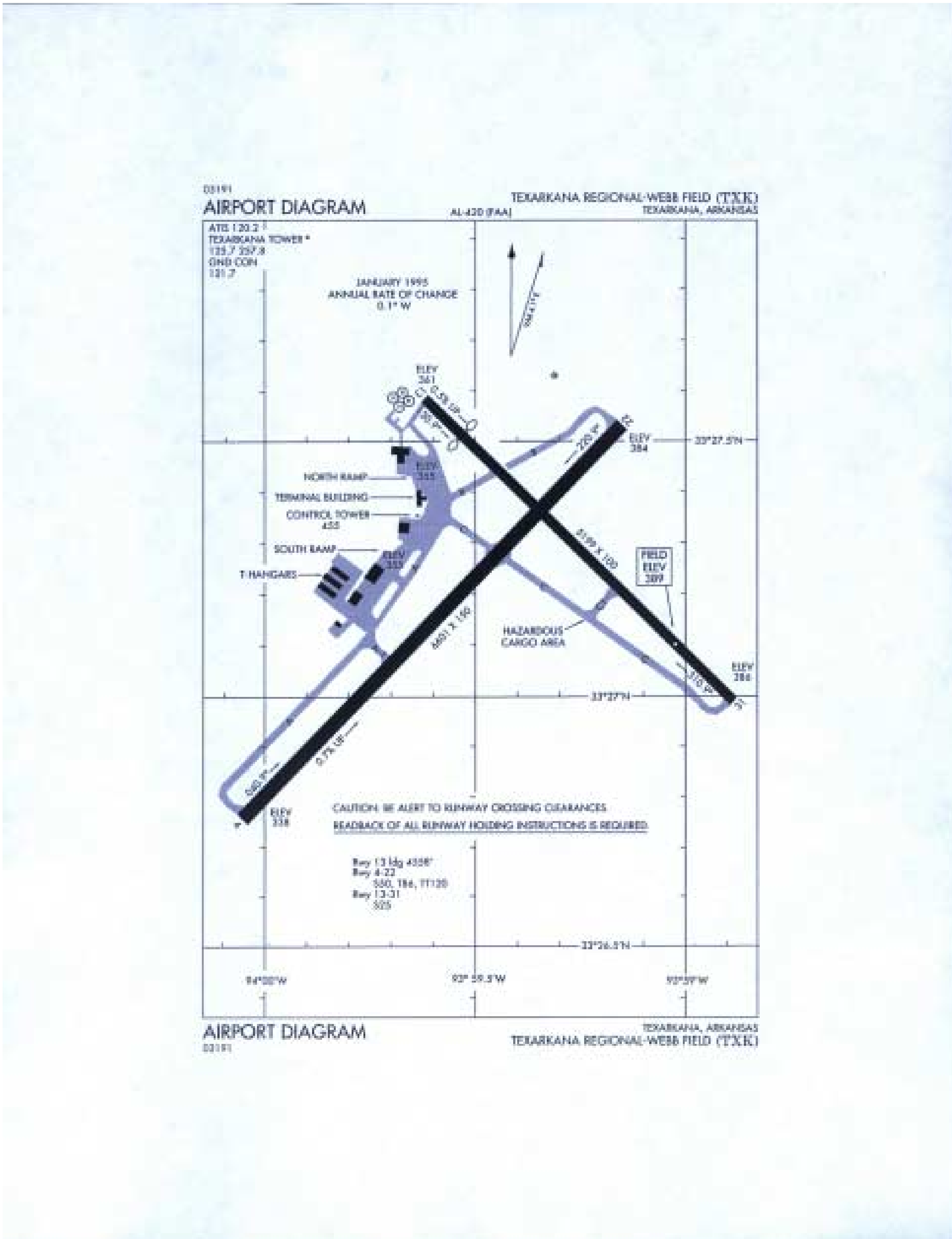
(>) ARPT MGR PLEASE ADVISE FSS IN ITEM 86 WHEN CHANGES OCCUR TO ITEMS PRECEDED BY >

110 REMARKS:

A 030	RWY H1 FOUR LGTD HEL PARKING PADS SOUTH OF HELIPAD.
A 057	RWY 13 +55 FT TREE 1215 FT; 475 FT LEFT; APCH RATIO 22:1 BASED ON DSPLCD THR.
A 060	RWY 04 TORA - 6601; TODA - 6601; ASDA - 6601; LDA - 6601.
A 060	RWY 13 TORA - 5200; TODA - 5200; ASDA - 5200; LDA - 4885.
A 060	RWY 22 TORA - 6601; TODA - 6601; ASDA - 6601; LDA - 6601.
A 060	RWY 31 TORA - 5200; TODA - 5200; ASDA - 5200; LDA - 5200.
A 081	WHEN ATCT CLSD ACTVT HIRL RY 04/22; MIRL RY 13/31; MALSR RY 22 & PERIMETER LGTS H1 - CTAF.
A 110	THIS AIRPORT HAS BEEN SURVEYED BY THE NATIONAL GEODETIC SURVEY.
A 110-01	DEER ON & INVOF ARPT.

111 INSPECTOR: (F)
112 LAST INSP: 05/21/2003
113 LAST INFO REQ:

FAA Form 5010-1 (5-91) SUPERSEDES PREVIOUS

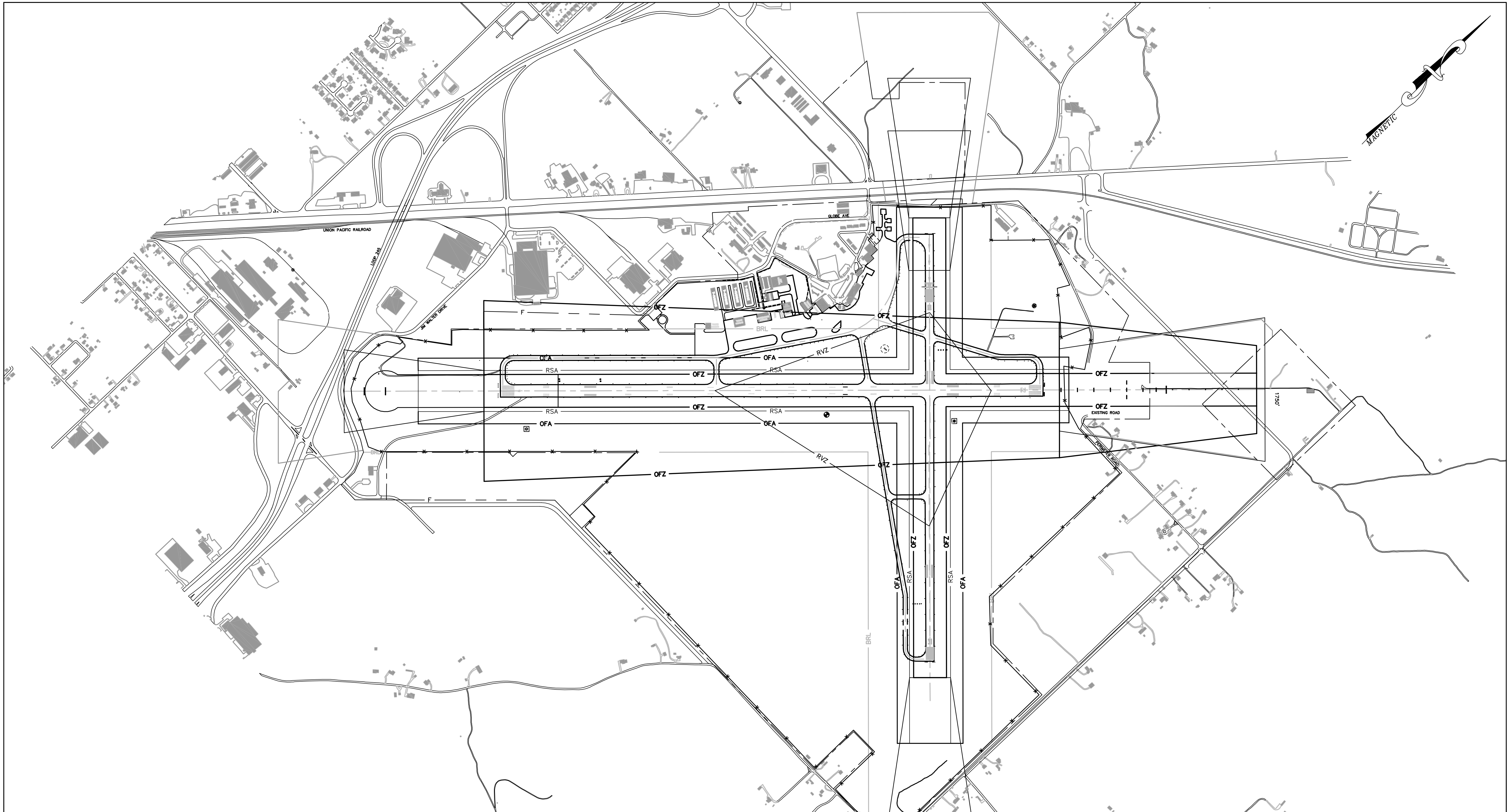


FAA Form 5010 - Airport Diagram

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

URS Greiner Woodward Clyde

Exhibit 2.7



EXISTING AIRFIELD LAYOUT

TXK TEXARKANA REGIONAL AIRPORT

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

URS Greiner Woodward Clyde

EXHIBIT 2.8

Runway 4/22 is 6,601 feet long and 150 feet wide. The pavement strength is rated to accommodate aircraft with a single-wheel aircraft load rating of 50,000 pounds or less, a dual wheel aircraft load rating of 86,000 pounds or less, and a dual-wheel tandem aircraft load rating of 120,000 pounds. The runway, constructed of asphalt with a grooved surface treatment, was completely resurfaced in 1998 and is in good condition. The Runway Safety Areas (RSA) at each runway end are graded to specifications. The runway is equipped with High Intensity Runway Lighting (HIRL) and Distance Remaining Signs, both of which are used for aircraft operations during periods of inclement weather.

Runway 13/31 pavement strength is rated to accommodate aircraft with a single wheel rating of 25,000 pounds or less. This runway is 5,200 feet long and 100 feet wide, with a 641 foot displaced threshold on the northwest end. This runway is equipped with Medium Intensity Runway Lighting (MIRL). The runway is constructed of asphalt with a grooved surface treatment and is in good condition.

2.2.1.2 Declared Distances

Declared distances are only used when non-standard safety or protection areas exist for a runway which limit the runway's functional distance for a particular direction of operation. Declared distances identify that portion of a runway suitable for take-offs and landings. To calculate the declared distances, the available runway length, RSA and Runway Object Free Area (OFA) need to be known. In addition, the location of displaced thresholds and the dimensions of clearways and stopways must also be known. The definitions of the required parameters are as follows:

- ✈ **Take-Off Run Available (TORA):** The length of the runway that is available and suitable for satisfying take-off run requirements.
- ✈ **Take-Off Distance Available (TODA):** The length of the runway plus clearway that is available and suitable for satisfying take-off distance requirements.
- ✈ **Accelerate-Stop Distance Available (ASDA):** The length of the runway plus stopway declared available and suitable for the aircraft to accelerate to take-off decision speed from brake release then decelerate to a stop.
- ✈ **Landing Distance Available (LDA):** The length of runway declared available and suitable for satisfying landing distance requirements.

- ✈ **Displaced Threshold:** The placement of a threshold further down the runway than the end of pavement which allows aircraft approach paths to clear objects that obstruct airspace required for landing operations. The portion of the pavement behind the threshold may be available for take-off in either direction and landing from the opposite direction.
- ✈ **Clearway:** A defined rectangular area extending beyond the end of the runway cleared or suitable for use in lieu of a runway to satisfy take-off distance requirements.
- ✈ **Stopway:** A defined rectangular surface beyond the end of the runway prepared or suitable for use in lieu of runway to support an airplane, without causing structural damage to the airplane during aborted take-off.

At TXK, declared distances are identified which reflect the impacts of a displaced threshold of 641 feet for Runway 13. There are no other limitations on the use of the available runways; therefore, the declared distances available are as listed in **Table 2.1**.

TABLE 2.1
DECLARED DISTANCES
Texarkana Regional Airport

Runway	TORA	TODA	ASDA	LDA
4	6601 feet	6601 feet	6601 feet	6601 feet
22	6601 feet	6601 feet	6601 feet	6601 feet
13	5200 feet	5200 feet	5200 feet	4559 feet
31	5200 feet	5200 feet	4559 feet	4559 feet

Source: Airport Management Records, 2002.

2.2.1.3 Helipad

A Helicopter Landing Area with five parking pads and a Final Approach and Take-Off (FATO) Area is located just southwest of Runway 13's threshold. The 60-foot by 60-foot helipad has a surface of grooved concrete-asphalt and is rated to accommodate an aircraft with a single wheel aircraft load rating of 21,000 lbs. or less. Four of the parking pads are in good shape and all the lighting is operational. The southern-most parking pad has problems with ponding water when it rains.

2.2.1.4 Taxiways/Taxilanes

TXK has a comprehensive system of taxiways. Runway 4/22 has a full parallel taxiway, which is on the northwest side that extends the full length of the runway and provides access to the terminal area and main hanger area. Runway 13/31 also has a parallel taxiway that extends along the southwest side of the runway and connects to the terminal area.

Taxilanes lead back from the apron area to the existing T-Hangars. These taxilanes are paved with asphalt and are in good condition. A new taxilane has been constructed between TACAir's corporate hangar and the Yates Aviation hangar. This taxilane leads to the new Airframe and Powerplant (A&P) School.

2.2.1.5 Aprons

The terminal apron, located on the northwest side of the Airport, is used for transient aircraft parking, aircraft fueling activities and as a staging area for Airport tenants' aircraft and the FBO's rental aircraft. The apron is approximately 400,000 square feet in size, with two separate aircraft tie down areas. The first area is located in front of Hangar H-3 along the edge of the taxiway. These tie downs are in a linear formation and can accommodate approximately 14 small aircraft or 12 larger aircraft in this tie down area. The second tie down area is located in front of the Hangar H-8, on the north side of the apron. These tie downs are in a block formation and can accommodate approximately 10 small aircraft or five large aircraft.

The Apron is constructed primarily of asphalt concrete with various areas consisting of Portland Cement Concrete. The asphalt concrete paving takes up a majority of the apron. It was resurfaced in 2001 and is in good condition. **Table 2.2** provides a summary of pavements on the Airport.

TABLE 2.2 AIRFIELD PAVEMENTS Texarkana Regional Airport				
Item	**Type**	**Surface**	**Length (feet)**	**Width (feet)**
Runway 4/22	Primary Runway	Asphalt	6601	150
Runway 13/31	Crosswind Facility	Asphalt	5200	100
Taxiway A	Adjacent to Apron	Asphalt	1200	60
Taxiway A	Parallel to 4/22 From Ramp to 4	Asphalt	3050	60
Taxiway A-1	Connector	Asphalt	320	50
Taxiway B	Parallel to 4/22	Asphalt	2400	60
Taxiway C	Parallel to 13/31 From Ramp to 4/22	Asphalt	550	60
Taxiway C	Parallel to 13/31 From 4/22 to 31	Asphalt	3350	50
Taxiway C-1	Connector	Asphalt	500	50
Taxiway D	Connector	Asphalt	300	60
Apron	Terminal	Concrete - Asphalt	1250	300
Helipad		Concrete - Asphalt	60	60
Source: URS Greiner Woodward Clyde, 2000.				

2.2.1.6 Airfield Signage

The Airport currently has lighted guidance signs for vehicle ground movements around the paved portion of the airfield. An Airfield Signage Plan depicts the locations of these lighted signs along each runway, taxiway and apron. This plan has been approved by the FAA.

2.2.1.7 Fencing

Airfield security fencing is provided around the entire perimeter of the Airport property. This fence consists of six-foot chain link fencing with three strands of barbed wire along the top. Access to the airfield is restricted, with access gates located at various points around the airfield. All of the security fencing was upgraded in 2002. Many sections of the fence are not visible from the airfield or highways.

2.2.1.8 Airfield Lighting

Airfield lighting provides visual indications of spatial areas and their location on the Airport during the evening hours or during low light conditions. Runway 4/22 has High Intensity Runway Lighting (HIRL) and distance remaining signs. These lights are rated high intensity based on the light output. The HIRL system was completely replaced in 2002. The runway is also equipped with a Medium Approach Light System with Runway Alignment Indicator Lights, which is defined in the next section on NAVAIDS.

Runway 13/31 is equipped with Medium Intensity Runway Lighting (MIRL). These lights are rated as medium intensity based on their light output. The MIRL system was completely replaced in 2003.

The helipad has perimeter lights and all four of the helicopter parking pads also have lighting.

There is Medium Intensity Taxiway Lighting (MITL) along all taxiways, which allows aircraft to safely taxi to a parking place at night or when the light is low.

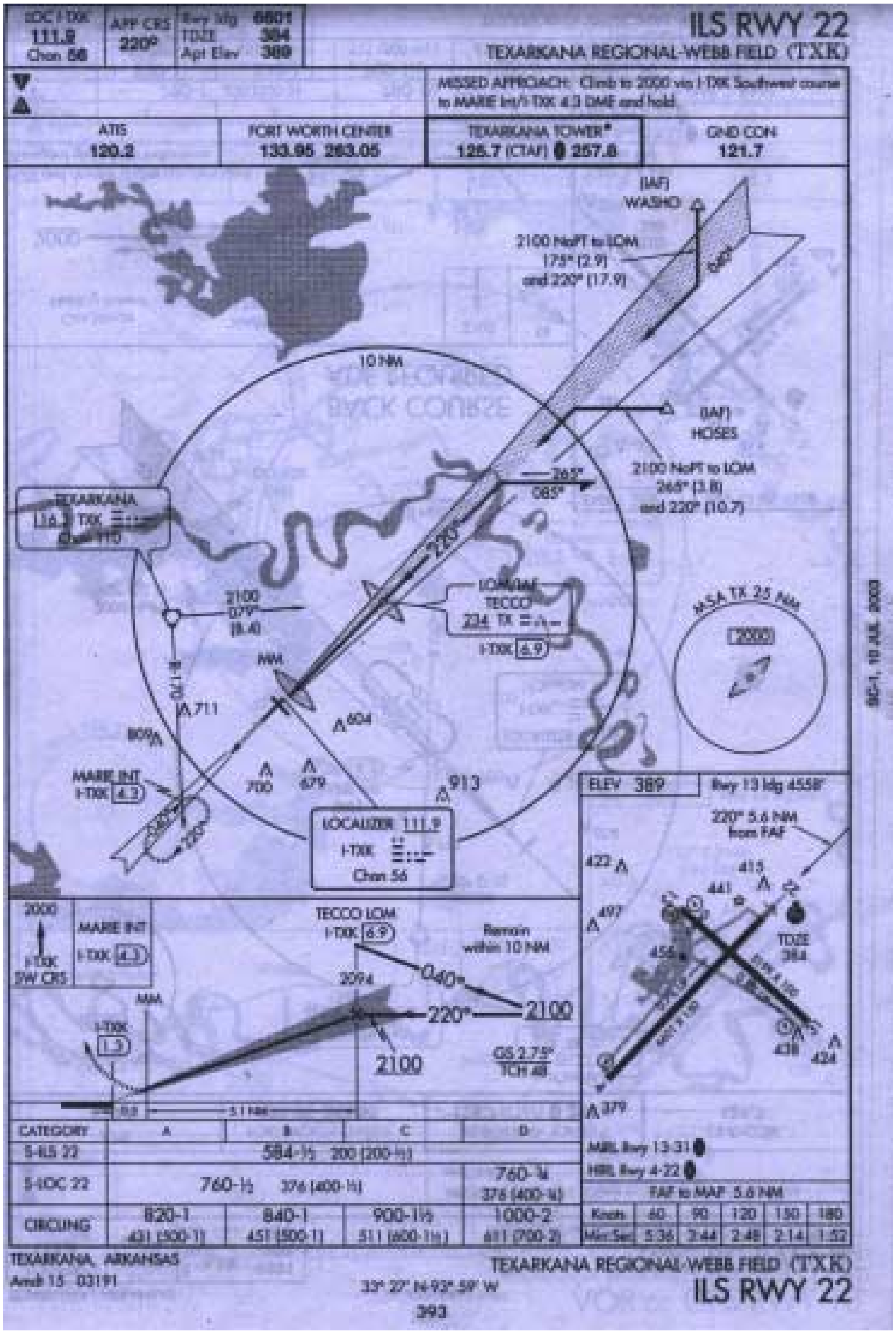
The terminal apron is illuminated by lights mounted on the terminal building and on the lighted fuel vendors sign located near the fuel farm, with some nominal lighting enhancement of the area provided by the lights mounted on top of the first row of nearby hangars. There is no ground lighting provided in the hangar areas along the taxilanes. Some hangars have lights mounted over the top of the hangar doors to provide illumination of the area directly in front of the hangar.

2.2.1.9 Navigational Aids and Communications

Navigational Aids (NAVAIDS) are electronic or visual devices that provide guidance or position information to aircraft in flight. The NAVAIDS at TXK include an Instrument Landing System (ILS), Localizer, Very High Frequency Omni-directional Range / Tactical Air Navigation (VORTAC), a Non-Directional Radio Beacon (NDB), Visual Approach Slope Indicator (VASI), and Precision Approach Path Indicator (PAPI) systems.

Federal Aviation Regulation (FAR) Part 77 classifies airport runways as Visual, Precision Instrument or Non-precision Instrument. A visual runway is intended only for aircraft using visual-approach procedures which occur in good weather conditions. Instrument runways are classified as Precision or Non-precision based on the type of standard instrument approach procedure and navigational equipment available to that runway. A Precision Instrument Approach provides a suitably equipped aircraft with both electronic horizontal and vertical guidance to the runway. A Non-precision Instrument Approach provides only horizontal guidance to the runway. Different navigational equipment is required for the different types of instrument runway approaches.

Runway 22 is identified and marked as a precision instrument runway and is equipped with an ILS manufactured in 1982 and installed at TXK in 1998. The ILS is the most widely used method of electronic navigation and provides pilots with electronic instrument guidance and an approach path for exact alignment and descent of the aircraft on final approach to a runway. Runway 22 is also equipped with a Medium Intensity Approach Light System (MALS) with Runway Alignment Indicator Lights (MALSR). The MALS system is a configuration of lights located symmetrically along the extended runway centerline prior to the runway threshold and is a visual aid to help the pilot see the runway and its boundaries when the Airport is in visual range. Runway Alignment Indicator Lights (RAIL) are sequenced flashing lights installed in combination with the MALS. This runway's NAVAIDS also include a Localizer which provides horizontal guidance to a pilot flying on instruments only and operates on a frequency of 111.90 MHz with an identification code I-TXK. Other aids include an Outer Marker Beacon and compass locator that operate on a frequency 234 MHz. There is a Middle Marker Beacon but no Inner Marker. These are Mark 1-A marker beacons. The approach plate, which is a descriptive map of an instrument approach, is used by pilots flying the ILS to Runway 22 and is included as **Exhibit 2.9**.



Approach Plate ILS Runway 22

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

URS Greiner Woodward Clyde

Exhibit 2.9

Runway 4 is also identified and marked as a precision instrument runway. It is equipped with a four-box Visual Approach Slope Indicator (VASI) located on the left side of the Runway threshold which supplies visual guidance to a pilot for flying a predetermined approach slope to the runway.

Runway 13 is identified and marked as a non-precision instrument runway. Due to trees and a road located near the runway, the runway has a displaced landing threshold. Aircraft can utilize the full runway for take-off, however they must land 641 feet beyond the runway threshold. This runway is also equipped with a four-box Precision Approach Slope Indicator (PAPI), which is located on the left side of the runway threshold.

Runway 31 is identified and marked as a Non-precision Instrument Runway and is equipped with a four-box PAPI located on the left side of the runway threshold. No additional navigational equipment is located on this runway.

TXK has an NDB for further assistance in navigation. The NDB is a low frequency radio beacon that transmits a non-directional signal where a pilot with properly equipped aircraft can determine bearings and home in on the station. Used in conjunction with the ILS, this NDB is known as the compass locator "TECCO" operating at a frequency of 234 MHz, and is physically located 5.6 nautical miles northeast of the airport, along the extended centerline of Runway 4/22.

A VORTAC aids navigation to or through the Texarkana area. Located 5.2 nautical miles northwest of TXK, this NAVAID facility has two components, a VOR and Tactical Air Navigation (TACAN), and has a discrete radio frequency of 116.3 MHz to which a pilot can tune a navigational radio and maintain a course to or from the VORTAC. It also assists in providing a non-precision instrument approach to Runway 13.

There are a total of 7 different instrument approaches available to the runways. Each of the Approach Plates is included in **Appendix B.**

The TXK Air Traffic Control Tower (ATCT) is located adjacent to the Terminal and is operational between the hours of 6:00 AM and 10:00 PM on the frequency of 125.7 MHz. During the hours of 10:00 PM through 6:00 AM, voice radio communications are conducted on the UNICOM that operates on a frequency of 122.95 MHz.

The Airport also has a segmented circle and a lighted windcone that is located 520 feet east of the terminal building, adjacent to the runway intersection. There is also another windcone by the T-Hangars that is not lighted. These visual aids assist pilots in verifying wind direction, runway use and airport traffic patterns.

Table 2.3 presents a summary of the NAVAIDS available at the TXK.

TABLE 2.3
NAVAIDS
Texarkana Regional Airport

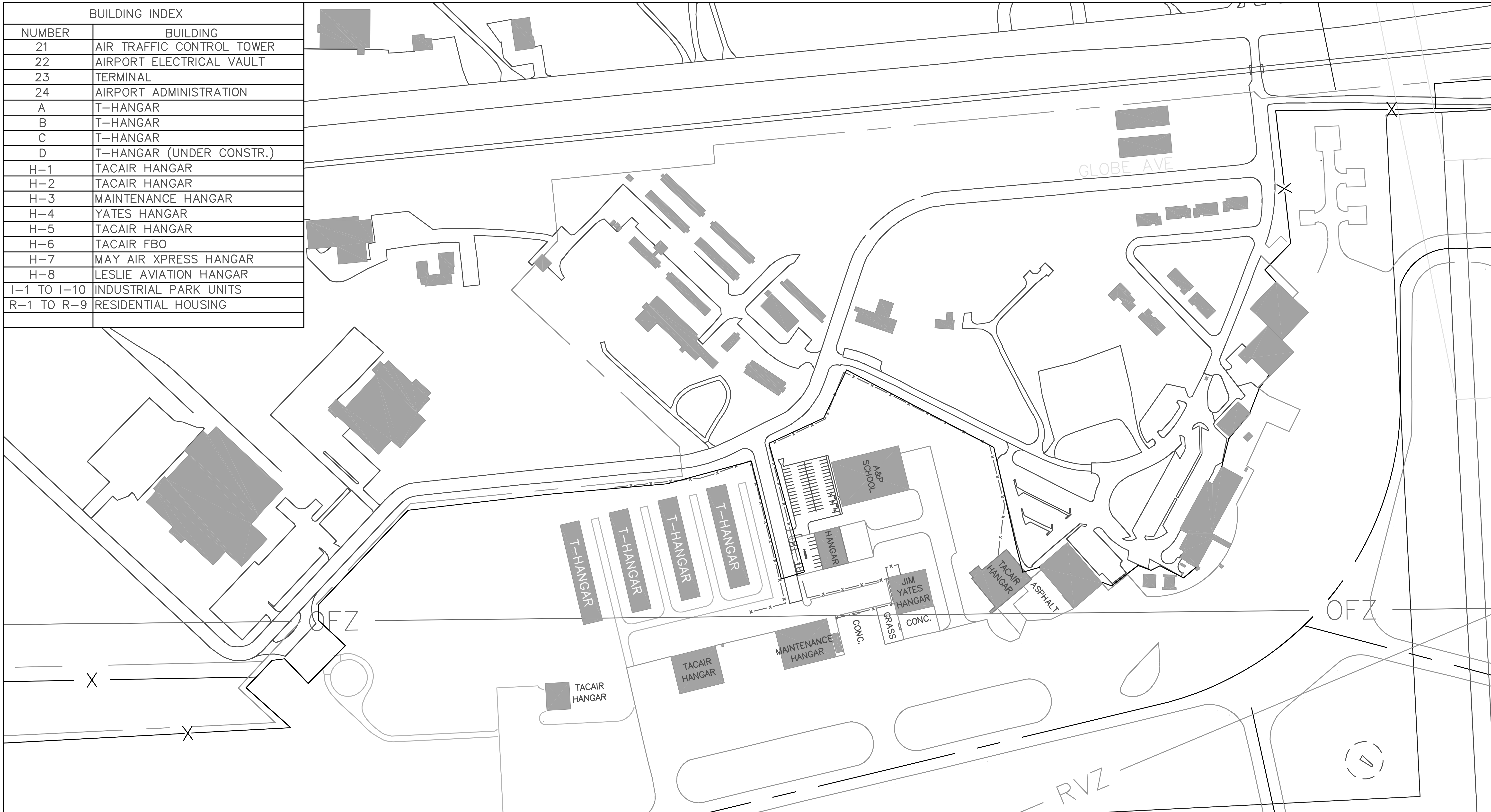
Facility/Type	Runway/ Location	Year Installed	Manufacturer
TXK DME (Distance Measuring Equipment)	33°26'36"N 94°00'17"W	1984	Cardion FA9783
TXK GS (Glide Slope)	Runway 22 Null Reference 33°27'22"N 93°59'16"W	1997	Mark 1F Wilcox
TXK LOC (Localizer)	Runway 22 w/ backcourse 8 element v-ring 33°26'36"N 94°59'16"W	1997	Mark 1F Wilcox
TXK LOM (Locator Outer Marker) TECCO – 234MHz	Runway 22 33°31'27"N 93°54'22"W	1989	FA-9589 Scientific Radio
TXK MM (Middle Marker)	Runway 22 33°27'55"N 93°58'43"W	1971	Mark 1A Wilcox
TXK MALSR (Medium Approach Lighting System	33°27'39"N 93°59'05"W	1997	ADB Alnaco
TXK OM (Outer Marker)	Runway 22 33°31'27"N 93°54'22"W	1999	Mark 1F Wilcox

TABLE 2.3 NAVAIDS Texarkana Regional Airport			
Facility/Type	**Runway/ Location**	**Year Installed**	**Manufacturer**
TXK ARTR	33°31’27”N 93°54’22”W	1970	ITT Aerospace
TXK VASI (Visual Approach Slope Indicators)	Runway 04 33°26’53”N 93°59’59”W	1977	Sepco
TXK PAPI (Precision Approach Path Indicators)	Runway 13 33°27’28”N 93°59’23”W	2003	FA-10620/1 Godfrey
TXK PAPI	Runway 31 33°27’04”N 93°59’01”W	2002	Crouse-Hinds
TXK VORTAC	Conventional VOR W/Tacan/DME 33°30’49”N 94°04’24”W	1984	FA-9996 ITT/Wilcox
Source: FAA Texarkana/Barksdale SSC, 2000. Airport Management Records, 2003.			

2.3 LANDSIDE FACILITIES

There are numerous structures located on the Airport grounds, serving as hangar space, terminal building, and storage and maintenance facilities. **Exhibit 2.10** depicts the Terminal Area of TXK. **Table 2.4** provides a listing of the Airport’s building structures and their uses.

BUILDING INDEX	
NUMBER	BUILDING
21	AIR TRAFFIC CONTROL TOWER
22	AIRPORT ELECTRICAL VAULT
23	TERMINAL
24	AIRPORT ADMINISTRATION
A	T-HANGAR
B	T-HANGAR
C	T-HANGAR
D	T-HANGAR (UNDER CONSTR.)
H-1	TACAIR HANGAR
H-2	TACAIR HANGAR
H-3	MAINTENANCE HANGAR
H-4	YATES HANGAR
H-5	TACAIR HANGAR
H-6	TACAIR FBO
H-7	MAY AIR XPRESS HANGAR
H-8	LESLIE AVIATION HANGAR
I-1 TO I-10	INDUSTRIAL PARK UNITS
R-1 TO R-9	RESIDENTIAL HOUSING



TERMINAL AREA PLAN

TXK TEXARKANA REGIONAL AIRPORT

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

URS Greiner Woodward Clyde

EXHIBIT 2.10

TABLE 2.4 TXK BUILDING INVENTORY Texarkana Regional Airport					
Bldg. No.	**Structure**	**Occupants**	**Size (SF)**	**Year Built**	**Condition / Comments**
21	Air Traffic Control Tower	FAA	-	1969	--
22	Airport Electrical Vault	N/A	--	1993	--
23	Terminal Building	Multiple	--	1960	Expansions: 1970, 1980, 1992
24	Airport Administration	Multiple	--	1936	Renovated: 1997
A	T-Hangar	Multiple	--	1973	12 Units at 42'x32' each
B	T-Hangar	Multiple	--	1973	12 Units
C	T-Hangar	Multiple	--	1976	12 Units
D	T-Hangar	Multiple	--	2000	7 Units Under Construction
H-1	Hangar	TACAir	--	1982	Ground Lease from TXK
H-2	Hangar	TACAir	--	1958	Ground Lease from TXK
H-3	Maintenance Hangar	--	14,000	1980	--
H-4	Hangar	Yates	10,000	1982	Ground Lease from TXK
H-5	TACAir Corp. HP	TACAir	--	1986	Ground Lease from TXK
H-6	Hangar	TACAir FBO	--	1986	Ground Lease from TXK
H-7	Maintenance Hangar	--	--	1973	Ground Lease from TXK
H-8	Maintenance Hangar	Leslie Aviation	--	1967	Ground Lease from TXK
I-1	Industrial Park Unit	--	2,400	1955	--
I-2	Industrial Park Unit	--	2,400	1955	Wreath Company
I-3	Industrial Park Unit	--	2,400	1955	Radome
I-4	Industrial Park Unit	--	2,400	1955	--
I-5	Industrial Park Unit	--	2,400	1955	--
I-6		Airport Maintenance	--	1985	--
I-7	Industrial Park Unit	--	1,600	1955	--
I-8	Industrial Park Unit	--	2,400	1955	--
I-9	Industrial Park Unit	--	--	1985	--
I-10	Industrial Park Unit	--	--		--
R-1 to R-9	Housing Units	Residential	--	1959	--
ARFF	Aircraft Rescue Fire Fight	--	--	1980	--
	Armory	Nat'l Guard	11,500	1977	--
Source: URS Greiner Woodward Clyde, 2000.					

2.3.1 Terminal Building

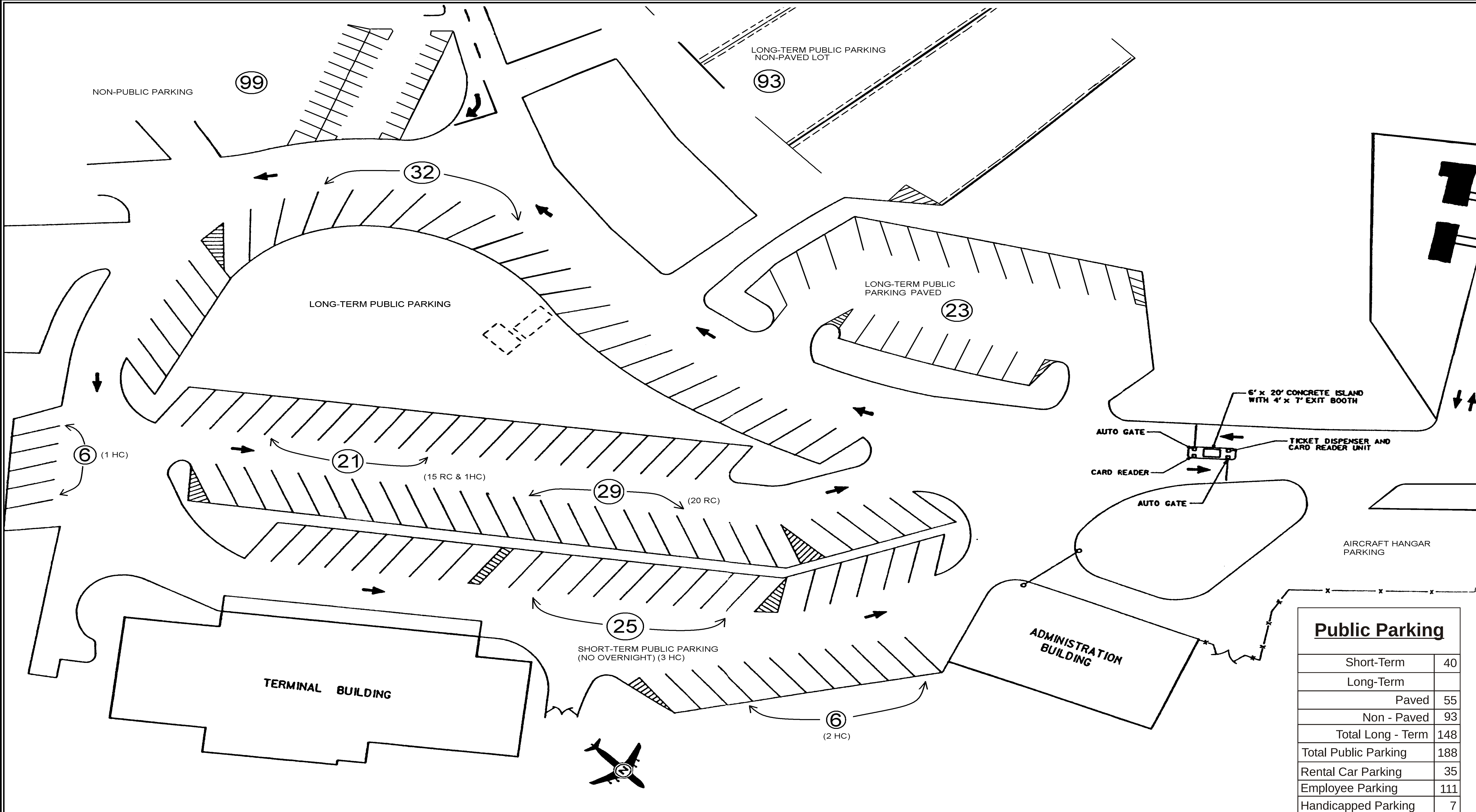
The Terminal, originally built in 1960, has undergone several improvements over the past forty years, including a recent expansion to almost twice it's size. It is located northwest of the intersection of Runways 4/22 and 13/31 and serves many functions including housing the two airlines, American Eagle and Skywest, enplaning and deplaning passengers, and the E-Z Mart and the Transportation Security Administration (TSA) office.

Skywest and American Eagle are the two airlines that operate out of TXK. In the year 2003, American Eagle conducted approximately five operations a day, utilizing Saab 340 aircraft. They are expected to begin use of an Embraer ERJ-145 Regional Jet in the future. American Eagle's ground equipment includes: one tug, three bag carts (one in reserve), two Ground Power Units (GPU), one Pre-Conditioned Air Unit (PCA), one deicing machine (pulled behind the tug), one Potable Water Tank, one Commute-a-Walk (covered mobile walkway between Aircraft and Terminal Building), one Valet Cart, one Mobile Stairs, and one Handicap Lift. Jet aircraft typically utilize the mobile stairs.

In 2003, Skywest operated six flights a day utilizing the Embraer Brasilia EMB-120. The ground equipment at the site includes: one Tug, one Bag Cart, one Ground Power Unit (GPU), and one Disabled Passenger Loader.

2.3.2. Automobile Parking and Access

Exhibit 2.11 depicts the vehicular parking at TXK. Vehicle parking is provided adjacent to the terminal building, with both long term and short term parking available. The 25 short-term parking spaces, which cannot be used for overnight parking, are located directly in front of the terminal building. Three of these spaces are handicap spaces. As of December 1999, there is no longer a charge for daytime parking at TXK. The long-term parking is located west of the Terminal Building and provides about 100 spaces, two of which are handicap spaces. There are approximately 100 additional long-term parking spaces to the northwest of the terminal in an unpaved, gravel lot. There are six Airport Office parking spaces adjacent to the terminal, of which 2 are designated as handicap.



Public Parking

Short-Term	40
Long-Term	
Paved	55
Non - Paved	93
Total Long - Term	148
Total Public Parking	188
Rental Car Parking	35
Employee Parking	111
Handicapped Parking	7

Vehicular Parking

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

TXK TEXARKANA REGIONAL AIRPORT

URS Greiner Woodward Clyde

Exhibit 2.11

Security of the public parking lots is provided through a state-of-the-art video surveillance system and a late-night roving security patrol. The entire parking lot, exit booth, and terminal area are covered by recorded video security and the security patrol conducts a complete inventory each night.

Southwest of the terminal building are non-public parking facilities with approximately 90 spaces. These spaces consist of two separate areas and are available for rental cars, Texarkana College, the FAA, and Airport employees. The FBO, TACAir, is provided with 23 designated spaces which are located southwest of the Terminal adjacent to their facility and the pavement is in good condition. The car rental companies, Hertz, Avis, and Enterprise all have ten spaces each, for a total of 30 spaces, which are located west of the terminal.

The Airport can be accessed by Highway 67, and Loop 14 and provides convenient access to Interstate 30 and Loop 245. The entrance to the Airport is via Airport Drive, a two-lane asphalt road.

2.3.3 Airport Administration Building

Airport Administration is located in a building that was originally constructed in 1936 as the Airport's first terminal building. The building includes offices for the Airport Manager and Accountant, reception and work area for the Administrative Assistant, a file storage room, a conference room and restrooms.

2.3.4 General Aviation Facilities

There is one full-service FBO at TXK, TACAir, which provides a range of services including air taxi and charter, aircraft rental, maintenance, fueling, hangar storage and itinerant and based aircraft apron tiedown services on a daily basis. TACAir currently leases a total of five hangars and buildings at TXK, primarily for aircraft storage. The business operates from the two hangars located in the central terminal area.

GA storage facilities at TXK generally fall into two different groups; T-Hangars and Box Hangars. T-Hangars are used to store small single and light twin engine aircraft; and Box Hangars are used to store larger aircraft or multiple small aircraft in one hangar.

A group of four T-Hangars are located on the southwest end of the terminal area. Three existing T-Hangar units (A-C) consist of 12 units each, with each unit measuring 42 feet by 32 feet. These hangars are constructed of steel beams welded together to form the frame of the structure. Corrugated sheet metal panels attached to the framework are used to enclose the structure. These hangars typically have manually operated bi-fold doors. Hangar D, currently under construction, will consist of seven 40 feet by 30 feet units. With the addition of these seven units, there will be a total of 43 T-Hangars at TXK.

The larger box hangars are constructed from steel I beams for the frame with steel plating to enclose the structure. These types of hangars are used to store large aircraft owned by the FBO or for aircraft maintenance activities.

The Texarkana Flying Club is based out of TXK. Currently, the flying club meets monthly at Hangar H-7 and owns three single-engine aircraft.

The Texarkana Pilots Association is also based at TXK. This association meets monthly and is for anyone interested in GA.

2.3.5 Aircraft Fueling Facility

The TXK has a fuel farm that was installed in 1992. The fuel vendor, Phillips 66, supplies both 100 LL (Low Lead) Avgas (Aviation Gasoline) and Jet A fuel. There is one fiberglass underground fuel tank and one aboveground steel tank containing the Jet A fuel, each having a 20,000-gallon capacity. The aboveground tank was replaced in 2002. There is one steel underground tank with a 12,000-gallon capacity containing the Avgas fuel. All of the tanks are in satisfactory condition.

Also located near the T-Hangars is one above ground 1,000-gallon capacity, self-serve steel tank containing Avgas. This self-contained tank is four years old and in excellent condition. The FBO is equipped with three fuel trucks. The fuel farm is owned by the Airport and is leased to TACAir, which provides fueling to all aircraft at TXK.

2.3.6 Aircraft Maintenance Facilities

One company provides aircraft maintenance at TXK, Leslie Aviation. Leslie Aviation, located in a large box hangar leased from TACAir, provides major and minor engine maintenance and body repair for privately owned aircraft.

2.3.7 Air Traffic Control Tower

The Air Traffic Control Tower (ATCT) is operated under contract by Robinson Aviation (RVA) Inc. The tower building is approximately 80 feet tall and contains offices and storage space at the base of the tower. The tower is located south of the Terminal Building and is operational between the hours of 6:00 AM and 10:00 PM.

2.3.8 Aircraft Rescue and Fire Fighting Station

The current Aircraft Rescue and Fire Fighting (ARFF) station is located south of approach end of Runway 4, outside the airport perimeter fence. This building was constructed in 1984. This station will be closed when a new station is built. Currently, the equipment stationed at TXK includes two Index A, Oshkosh P-19 trucks.

The Texarkana Airport Authority assumed the responsibility for the Airport's aircraft rescue and fire fighting service in November 2000. Personnel working directly for the Authority operate the fire trucks, replacing the City of Texarkana ARFF personnel, who had previously provided fire protection at TXK.

2.4 BASED AIRCRAFT

In 2000, there were 69 aircraft based at TXK. These registered aircraft included 31 single-engine, 31 twin-engine, two jets, and five helicopters. A list of based aircraft identified during the 2000 inventory, including type and tail number, is included in **Appendix C**. All aircraft based at TXK are housed in hangars.

2.5 UTILITIES

The Airport uses five primary utilities, which includes electric, water, sanitary sewer, telephone and natural gas. A comprehensive utility map is being prepared in conjunction with this Master Plan, which will provide detailed information about each utility service and line size.

2.5.1 Electrical Service

Electrical power is supplied to the airport through overhead electrical line running along adjacent roads by Southwestern Electrical Power Co. (AEP-SWEPCO). A generator located in an electrical vault by the ATCT runs all the airfield lighting and all the NAVAIDS. A fuel tank buried directly below the vault feeds the generator. This is a 125-kilowatt (kW), 240 Volt (V) generator.

2.5.2 Water Service

Water is supplied to the airport by underground water lines and provided by Texarkana Water Utilities.

2.5.3 Sewer Service

Currently the airport's waste lines are connected to the City sewer system.

2.5.4 Telephone Service

Telephone lines to the Airport are provided through over head phone lines coming in from adjacent roads. Valore Telecommunication and Verizon (formerly GTE) provide telephone service.

2.5.5 Natural Gas

Natural gas to the airport is supplied through underground pipelines. The service is provided through Reliant Energy.

2.6 PLANNING CONTEXT

Airport facilities can range from rural unpaved airstrips to large long-haul commercial service facilities. Because there is a large diversity in airport facilities, a means of systemizing them is needed. Currently, two classification systems apply at TXK. The first is a FAA designation that classifies the facility based on its service level and the role that it serves within the system. This is detailed in the FAA National Plan of Integrated Airport Systems (NPIAS). The second classification is the Arkansas State Airport System Plan that is overseen by the Arkansas Department of Aeronautics (ADA) to document airport and airport-related facilities required to meet the aviation needs of the state.

2.6.1 The National Plan of Integrated Airport Systems

The NPIAS is a national airport system plan developed by the FAA to indicate aviation facilities of national significance. NPIAS airports are eligible for federal grants for airport planning and various capital improvements. The NPIAS uses two airport service level and role categories as described below.

2.6.1.1 Service Level Classification

The service level of an airport reflects the type of public service the airport provides to the community. The service level also reflects the funding categories established by Congress to assist in airport development. The four categories are:

- ✈ *Primary Service (PR):* Primary service airports are public use facilities with scheduled air carrier service and 10,000 or more enplaned passengers.
- ✈ *Commercial Service (CM):* Commercial service airports are public use facilities which receive scheduled air carrier service and enplane between 2,500 and 9,999 passengers per year.
- ✈ *General Aviation: GA* airports are either public or private facilities that serve only GA users.
- ✈ *Reliever (RL):* Reliever airports are GA facilities that serve to relieve congestion at a Primary Service facility in the region and offer an alternative for access to the community.

TXK is currently classified as a Primary Service airport.

2.6.1.2 Airport Role

The design of an airport is closely related to its role within the national system. The role classifications for NPIAS airports are based on the class of aircraft the runway system can accommodate based on runway dimensions and pavement strength. There are two general design type categories used to classify NPIAS airports: Utility and Transport. Utility airports are basically designed and intended to serve GA, while the Transport category airports can accommodate larger and heavier private and commercial size aircraft. Transport airports are further defined as Long, Medium, or Short haul.

TXK is classified as a Short Haul Transport Category Airport.

2.6.2 Arkansas Airport System Plan

The Arkansas State Airport System Plan (SASP), as administered by the Arkansas Department of Aeronautics serves as an important coordination component between the States' goals and the FAA's NPIAS. This plan, last updated in the mid-1990's, identifies the aeronautical role of existing and proposed airports and depicts plans for the development of air transportation facilities around the State of Arkansas. Planning horizon milestones are used to define future system requirements which respond to growth in activity. The Arkansas SASP classifies airports based on the anticipated Airport Reference Codes (ARC) for each airport, which relates airport design criteria to the operational characteristics of the aircraft intended to operate at an airport.

TXK is classified as a D-III airport within the Arkansas SASP, which includes aircraft such as the Fokker 70/100, MD-80 and A320.

2.6.3 TxDOT Small Market Air Service Needs Assessment

In 1998, the Texas Regional Air Service Task Force was created "with a mission to identify opportunities to improve commercial air service in the 31 small and mid-sized markets throughout Texas and eastern New Mexico." In April 1999, the Texas Department of Transportation (TxDOT) Aviation Division, the agent for the Task Force, selected a consultant to conduct an analysis of air service in these communities. Texarkana, AR/TX is one of the 31 communities participating in the study, the *Small Market Air Service Needs Assessment.*

The study's focus is to analyze the existing air service in each of the communities and identify and quantify the demand for air service. The study is partially complete, with the first report including a summary of Industry Trends, Community and Service Overview, Demand Profile and Economic Impact. Providing an overview of TXK and its current service, the report indicates the most common and frequently identified issue is the high airfare between TXK and airports in the Cities of Dallas-Fort Worth, Shreveport and Little Rock, versus the cost of driving to these cities and using commercial air service. Other issues include the need for additional airline destinations such as Austin.

Draft recommendations from the study include local action items, state action items, and federal action items. The local action items include the establishment of a local task force to prioritize community needs; surveys of businesses and other groups to gauge the demand for air travel; providing the airlines with data on the community's assets and the level of demand for air service; and implementation of an educational program for local travel agencies, passengers, businesses, and community organizations which stresses the importance of using the local airport.

State action items include follow-on efforts to focus on determining the feasibility of providing additional funding to support improved community air service by developing a "fly local" campaign and statewide promotion of air service.

Federal action items include subsidizing service and marketing and promotion of air service in the community through the Small Community Air Service Development Pilot Program. Under this program, up to four communities from each state may receive funding for marketing, promotion of air service and air service subsidies. The criteria for selection is:

- Airport must be smaller than a "small hub" airport
- Airport must have insufficient air carrier service
- Airport must have unreasonably high air fares
- Airport should demonstrate need based on characteristics such as geographic diversity or unique circumstances

Since TXK meets most of the above criteria, it is recommended that the Airport consider pursuing participation in this program to receive federal assistance for improved air service.

In addition, under a new program called the Regional Air Service Incentive Program (RASIP), the FAA may provide Federal credit instruments in the form of secured loans, loan guarantees, or lines of credit to air carriers that purchase regional jet aircraft to provide service to underserved markets. Credit instruments from RASIP can only be committed if an airline agrees to enter into a "legally binding instrument" that it will serve the route for which the regional jet was purchased for at least 36 months. While this program may provide funding to the airlines for the acquisition of aircraft, there is no guarantee that the airlines will be able to generate sufficient revenue to make the loan payments or that airfares will be lower than the current high airfares.

2.7 AIRSPACE AND AIR TRAFFIC CONTROL

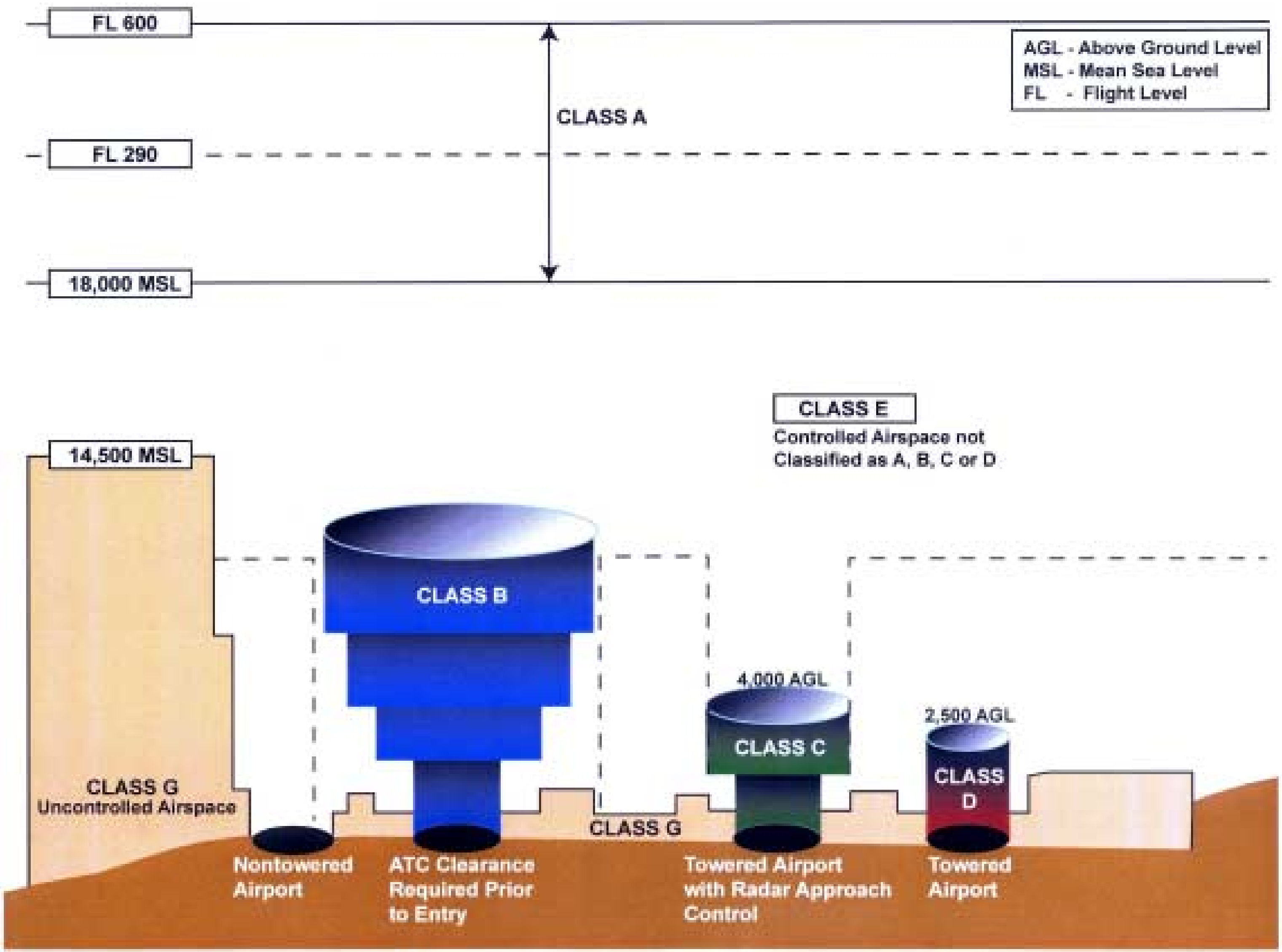
Airspace in the United States is classified as controlled, uncontrolled, special use and other. A brief description of these categories and how they apply to airspace in the vicinity of TXK is provided in the following paragraphs.

Controlled Airspace: Controlled airspace is classified as Class A, B, C, D, and E. Each of these classes has different dimensions, purposes, and requirements. A generic view of these various classes and their relationship to each other is provided in **Exhibit 2.12**.

Class A airspace covers the United States and encompasses all airspace from 18,000 feet to 60,000 feet above TXK. Aircraft flying in Class A airspace must operate under instrument flight rules (IFR). There is no Class B or C airspace in the vicinity of TXK.

The Airport is located in the center of an area defined as Class D airspace, as depicted in **Exhibit 2.13**. Aircraft operating in Class D airspace must maintain radio contact with the appropriate control facility while operating in this airspace. Pilots must also abide by certain operating, pilot, and equipment rules while operating within Class D airspace. This airspace extends in all directions four nautical miles from the center of the airfield and extends upward to an altitude of 3,800 feet.

When the Air Traffic Control Tower (ATCT) is not in operation, the airspace around TXK becomes Class E airspace. Class E airspace includes all the airspace that is not classified as A, B, C, or D, and has no special restrictions with respect to pilot or aircraft equipment rules. However, it is controlled airspace, meaning that aircraft can be provided with air traffic control services.



Airspace Classes

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

URS Greiner Woodward Clyde

Exhibit 2.12

VFR Sectional Chart

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

URS Greiner Woodward Clyde

Exhibit 2.13

2.7.1 FAR Part 77 Imaginary Surfaces

Ideally, airports are designed so the surrounding airspace is free and clear of obstructions that could be hazardous to aircraft on approach or departure paths. Regulations to protect airspace in the vicinity of airports are established by defining a set of imaginary airspace surfaces. Penetration of these surfaces represents an obstruction to air navigation.

The geometry of the imaginary surfaces is governed by the type of approach available to the runways and the regulations set forth in FAR Part 77, <u>Objects Affecting Navigable Airspace</u> . **Exhibit 2.14** depicts the general layout of imaginary surfaces under FAR Part 77.

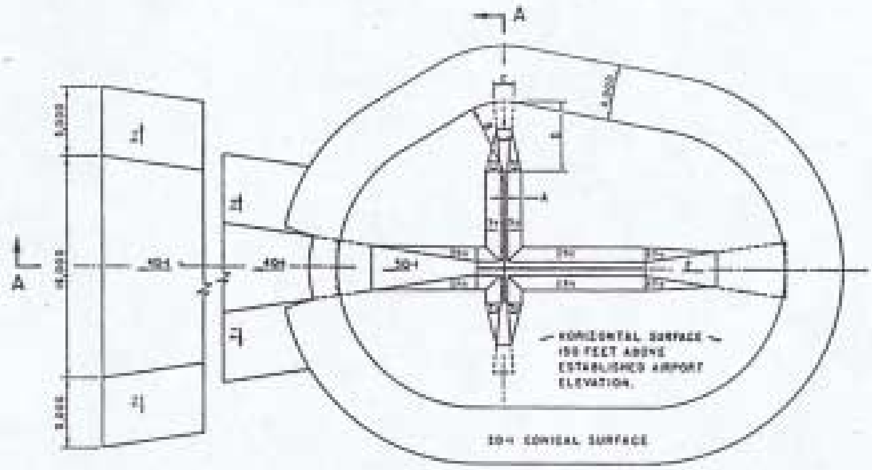
- **Primary Surface** – A surface that is longitudinally centered on the runway, extending 200 feet beyond the threshold in each direction.

- **Approach Surface** – An inclined slope or plane going outward and upward from the ends of the primary surfaces. The innermost portion of the approach slope overlaps with the Runway Protection Zone (RPZ).

- **Horizontal Surface** – A horizontal plane 150 feet above the established airport elevation which is 389 feet M.S.L., resulting in a horizontal surface for Texarkana that is 539 feet M.S.L. Arcs of specified dimensions set forth the plan dimensions of the horizontal surface forth from the extended runway centerline at the end of the primary surfaces, connected by tangents. The arcs correspond with the approach surface lengths for each of the runway ends.

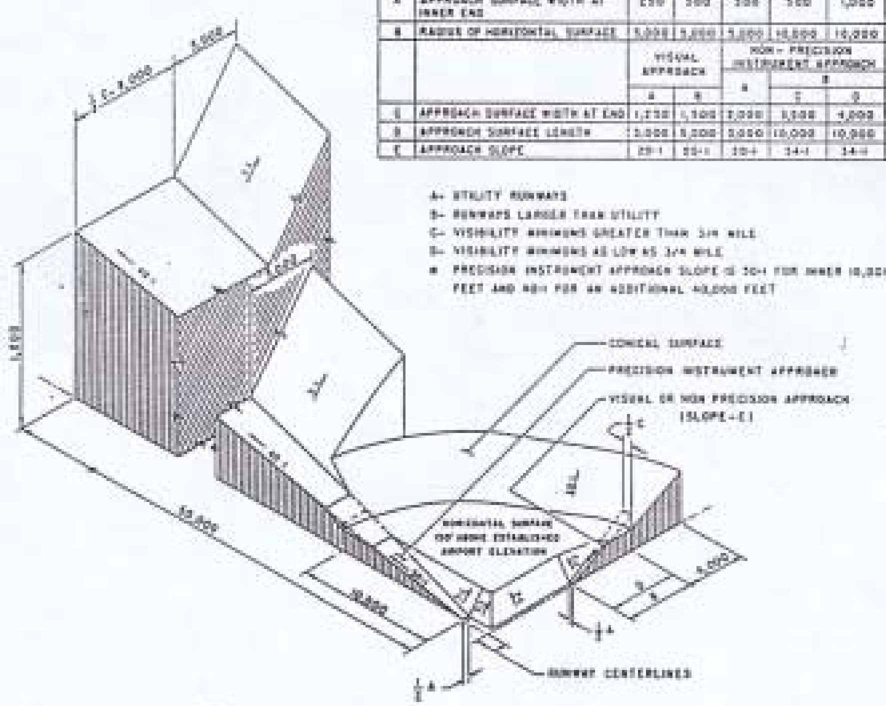
- **Transitional Surface** - An inclined plane with a slope of 7:1 extending upward and outward from the primary and approach surfaces, terminating at the point where they intersect with the horizontal surface or any other surface where more critical restrictions are intercepted.

- **Conical Surface –** An inclined plane at a slope of 20:1 extending upward and outward from the periphery of the horizontal surface for a distance of 4,000 feet.



DIM	ITEM	DIMENSIONAL STANDARDS (FEET)					
		VISUAL RUNWAY		NON-PRECISION INSTRUMENT RUNWAY			PRECISION INSTRUMENT RUNWAY
		A	B	A	B		
					C	D	
A	WIDTH OF PRIMARY SURFACE AND APPROACH SURFACE WIDTH AT INNER END	250	500	500	500	1,000	1,000
B	RADIUS OF HORIZONTAL SURFACE	5,000	5,000	5,000	10,000	10,000	10,000
		VISUAL APPROACH		NON-PRECISION INSTRUMENT APPROACH			PRECISION INSTRUMENT APPROACH
		A	B	A	B		
					C	D	
C	APPROACH SURFACE WIDTH AT END	1,250	1,500	2,000	3,500	4,000	16,000
D	APPROACH SURFACE LENGTH	5,000	5,000	5,000	10,000	10,000	*
E	APPROACH SLOPE	20:1	20:1	20:1	34:1	34:1	*

A- UTILITY RUNWAYS
B- RUNWAYS LARGER THAN UTILITY
C- VISIBILITY MINIMUMS GREATER THAN 3/4 MILE
D- VISIBILITY MINIMUMS AS LOW AS 3/4 MILE
* PRECISION INSTRUMENT APPROACH SLOPE IS 50:1 FOR INNER 10,000 FEET AND 40:1 FOR AN ADDITIONAL 40,000 FEET



ISOMETRIC VIEW OF SECTION A-A

§ 77.25 CIVIL AIRPORT IMAGINARY SURFACES

Part 77 Imaginary Surface

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

TXK TEXARKANA REGIONAL AIRPORT

URS Greiner Woodward Clyde

Exhibit 2.14

These surfaces comprise the Federal Aviation Regulations (FAR) Part 77 imaginary surfaces. Part 77 keeps surrounding airspace free and clear of obstructions that could be hazardous to aircraft on approach or departure paths to the airport. An object that protrudes into or above the established imaginary surfaces of a runway is considered an obstruction to airspace. As indicated on the Airport Master Record FAA Form 5010, there are several obstructions at TXK associated with the each runway. **Table 2.5** depicts these obstructions, the location and the resulting change in glide slope for an aircraft approaching the runway.

TABLE 2.5
OBSTRUCTIONS TO RUNWAY APPROACHES
Texarkana Regional Airport

Runway	Obstruction	Height (Ft.)	Affected Surface	Clear Glide Over
4	Trees	31	263 ft. from end, 505 feet left of Centerline	2:1 slope, 3 degree visual glide path angle
22	Trees	17	358 ft. from end, 511 feet left of centerline	9:1 slope
13	Road	15	350 feet from end	10:1 slope, 3 degree visual glide path angle
31	Trees	40	1313 feet from end, 239 feet right of centerline	27:1 slope

Source: FAA Form 5010: Airport Master Record 05/21/2003.

2.8 COMPLIANCE WITH CURRENT FAA DESIGN STANDARDS

Current FAA standards and recommendations for the design of airports are defined in FAA Advisory Circular 150/5300-13, Change 7, *AIRPORT DESIGN*. This Advisory Circular includes the design criteria that may be used at certified airports to satisfy specific requirements of Federal Aviation Regulations (FAR) Part 139, Airport Certification and Operations. The standards and recommendations are mandatory for any airport projects receiving Federal grant-in-aid assistance. Unique local conditions may require modification to airport design standards and may be permissible if the modification provides an acceptable level of safety, economy, durability, and workmanship, and is approved by the FAA.

Based on a review of the existing airfield component dimensions and spatial relationships and the current approved Airport Layout Plan (ALP), TXK is best classified with an Airport Reference Code (ARC) of C-III. This includes the Aircraft Approach Category C, defined as aircraft with approach speeds of 121 to 140 knots, and Airplane Design Group III, which includes aircraft with a wingspan of 79 to 117 feet. The ARC of C-III defines the associated airport design parameters used for Runway 4/22. Moreover, based on the most demanding aircraft that utilize Runway 13/31 on a regular basis, an ARC of C-II is applicable for this runway. **Tables 2.6** and **2.7** show that the majority of TXK design standards meet or exceed the ARC C-III and C-II requirements of the FAA.

Runway 13 Object Free Area Length Beyond Runway End: The Runway Object Free Area (OFA) is centered on the runway centerline and extends 1000 feet beyond the end of the runway. Aircraft taxiing and/or holding may be located in the OFA, as well as objects related to air navigation and aircraft ground maneuvering purposes. With the 641-foot displaced threshold, the Obstacle Free Zone Length for Runway 13 at TXK meets the FAA standard of 1,000 feet.

TABLE 2.6 RUNWAY 4/22 FAA AIRPORT DESIGN STANDARDS COMPLIANCE Texarkana Regional Airport			
Item	**FAA Standard AC 150/5300-13, Change 5**	**Existing Condition Runway 4/22**	**In Compliance Yes/No**
Critical Aircraft			
Aircraft Approach Category	C	C	N/A
Airplane Design Group	III	III	N/A
Runway Separation Standards			
Runway Centerline to Taxiway Centerline (ft.)	400	400	Yes
Runway Centerline to Holdline (ft.)	250	250	Yes
Runway Centerline to Aircraft Parking Area (ft.)	500	750	Yes
Runway 4 RPZ Dimensions (Non-Precision Approach – 34:1 Design Glide)			
Inner Width (ft.)	500	500	Yes
Outer Width (ft.)	1,010	1,010	Yes
Length (ft.)	1,700	1,700	Yes
Runway 22 RPZ Dimensions (Precision Approach – 50:1 Design Glide)			
Inner Width (ft.)	1,000	1,000	Yes
Outer Width (ft.)	1,750	1,750	Yes
Length (ft.)	2,500	2,500	Yes
Runway Design Standards			
Runway 4/22-Width (ft.)	100	150	Yes
Runway 4/22-Shoulder Width (ft.)	20	N/A	N/A
Runway 4-Blast Pad Width (ft.)	140	N/A	N/A
Runway 4-Blast Pad Length (ft.)	200	N/A	N/A
Runway 4-Safety Area Width (ft.)	500	500	Yes
Runway 4-Safety Area Length Beyond Runway End (ft.)	1,000	1,000	Yes
Runway 4-Obstacle Free Zone Width (ft.)	400	400	Yes

TABLE 2.6 RUNWAY 4/22 FAA AIRPORT DESIGN STANDARDS COMPLIANCE Texarkana Regional Airport			
Item	**FAA Standard AC 150/5300-13, Change 5**	**Existing Condition Runway 4/22**	**In Compliance Yes/No**
Runway 4-Obstacle Free Zone Length (ft.)	200	200	Yes
Runway 4-Object Free Area Width (ft.)	800	800	Yes
Runway 4-Object Free Area Length Beyond Runway End (ft.)	1,000	1,000	Yes
Runway 22-Blast Pad Width (ft.)	140	N/A	N/A
Runway 22-Blast Pad Length (ft.)	200	N/A	N/A
Runway 22-Safety Area Width (ft.)	500	500	Yes
Runway 22-Safety Area Length Beyond Runway End (ft.)	1,000	1,000	Yes
Runway 22-Obstacle Free Zone Width (ft.)	400	400	Yes
Runway 22-Obstacle Free Zone Length (ft.)	200	200	Yes
Runway 22-Object Free Area Width (ft.)	800	800	Yes
Runway 22-Object Free Area Length Beyond Runway End (ft.)	1,000	1,000	Yes
Source: URS Greiner Woodward Clyde, 2000.			

TABLE 2.7 RUNWAY 13/31 FAA AIRPORT DESIGN STANDARDS COMPLIANCE Texarkana Regional Airport			
Item	**FAA Standard AC 150/5300-13, Change 5**	**Existing Condition Runway 13/31**	**In Compliance Yes/No**
Critical Aircraft			
Aircraft Approach Category	C	C	N/A
Airplane Design Group	II	II	N/A
Runway Separation Standards			
Runway Centerline to Taxiway Centerline (ft.)	300	300 to 600	Yes
Runway Centerline to Holdline (ft.)	250	--	--
Runway Centerline to Aircraft Parking Area (ft.)	400	620	Yes
Runway 13 RPZ Dimensions (Non-Precision Approach – 34:1 Design Glide)			
Inner Width (ft.)	500	500	Yes
Outer Width (ft.)	1,010	1,010	Yes
Length (ft.)	1,700	1,700	Yes
Runway 31 RPZ Dimensions (Non-Precision Approach – 34:1 Design Glide)			
Inner Width (ft.)	500	500	Yes
Outer Width (ft.)	1,010	1,010	Yes
Length (ft.)	1,700	1,700	Yes
Runway Design Standards			
Runway 13/31-Width (ft.)	100	100	Yes
Runway 13/31-Shoulder Width (ft.)	10	N/A	Yes
Runway 13-Blast Pad Width (ft.)	120	N/A	Yes
Runway 13-Blast Pad Length (ft.)	150	N/A	N/A
Runway 13-Safety Area Width (ft.)	500	500	Yes
Runway 13-Safety Area Length Beyond Runway End (ft.)	1,000	642	No

TABLE 2.7 RUNWAY 13/31 FAA AIRPORT DESIGN STANDARDS COMPLIANCE Texarkana Regional Airport			
Item	**FAA Standard AC 150/5300-13, Change 5**	**Existing Condition Runway 13/31**	**In Compliance Yes/No**
Runway 13-Obstacle Free Zone Width (ft.)	400	400	Yes
Runway 13-Obstacle Free Zone Length (ft.)	200	200	Yes
Runway 13-Object Free Area Width (ft.)	800	800	Yes
Runway 13-Object Free Area Length Beyond Runway End (ft.)	1,000	1,000	Yes
Runway 31-Blast Pad Width (ft.)	120	N/A	Yes
Runway 31-Blast Pad Length (ft.)	150	N/A	Yes
Runway 31-Safety Area Width (ft.)	500	500	Yes
Runway 31-Safety Area Length Beyond Runway End (ft.)	1,000	1,000	Yes
Runway 31-Obstacle Free Zone Width (ft.)	400	400	Yes
Runway 31-Obstacle Free Zone Length (ft.)	200	200	Yes
Runway 31-Object Free Area Width (ft.)	800	800	Yes
Runway 31-Object Free Area Length Beyond Runway End (ft.)	1,000	1,000	Yes
Source: URS Greiner Woodward Clyde.			

2.9 METEOROLOGY

Weather conditions play an important role in determining an airport's capacity and facility requirements. Items of interest are temperature and precipitation, ceiling and visibility, as well as local wind conditions. Temperature information is used to determine runway length requirements, while precipitation, ceiling and visibility data is used to determine the capacity of the existing airfield. Wind data is used to determine runway orientation and the need for additional runways.

2.9.1 Temperature and Precipitation

Temperature and precipitation conditions at TXK were analyzed using the National Oceanic and Atmospheric Administration's (NOAA) "Climatography of the United States Report No. 81 for the State of Arkansas" which encompasses the 30 year period from 1961 to 1990. Temperature extremes do occur at TXK, with the normal maximum 30-year mean temperatures ranging from a low of 45.4 degrees Fahrenheit (°F) in January to 82.9 °F in July, the hottest month of the year. On an annual basis, the normal 30 year mean maximum temperature averages 64.8 °F.

Precipitation is well distributed throughout the year. September is the driest month with a normal rainfall of 2.92 inches, while April is the wettest month with a normal rainfall of 5.56 inches. The normal annual average precipitation at TXK is 48.39 inches.

2.9.2 Wind Data

Weather information obtained from the National Climatic Data Center in Asheville, North Carolina covered 73,316 weather observations at Texarkana for a 10 year period from the years 1989 to 1998. This data was analyzed for both wind direction/speed and ceiling/visibility. From this information, three standard wind roses were constructed. The wind rose in **Exhibit 2.15** portrays by percentage, wind speed by direction and velocity for All Weather Conditions, while **Exhibits 2.16** and **2.17** portray the wind roses for Visual Flight Rules (VFR) conditions and Instrument Flight Rules (IFR) condition weather respectively, in accordance with the following standard definitions:

- ✈ Visual Flight Rules (VFR) Weather: The weather where the cloud base is equal to or greater than 1,000 feet above ground level (AGL) and visibility is equal to or greater than 3 statute miles.

- ✈ Instrument Flight Rules (IFR) Weather: The weather where the cloud base is less than 1,000 feet but more than 200 feet AGL and visibility is less than 3 statute miles but more than ½ mile.

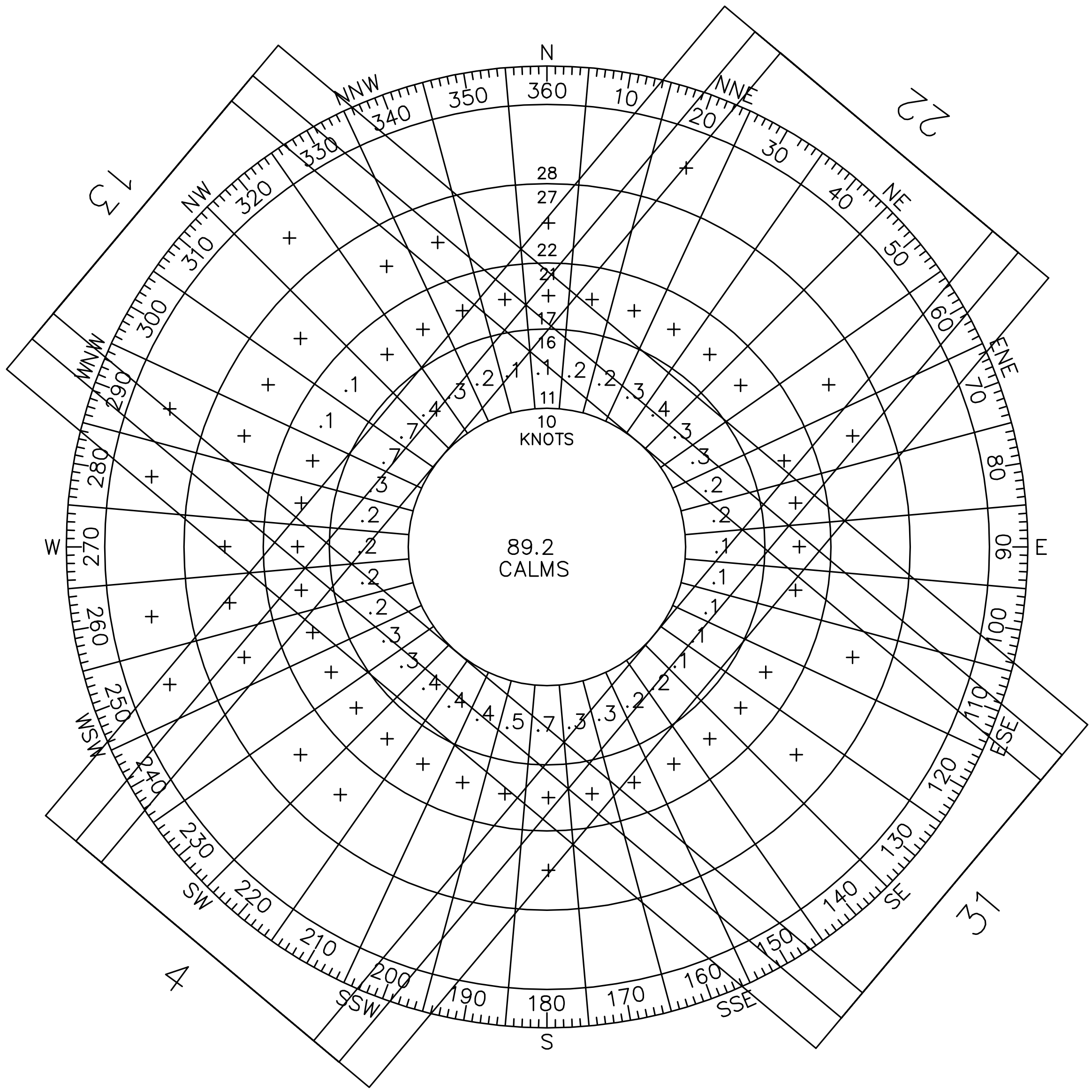
- ✈ Below IFR Weather: Whenever the cloud ceiling or visibility is less than IFR weather, an airport is usually closed. A few larger airports have instrumentation allowing specially equipped aircraft to land in low ceiling/visibility conditions.

The analysis of the ceiling/visibility data revealed that VFR weather occurs in the Texarkana area 88.7 percent of the time, IFR weather occurs 9.6 percent of the time, and 1.7 percent of the time the weather is below operating minimums.

The primary runway at an airport should be oriented as closely as practical with the direction of the prevailing winds, providing the largest wind coverage for a given maximum crosswind component. The crosswind component is the vector of wind velocity and direction which acts at a right angle to the runway. Runway wind coverage also includes that percentage of the time in which operations can safely occur with acceptable crosswind speeds occurring. Crosswind components of 10.5, 13, 16, and 20 knots were used for analyzing the combined runway capability at TXK. These components were used because they correspond to different size aircraft that use the runways.

Under either VFR or IFR weather conditions, the FAA recommends that runway directions be provided to allow aircraft to operate at least 95 percent of the time, with crosswinds components not to exceed 18.5 miles per hour (16 knots) for aircraft operating at an airport with an ARC of C-III. If wind coverage is less than 95 percent, FAA guidelines recommend the construction of additional runways. **Table 2.8** illustrates that the current runway configuration at TXK provides more than adequate wind coverage during all weather conditions.

ALL WEATHER WINDROSE



STATION: TEXARKANA AP, TEXAS
PERIOD: 1989–1998
NO. OBSERVATIONS: 73,316
SOURCE: NOAA, 2000

WIND SPEED	COVERAGE
10.5 KTS (12 MPH)	99.70%
13.0 KTS (15 MPH)	99.95%
16.0 KTS (18.5 MPH)	99.98%

ALL WEATHER WIND ROSE

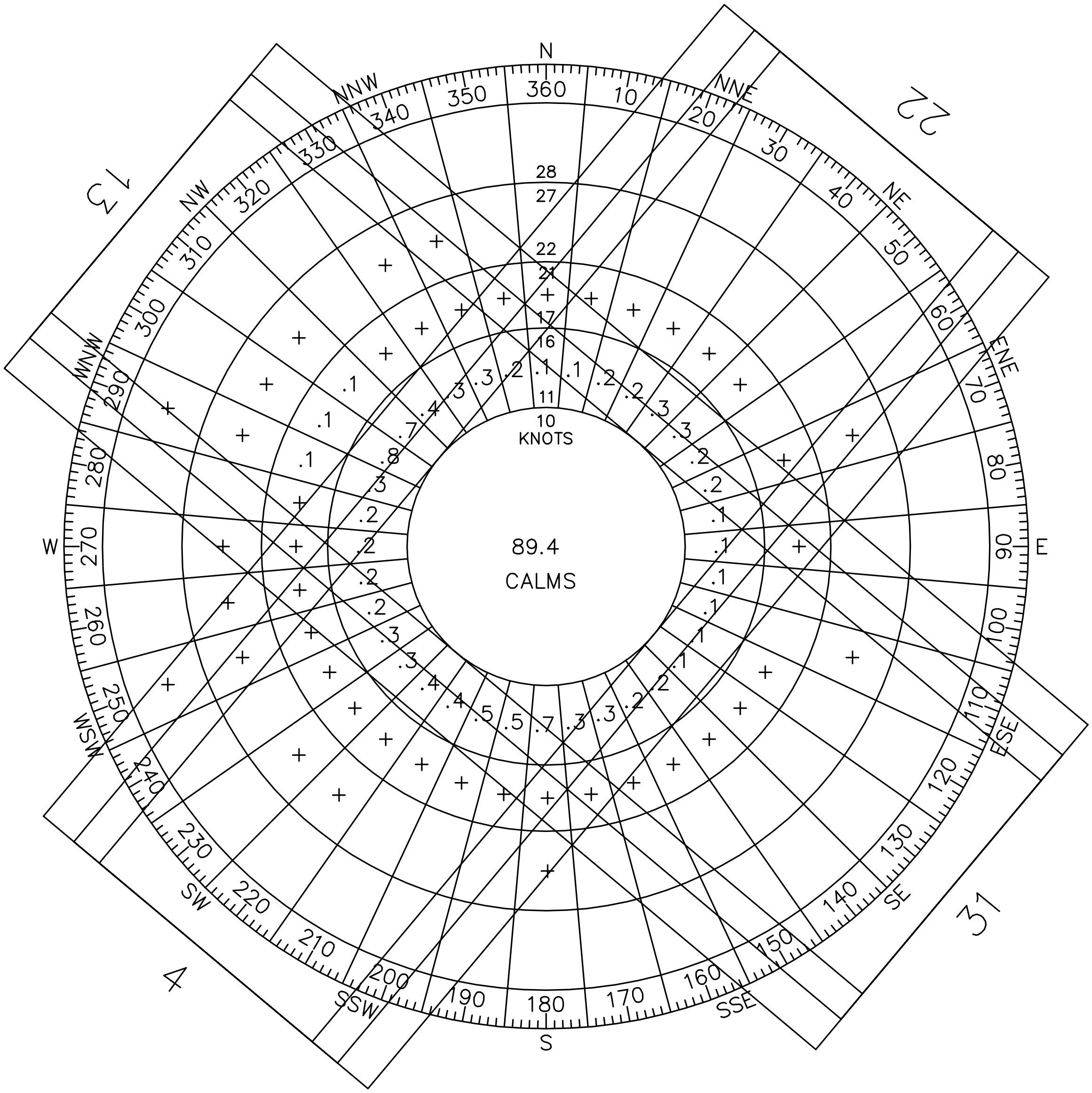
TXK TEXARKANA REGIONAL AIRPORT

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

URS Greiner Woodward Clyde

EXHIBIT 2.15

VFR WINDROSE



STATION: TEXARKANA AP, TEXAS
PERIOD: 1989–1998
NO. OBSERVATIONS: 65,081
SOURCE: NOAA, 2000

WIND SPEED	COVERAGE
10.5 KTS (12 MPH)	99.74%
13.0 KTS (15 MPH)	99.97%
16.0 KTS (18.5 MPH)	99.99%

VFR WIND ROSE

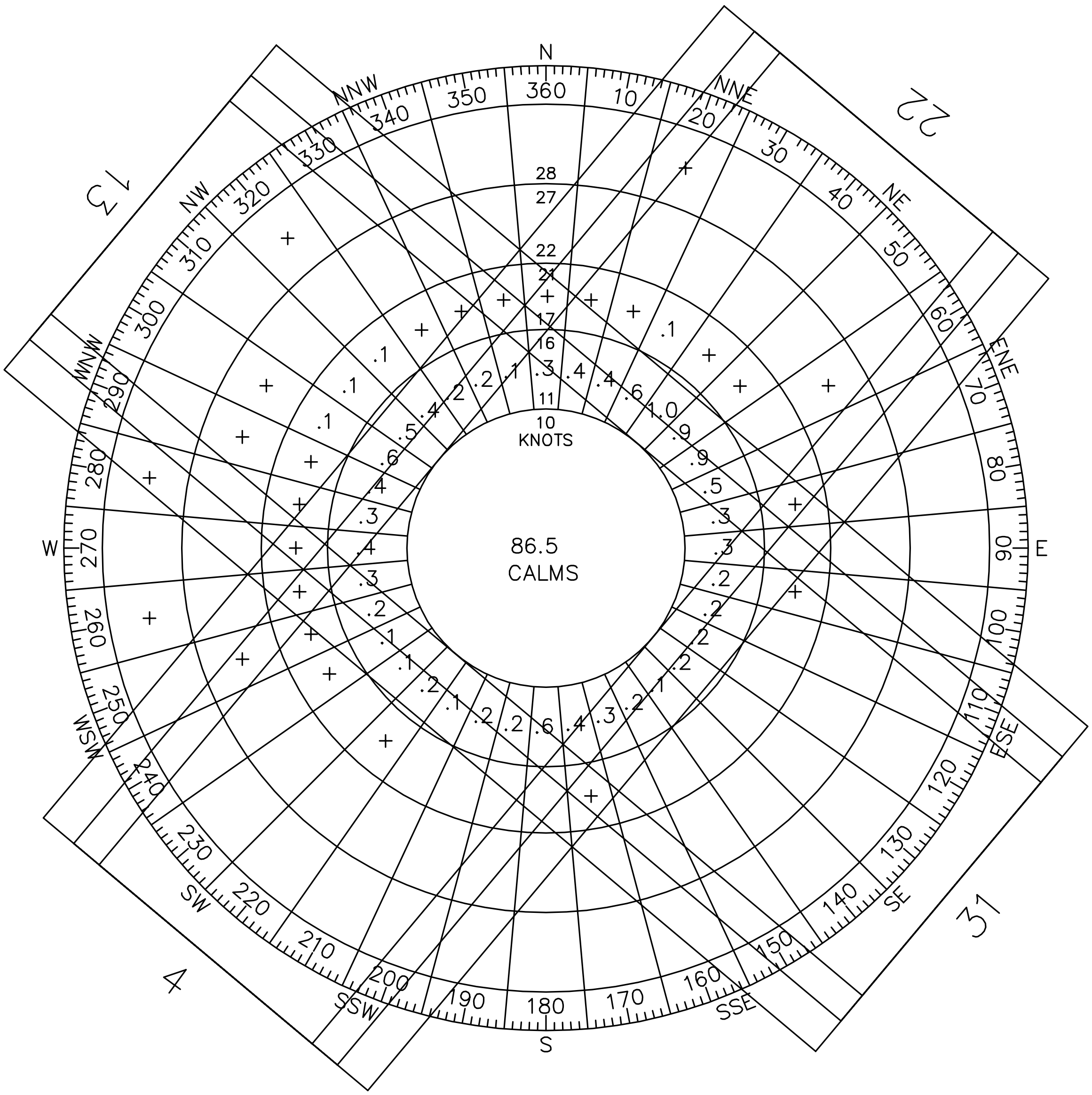
TXK TEXARKANA REGIONAL AIRPORT

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

URS Greiner Woodward Clyde

EXHIBIT 2.16

IFR WINDROSE



STATION: TEXARKANA AP, TEXAS
PERIOD: 1989–1998
NO. OBSERVATIONS: 7,020
SOURCE: NOAA, 2000

WIND SPEED	COVERAGE
10.5 KTS (12 MPH)	99.54%
13.0 KTS (15 MPH)	99.92%
16.0 KTS (18.5 MPH)	99.98%

IFR WIND ROSE

TXK TEXARKANA REGIONAL AIRPORT

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

URS Greiner Woodward Clyde

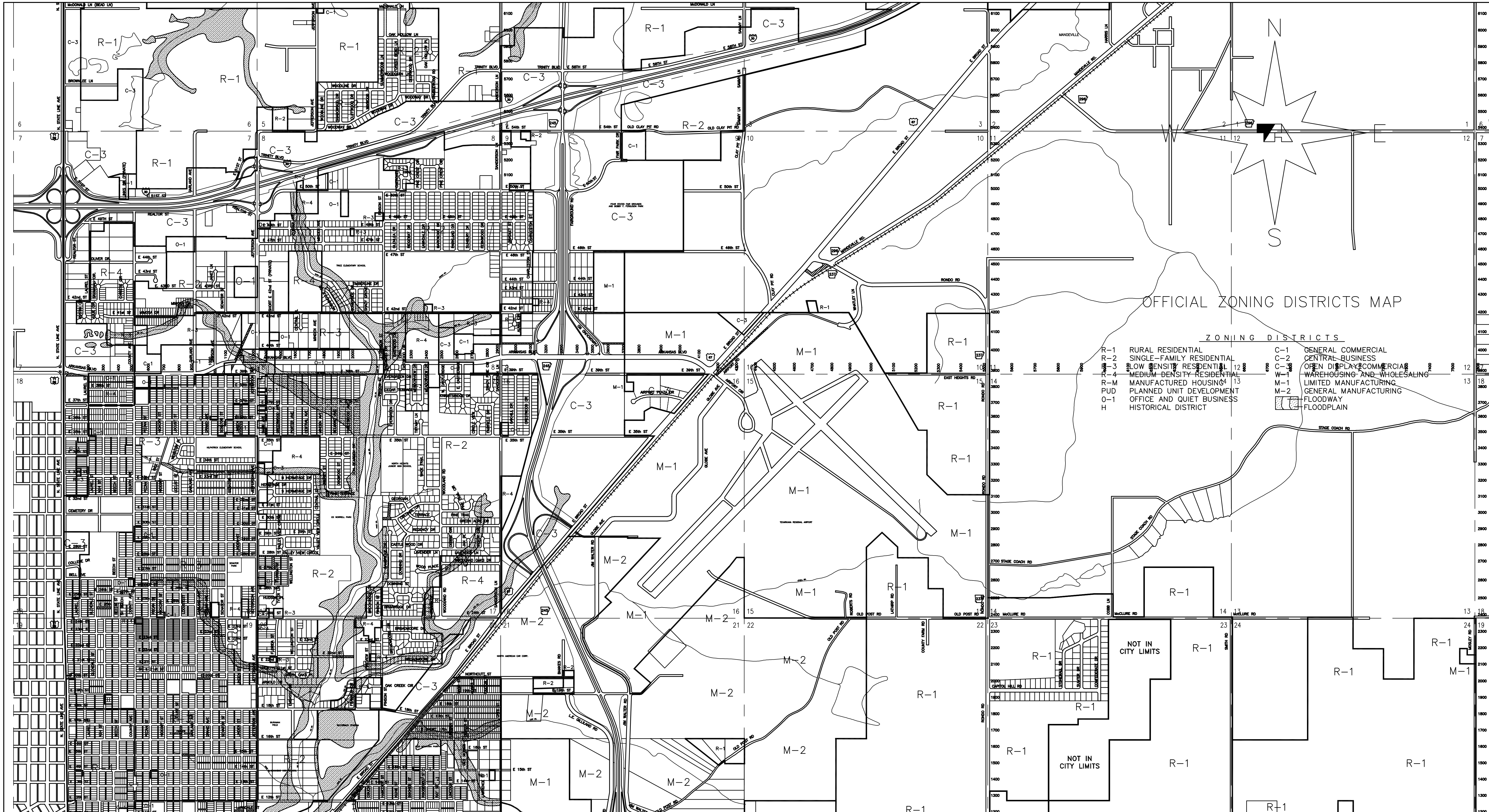
EXHIBIT 2.17

TABLE 2.8 WIND COVERAGE RUNWAYS 4/22 AND 13/31 Texarkana Regional Airport				
Weather Condition	**Wind Component**			
	10.5 Knots	**13 Knots**	**16 Knots**	**20 Knots**
All Weather	99.70 %	99.95 %	99.98 %	99.99 %
VFR	99.74 %	99.97 %	99.99 %	100.00 %
IFR	99.54 %	99.92 %	99.98 %	99.99 %
Station: Texarkana, AR/TX **Period:** 1989 – 1998 **Total Number of Observations:** 73,316				
Source: NOAA, 2000. URS Greiner Woodward Clyde, 2000.				

2.10 OFF-AIRPORT LAND USE

2.10.1 Zoning

The existing land use and designated zoning of the areas surrounding TXK are important factors to consider. The City of Texarkana, Arkansas has adopted a Zoning Ordinance with designated and defined zoning districts to control development within the city limits. **Exhibit 2.18** depicts the Official Zoning Districts of the land in the vicinity of TXK, including the basic definition of each designation. Off-airport land use data was obtained through drawings, photographs and documentation provided by Texarkana City Planning Department, the Airport's previous Master Plan and FAR Part 150 study and other studies, as well as during field visits conducted in January and May 2000. Following the definitions of the Official Zoning Districts, a brief description of land uses surrounding TXK is provided.



ZONING DISTRICTS

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

URS Greiner Woodward Clyde

EXHIBIT 2.18

City of Texarkana, Arkansas Zoning Districts

R-1 Rural Residential: Single-family homes on large rural lots or acreage, where selected agricultural uses can be accommodated.

R-2 Single-family Residential: Most restrictive urban residential district, primarily for detached single-family dwellings and related facilities.

R-3 Low Density Residential: Slightly higher population density with a greater diversity of housing types such as single- and two-family and townhouses.

R-4 Medium Density Residential: Medium density dwellings, including a wide variety of housing types such as single- and two-family, townhouses, and multiple-family.

RM Manufactured Housing: Specific housing type of mobile or manufactured dwellings.

PUD Planned Unit Development: Small and large scale developments incorporating a single type or a variety of residential, commercial and related uses that are planned and developed as a unit.

O-1 Office and Quiet Business District: Offices and professional uses and specified limited commercial and uses.

C-1 General Commercial: Broad range of commercial uses, including most types of retail activity.

C-2: Central Business: The downtown shopping and employment area for the community.

C-3 Open Display Commercial: Retail uses that serve the needs of the motoring public and are characterized by a high level of vehicular ingress and egress, including hotels/motels and restaurants.

W-1 Warehousing and Wholesaling: Rail, bus and truck terminals and limited manufacturing, with access to railroads and highways.

M-1 Limited Manufacturing: Clean, quiet industries and ample landscaped sites, with plenty of room for parking and plat expansion.

M-2 General Manufacturing: More intensive industries and those making products from raw materials.

2.10.2 Existing Land Use

Exhibit 2.19 depicts recent annexations by the City of Texarkana that have occurred in the vicinity of the Airport. A description of the existing land use follows.

Airport: TXK is located entirely within the City limits of Texarkana, Arkansas, is designated as an M-1 Limited Manufacturing Zoning District.

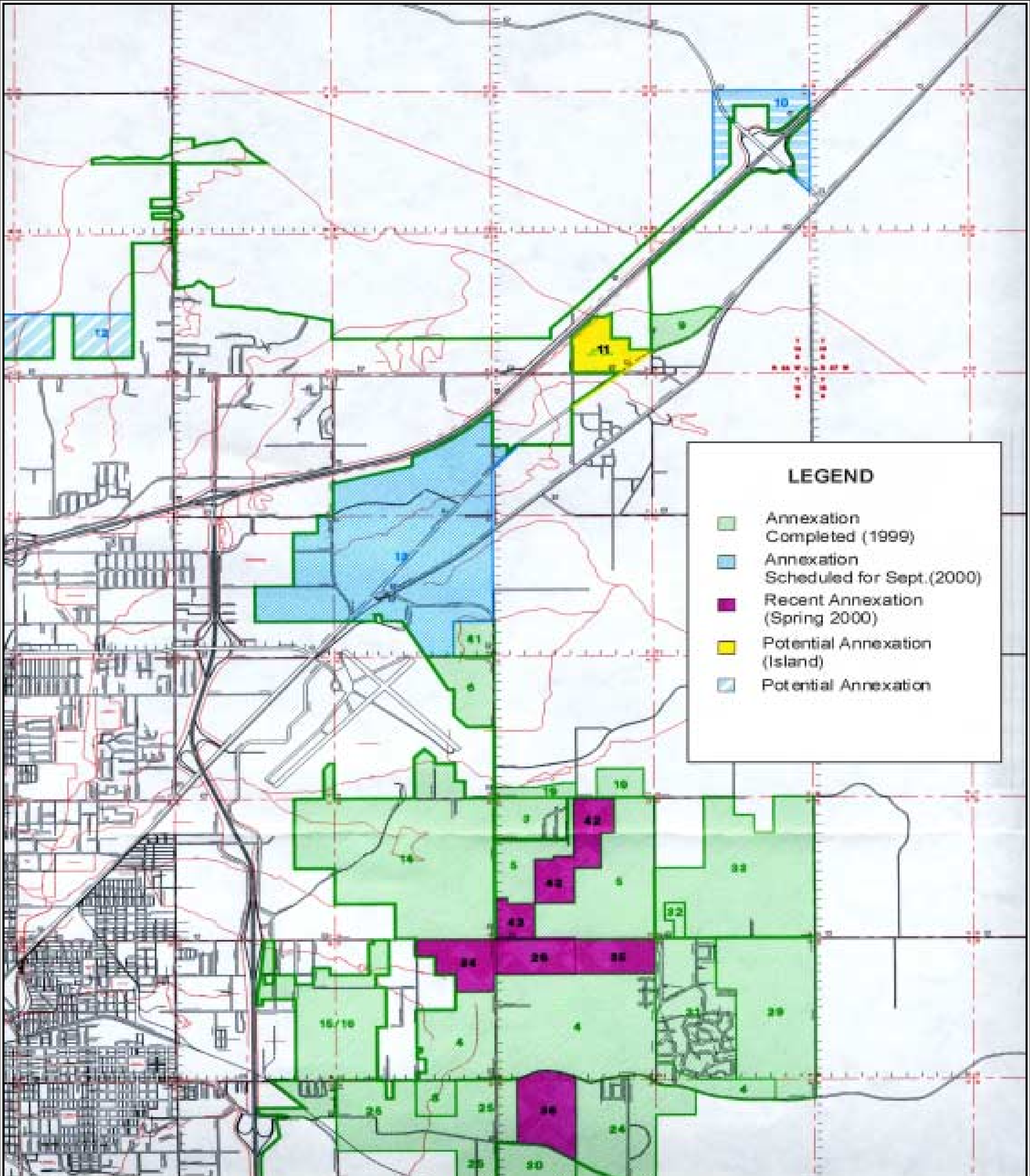
North: The areas to the north and northeast of the Airport are primarily vacant. A large parcel was recently approved for annexation into the City, effective in September 2000. There are a few commercial developments along U.S. 67 (E. Broad Street) and a small parcel designated as R-1 Rural Residential adjacent to Airport property.

East: The eastern area between Airport property and Rondo Road is within City limits and is zoned R-1 Rural Residential and includes scattered residential development. The area beyond and east of Rondo Road is outside the City limits and is primarily vacant.

Southeast: The area southeast of the Airport is primarily within the City limits and is zoned R-1 Rural Residential. As depicted on the exhibit, a portion previously outside city limits has recently been annexed. These areas include only scattered development, although the area south of McClure Road and east of Rondo Road is platted as a subdivision.

South: The land south of the Airport is entirely within the City limits and is zoned R-1 Rural Residential and M-2 General Manufacturing. Most of this area has limited development

Southwest: The area southwest of the Airport is a mixture of industrial, commercial and residential development, depending upon the distance from TXK. The land directly southeast of Airport property is zoned M-2 General Manufacturing and includes a large industrial complex located between S.H. 245 and U.S. 67. A large residential area south of the M-2 area is zoned R-3 Low Density Residential. Areas further south along E. 9th Street and west along U.S 67 are a mixture of commercial and industrial uses, with zoning designations of C-3 Open Display Commercial and W-1 Warehousing and Wholesaling.



City of Texarkana
Annexations

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

URS Greiner Woodward Clyde

Exhibit 2.19

West: The area directly west of Airport property, between U.S. 67 and S.H. 245 is primarily vacant and is zoned C-3 Open Display Commercial. Much of the area west of S.H. 245 includes residential developments with zoning districts of R-2 Single-family Residential, R-3 Low Density Residential and R-4 Medium Density Residential. Some commercial development is located along the main thoroughfare of Arkansas Boulevard.

Northwest: The area immediately northwest of the Airport and U.S. 67 is primarily vacant and is zoned M-1 Limited Manufacturing. The Four States State Fairgrounds and Bobby F. Ferguson Park are located approximately one-half mile northwest of the Airport in an area zoned C-3 Open Display Commercial. Additional commercial development within this district is located along S.H. 245 and Arkansas Boulevard. The area further west of S.H. 245 continues with various residential developments.

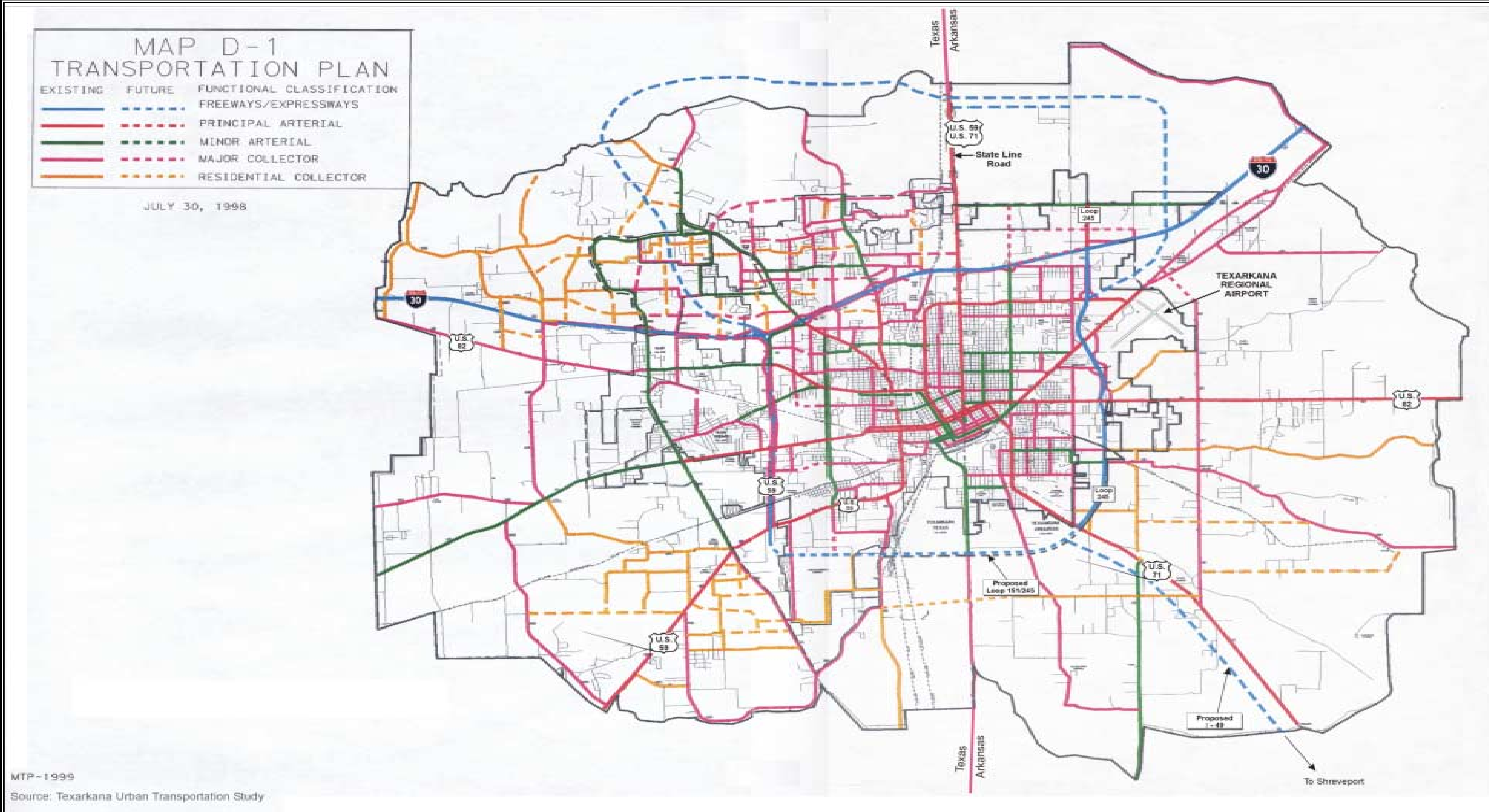
Maxwell Industrial Park: Adjacent to TXK, this Industrial Park is owned by the Texarkana Chamber of Commerce and connects to Interstate 30 via Loop 245, which runs through the park. IN 1999, the City and Chamber of Commerce worked together to obtain funding for street improvements and utility extensions. The extension of 19th Street will provide access to 195 acres of property owned by TXK. New businesses have begun construction on new facilities. Approximately 70 acres is currently suitable for development, with tracts ranging in size from 5 to 50 acres, with additional adjacent properties available.

2.11 TRANSPORTATION NETWORK

2.11.1 Highways

The major highways in Texarkana include U.S. Highways 59, 67, 71, and 82 and Interstate 30. U.S. 59 extends between Houston and Texarkana, merging with U.S. 71 in Texarkana to travel along the Texas/Arkansas state line. U.S. 71 is the current north-south highway between Shreveport, Louisiana and Kansas City, Missouri. I-30 is the East-West connector between Dallas-Ft. Worth, Texas and Little Rock, Arkansas. **Exhibit 2.20** graphically depicts these highways in the Texarkana area in relation to TXK.

Two significant highway improvement projects are underway which will significantly improve traffic mobility in Texarkana and within the region:



Highway Network

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

URS Greiner Woodward Clyde

Exhibit 2.20

Loop 151/245: On the Texas side, Loop 151 is a planned extension to U.S. 59. Currently U.S. 59 extends south from 1-30. Loop 151 is planned to continue further south and then curve to the east. After crossing the state line, it becomes Loop 245 on the Arkansas side and will continue to the east to connect with the new I-49 (under construction) and U.S. 71S. Loop 245 is already completed between U.S. 71S and I-30 to the north.

I-49: I-49 is a new interstate highway which is ultimately planned to extend from Kansas City, Missouri to Baton Rouge, Louisiana. Due to the size of this multi-state project, different segments of this new highway are being constructed based on traffic demand and as funding becomes available. To date, various segments which have already been constructed include:

- Kansas City, Missouri to Joplin, Missouri
- Fayetteville, Arkansas to Fort Smith (Alma) , Arkansas
- Shreveport, Louisiana to Baton Rouge, Louisiana

In Arkansas, the new I-49 generally parallels the existing U.S. 71, which currently is a two-lane highway. However, I-49 is being designed as a 4-lane divided, controlled access highway.

In the Texarkana area, various route alignments are under consideration for I-49 north of I-30. South of I-30, construction on I-49 to Shreveport is scheduled to be completed in 2005. The completion of I-49 between Texarkana and Shreveport is an important consideration to the Master Plan Study since improved highway may prompt passengers to drive to Shreveport to obtain lower airfares, and direct service to cities other than Dallas/Fort Worth.

2.11.2 Railroads

The Union Pacific (UP) and Kansas City Southern (KCS) railroads serve Texarkana with a wide variety of services. Nearly 100 freight trains pass through Texarkana each day offering one-day service to the ports of New Orleans and Houston.

As of July 2000, Amtrak operates two passenger trains daily through Texarkana. The Amtrak station is located at 100 E. Front St. in Texarkana. The northbound train travels to Chicago and the southbound train heads for Dallas.

2.11.3 Inter-City Bus

The Greyhound Bus Station is located on E. 51st Street in Texarkana. As of July 2000, 43 scheduled buses stop daily at the station. Destinations include Little Rock, Memphis, Dallas, Houston, Kansas City, Ft. Smith, El Dorado, and Birmingham. Connections are available to travel anywhere in the U.S. On average 75 tickets are issued daily.

2.11.4 Industrial Parks

The Texarkana Chamber of Commerce owns three industrial parks in the area. The Maxwell Industrial Park is located adjacent to TXK and was previously discussed in the Off-Airport Land Use section of this chapter.

The Falvey Industrial Park is located adjacent to U.S. Highway 59. An additional 35 acres are available in tracts ranging in size from two to ten acres. All sites have concrete streets and utilities.

The Interstate 30 Industrial Park fronts Interstate 30 and Texas FM 2148. The park is served by Texas Northeastern Railroad with switching service to the Union Pacific and Kansas City Southern lines. All utilities are available.

2.11.5 Major Employers

Texarkana has a broadly diversified industrial base supported by manufacturing, agricultural, medical, transportation and retail. Products from area employers include apparel, ammunition, paper products and tires. Manufacturing employment has steadily increased over the past 30 years with approximately 70 percent of the new jobs coming from expansion of existing industry. **Table 2.9** lists the top 46 employers for Texarkana, which provide over 20,000 jobs for the area.

Texarkana is also the regional medical center serving the population of more than 400,000 within the 60-mile radius of the community. Currently the area is supported by two acute care hospitals and two rehabilitation hospitals, along with numerous nursing homes, retirement/assisted living facilities which provide a variety of medical services for the Texarkana region.

TABLE 2.9
TEXARKANA MAJOR EMPLOYERS – YEAR 2000
Texarkana Regional Airport

Company	Local Employees	Primary Business / Local Function
Albertson's	425+	Supermarket
Alcoa Mill Products	380	Aluminum Rolling Mill
Burger King	121	Restaurant
BWI	150	Wholesale Distribution
Candle Corp of America	175	Canned Heat – Stern Brand
Christus St. Michael Health Care	1650	General Medical Hospital
Collom Carney Clinic	275	General Medical Services
Cooper Tire and Rubber	2000	Manufacturers Passenger Tires
Day and Zimmermann, Inc.	300	Small Arms Ammunition
Dillard's Inc.	248	Department Stores
E-Z Mart Stores	250	Convenience Stores
G.E. Railcar, Inc.	175	Railroad Tank Car Repair
Genoa Central School District	108	Primary and Secondary Education
Georgia Pacific, Inc.	1400	Fine Finished Papers
Hibernia National bank	150	Banking / Financial Services
HUMCO Holdings Group, Inc.	137	Manufacturers / Processors
Domtar	1000	Cup and Diaper Stock
JCM	125	Manufacturers of Pipeline Fittings
JC Penney	155	Department Stores
K-Mart	435	Discount Stores
L.J. Earnest Asphalt Co.	150	Asphalt
Ledwell & Sons Enterprises	250	Truck Body & Equipment Manufacturers
Liberty Eylau School District	300	Primary and Secondary Education

TABLE 2.9 TEXARKANA MAJOR EMPLOYERS – YEAR 2000 Texarkana Regional Airport		
Company	**Local Employees**	**Primary Business / Local Function**
Lowe's Home Center, Inc.	164	Retail Stores
Mayo Manufacturing	150	Upholstered Furniture
McDonald's	300+	Restaurant
Pleasant Grove School district	234	Primary and Secondary Education
Red River Army Depot/Tenants	2700	Manufacturer / Processors
Regions Bank	280	Banking / Financial Services
Sears Roebuck & Co.	197	Department Stores
Smith Blair, Inc.	300	Large Valves and Couplings
Southern Clinic	175	Primary Medical Services
Texarkana College	275	Post-Secondary & Graduate Education
Texarkana Newspaper	137	Newspapers
Texarkana, AR School District	800	Primary and Secondary Education
Texarkana, Arkansas – City	230	General Government
Texarkana, Texas – City	466	General Government
Texarkana, TX Schools	800	Primary and Secondary Education
Truman Arnold Companies	105	Petroleum Marketing
Wadley Regional Medical	1500	General Medical Hospital
Wal-Mart / Sam's Club	1007	Discount Stores
Walsh Distribution	292	Distribution
West Teleservices	300	Telemarketing Center
Source: Texarkana Chamber of Commerce.		

SECTION 3 AVIATION DEMAND - HISTORIC AND FORECAST

3.0 INTRODUCTION

This section outlines the methodology used to determine the level of operational and passenger activity and based aircraft which is expected to occur during the 20 year planning period at TXK. This is accomplished by developing a set of unconstrained aviation forecasts to serve as the foundation for planning aviation facilities at the Airport to accommodate the areas aviation needs through 2020.

Aviation demand forecasts contained in this report were developed based on the FAA forecasts for the Nation, Southwest Region and Texas and Arkansas. Past growth trends of various aviation demand elements and related socioeconomic factors were also reviewed. When forecasted data was not available, historic trends were projected into the future using a variety of statistical techniques. A degree of professional judgment is also used to determine whether or not these projections can be deemed a reasonable forecast of the future behavior of the aviation demand element in question. Factors that influence the evaluation of the various projections are discussed in the following section.

3.1 FORECAST ASSUMPTIONS

The development of any aviation demand forecast requires an awareness of the many variables that affect the aviation industry. For example, by early 1990 the nation had recovered from the economic recession experienced in the late 1970's and 1980's resulting in increased purchasing power for the average consumer. This economic recovery and realized expansion which began in mid-1991 has continued, consequently, the rate of growth in discretionary purchases such as travel and general aviation (GA) use is higher than in previous years. Moreover, rises in corporate profits have resulted in higher levels of air carrier and commuter service business travel, while also improving the potential for increases in business and corporate ownership of GA aircraft. These trends have been manifested by the increase in shipments and hours flown of GA piston and jet aircraft over the last decade. The trends in turboprop and turbojet aircraft reflect largely the demands of increased corporate use of GA.

Commercial aviation has seen dramatic increases in passenger traffic and significant decreases in fares as a result of airline deregulation. The industry has experienced expansion, consolidation and concentration of its operations since its deregulation. These phases of the industry's growth have had a vital influence in the growth and development of regional/commuter airlines. The number of regional/commuter airlines have shown a decline since the 1980's and are currently composed of 157 airlines. This is attributable to the increasing integration with larger scheduled air carriers through code-sharing agreements and/or through direct acquisition. As this action continues, the industry will show more consolidation and concentration of its operation. Though the total number of regional/commuter airlines is down, the industry growth has continued to out pace the growth of the major and national air carriers proving to be a increasingly important and vital part of the commercial service industry.

Assumptions[1] and factors used in the development of the unconstrained aviation forecast for TXK are defined as follows:

- Aviation fuel is expected to remain available throughout the 20 year study period. It is assumed that the price of fuel will continue to increase over the forecast period.

- The production of GA aircraft is expected to continue to increase over the planning period and that a sufficient supply of these aircraft will be available to satisfy the Texarkana aircraft demands.

- The overall economy will continue to slow private aircraft ownership due to the cost of owning and operating new aircraft resulting in greater utilization of existing aircraft and an overall increase in the level of operation for those aircraft. However, corporate ownership of GA aircraft is expected to continue to increase more aggressively over the forecast period due to the popularity of fractional jet aircraft ownership.

- The majority, if not all, of the commercial and GA passengers utilizing terminal facilities at TXK are, and will continue to be originating/ destination type passengers. Therefore,

[1] For the anticipated impacts of September 11, 2001 on aviation demand, please refer to **Appendix D**.

annual passenger enplaned passengers will typically equal annual deplaned passengers.

- Aircraft basing and operational activity for the region will remain consistent with projections stated in FAA regional forecasts and terminal area forecasts of aviation demand.

- The population, effective buying income and income per capita statistics for the Texas, Arkansas, Miller and Bogus County and the FAA Southwest Region will continue to have the same relationship to projected national socioeconomic statistics in future years.

3.2 ANALYSIS FOR FORECASTING

In general, forecasting aviation demand is accomplished by projecting demonstrated past trends in aviation activity into the future using a variety of statistical techniques. These projections are made by identifying a mathematical relationship which most closely approximates the historic behavior of some observable phenomenon, and extending this relationship into the future. Several statistical methods were used to forecast the based aircraft and annual level of operations at TXK.

There are also intangible factors, which must be considered when developing the final or "preferred" forecast, such as:

- Expected and anticipated changes in the environment and the economy in general;
- Impact of new facilities; and
- Intended use of a particular forecast.

Two considerations also influence the finalization of forecasts for facilities planning purposes. The first concerns the relative accuracy of the forecast. As a general rule, confidence levels (anticipated forecast accuracy) tend to become less acceptable as the forecast period extends beyond 5 or more years; however, facility development usually requires 5 to 10 years for implementing and completion. Second, the level of optimism placed in the forecast may have a direct bearing on facility design. Facilities that have been planned and constructed in conjunction with a conservative forecast could become extremely overcrowded during the time period forecast, while facilities that have been planned in conjunction with an optimistic forecast could become an economic burden to the Airport because the anticipated activity failed to materialize. Consequently, a built-in tolerance for forecast deviation should be incorporated into any facility planning exercise.

Finally, it is recognized that over the past several years, municipalities have had a policy of controlled growth to maintain the present quality of life or have overly encouraged growth. While it can be anticipated that these growth policies will continue in future years, it is impossible to forecast the effects of such a policy, or the policies of future municipal administration, on airport activity. Consequently, the forecast contained herein represent the unconstrained potential for aviation activity at TXK.

3.3 SOCIOECONOMIC OVERVIEW

The Texarkana area is one of several unique city developments that is separated by a State boundary line. TXK is physically located in Arkansas, however it services the Texas side of Texarkana as well. The large county area that Texarkana, AR is located in is Miller County and the larger county area that Texarkana, TX is located in is Bowie County. This two county area reflects the major social and economic communities, which attract new residents and businesses. Combined these two counties establish the Texarkana Metropolitan Statistical Area (MSA).

3.3.1 Population

One of the strongest indicators for an area which is a basis for continual economic growth is the need for the communities to have a constant increase of new residents while maintaining the existing residents. New residents add their monetary support to the area, positively affecting the community and its economy through their purchase of consumer goods and services.

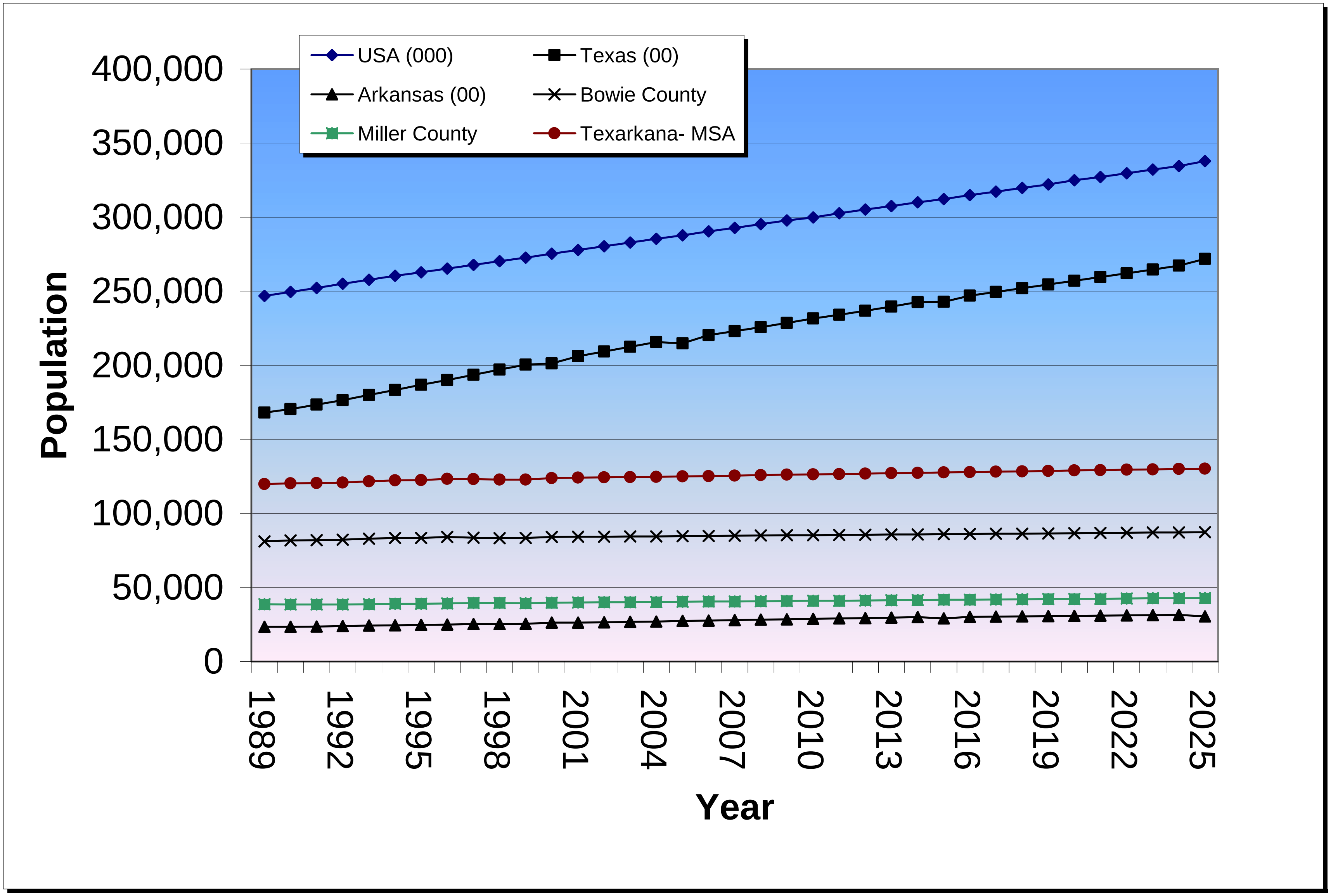
Over the past 10 years the ratio of population in Miller County (AR) to Bowie County (TX) has remained fairly constant at 1:2.1. Bowie County has remained the larger of the counties with slightly more than 2.1 residents for every one resident in Miller County. In 1989 Miller County had a population of 38,693 while Bowie County had a population of 81,167. Both counties have experienced slow population increases with Bowie County and Miller County realizing approximately 2.89 percent and 1.77 percent growth respectively since 1989 to the present. The average annual growth rates experienced by Miller County is approximately 0.18 percent and Bowie County is 0.29 percent. Both of these counties lag well behind the Texas and the Arkansas average annual growth rates of 1.67 percent and 1.12 percent respectively. Historically, this means that although the Texarkana MSA population is not growing significantly, the area is maintaining its current residents with some new residents locating in the area.

Projections for USA, Arkansas and Texas were obtained from the U.S. Census Bureau, while the projections for Bowie County, Miller County and Texarkana MSA population were generated through simple time series analysis using trend based on the historic data. The projections developed through simple time series analysis using trend, assumes that population influencing factors of the area in the past will continue with the same intensity in the future. The historic and projected data are presented in **Table 3.1** and depicted in **Exhibit 3.1**. Based on the projections, it is anticipated that Miller County will have a population of approximately 42,290 and Bowie County will have a population of approximately 86,673 by the year 2020, for a total MSA population of 128,963. This represents an increase in population for the Texarkana MSA by 6,077 or an overall increase from 1999 population level of 4.71 percent. These numbers show that the future Texarkana MSA population will maintain and are expected to increase slightly through 2020. The initial conclusion for TXK that can be drawn from this data is that the Texarkana MSA population is expected to continue to desire and need an air transportation facility with the services and diversification equal to or greater than those currently offered at TXK.

TABLE 3.1
HISTORIC AND FORECAST POPULATIONS
Texarkana Regional Airport

Year	USA	Texas	Arkansas	Bowie County	Miller County	Texarkana-MSA
Historic [1]						
1989	246,819,222	16,806,729	2,346,354	81,167	38,693	119,860
1990	249,464,396	17,044,714	2,354,343	81,842	38,481	120,323
1991	252,153,092	17,339,904	2,370,666	81,975	38,504	120,479
1992	255,029,699	17,650,479	2,394,098	82,361	38,521	120,882
1993	257,782,608	17,996,764	2,423,743	82,937	38,737	121,674
1994	260,327,021	18,338,319	2,450,605	83,406	38,963	122,369
1995	262,803,276	18,679,706	2,480,121	83,489	39,044	122,533
1996	265,228,572	19,006,240	2,504,858	84,065	39,229	123,294
1997	267,783,607	19,355,427	2,524,007	83,611	39,550	123,161
1998	270,248,003	19,712,389	2,538,202	83,287	39,526	122,813
1999	272,690,813	20,044,141	2,551,373	83,509	39,377	122,886
2000	282,224,348	20,955,248	2,678,688	89,291	40,450	129,741
Forecast [2]						
2005	287,716,000[1]	21,487,000[1]	2,750,000[1]	84,596	40,368	124,964
2010	299,862,000[1]	23,158,916	2,876,152	85,292	41,009	126,301
2015	312,268,000[1]	24,280,000[1]	2,922,000[1]	86,014	41,652	127,666
2020	324,927,000[1]	25,706,513	3,080,099	86,673	42,290	128,963
2025	337,815,000[1]	27,183,000[1]	3,055,000[1]	87,327	42,929	130,256

Source: [1]U.S. Bureau of Census and Real Estate Center at Texas A&M University, 2000.
[2]URS Greiner Woodward Clyde, 2000



Historic and Forecast Population

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

URS Greiner Woodward Clyde

Exhibit 3.1

3.3.2 Employment

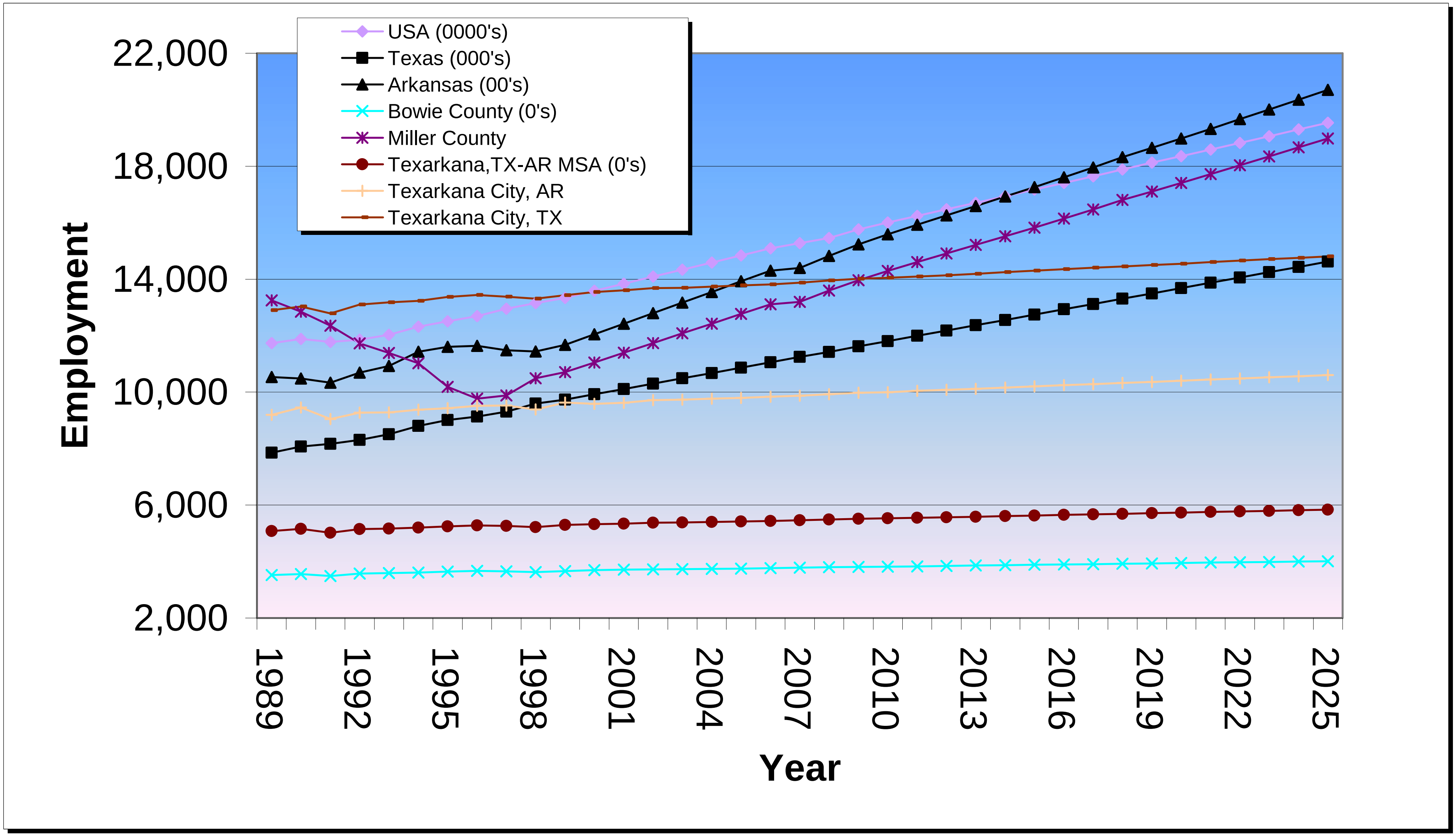
Employment helps determine the economic viability of the population for an area. The higher the employment rate for an area the greater likelihood that the area is sustaining a good economic structure. With a strong employment rate, goods and services for an area will be traded and used on a higher frequency, increasing the transfer of money through more business, thus stimulating the economy. Over the past decade the Texarkana area has maintained a relatively steady employment base. Some factors that have contributed to this base and continue to interest new and expanding businesses are: good transportation access; developing medical facilities; and a strong manufacturing and production employment base. It is assumed that the Texarkana area will continue to follow the trends of the past years with a relatively slow but steady employment growth.

In 1989, the Texarkana MSA employment level was reported to be 51,575 and by 1999 had grown to 52,967, representing an increase by 1,392 or 2.7 percent. This slow growth in employment level is well below the U.S. increase of 13.63 percent, the State of Texas increase of 23.86 percent and the State of Arkansas increase of 10.86 percent over the same period. When the Texarkana MSA employment is compared to the Texarkana MSA population it can be seen that the approximately 42 to 43 percent of the population has remained employed over the period. Based on the available data, approximately 68 to 70 percent of the Texarkana MSA employment comes from Bowie County, indicating that a larger more qualified and employable base likely exists in this County. It can be seen in **Table 3.2** and **Exhibit 3.2** that Miller County experienced a slow loss of employment levels between 1989 and 1996, with employment beginning to rise again in 1997 to the present.

Projections of employment were developed and are presented in Table 3.2. County, MSA and City employment projections were developed using a simple time series analysis. It is assumed that factors, which affect employment in the past will similarly continue to affect employment into the future. The projections indicate that the Texarkana MSA employment levels will continue to increase to 57,323 by the year 2020, which is an 8.2 percent increase over the period. Though this is not large or significant growth, it is assumed that the employment base will be equally strong and steady in the future.

TABLE 3.2 HISTORIC AND FORECAST EMPLOYMENT Texarkana Regional Airport								
Year	**USA**	**Texas**	**Arkansas**	**Bowie County**	**Miller County**	**Texarkana MSA**	**Texarkana City, AR**	**Texarkana City, TX**
Historic [1]								
1989	117,366,800	7,859,000	1,053,000	35,205	13,250[4]	50,792[4]	9,194[4]	12,904[4]
1990	118,798,263	8,071,312	1,047,784	35,544	12,844[4]	51,575	9,456	13,029
1991	117,741,953	8,165,070	1,033,376	34,874	12,352[4]	50,213	9,048	12,783
1992	118,534,413	8,308,202	1,069,498	35,732	11,727[4]	51,455	9,274	13,097
1993	120,303,214	8,503,521	1,092,878	35,959	11,387[3]	51,696	9,282	13,181
1994	123,216,689	8,802,656	1,142,941	36,104	11,021[3]	51,995	9,373	13,234
1995	125,091,085	9,011,013	1,160,396	36,479	10,190[3]	52,468	9,431	13,372
1996	126,902,959	9,129,997	1,164,104	36,674	9,772[3]	52,808	9,516	13,443
1997	129,540,407	9,309,966	1,147,974	36,511	9,884[3]	52,653	9,521	13,383
1998	131,524,124	9,596,501	1,143,649	36,310	10,487[4]	52,222	9,385	13,310
1999	133,359,252	9,734,413	1,167,372	36,642	10,704[4]	52,967	9,629	13,431
Forecast [4]								
2005	148,417,150	10,865,745	1,392,267	37,487	12,766	54,197	9,799	13,777
2006	150,926,800[2]	11,054,300[2]	1,429,750[2]	37,635	13,110	54,371	9,835	13,818
2008	154,576,000[2]	11,422,368	1,482,707	37,989	13,596	54,888	9,926	13,951
2010	160,064,773	11,805,146	1,558,811	38,171	14,294	55,277	9,997	14,049
2015	171,695,330	12,743,718	1,726,071	38,849	15,827	56,309	10,203	14,299
2020	183,542,372	13,683,281	1,898,225	39,490	17,406	57,323	10,400	14,548
2025	195,371,643	14,622,884	2,069,966	40,131	18,981	58,368	10,602	14,806

Source: [1]U.S. Bureau of Labor Statistics and Real Estate Center at Texas A&M University, 2000.
[2]U.S. Bureau of Labor Statistics Web Site, 2000. Http://stats.bls.gov/news.release/ecopro.t05.htm.
[3]1993-1997 Miller County Data from U.S. Census Bureau Web Site, 7/00.
[4]URS Greiner Woodward Clyde, 2000.



Historic and Forecast Employment

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

URS Greiner Woodward Clyde

Exhibit 3.2

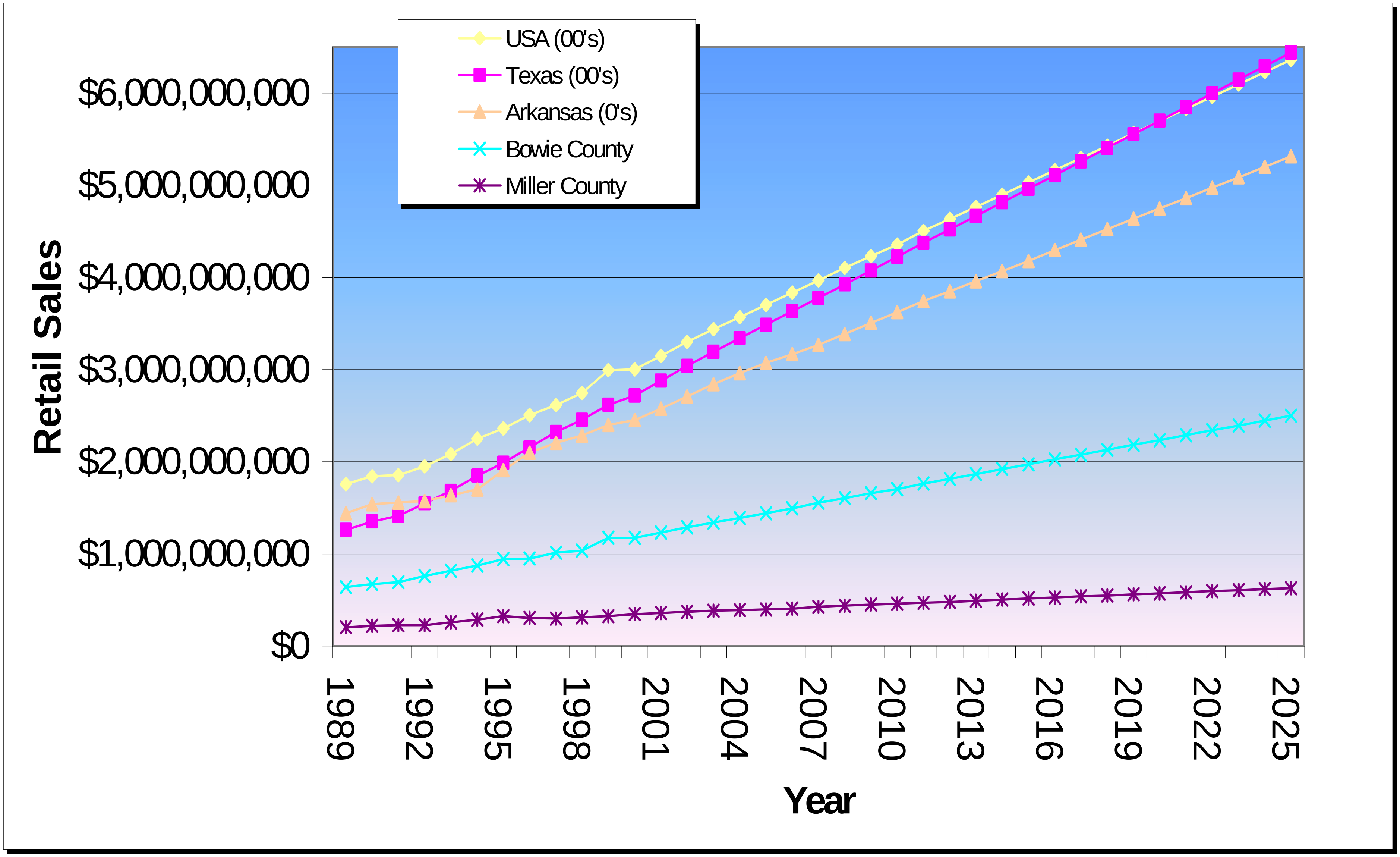
3.3.3 Retail Sales

Population and employment assist in understanding the number of people and their ability to fulfill the employable positions that exist with businesses in the area. Both of these economic indicators also show how stable the livability and business sectors are for the area. Retail sales assist in understanding how personal income and spending trends occur in the area. This data can gauge the purchasing power of the residents in a given market. Retail sales reflect the net sales for all establishments primarily engaged in retail trade. This includes receipts from repairs and other services, but does not include retail sales by service establishments or wholesalers. **Table 3.3** and **Exhibit 3.3** present the retail sales data at the national, state, county and MSA levels and on a historic and projected year basis.

Historically, the retail sales component of the Texarkana area has grown over the past 10 years with average annual growth rates of 4.84 percent for Miller County and 6.29 percent for Bowie County. Compared to the annual average growth at the state level, both counties lag slightly behind Arkansas and Texas which had an average annual growth rate of 5.29 percent and 7.58 percent respectively. The national average over the same time period was 5.48 percent.

It is assumed that the county, state and U.S. will continue to follow the past trends and grow at similar historic pace. Projected figures for retail sales anticipate that by the year 2020 that Miller County will realize an increase of $247,234,201, a 43 percent increase, and Bowie County will realize an increase of $1,060,671,514, a 90 percent increase over 1999 levels. This shows that historically the areas retail sales have continued to grow and strengthen, though changes due to the larger national economy can be seen where economic grow slowed the ability of the residents to purchase larger quantities of goods and services. However, the area has continued to spend greater amounts each year and is anticipated to do so in the future.

TABLE 3.3 HISTORIC AND FORECAST RETAIL SALES Texarkana Regional Airport					
Year	**USA (000's)**	**Texas (000's)**	**Arkansas**	**Bowie County**	**Miller County**
Historic [1]					
1989	$1,758,971,000	$1,261,750,000	$14,401,211,000	$642,319,000	$206,413,000
1990	$1,844,611,000	$1,353,240,000	$15,386,039,000	$672,426,000	$221,690,000
1991	$1,855,937,000	$1,414,450,000	$15,583,945,000	$696,496,000	$226,820,000
1992	$1,951,589,000	$1,547,700,000	$15,741,081,000	$763,309,000	$228,071,000
1993	$2,083,029,000	$1,685,480,000	$16,369,401,000	$818,733,500	$257,732,000
1994	$2,250,033,000	$1,850,560,000	$16,997,721,000	$874,158,000	$287,393,000
1995	$2,361,793,000	$1,987,470,000	$19,090,516,000	$946,361,000	$324,715,000
1996	$2,506,141,000	$2,155,350,000	$20,998,923,000	$952,997,000	$307,556,000
1997	$2,615,669,000	$2,323,770,000	$22,053,022,000	$1,014,873,000	$301,113,000
1998	$2,746,011,000	$2,456,980,000	$22,872,236,000	$1,037,602,000	$311,637,000
1999	$2,993,931,000	$2,618,030,000	$23,994,647,000	$1,175,996,000	$325,707,000
Forecast [2]					
2005	$3,700,747,569	$3,486,953,072	$30,745,376,220	$1,443,182,253	$398,973,575
2010	$4,356,305,853	$4,222,482,098	$36,222,868,900	$1,703,395,272	$460,887,010
2015	$5,030,491,276	$4,961,252,969	$41,807,382,300	$1,973,537,213	$517,069,826
2020	$5,696,654,552	$5,701,522,464	$47,485,827,860	$2,236,567,514	$572,941,201
2025	$6,360,884,226	$6,440,571,908	$53,129,275,990	$2,499,952,460	$630,141,969
Source: [1]U.S. Bureau of Labor Statistics and Real Estate Center at Texas A&M University, 2000. [2]URS Greiner Woodward Clyde, 2000.					



Historic and Forecast Retail Sales

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

URS Greiner Woodward Clyde

Exhibit 3.3

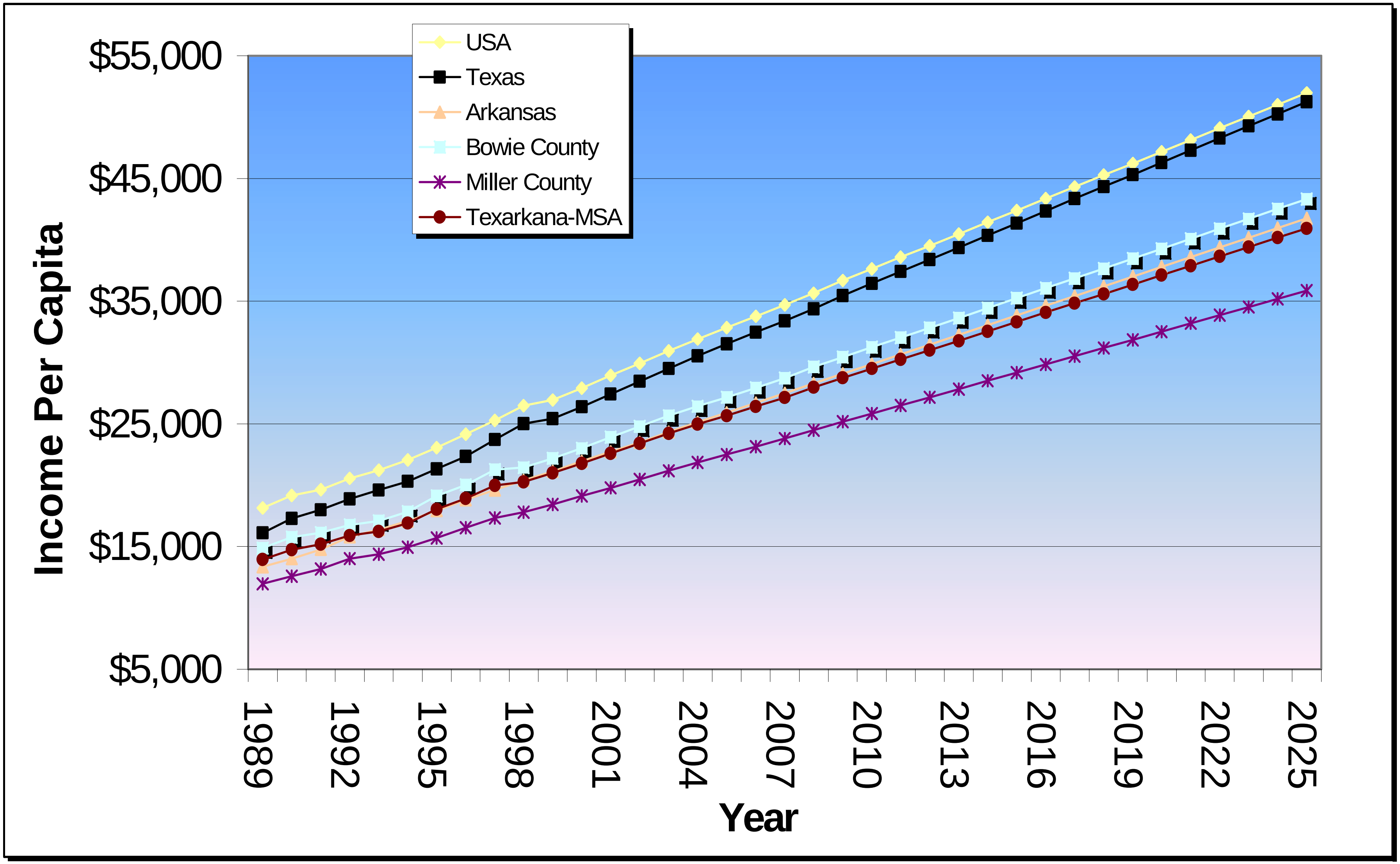
3.3.4 Income per Capita

Income per Capita reflects the average monetary wage per head of household. Past trends show that the Texarkana MSA has experienced positive growth in income per capita and has closely followed the State and U.S. growth patterns. Although on a percentage basis the Texarkana MSA has kept pace with the rest of the U.S., on a dollar comparative basis, the average income per capita has remained slightly below that of the State and U.S. average. As shown in **Table 3.4** and **Exhibit 3.4**, both Bowie and Miller County have lagged behind their respective State income per capita levels by $1,000 to $2,000. However, the Texarkana MSA income per capita level on a dollar basis has met or exceeded the State of Arkansas levels and only lagged behind the State of Texas levels by a few thousand dollars.

Projections of income per capita for each area are anticipated to follow historic trends and continue to experience positive steady growth. Though the County and State levels may not reach or exceed the U.S. levels in the future, the outlook is positive for the Texarkana MSA.

TABLE 3.4 HISTORIC AND FORECAST INCOME PER CAPITA Texarkana Regional Airport						
Year	**USA**	**Texas**	**Arkansas**	**Bowie County**	**Miller County**	**Texarkana-MSA**
Historic [1]						
1989	$18,153	$16,110	$13,353	$14,885	$11,960	$13,941
1990	$19,156	$17,290	$14,025	$15,757	$12,570	$14,738
1991	$19,623	$17,985	$14,766	$16,139	$13,168	$15,190
1992	$20,547	$18,886	$15,807	$16,758	$14,020	$15,886
1993	$21,220	$19,606	$16,380	$17,078	$14,363	$16,214
1994	$22,056	$20,312	$17,090	$17,836	$14,947	$16,916
1995	$23,059	$21,320	$17,934	$19,127	$15,704	$18,035
1996	$24,164	$22,345	$18,808	$20,030	$16,531	$18,918
1997	$25,288	$23,707	$19,595	$21,254	$17,321	$19,990
1998	$26,482	$25,028	$20,393	$21,431[2]	$17,786[2]	$20,269[2]
1999	$26,940[2]	$25,425[2]	$21,137[2]	$22,186[2]	$18,442[2]	$20,993[2]
Forecast [2]						
2005	$32,850	$31,516	$25,911	$27,158	$22,495	$25,668
2010	$37,631	$36,438	$29,867	$31,238	$25,836	$29,512
2015	$42,390	$41,347	$33,825	$35,257	$29,173	$33,312
2020	$47,175	$46,294	$37,785	$39,279	$32,513	$37,116
2025	$51,966	$51,246	$41,746	$43,315	$35,856	$40,930

Source: [1]Sales & Marketing Management, 2000.
[2]URS Greiner Woodward Clyde, 2000.



Historic and Forecast Income Per Capita

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

URS Greiner Woodward Clyde

Exhibit 3.4

3.3 5 Effective Buying Income

Effective Buying Income (EBI) is a socioeconomic measure that is comparable to a person's disposable income. As shown in **Table 3.5** and **Exhibit 3.5**, Bowie County and Miller County have lagged behind their respective state EBI levels. The Texarkana MSA EBI has lagged behind both the State of Arkansas and the State of Texas and is projected to do so in the future. The EBI for Miller County is projected to slowly decline over time, while the EBI for Bowie County is projected to continue a pattern of positive growth.

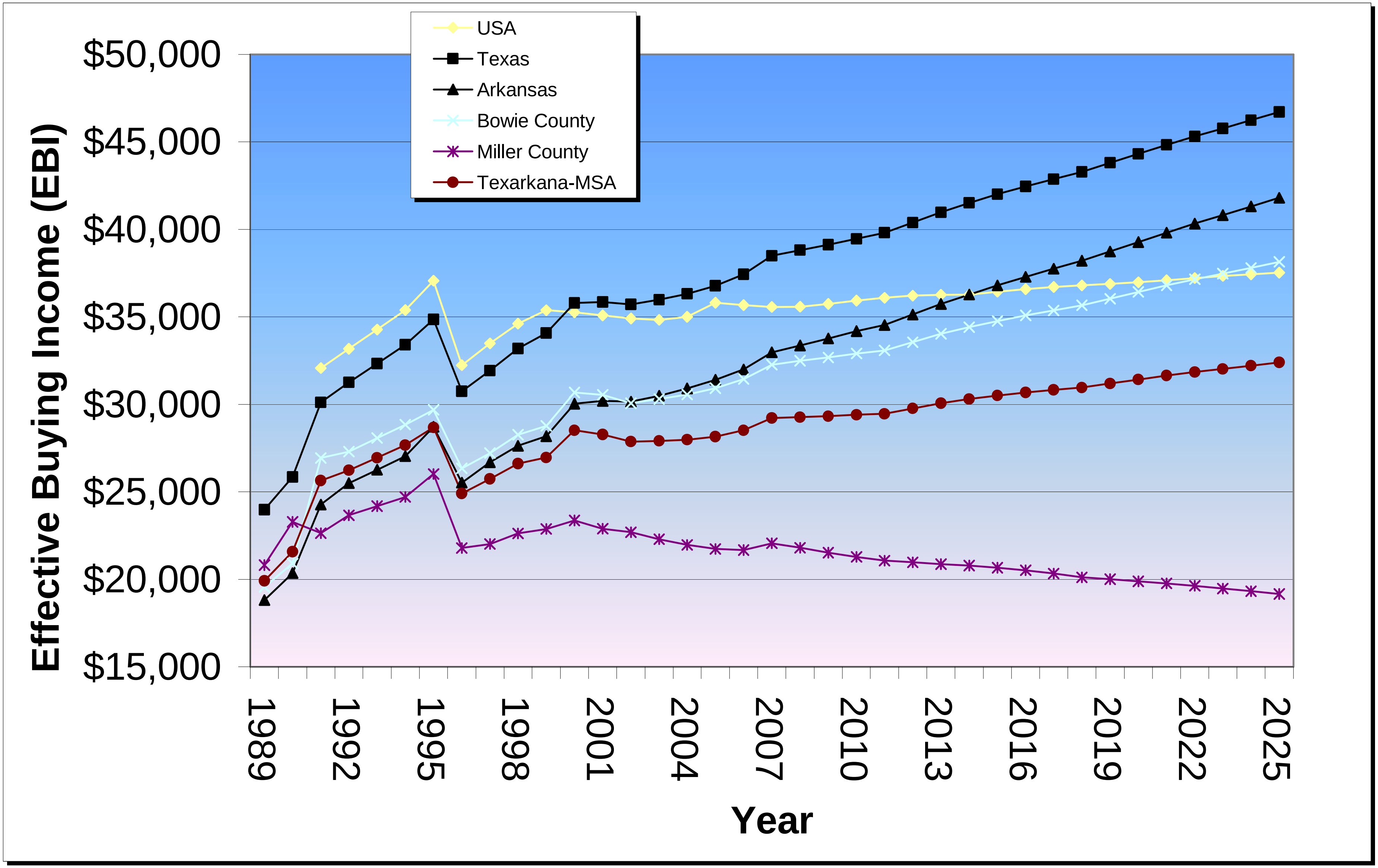
3.3.6 Summary

Based on the socioeconomic data presented, it can be seen that although large sweeping economic change is not anticipated to occur in the Texarkana MSA. It is anticipated that the area will continue to have a solid economic base to maintain the current economic climate. Growth experienced within the Texarkana MSA will continue to be largely attributed to the Texas side of the area development, with the Arkansas side contributing slightly less to the areas economic growth. It is noted that projected changes may occur which could impact the socioeconomic development of the area, including future state and interstate highway projects. However, to fully consider the potential of these new variables and their relative impact on the socioeconomic development of the area would be highly speculative and could easily under or over estimate the potential impacts.

Overall, the economy of the area can and should be able to support the current level and future growth of aviation services provided at TXK. Through natural growth and migration of the economy, future demands on the aviation services will likely be slightly greater than those demands currently experienced. Changes in the demand of aviation services in the future can be brought about by the introduction of new businesses to the area that utilize aviation services, public opinion towards flying versus driving, cost of fuel or changes in the level or quality of aviation services provided at the airport.

TABLE 3.5 HISTORIC AND FORECAST EFFECTIVE BUYING INCOME Texarkana Regional Airport						
Year	**USA**	**Texas**	**Arkansas**	**Bowie County**	**Miller County**	**Texarkana-MSA**
Historic [1]						
1989	--	$23,975	$18,808	$19,569	$20,810	$19,918
1990	--	$25,847	$20,361	$20,905	$23,282	$21,584
1991	$32,073	$30,122	$24,277	$26,936	$22,645	$25,645
1992	$33,178	$31,253	$25,495	$27,299	$23,655	$26,237
1993	$34,283[2]	$32,328[2]	$26,266[2]	$28,073[2]	$24,182[2]	$26,95[2]
1994	$35,388[2]	$33,402	$27,037	$28,847	$24,708	$27,669
1995	$37,070	$34,851	$28,721	$29,681	$26,021	$28,680
1996	$32,238	$30,747	$25,524	$26,349	$21,788	$24,905
1997	$33,482	$31,923	$26,691	$27,216	$22,022	$25,744
1998	$34,618	$33,190	$27,634	$28,268	$22,628	$26,617
1999	$35,377	$34,084	$28,190	$28,775	$22,878	$26,963
Forecast [2]						
2005	$35,811	$36,777	$31,404	$30,917	$21,742	$28,162
2010	$35,924	$39,458	$34,181	$32,903	$21,277	$29,412
2015	$36,435	$42,005	$36,801	$34,763	$20,666	$30,510
2020	$36,982	$44,324	$39,277	$36,423	$19,888	$31,423
2025	$37,528	$46,707	$41,811	$38,143	$19,164	$32,395

Source: [1]Sales & Marketing Management, 2000.
[2]URS Greiner Woodward Clyde, 2000.



Historic and Forecast Effective Buying Income

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

URS Greiner Woodward Clyde

Exhibit 3.5

3.4 COMMERCIAL AVIATION ACTIVITY

TXK has provided a vital aviation link for the Texarkana area through diverse aviation services to include passenger service by major national airlines and their airline partners and air charter services. These passenger activities are segregated into two distinct reporting groups: air carrier and regional airline/air taxi.

3.4.1 Air Carrier

Air carrier activity is defined by the FAA to include commercial aviation activities conducted with aircraft having a seating capacity of 60 seats or greater. Over the past decade Texarkana has been continuously serviced by scheduled airlines such as American Airlines partner American Eagle, Delta Airlines partner Atlantic Southeast Airlines (ASA) and at one time serviced by Continental Express and Executive Express. However, these airlines have conducted their activities with aircraft with less than 60 seats and thus do not fall into the Air Carrier group of reported activities. However, Air Carrier activity does exist at TXK through the activities of private aircraft charter conducted by non-scheduled airlines. These airlines typically are hired by organized travel groups or tour companies for specific point to point destination flights. Many of these flights are arranged to transport their passengers to vacation specific points for such activities as gambling, fishing, scuba diving or site seeing.

One air carrier for a number of years has operated non-scheduled passenger service at TXK. This airline, Casino Express, operates a Boeing 737 aircraft. From discussions with Airport Management and the TXK ATCT, a typical Casino Express operation involves between 20 and 100 passengers per flight. Although the B737 can hold between 100 and 130 passengers, many times TXK is stopping point for the non-scheduled air carrier charter to pickup additional passengers for a particular trip before proceeding to its next or final destination.

Typically, passenger enplanements are the driving force of aircraft operations. In the case of TXK, the vacation and various tour company transportation requirements dictate the level of air carrier enplanements. Although air carrier activity occurs at TXK without a regular schedule, the Airport has averaged approximately 295 air carrier passenger enplanements with and average of 66 operations per year, based on the TXK ATCT records of air carrier operations for the past 10 years. As of the end of the first quarter in 2000, 4 air carrier operations had occurred, all performed by Casino Express, with a total of 347 passengers. Due to the unpredictable nature of these types of air carrier operations, it is not possible to develop a meaningful forecast of this activity using historic data and mathematical models. The FAA has developed a forecast of aviation activity for TXK that is updated on an annual basis. Therefore it is recommended that for purposes of forecasting aviation demand to be used for establishing facility requirements that the FAA Terminal Area Forecast (TAF) be utilized. The TAF shows a total of 378 air carrier enplanements and 20 air carrier operations per year.

3.4.2 Regional Airlines/ Air Taxi

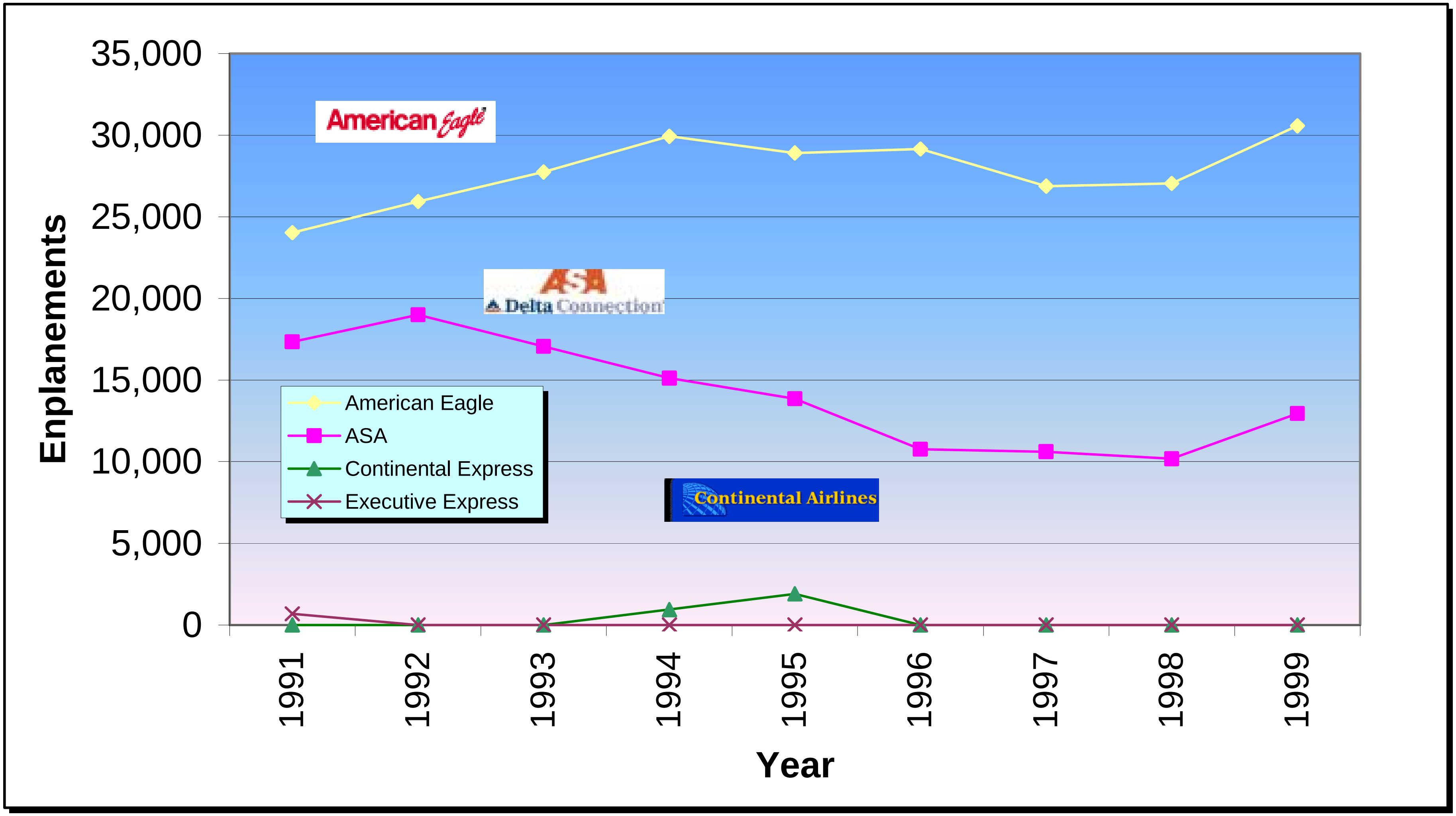
The majority of recognized activity by the public occurring at the Airport is the activities of the scheduled airlines. The scheduled airlines currently serving TXK are American Airline and Delta Airline code-sharing partners American Eagle and Atlantic Southeast Airlines. TXK has been served by several other scheduled airlines including Northwest Airlink and Rio Airways from 1984 to 1987, Executive Express from January to July of 1991 and Continental Express from October 1994 through August of 1995. Executive Express flew Embraer EMB-110 Bandeirante and Continental Express flew Saab-Fairchild 340 Commuter aircraft.

Regional airline enplanements have been fairly consistent over the past 9 years with a variance of no greater 4,000 to 6,000 passengers in any one year. **Table 3.6** and **Exhibit 3.6** present the historic scheduled regional airline enplanements from 1991 to 1999.

TABLE 3.6 HISTORIC SCHEDULED AIRLINE ENPLANEMENTS Texarkana Regional Airport						
Year	**American Eagle**	**ASA**	**Continental Express**	**Executive Express**	**Total**	**Annual % Change**
1991	24,023	17,344	0	678	42,045	--
1992	25,929	18,996	0	0	44,925	6.85%
1993	27,743	17,049	0	0	44,792	-0.30%
1994	29,932	15,111	933	0	45,976	2.64%
1995	28,911	13,853	1,902	0	44,666	-2.85%
1996	29,158	10,765	0	0	39,923	-10.62%
1997	26,876	10,619	0	0	37,495	-6.08%
1998	27,051	10,175	0	0	37,226	-0.72%
1999	30,575	12,952	0	0	43,527	16.93%
Source: Texarkana Regional Airport, 2000.						

As seen in the above table, TXK enplanements have consistently been in the upper thirty to mid-forty thousand range each year. Although a slight decrease of passenger activity occurred from 1996 through 1998, the 1999 passenger activity accelerated and it appears that the year 2000 the passenger enplanements will be close to the 1999 levels. Based on the historic review of the scheduled airline passenger enplanements and the outlook of socioeconomic influences in the area, it is anticipated that the scheduled airline market at TXK will continue to experience growth in passenger activity. It is acknowledged that occasional declines in activity are likely to occur in the future, however, the long-term trend of growth will remain positive. The following forecasts reflect the anticipated future trends and economic influences on scheduled airline activity at the Airport.

Three methodologies were used to examine the enplaned passenger potential for Texarkana: time series analysis using multiple variable regression, market share analysis, and growth by industry projected rate. In addition to the forecast generated through these methodologies, comparisons with forecast developed by the FAA and the 1987 Airport Master Plan prepared by Barnard-Dunkelberg are presented.



Historic Enplanements Regional/Scheduled Airline

TXK Texarkana Regional Airport

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

URS Greiner Woodward Clyde

Exhibit 3.6

3.4.2.1 Multiple Variable Regression Analysis

The multiple variable regression analysis is a statistical model used to develop projections based on the relationship of two or more variables: one dependent or response variable and one or more independent or prediction variables. The response variable is the anticipated forecast outcome. With this technique, it is assumed that the projected growth in the socioeconomic variable will yield a commensurate growth in the response variable. By relating historic socioeconomic levels to corresponding levels of enplaned passengers, a correlation value (R^2) may be identified to explain which variable, or combination of variables, has the strongest relationship to enplaned passengers.

Although a number of various national, state, county and MSA socioeconomic variables were analyzed, effective buying income and employment demonstrated the closest correlation to past passenger activity while yielding a reasonable projected outcome. By mathematical calculations, a coefficient of determination (R^2) is developed in an attempt to establish the historic relationship of the dependent and independent variables. An R^2 equal to 1.0, a perfect correlation, means that 100 percent of the variation in enplaned passenger traffic is explained by the combined activity of the socioeconomic variables included in the model. The results of the analysis presented in **Table 3.7**, provided a correlation value of 0.96 using EBI versus enplanements and 0.97 using employment versus enplanements. The projections of enplaned passengers based on this method using EBI expects a total of 88,700 enplanements to occur by the end of the year 2020. Using the employment variable passenger enplanements are expected to reach approximately 116,700 by the end of the year 2020. In an attempt to include the affects of all socioeconomic variables on the forecast the average of all the regression analysis using the single type variable was calculated.

TABLE 3.7 MULTIPLE VARIABLE REGRESSION ANALYSIS - TXK ENPLANEMENTS Texarkana Regional Airport							
Year	**TXK Enplanements**	**vs. All EBI Variables**	**Annual Growth (%)**	**Vs. All Employment Variables**	**Annual Growth (%)**	**Average of All Regression Analysis**	**Annual Growth (%)**
Historic [1]							
1991	42,045						
1992	44,925						
1993	44,792						
1994	45,976						
1995	44,666						
1996	39,923						
1997	37,495						
1998	37,226						
1999	43,527						
Forecast [2]							
2005		**58,400**	5.7%	**61,500**	6.9%	**44,400**	0.4%
2010		**71,000**	4.3%	**80,000**	6.0%	**47,400**	1.4%
2015		**79,800**	2.5%	**98,000**	4.5%	**56,600**	3.9%
2020		**88,700**	2.2%	**116,700**	3.8%	**58,700**	0.7%
2025		**99,700**	2.5%	**135,300**	3.2%	**69,400**	3.6%

Source: [1]Texarkana Regional Airport, 2000.
[2]URS Greiner Woodward Clyde, 2000.

It should be noted that projections are provided for beyond the normal 20 year planning period. These projections are provided for two reasons: 1) projections of socioeconomic data and FAA long range forecast obtained projected activity to the year 2025; 2) to provide the Airport with the ability to view beyond the normal 20 year planning period based on current relevant forecasts.

3.4.2.2 Market Share Analysis

The market share analysis is an analysis and projection technique that reviews the historic activity levels at the Airport as a percentage share of the larger industry or market levels. For instance the total number of passengers enplaned at TXK versus the total number of enplaned passengers in the southern region or on a national level. This share factor is compared to forecasts for the larger market to determine the likely future activity level.

By using this forecast technique, a historic share of passenger enplanements for TXK compared to national regional/ commuter airline passenger enplanements were calculated. **Table 3.8** presents the review of this historic data. The table presents two comparisons of TXK passenger enplanements due to the method which data is reported to the FAA. In 1999, 93 regional/ commuter airlines re-reported their traffic data either on DOT Form 298-C or Form 41. This re-reporting of traffic data attempts to segregate the industry by two groups of carriers: Form 298-C for carriers that operate only commuter aircraft of 60 seats or less and Form 41 for carriers that operate both large aircraft and aircraft over 60 seats and smaller commuter aircraft. However, due to this re-reporting of traffic data, some duplicated enplanement data for certain carriers exist in the FAA compiled statistics. Therefore, forecasts were generated based on both data sets and presented in Table 3.8.

From the calculated historic market share, the 1999 share level was used to determine the future enplanement level for TXK. This percentage was selected since it is anticipated that the Airport will maintain its current level of activity in the future and the enplanement level for 1999 is close to the historic average of enplanements experienced at TXK. Based on this method of projecting enplanements for TXK, it is anticipated that by the end of the year 2020, the activity level may reach between 104,200 enplanements, a 140 percent increase, and 122,500 enplanements, a 181 percent increase over existing levels.

TABLE 3.8 MARKET SHARE ANALYSIS – TXK ENPLANEMENTS Texarkana Regional Airport						
Year	**TXK Enplanements**	**Form 298-C Carrier Enplanements**	**Market Share (%)**	**TXK Enplanements**	**All Regional/ Commuter Enplanements**	**Market Share (%)**
1991	42,045[1]			42,045[1]		
1992	44,925[1]			44,925[1]		
1993	44,792[1]			44,792[1]		
1994	45,976[1]	39,200,000[2]	0.115%	45,976[1]	55,300,000[2]	0.081%
1995	44,666[1]	34,800,000[2]	0.123%	44,666[1]	55,800,000[2]	0.077%
1996	39,923[1]	33,700,000[2]	0.118%	39,923[1]	60,000,000[2]	0.067%
1997	37,495[1]	35,400,000[2]	0.106%	37,495[1]	61,600,000[2]	0.061%
1998	37,226[1]	34,300,000[2]	0.109%	37,226[1]	64,600,000[2]	0.058%
1999	43,527[1]	35,000,000[2]	0.124%	43,527[1]	72,300,000[2]	0.060%
Forecast						
2000	**46,900**[4]	37,700,000[2]	0.124%	**47,100**[4]	78,200,000[2]	0.060%
2005	**60,800**[4]	48,900,000[2]	0.124%	**62,000**[4]	103,000,000[2]	0.060%
2010	**76,981**[4]	61,900,000[2]	0.124%	**79,200**[4]	131,600,000[2]	0.060%
2015	**89,300**[4]	71,794,950[3]	0.124%	**98,600**[4]	163,700,000[3]	0.060%
2020	**104,200**[4]	83,800,290[3]	0.124%	**122,500**[4]	203,500,000[3]	0.060%
2025	**118,000**[4]	94,841,576[3]	0.124%	**147,000**[4]	244,100,000[3]	0.060%

Source: [1]Texarkana Regional Airport, 2000.
[2]FAA Aerospace Forecast, Fiscal Year 2000-2011, March 2000.
[3]FAA Long Rang Aerospace Forecast 2015, 2020 and 2025, June 2000.
[4]URS Greiner Woodward Clyde, 2000.

3.4.2.3 Growth by Industry Projections

This forecast method assumes that passenger enplanements will grow near the growth rate projected by the FAA for all scheduled air carrier passenger enplanements. The FAA forecast for U.S. domestic enplanements shows an average annual growth rate of 3.6 percent from 2000 to 2011, and 3.2 percent thereafter. Based on this data, the projections for TXK that were developed hinged on two scenarios. These two scenarios view TXK's growth at a rate slightly less than and slightly more than the FAA national forecast growth rate. An annual growth rate of 3.0 and 3.5 percent were assumed, which also provides some sensitivity to the overall projections. **Table 3.9** shows that enplanements could grow to between 81,000 and 89,600 passengers by the year 2020.

TABLE 3.9
TXK ENPLANEMENTS FORECAST GROWTH BY INDUSTRY PERCENT
Texarkana Regional Airport

Year	TXK Enplanements	3% Annual Growth	3.5% Annual Growth
Historic [1]			
1991	42,045		
1992	44,925		
1993	44,792		
1994	45,976		
1995	44,666		
1996	39,923		
1997	37,495		
1998	37,226		
1999	43,527		
Forecast [2]			
2005		**52,000**	**53,500**
2010		**60,300**	**63,500**
2015		**69,900**	**75,500**
2020		**81,000**	**89,600**
2025		**93,900**	**106,400**

Source: [1]Texarkana Regional Airport, 2000.
[2]URS Greiner Woodward Clyde, 2000.

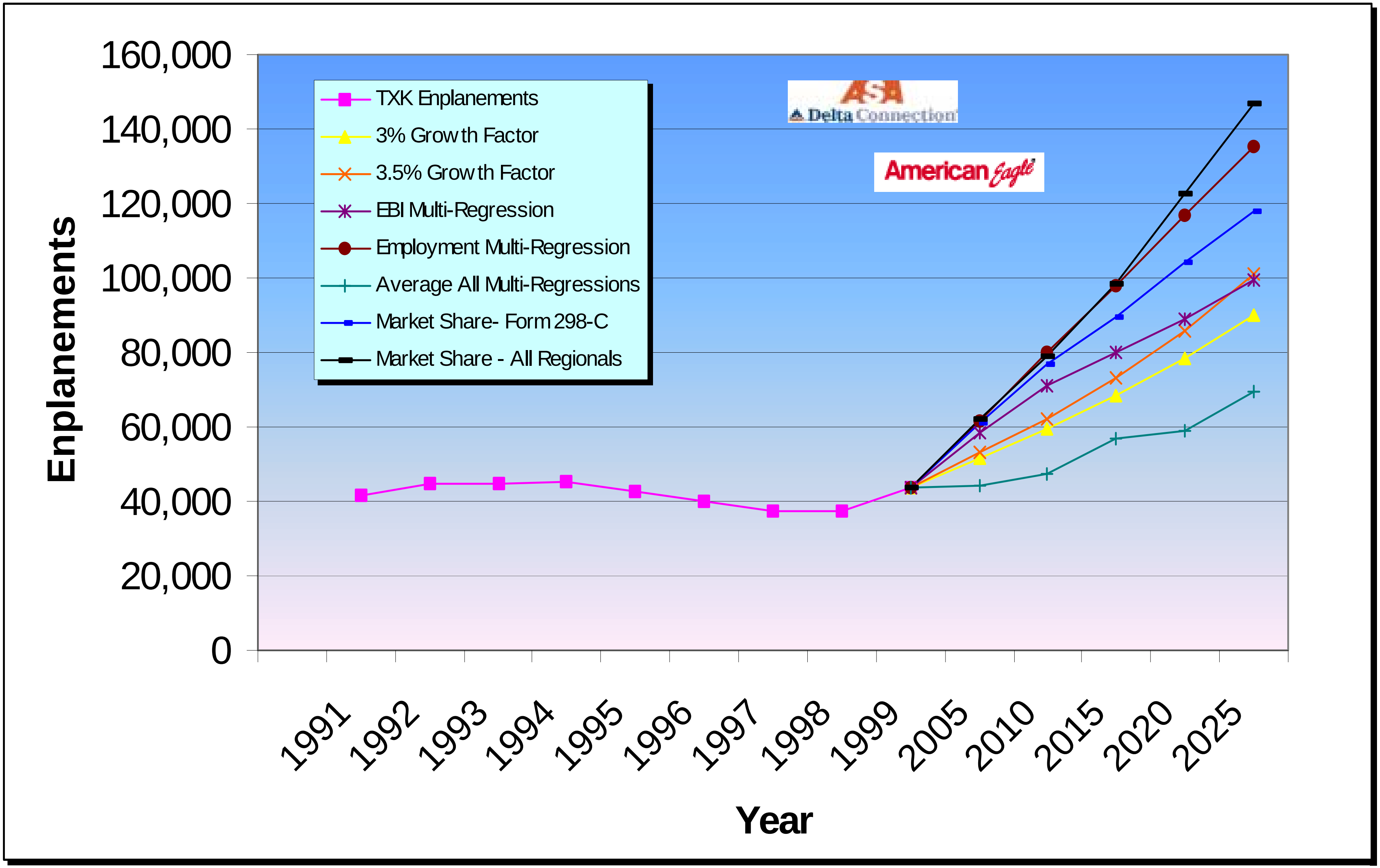
3.4.2.4 Summary of Enplanement Forecasts

The forecast of regional/ commuter airline passenger enplanements presented show there is a strong range of possibilities of passenger activities over the planning period. **Table 3.10** and **Exhibit 3.7** show the forecast of passenger enplanements previously discussed and also present the FAA TAF forecast, adding to the overall potential range of future passenger growth.

TABLE 3.10
SUMMARY OF ENPLANEMENT FORECASTS
Texarkana Regional Airport

Projection	2005	2010	2015	2020	2025
Market Share- Form 298-C Carriers	60,800	76,981	89,300	104,200	118,000
Market Share - All Regional Carriers	62,000	79,200	98,600	122,500	147,000
Regression – All EBI Variables	58,400	71,000	79,800	88,700	99,700
Regression – All Employment Variables	61,500	80,000	98,000	116,700	135,300
Regression – Avg. All Reg. Analysis	44,400	47,400	56,600	58,700	69,400
Fixed Annual Growth Rate - 3.0%	**52,000**	**60,300**	**69,900**	**81,000**	**93,900**
Fixed Annual Growth Rate - 3.5%	53,500	63,500	75,500	89,600	106,400
FAA TAF 2000	34,923	34,923	34,923	34,923	34,923

Source: FAA Terminal Area Forecast (TAF), 2000.
URS Greiner Woodward Clyde, 2000.



Regional/ Scheduled Air Carrier
Enplanement Forecast

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

URS Greiner Woodward Clyde

Exhibit 3.7

Before selecting a preferred forecast to utilize further in this study, it is important to review previous forecast developed for the Airport to see if any pattern or common projection element has occurred compared to the actual activity that has occurred since the projections were developed. Four projections of enplanements were reviewed and compared to what actually occurred. Three projections come from past forecast of the NPIAS and the fourth projection is that from the previous master plan. **Table 3.11** presents the compiled data from these various sources. It can be seen from the table that past projections when compared to the actual activity that occurred typically have over estimated the enplanement growth. There are many factors which have influenced the actual activity and the growth of passenger enplanements. Without a significant compelling reason that would affect the level of enplanements at TXK, a forecast of moderate but steady growth is recommended as the preferred. Therefore, for planning purposes, it is recommended that that the Fixed Growth Rate – three percent forecast be used as the basis for the remainder of this study. This forecast, which may be slightly optimistic in the near term, provides for consideration of future attainable growth over the long term planning period and the need to consider facility requirements for such growth.

TABLE 3.11

SUMMARY OF PREVIOUS ENPLANEMENT FORECASTS

Texarkana Regional Airport

Year	Actual	NPIAS 1986-1995	NPIAS 1990-1999	NPIAS 1998-2002	Barnard- Dunkelberg AMP
1986	38,081	27,000	--	--	
1990	41,380	62,000	39,000	--	47,300
1991	42,045	--	--	--	48,300
1995	44,666	72,000	58,000	--	52,000
1998	37,226	--	--	--	55,000 [4]
1999	43,527	--	72,000	--	56,500 [4]
2002	--	--	--	53,000	59,600 [4]

Notes: [4]Data interpolated.

Source: Texarkana Regional Airport, 2000.
FAA Terminal Area Forecast (TAF), 2000.
URS Greiner Woodward Clyde, 2000.

3.4.3 Regional/ Commuter Airline Fleet Mix

The majority of the scheduled airlines that have served TXK in the past have operated short-range, twin-engine turboprop aircraft. These aircraft include the Embraer EMB-110 Bandeirante, the Embraer EMB-120 Brasilia, the Saab-Fairchild 340, the ATR-42/72 and the Jetstream 31. Currently the EMB-120 and the Saab 340 are normally seen at TXK. In the late spring of 2000, ASA begin flying two flights per week with the Canadair Regional Jet (RJ). It is anticipated that in the future, the turboprop aircraft will be utilized as the primary aircraft by the airlines and that the use of the RJ will slowly increase to comprise 50 percent of the fleet mix by the end of the planning period. This is a conservative approach to the phased use of the RJ at TXK due to several factors such as the useful life of the current airline turboprop fleet, the airlines schedule to complete the transition to an all RJ fleet, the current large orders by both airlines currently serving TXK for RJ aircraft, the greater number of seats on the RJ compared to current turboprop fleet used at TXK and the airlines operating cost and necessary load factor requirements to support the use of the RJ.

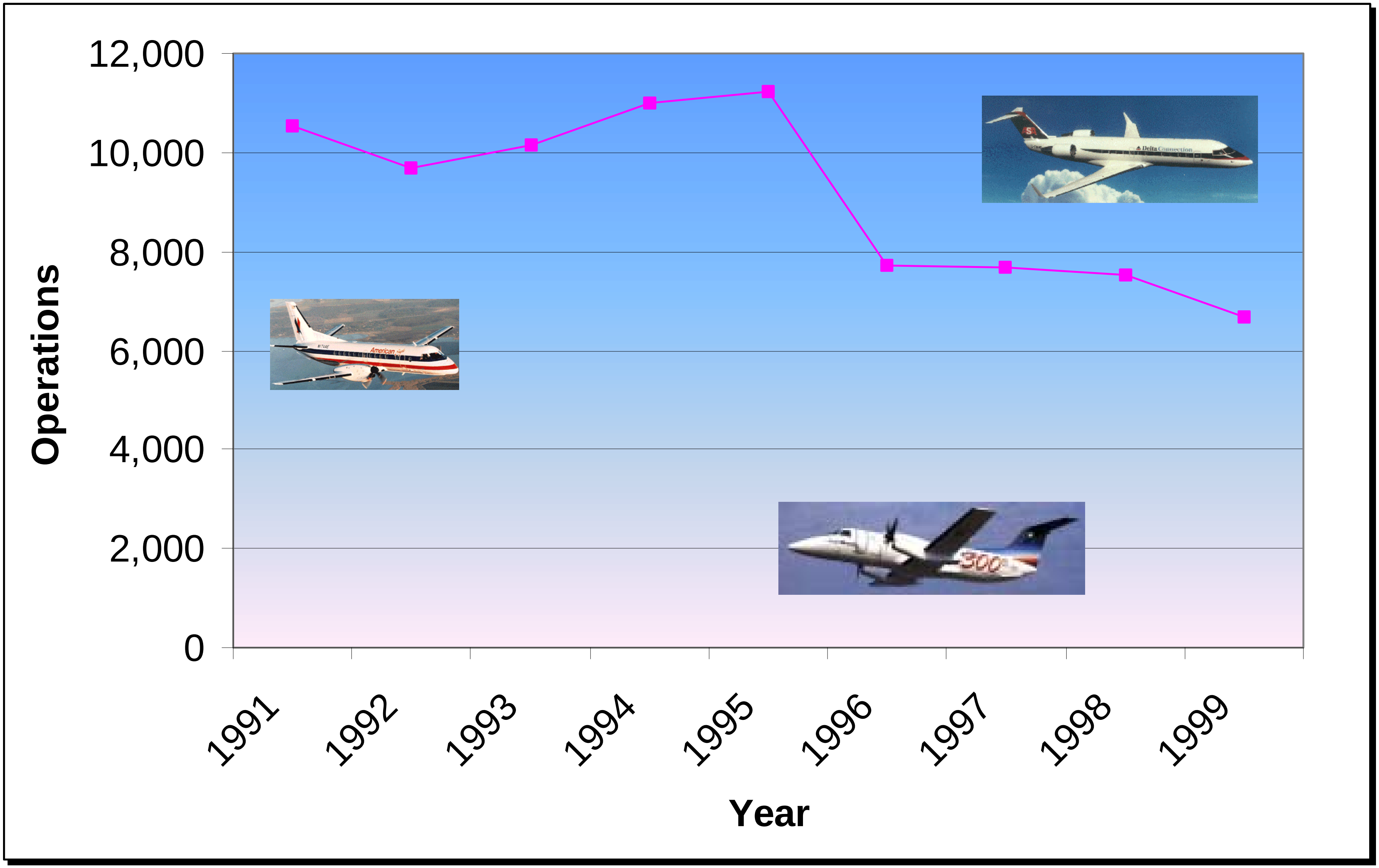
3.4.4 Scheduled Regional Airline/ Air Taxi Operations

From 1991 to 1999, scheduled airline/ air taxi operations have fluctuated between 6,673 and 11,227 annual operations, with an annual average over the period of approximately 9,135 operations. Operation data reported by the TXK ATCT combines the operations conducted by the scheduled airlines and the air taxi operators into one category, air taxi operators. This is a common practice since the aircraft operated the scheduled airlines do not qualify as air carrier and the only other reporting category that the scheduled airline activities can be classified as are air taxi. Because of this reporting practice, the remainder of this report will combine both types of these operations and identified them as scheduled airline operations. **Table 3.12** and **Exhibit 3.8** present the historic operation activity for TXK scheduled airlines.

To examine commercial aircraft departures for the forecast period, an analysis was performed of the current passenger boarding load factor at the airport as compared to the average number of seats departing and the markets served. The boarding load factor is the ratio of seats available for passengers boarding on particular aircraft to the number of passengers that actually board. For example, if an aircraft has 30 seats available and a total of 15 passengers actually board the airplane, the boarding load factor is 50 percent.

TABLE 3.12 HISTORIC SCHEDULED AIRLINE OPERATIONS Texarkana Regional Airport		
Year	**Operations**	**Annual Growth**
1991	10,531	--
1992	9,693	-8.0%
1993	10,143	4.6%
1994	10,991	8.4%
1995	11,227	2.1%
1996	7,734	-31.1%
1997	7,694	-0.5%
1998	7,528	-2.2%
1999	6,673	-11.4%
Note: Data includes air taxi operations.		
Source: Texarkana Regional Airport, 2000. URS Greiner Woodward Clyde, 2000.		

Currently, it is estimated that scheduled airline departures at TXK are averaging 40.5 percent boarding load factor. Annual seats departing TXK were derived from evaluating the airline flight schedule, airport activity records, and the aircraft types used by the airlines. It is estimated that annual airline departures were 3,337 in 1999. The aircraft operated by the airlines during this period were the EMB-120, which seats 30 passengers, and the Saab 340 which seats 34 passengers. In order to determine the aircraft fleet mix of and annual seats departing, it was necessary to take into account all of the above information. As a result, the total estimated available seats departing TXK in 1999 was approximately 107,526. The estimated available seats departing is presented in **Table 3.13.**



Regional/ Scheduled Airline Historic Operations

Note: Data includes Air Taxi Operations

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

URS Greiner Woodward Clyde

Exhibit 3.8

TABLE 3.13 ESTIMATED AVAILABLE SEATS Texarkana Regional Airport			
Aircraft Type	**No. of Seats**	**Est. Departures**	**Est. Avail. Seats**
EMB-120	30	1,483	44,490
Saab 340	34	1,854	63,036
Total		**3,337**	**107,526**
Average Seats/ Departure = 32.2			
Source: URS Greiner Woodward Clyde, 2000.			

As previously discussed, the 1999 load factor was estimated to be 40.5 percent and is determined by dividing the number of annual enplanements of 43,527 passengers by the estimated annual available seats departing.

It is assumed that the scheduled air carriers will have an approximate 95 percent completion rate of all scheduled flights, and because reliable data concerning air taxi activity is unavailable, the remaining 5 percent of scheduled seats departing Texarkana will be provided by air taxi operators throughout the planning period. Therefore, final forecast data for the scheduled airline activity will also include air taxi activity, enplanements and operations.

During the forecast period it is assumed that the airline industry will continue to grow and provide gradually increasing improved level service, boarding load factors at TXK will gradually increase to approximately 50 percent which is below the FAA projections of average load factors for regional airline operators. The increase in the average load factor used in the forecast is based on the fact that with the introduction of the RJ use by the airlines, a greater load factor will be necessary to ensure the airlines have a minimum level of passengers to maintain profitable service. It is also assumed that as use of the RJ at TXK increases, local public opinion of flying will improve, drawing more people to fly with the regional airlines. The current industry average load factor is 57.6 percent, which is 17.1 percent above the current load factors at TXK. The FAA projected average industry load factor for 2011 is 61.6 percent. In addition to changing the load factor, it is anticipated that the existing fleet mix will experience a shift in the long term to use of the larger aircraft, specifically the RJ. By estimating the future regional scheduled airline fleet mix for TXK and calculating the average annual number of seats departing (based on a particular fleet mix vs. load factor, annual enplanements, and frequency of service), it is possible to estimate the number of scheduled departures and thus operations for each of the forecast years.

Table 3.14 depicts the existing and future fleet mix utilized in the forecast of operations. The industry has seen an accelerated decline in the use of 19 seat aircraft along with the increase in airline orders for larger turbine prop and jet aircraft which offer similar amenities found on large jet aircraft. The regional fleet is expected to grow at 3.0 percent annually with the average number of available seats increasing from 36 seats in 1999 to 44.3 seats in 2011. In 1999, regional jets accounted for 15.3 percent of the national regional fleet and are projected to compose approximately 50 percent of the fleet by the year 2011. Based on the FAA outlook of the regional airline fleet mix, it is assumed that by the 2020, the regional scheduled airline fleet mix at TXK will be composed of 80 percent RJ's and 20 percent turboprop aircraft. The 2025 forecast assumes a 90 percent RJ fleet.

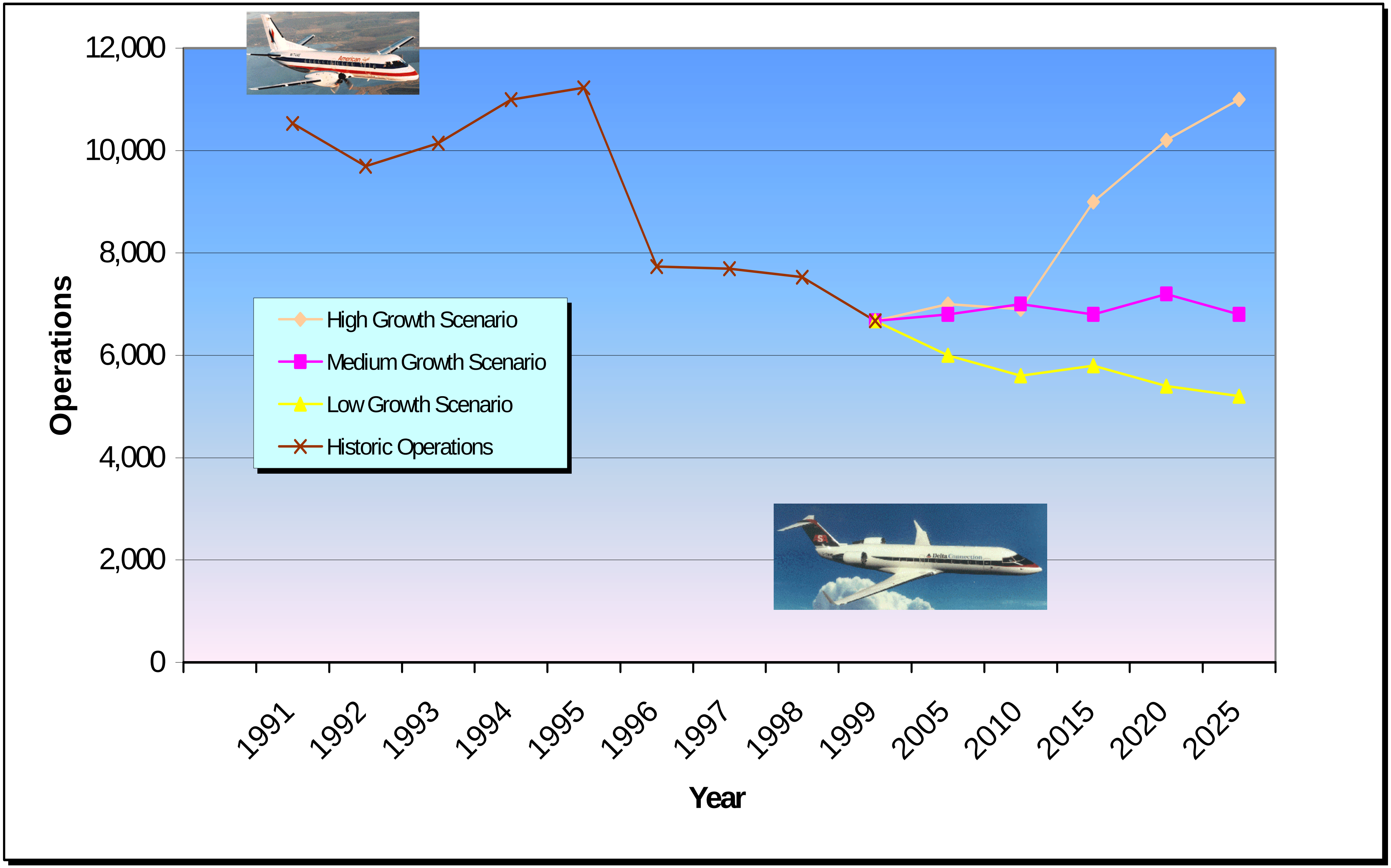
TABLE 3.14
FORECASTED REGIONAL SCHEDULE AIRLINE FLEET MIX AND LOAD FACTOR
Texarkana Regional Airport

		Aircraft Fleet Mix (Percent)					
Aircraft	**No. Seats**	**1999**	**2005**	**2010**	**2015**	**2020**	**2025**
EMB-120	30	44	40	40	20	--	--
Saab 340	34	56	45	30	30	20	10
RJ	50		15	30	50	80	90
Load Factor		40.5	43.0	45.0	48.0	50.0	55.0
Source: URS Greiner Woodward Clyde.							

In developing the forecast of scheduled regional airline operations, consideration was given to the forecast of enplanements previously presented. Although the preferred enplanement forecast is identified having moderate but steady growth, it is deemed prudent to consider the full range of enplanement forecast on operations by selecting three likely growth scenarios. These scenarios help explore the "what if" growth possibilities viewing a high, medium and low growth operations forecast. This will help the Airport select its facility development needs through the years as actual activity levels changes and potentially transition through these various scenarios.

Table 3.15 and **Exhibit 3.9** present the forecast of operations using the boarding load factor method. It can be seen from the table that under the High Growth Scenario with strong enplanement development, the number of operations will grow equally strong with no deviation in the anticipated trend. However, as the Medium and Low Growth Scenarios show, the changes in load factor and increases in the available seat due to changes in the fleet mix, the number of operations will vary through the forecast with some slight decreases in the number of operations projected to occur. The 20 year forecast of operations under the Medium Growth Scenario shows a slight increase in the number of operations over existing levels, while the Low Growth Scenario shows a decrease in the projected number of operations compared to existing levels. What these variations may indicate is that should enplanements actually develop following the Low Growth Scenario, it is possible that slightly few number of flights over the existing levels may be offered by the airlines, thus reducing the frequency of flights while providing jet service to the area. Under the Medium Growth Scenario, the existing level of service and frequency can be expected to be provided by the airlines throughout the planning period. The High Growth Scenario will likely require the airlines to provide more daily flights to keep up with the demands and could push the airlines to accelerate the replacement of their turboprop fleet and use of the RJ at TXK to an earlier period than initially planned.

TABLE 3.15 FORECAST OF SCHEDULED REGIONAL AIRLINE OPERATIONS Texarkana Regional Airport						
Factor	**1999**	**2005**	**2010**	**2015**	**2020**	**2025**
High Growth Scenario						
Enplaned Passengers	43,527	62,000	79,200	98,600	122,500	147,000
Seats/Departure	32.2	36.6	39.4	43.0	46.8	48.6
Load Factor	40.5%	43.0%	45.0%	48.0%	50.0%	55.0%
Annual Departures	3,337	3,900	4,500	4,800	5,200	5,500
Annual Operations	6,674	7,800	9,000	9,600	10,400	11,000
Medium Growth Scenario						
Enplaned Passengers	43,527	51,600	59,300	68,200	78,400	90,200
Seats/Departure	32.2	34.8	37.6	41.2	43.6	48.4
Load Factor	40.5%	43.0%	45.0%	48.0%	50.0%	55.0%
Annual Departures	3,337	3,500	3,600	3,500	3,700	3,500
Annual Operations	6,674	7,000	7,200	7,000	7,400	7,000
Low Growth Scenario						
Enplaned Passengers	43,527	44,400	47,400	56,600	58,700	69,400
Seats/Departure	32.2	34.8	37.6	41.2	43.6	48.4
Load Factor	40.5%	43.0%	45.0%	48.0%	50.0%	55.0%
Annual Departures	3,337	3,000	2,800	2,900	2,700	2,600
Annual Operations	6,674	6,000	5,600	5,800	5,400	5,200
Source: URS Greiner Woodward Clyde, 2000.						



Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

Regional/ Scheduled Airline Operations Forecast

URS Greiner Woodward Clyde

Exhibit 3.9

Note: Data includes Air Taxi Operations

Table 3.16 presents a comparison of previous scheduled airline operations forecast compared to the actual activity that subsequently occurred. As in the case with the previous comparison of forecasted passenger enplanements, the expected result for operations is similar. The previous forecast efforts of schedule airline operations were optimistic when compared to what actually occurred.

TABLE 3.16 SUMMARY OF PREVIOUS SCHEDULE AIRLINE OPERATIONS FORECASTS Texarkana Regional Airport				
Year	**Actual**	**NPIAS 1986-1995**	**NPIAS 1990-1999**	**Barnard- Dunkelberg AMP**
1986	10,825	6,000	--	
1990	10,681	10,000	11,000	
1991	10,531	--	--	
1992	9,601	--	--	12,412
1995	11,227	13,000	14,000	12,824[1]
1997	7,605	--	--	13,442
1998	7,528	--	--	13,731[1]
1999	6,673	--	18,000	14,020[1]
2002	--	--	--	14,887
2007	--	--	--	16,332
Note: [1]Data developed through interpolation.				
Source: Texarkana Regional Airport, 2000. FAA Terminal Area Forecast (TAF), 2000. URS Greiner Woodward Clyde, 2000.				

It is recommended that the Medium Growth Scenario be utilized in planning future facility requirements for TXK. Considering the previous forecast efforts, the recommended forecast accounts for moderate steady growth of activity at the airport with a slightly optimistic viewpoint, which appears attainable by the airport, while providing sufficient breadth of activity for facility planning. The Low Growth Scenario is considered attainable as well, but lacks sufficient optimism of growth to be utilized for further planning needs of the study due to its slight underestimate of activity and projected slow growth. The High Growth Scenario is considered overly optimistic to be used in further planning of the airport's needs. There does not appear to be any significant compelling reason that would justify the use of this forecast at this time.

3.4.5 Airline Peaking Characteristics

Airport activity fluctuates from month to month, day to day, and hour to hour. Many airport facility needs are related to the levels of activity during peak periods rather than annual levels, although the forecasts of annual passengers and operations serve as the basis for generating peak demand forecasts. The periods used in developing facility needs are as follows:

- **Peak Month** - The calendar month when peak activity levels (passengers or operations) occur. Historic records show that passenger levels peak predominantly in the month of July when from 9.3 to 10.5 percent of the annual total will use the Airport. For this analysis, a peak month will be assumed to equal the historic average of 9.8 percent of the annual total.

  Airline operations typically have peaking levels below those experienced with enplanements. The records show that peak month operations are equal to approximately 8.7 to 9.9 percent of annual operations. The peak month has fluctuated over the years with no predominant month occurring greater than the other. For calculating the design day, a 30-day month is assumed.

- **Design Day** - The average day in the peak month (ADPM). This indicator is derived by dividing the peak month operations by the number of days in the month.

- **Design Hour** - The peak hour within the design day. This is used specifically in determining terminal building and access road requirements, as well as in airfield capacity analysis. For estimating peak hour enplaned passengers, it is assumed that the peak would occur during the hour prior to the departure of the largest aircraft resulting in a peak percentage of 30 percent. In the future, as traffic levels increase, this peaking percentage will level off. To forecast future passenger peaking, it is estimated that the peaking at Texarkana would equal approximately 12 percent of the peak day. This is in keeping with industry standards that show peak hour levels of 12 to 20 percent.

It is important to note that only the peak month is an absolute peak within a given year. The Design Day and Design Hour will likely be exceeded at various times during the year. However, they represent reasonable planning standards that can be applied without overbuilding or being too restrictive.

Using the forecast of operations, the peak demand figures can be derived. **Tables 3.17** and **3.18** present the peaking characteristics for passenger enplanements and scheduled airline operations, respectively.

TABLE 3.17
REGIONAL SCHEDULED AIRLINE – ENPLANED PASSENGERS
PEAKING CHARACTERISTICS
Texarkana Regional Airport

Year	Annual Enplanements	Peak Month (July)	Average Day	Design Hour
High Growth Scenario				
1999	43,527	4,266	138	17
2005	62,000	6,076	196	24
2010	79,200	7,762	250	30
2015	98,600	9,663	312	37
2020	122,500	12,005	387	46
2025	147,000	14,406	465	56
Medium Growth Scenario				
1999	43,527	4,266	138	17
2005	51,600	5,057	163	20
2010	59,300	5,811	187	22
2015	68,200	6,684	216	26
2020	78,400	7,683	248	30
2025	90,200	8,840	285	34
Low Growth Scenario				
1999	43,527	4,266	138	17
2005	44,400	4,351	140	17
2010	47,400	4,645	150	18
2015	56,600	5,547	179	21
2020	58,700	5,779	186	22
2025	69,400	6,832	219	26

Source: Texarkana Regional Airport, 2000.
URS Greiner Woodward Clyde, 2000.

TABLE 3.18 REGIONAL SCHEDULED AIRLINE – OPERATIONS PEAKING CHARACTERISTICS Texarkana Regional Airport				
Year	**Annual Operations**	**Peak Month (Varies)**	**Average Day**	**Design Hour**
High Growth Scenario				
1999	6,740	627	21	3
2005	7,000	651	22	3
2010	6,900	642	21	3
2015	9,000	837	28	3
2020	10,200	949	32	4
2025	11,000	1,023	34	4
Medium Growth Scenario				
1999	6,740	627	21	3
2005	6,800	632	21	3
2010	7,000	651	22	3
2015	6,800	632	21	3
2020	7,200	670	22	3
2025	6,800	632	21	3
Low Growth Scenario				
1999	6,740	627	21	3
2005	6,000	558	19	2
2010	5,600	521	17	2
2015	5,800	539	18	2
2020	5,400	502	17	2
2025	5,200	484	16	2
Source: Texarkana Regional Airport, 2000. URS Greiner Woodward Clyde, 2000.				

3.5 GENERAL AVIATION ACTIVITY

Similar to the rest of the United States, GA activity at TXK has experienced some unstable growth, with years of actual decline. This trend is a reflection of economic cost factors, consumer preferences and changes to federal laws affecting the industry.

In the late 1970's and early 1980's, large decreases in U.S. GA activity was attributable to a sluggish economy, which along with increased costs of operation and air traffic control difficulties, had a similar affect on almost every facet of aviation, particularly GA. The sluggish economy had depleted much of the consumers' purchase ability, making it difficult for an individual aviator to buy a new or used aircraft, afford the required maintenance and upkeep, and fly with any frequency of past years.

In the late 1980's, one of the largest stumbling blocks to GA growth and development was the issue of aircraft manufacturer liability, which had previously been upheld in courts as indefinite, irregardless of the age of an aircraft. This required aircraft manufacturers to purchase high dollar liability insurance to protect them from potential, and at the time what seem eminent, litigation by any aircraft accident survivor or survivor's family. The cost of insurance and the litigation for aircraft accidents significantly hurt GA in specific ways. First the cost were passed down and reflected in the price of aircraft and aircraft parts, and second manufacturers significantly reduced the production of aircraft from a high in 1978 of 18,000 aircraft down to 928 aircraft in 1994. In 1994, the General Aviation Revitalization Act was passed which addressed the liability issue by limiting the time an aircraft manufacturer is responsible for the production of the aircraft. Since 1994 the industry has grown and developed as evidence by the increase in production of new GA aircraft and the development of new businesses servicing the industry.

To understand and plan for the needs of GA, three areas of activity must be examined. These areas are aircraft operations, based aircraft and based aircraft fleet mix.

3.5.1 General Aviation Operations

Historically, GA has been an ever present segment of the activities at TXK. At TXK, the GA community has benefited from having a well established FBO, TACAir, who provides a full range of services from the private aircraft owner to the corporate aircraft operator. Having a full service FBO typically will mean the difference between having a strong active GA component at the airport and having a weak inactive group of GA aircraft owners and pilots. Two other FBOs are located on the Airport that provide aircraft maintenance: Yates Aviation and May Air Xpress. The FBOs will also draw aircraft owners and pilots from other areas to the Airport for service and training that cannot be obtained at their based airport. In addition to the FBO being a catalyst for aircraft activity, flying clubs and pilot/ owner associations that are active in the area can bolster the activity of the GA community. TXK is fortunate to have the Texarkana Pilots Association and the Texarkana Flying Club whose local activities help to stimulate the Airport's GA activity.

Typically, GA operations are divided into two categories based on the type of operation that is being conducted. The two aircraft operation categories are known as itinerant and local operations. An aircraft operation is considered to be a landing and a take-off. Itinerant operations are those operations where the aircraft leaves/ arrives from an airport not in the local area. Local operations are those operations that occur in close proximity to the airport. This generally means the airport remains in the sight of the pilot or the aircraft is known to be departing or arriving from a local flight training practice area. Local operations are typically conducted by training pilots or pilots working on their proficiency training.

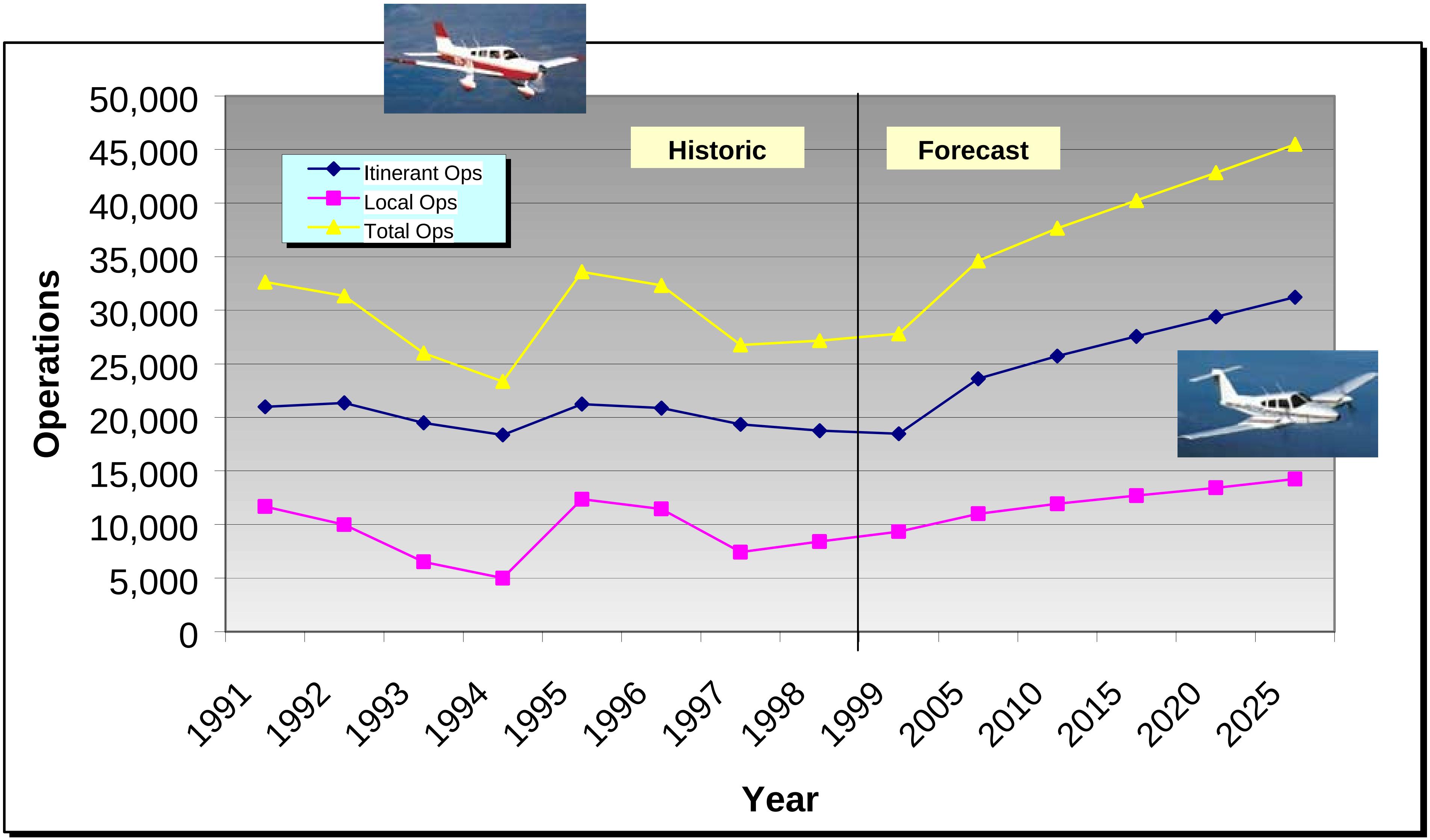
Table 3.19 and **Exhibit 3.10** present the historic and forecast of GA operations for TXK by category of operation and total number. Historically, itinerant operations have held steady around 20,000 operations annually and local operations have occurred at approximately 10,000 operations per year. Although there are the anticipated variances up or down, overall the GA activity level has remained constant and steady. The forecast of GA operations was developed using the market share approach.

This approach establishes the share of GA operations that have occurred at the Airport as compared to the number of GA operations conducted around the U.S. at airports that have an ATCT. The average market share was calculated historically for both local and itinerant operations and applied to the FAA national forecast of GA operations at airports that have active ATCT. The result is the projected growth in activity for both operation categories. The average market share is held constant throughout this exercise since it is anticipated that GA operations at TXK will continue to exhibit the same stability in the future as demonstrated historically. Overall, the outlook is positive with slow steady growth anticipated to occur over the planning period. Itinerant operations are expected to grow by 24.5 percent, local operations are expected to grow 22.2 percent and total operations will grow by 23.8 percent through the year 2020.

TABLE 3.19 HISTORIC AND FORECAST OF GENERAL AVIATION OPERATIONS Texarkana Regional Airport							
Year	**Itinerant Operations**	**Local Operations**	**Total Operations**	**GA Itin. Ops. U.S. Towered (Mil.) [2 /3]**	**TXK Market Share (%)**	**GA Local Ops. U.S. Towered (Mil.) [2/ 3]**	**TXK Market Share (%)**
Historic [1]							
1991	20,972	11,669	32,641	22.2	0.0945%	16.6	0.0703%
1992	21,335	9,987	31,322	22.1	0.0965%	16.3	0.0613%
1993	19,478	6,526	26,004	21.1	0.0923%	15.5	0.0421%
1994	18,353	4,992	23,345	21.1	0.0870%	15.2	0.0328%
1995	21,226	12,360	33,586	20.9	0.1016%	15.1	0.0819%
1996	20,866	11,442	32,308	20.8	0.1003%	14.5	0.0789%
1997	19,341	7,426	26,767	21.7	0.0891%	15.2	0.0489%
1998	18,756	8,396	27,152	22.1	0.0849%	16	0.0525%
1999	18,475	9,328	27,803	23	0.0803%	17	0.0549%
Forecast [4]							
2005	**23,601**	**10,993**	**34,594**	25.7	0.0918%	18.9	0.0582%
2010	**25,713**	**11,924**	**37,637**	28	0.0918%	20.5	0.0582%
2015	**27,550**	**12,680**	**40,230**	30	0.0918%	21.8	0.0582%
2020	**29,387**	**13,436**	**42,823**	32	0.0918%	23.1	0.0582%
2025	**31,223**	**14,250**	**45,473**	34	0.0918%	24.5	0.0582%

Note: Data for 2015 & 2020 generated through interpolation.

Source: [1]Texarkana Regional Airport, 2000.
[2]FAA Aerospace Forecast, Fiscal Year 2000-2011, March 2000.
[3]FAA Long Range Aerospace Forecast 2015, 2020 and 2025, June 2000.
[4]URS Greiner Woodward Clyde, 2000.



Historic and Forecast
General Aviation Operations

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

URS Greiner Woodward Clyde

Exhibit 3.10

3.5.2 Based Aircraft

Based aircraft are those aircraft whose activities typically originate and terminate at TXK and the aircraft primary storage is at the Airport. Typically the aircraft owner is a resident in the local area by the Airport. Information received from the Airport indicates there are currently 69 fixed wing aircraft based at TXK; 47 of the aircraft are single-engine propeller driven aircraft, 18 of the aircraft are twin-engine propeller driven aircraft, four of the aircraft are turbine jet aircraft. There are also three rotor-wing/ helicopter aircraft and one glider. The forecast of based aircraft was developed using the market share methodology. This method established the current TXK based aircraft share of the U.S. active GA aircraft and applied it to the FAA forecast of U.S. active GA aircraft. The forecast of based aircraft resulting from this methodology is presented in **Table 3.20**. This forecast shows that based aircraft are anticipated to grow approximately 23 percent over the next 25 years. Although several other methods were utilized to evaluate the potential growth in based aircraft over the planning period, including correlation with socioeconomic variables, these other methods did not yield a substantial level of confidence in the mathematical models to be utilized for projecting data. It should be noted that the 1998-2002 NPIAS projected at total of 76 based aircraft for the year 2002.

TABLE 3.20
FORECAST OF BASED AIRCRAFT
Texarkana Regional Airport

Year	Based Aircraft	U.S. Active GA Aircraft [2/3]	Market Share (%)
1999 [1]	69	206,530	0.0334%
Forecast [4]			
2005	73	219,415	0.0334%
2010	77	229,070	0.0334%
2015	80	238,180	0.0334%
2020	83	247,290	0.0334%
2025	86	256,400	0.0334%

Source: [1]Texarkana Regional Airport, 2000.
[2]FAA Aerospace Forecast, Fiscal Year 2000-2011, March 2000.
[3]FAA Long Range Aerospace Forecast 2015, 2020, and 2025, June 2000.
[4]URS Greiner Woodward Clyde, 2000.

3.5.3 Based Aircraft Fleet Mix

With an understanding of what the anticipated future demand of based aircraft may be, quantity and size of facilities to store these aircraft can be determined. However, it is important to understand not only the quantity of future based aircraft, but also the types of aircraft that will need facilities. Based on the current based aircraft fleet mix and discussions with the local GA users and the airport management regarding past trends in based aircraft by types, projections of based aircraft by type were developed. **Table 3.21** presents the results of this effort.

Based on the historic breakdown of based aircraft by types, the current percentages of aircraft types was applied to the total forecast of based aircraft to derive the projected breakdown of based aircraft by types. There are no significant changes anticipated in the based aircraft fleet mix in the future.

TABLE 3.21
FORECAST OF BASED AIRCRAFT BY TYPE
Texarkana Regional Airport

Year	Single-Engine 44.9%	Multi-Engine 44.9%	Jet 2.9%	Helicopter 7.3%	Total
1999 [1]	31	31	2	5	69
Forecast [2]					
2005	33	33	2	5	73
2010	35	35	2	6	78
2015	36	36	2	6	80
2020	37	37	2	6	82
2025	39	39	2	6	86

Source: [1]Texarkana Regional Airport, 2000.
[2]URS Greiner Woodward Clyde, 2000.

3.5.4 General Aviation Peaking Characteristics

As with the commercial aircraft activity, the peaking characteristics of GA activity to establish certain future facility requirements. Based on historic data of GA activities at TXK, the peak month, average day and design hour for local and itinerant operations have been determined.

- Local Operations have predominantly peaked in the summer and fall, consisting of between 4 percent and 5 percent of the total annual activity. For this forecast 5 percent will be used to determine the peak month operations. Typically training activities have a high peak hour factor, therefore the design hour operations factor will be 15 percent of the average day of the peak month.
- A review of past peaking activity for itinerant operations found that these activities are most active in the summer, between June and August, and comprising of between 6 percent and 8 percent of the total annual activity. Itinerant operations do not typically have as high peak hour rate compared to local activity, therefore a 10 percent design hour peak factor was selected.
- Overall, total GA operations have peaked in the summer months, between June and August, comprising between 10 percent and 12 percent of the annual activity. Typical peak hour operations should reflect the integrated local and itinerant activities, therefore a peak hour rate of 12.5 percent of the average day of the peak month will be utilized.

Table 3.22 presents the forecast of GA peaking characteristics based on the information presented above.

TABLE 3.22

GENERAL AVIATION PEAKING CHARACTERISTICS – FORECAST

Texarkana Regional Airport

Year	Itinerant			Local			Total		
	Peak Month	Average Day	Design Hour	Peak Month	Average Day	Design Hour	Peak Month	Average Day	Design Hour
2005	2,768	90	9	1,730	57	9	4,151	136	17
2010	3,011	98	10	1,882	62	9	4,516	148	19
2015	3,218	105	10	2,012	66	10	4,828	159	20
2020	3,426	112	11	2,141	70	11	5,139	169	21
2025	3,638	119	12	2,274	75	11	5,457	179	22

Source: URS Greiner Woodward Clyde, 2000.

3.6 MILITARY ACTIVITY

Military operations at TXK have occurred since the 1950's. In the more recent past this site has been typically utilized for training and aircraft refueling activities. The military have operated a variety of aircraft at the Airport including fighter jets, transports and rotor-wing aircraft. Rotor-wing aircraft are a more frequent user of the Airport compared to the other aircraft types. Due to the nature and unpredictability of the military's activities, a meaningful forecast of military operations by aircraft type is not possible. It is assumed that the military will continue to conduct activities with a similar rate as in the past. In the early 1990's, the military were conducting up to 6,033 operations per year. However, in 1994 this level of activity decreased to just over 2,000 operations per year. In the last three years the military have been conducting operation at a rate of between 1,500 and 1,850 operations. The breakdown of their operations reveals that on average local and itinerant operations are conducted with a similar frequency. For planning purposes, it is assumed that the military will conduct approximately 2,000 operations per year with local and itinerant operations breakdown being equal. **Table 3.23** presents the historic military activity.

TABLE 3.23
MILITARY OPERATIONS – HISTORIC
Texarkana Regional Airport

Year	Itinerant	Local	Total
1991	2,026	1,713	3,739
1992	2,548	3,485	6,033
1993	2,176	3,340	5,516
1994	1,085	1,106	2,191
1995	1,216	824	2,040
1996	1,057	1,042	2,099
1997	701	720	1,421
1998	770	756	1,526
1999	1,100	726	1,826

Source: Texarkana Regional Airport, 2000.

3.7 INSTRUMENT OPERATIONS

Forecast of instrument operations assist in determining requirements for instrument approach facilities and air traffic control facilities. An instrument operation is described as any operation wherein the pilot contacts the control tower and proceeds with an operation using published instrument procedures, regardless of the weather conditions. Historic instrument operations data was obtained from the FAA. Although this data is not divided into the various reporting categories such as air carrier, regional airline/ air taxi, GA, etc., typically the airlines and air taxi conduct their operations almost exclusively as instrument operations. GA and the military are less likely to conduct a majority of their activities as an instrument operation. Therefore the forecast of instrument operations is developed based on the aggregate ratio of instrument operations to total airport operations. Historically, instrument operations have comprised approximately 43 percent of the total airport operations. This percentage was applied to the forecast of total airport operations to determine the anticipated future instrument operations and is presented in **Table 3.24**.

TABLE 3.24
INSTRUMENT OPERATIONS – FORECAST
Texarkana Regional Airport

Year	Instrument Operations [1]	Total Airport Operations [2]
Historic		
1991	18,982	46,911
1992	18,258	47,048
1993	18,539	41,698
1994	18,767	36,601
1995	19,604	47,077
1996	17,025	42,404
1997	15,970	35,955
1998	15,758	36,219
1999	15,730	38,419
Forecast [3]		
2005	**18,659**	**43,394**
2010	**20,054**	**46,637**
2015	**21,083**	**49,030**
2020	**22,370**	**52,023**
2025	**23,338**	**54,274**

Source: [1]FAA , 2000.
[2]Texarkana Regional Airport, 2000.
[3]URS Greiner Woodward Clyde, 2000.

3.8 SUMMARY OF AVIATION DEMAND FORECAST

Table 3.25 presents the compilation of the forecast of activity developed in this section.

TABLE 3.25 SUMMARY OF ANNUAL AVIATION DEMAND FORECAST Texarkana Regional Airport						
Category	**1999**	**2005**	**2010**	**2015**	**2020**	**2025**
Enplaned Passengers						
High Growth	43,527	62,200	79,200	98,600	122,500	147,000
Medium Growth	43,527	52,000	60,300	69,900	81,000	93,900
Low Growth	43,527	44,400	47,400	56,600	58,700	69,400
Scheduled Regional Airline Operations						
High Growth	6,674	7,800	9,000	9,600	10,400	11,000
Medium Growth	6,674	7,000	7,200	7,000	7,400	7,000
Low Growth	6,674	6,000	5,600	5,800	5,400	5,200
General Aviation						
Local	9,328	10,933	11,924	12,680	13,436	14,250
Itinerant	18,475	23,601	25,713	27,550	29,387	31,223
Military						
Local	726	1,000	1,000	1,000	1,000	1,000
Itinerant	1100	1,000	1,000	1,000	1,000	1,000
Total Operations						
High Growth	36,369	44,334	48,637	51,830	55,233	58,473
Medium Growth	36,369	43,534	46,387	49,230	52,223	54,773
Low Growth	36,369	42,534	45,237	48,030	50,223	52,673
Instrument Operations	15,730	18,659	20,054	21,083	22,370	23,338
Source: URS Greiner Woodward Clyde, 2000.						

SECTION 4 DEMAND/CAPACITY ANALYSIS AND FACILITY REQUIREMENTS

4.0 INTRODUCTION

In the previous section, forecasts of aviation demand under three possible growth scenarios were presented for TXK through the year 2020. These forecasts included projections of annual enplanements, aircraft operations, air cargo movement, fuel flowage, based aircraft, fleet mix, and peaking characteristics. Using this information, the capability of specific components of the airport system, such as the airfield, surrounding airspace, terminal facilities, and ground access, will be evaluated to determine if they are able to accommodate forecasted levels of demand without incurring significant delays or an unacceptable decrease in service levels. The Medium Growth Forecast, which is the preferred forecast, will be utilized for the remainder of this Master Plan Update.

This chapter presents the analysis of requirements for the various airside and landside facilities needed to meet future aviation demand at TXK. For those components determined to be insufficient, the ideal size is identified and a determination of the approximate size and timing of new facilities has been made. The requirements for new facilities needed to accommodate projected demand in a safe and efficient manner are also presented in this section. Three distinct considerations were involved in this analysis:

- ✈ The capacity of the existing facility was calculated and compared with the forecast of aviation demand presented in the previous chapter.
- ✈ FAA design criteria were applied to existing conditions to determine if facility improvements were needed to maintain adequate safety and operational standards.
- ✈ The findings of the evaluations of existing pavements, buildings and other facilities were included to account for required future improvements or maintenance of these facilities.

The resulting requirements are given according to short-term needs (the present to five years), intermediate (six to ten years), and long-range (11 to 20 years) to give some structure to the Airport’s required future improvements. However, in many cases, the actual need for improvements should be tied to the demand levels associated with the time frame and not the calendar year. This allows flexibility in construction scheduling, facilitates airport operations and maximizes financial capabilities. Section 5, Alternatives Analysis will examine alternative methods of providing the required facilities identified in this section.

4.1 AIRFIELD

The capacity of the airfield at TXK was evaluated and compared to the forecasted levels of aircraft operations (the demand) to determine the overall adequacies of each component of the airfield. Deficiencies in the capacity of the airfield were identified to define future facility requirements. The primary airfield components analyzed in this section include the runways, taxiways, navigational aids, lighting and signage systems.

4.1.1 Design Criteria

To properly and consistently plan future facilities at TXK, design criteria must be identified and applied. Spatial area requirements are related to airport design through two criteria that are representative of aircraft grouping spatial needs. The two criteria, defined in FAA Advisory Circular (AC) 150/5300-13 Airport Design, are the Aircraft Approach Speed and Airplane Design Group. The first component is related to the approach speed of aircraft and provides information on the operational capabilities of aircraft using the airport. The airplane design group, the second component, is related to the wingspan of aircraft and provides information regarding the physical characteristics of aircraft using the airport. These two design criteria identifiers are then used together to define the Airport Reference Code (ARC). **Table 4.1** provides a listing of Aircraft Approach Categories and Airplane Design Groups. **Exhibit 4.1** provides a graphical depiction of typical aircraft in different ARC categories.

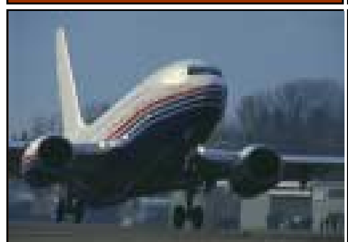
As identified in the Inventory section, TXK is currently classified with an ARC of C-III. To assist in determining the appropriate spatial requirements and operational capabilities for TXK in the future, the set of airport design criteria are utilized based on the largest aircraft, known as the design aircraft, that will frequently use the airport in the future. A review of aircraft presently using, and forecasted to use TXK, reveals that aircraft in Approach Category C regularly use the airport. This includes aircraft such as the Boeing 737, Saab 340, and the Canadair Regional Jet. Therefore, Approach Category C will continue to be used to plan future airfield facilities.

TABLE 4.1 AIRPORT DESIGN AND AIRPORT REFERENCE CODE COMPOSITION Texarkana Regional Airport			
Aircraft Approach Category		**Airplane Design Group**	
Category	**Approach Speed**	**Group**	**Wing Span**
A	Less than 91 Knots	I	Up to 48 Feet
B	91 to 120 Knots	II	49 to 78 Feet
C	121 to 140 Knots	III	79 to 117 Feet
D	141 to 165 Knots	IV	118 to 170 Feet
E	166 Knots or Greater	V	171 to 213 Feet
		VI	214 Feet or Greater
Source: FAA Advisory Circular 150/5300-13, Airport Design, 2000.			

Although large aircraft use TXK occasionally, the ATR-72 and the B-737 are anticipated to be the largest aircraft from the standpoint of wingspan to regularly use TXK in the future. Thus the design aircraft for TXK is the Boeing 737, which falls into Aircraft Approach Category C and Airplane Design Group III. Based on planning guidelines, TXK should be designed to accommodate the spatial requirements of Airplane Design Group III aircraft and have the operational capabilities to accommodate aircraft in Approach Category C. The resulting ARC of C-III has been established and thus the associated airport design parameters for ARC C-III will be used for future planning at TXK.

4.1.2 Demand/Capacity Analysis

The methodology used for analyzing airfield capacity is described in FAA Advisory Circular 150/5060-5, Airport Capacity and Delay. This methodology includes how to measure the airfield's hourly capacity and its Annual Service Volume (ASV). Hourly Capacity is used to assess the airfield's ability to accommodate peak hour operations and is defined as the maximum number of aircraft operations that can be accommodated by the airfield system in one hour.

 A-I	Cessna 150 Cessna 172 Piper Cherokee **Piper Archer** Beech Bonanza	 C-I & D-I	**Lear** 24, **35**, 54, 55, 56 Hawker-Siddley 125 IAI-1124 Westwind
 B-I	Cessna 402 Cessna 414 Cessna Citation Piper Cheyenne **Beech King Air 100**	 C-II & D-II	Canadair CL-600 Lockheed JetStar Gulfstream II, II, IV **Canadair Regional Jet**
 B-II	**Less Than 12,500 lbs.** Beech King Air 200 **Cessna 441 Conquest** Rockwell 840	 C-III & D-III	Boeing 727-100/ 200 **Boeing 737** MD-80, DC-9 Boeing Business Jet Gulfstream V
 B-I & B-II	**Over 12,500 lbs.** Cessna Citation II/ III **Falcon** 10/ 20/ **50**/ 200 Beech 1900 Jetstream 31	 C-VI & D-VI	**Boeing 757** Boeing 767 MD-11 DC-8-70 DC-10 L1011
 A-III & B-III	DHC-8 (Dash 8-300) BAe 146-100/ 200 **ATR 72** DC-3	 D-V	Boeing 747 **Boeing 777**

Airport Reference Codes

Note: Bold text indicates pictured aircraft.
Shading indicates exclude category of Airport.

TXK TEXARKANA REGIONAL AIRPORT

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

URS Greiner Woodward Clyde

Scale	Exhibit
N.T.S.	4.1

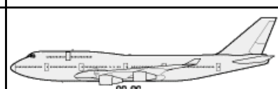
ASV is defined as a reasonable estimate of an airport's annual capacity and is used to assess the adequacy of the airfield design, including the number and orientation of runways. As the number of annual operations increases and approaches the airport's ASV, the average delay incurred by each operation increases. When annual operations are equal to the ASV, average delay to each operation is approximately one to four minutes. When the number of annual operations exceeds the ASV, moderate to severe congestion will occur.

A calculation of the airfield's hourly capacity and ASV depends upon a number of factors. These factors include the following:

- Aircraft Fleet Mix - The percentage of operations that are conducted by certain categories of aircraft.
- Meteorological Conditions - The percentage of time that visibility or cloud cover are below certain minimums.
- Runway Use - The percentage of time that each runway is used.
- Aircraft Arrivals - The percent of arrivals in relation to departures during peak hours.
- Touch-and-Go Operations- The percent of aircraft operations that are touch-and-go.
- Exit Taxiway Locations - The number and locations of exit taxiways for landing aircraft.

4.1.2.1 Capacity Aircraft Fleet Mix

The aircraft fleet mix refers to the representation of various aircraft by a category or grouping that utilize the facility on a regular basis. Variations in aircraft approach speeds and landing distances affect how long and aircraft is on the runway, known as the runway occupancy time, which in turn, affect airfield capacity. The aircraft fleet mix when estimating capacity is divided into four classes. These classes are identified by the letters A through D and represent grouping of aircraft by general type and weight. **Table 4.2** summarizes representative aircraft types found in each aircraft class related to their percentage level at TXK. Class A and B make up the bulk of the operational aircraft fleet mix at TXK. The remainder of fleet mix consists of aircraft in Class C. Class D aircraft have not operated at TXK on a regular basis or with any frequency. The percentage of operations conducted by each class is expected to remain fairly constant throughout the planning period.

TABLE 4.2 TYPICAL CAPACITY AIRCRAFT MIX Texarkana Regional Airport			
Class	**TXK Fleet Mix %**	**Aircraft Type**	
Class A	**42%**	Small Single-Engine (Gross Weight: 12,500 pounds or less)	
Examples		Cessna 172/182	Mooney 201
		Beech, Bonanza	Piper Cherokee/Warrior
Class B	**40%**	Small, Twin-Engine (Gross Weight: 12,500 pounds or less)	
Examples		Beech Baron	Mitsubishi MU-2
		Cessna 402	Piper Navajo
		Rockwell Shrike	Cessna Citation I
		Beechcraft 99	Lear 25
Class C	**18%**	Large Aircraft (Gross Weight: 12,500 to 300,000 pounds)	
Examples		Douglas DC-9	Gulfstream (I thru IV)
		Boeing 727	Saab 340
		Boeing 737	Aerospatiale ATR 42/72
		Lear 35/55	Embraer 145
		Canadair RJ50	Embraer Brasilia
Class D	**0%**	Large Aircraft (Gross Weight: more than 300,000 pounds)	
Examples		Lockheed L-1011	Airbus A-300/A-310
		Boeing 707-300	Douglas DC-8-60/70
Source: URS Greiner Woodward Clyde, 2000.			

4.1.2.2 Meteorological Conditions

Meteorological conditions have a significant effect upon runway use, which in turn affects an airfield's capacity. During VFR conditions, runway use is usually determined by the direction of the prevailing winds. During IFR conditions, the type and availability of instrument approaches dictate runway use.

Illustrations of predominant wind conditions at TXK during VFR, IFR, and all-weather conditions were presented in Section 2, Airport Inventory. That data, and consultation with Air Traffic Control personnel, indicate Runway 4/22 is used approximately 90 percent of the time. During IFR conditions, Runway 22 is predominantly used due to wind direction and the availability of an ILS approach. A review of weather data revealed that the airport operates under VFR conditions 88.7 percent of the time and IFR conditions 9.6 percent of the time. Weather conditions are below available airport approach minimums approximately 1.7 percent of the time.

4.1.2.3 Runway Use

Based on wind and weather conditions and discussions with Air Traffic personnel, Runway 4/22 is used approximately 90 percent of the time, with aircraft utilizing Runway 22 approximately 60 percent of that time. During 10 percent of the time Runway 13/31 is in use, Runway 13 is used 90 percent of that time. During IFR conditions Runway 22 is more heavily used. **Table 4.3** indicates the runway use by percentage at TXK by the various flight rule conditions.

TABLE 4.3
RUNWAY USE
Texarkana Regional Airport

	Percentage of Runway Use		
Runway	**VFR**	**IFR**	**All-Weather**
4	40%	8%	30%
22	50%	90%	60%
13	9%	1%	9%
31	1%	1%	1%
Total	**100%**	**100%**	**100%**

Source: URS Greiner Woodward Clyde, 2000.

4.1.2.4 Touch-and-Go Operations

A touch-and-go operation occurs when an aircraft lands and takes off without making a full stop. Usually this type of operation is associated with flight training. Touch-and-go operations do not occupy the runway as long as a full-stop landing or a departure. Therefore, an airfield with a high number of touch-and-go operations can normally accommodate a greater number of operations. Touch-and-go activity at TXK is estimated to equal 15 percent of total operations during VFR conditions and zero percent of total operations during IFR conditions.

4.1.2.5 Percentage of Arrivals

The percentage of aircraft operations that are arrivals has an important influence on a runway's hourly capacity. For example, a runway used exclusively for arrivals will have a different capacity than a runway used exclusively for departures or a runway used for a mix of arrivals and departures. In general, the higher the percentage of arrivals, the lower the hourly capacity of a runway. Arrivals were assumed to comprise 50 percent of peak hour operations at TXK.

4.1.2.6 Exit Taxiway Locations

Exit taxiways affect airfield capacity because their location along a runway influences runway occupancy times for aircraft. The longer an aircraft remains on a runway, the lower the capacity of the runway. When exit taxiways are properly located, landing aircraft can quickly exit the runway, thereby increasing the runway's capacity.

The runways at TXK have a sufficient number of exit taxiways to minimize runway occupancy time. Runway 4/22 has four 4 exit taxiways located on the northwest side of the runway. Runway 13/31 has five 5 exit taxiways on the southwest side of the runway.

4.1.3 Capacity Analysis Results

Using the methodologies specified in FAA Advisory Circular 150/5060-5 Airport Capacity and Delay, the hourly capacity of TXK was determined to range from 77 to 98 operations per hour under Visual Flight Rules (VFR), and from 57 to 59 operations per hour under Instrument Flight Rules (IFR) conditions. The theoretical ASV for the airport ranges between 200,000 to 230,000 annual operations. These numbers compare favorably to the operations forecast in the preceding section. **Table 4.4** presents a comparison of the forecast with the capacity using the lower end of the range of the capacity calculations. This provides a conservative approach in viewing any potential capacity issues with the airport's capabilities. From Table 4.4 it can be seen that the annual and hourly capacities for VFR and IFR conditions are well within the acceptable range. Based on this analysis it can be concluded that the existing airfield has adequate capacity to accommodate the projected operations under any of the growth scenarios being considered.

TABLE 4.4 AIRPORT CAPACITY AND FORECAST ACTIVITY LEVELS Texarkana Regional Airport						
Description	**1999**	**2005**	**2010**	**2015**	**2020**	**2025**
Annual						
ASV	200,000	200,000	200,000	200,000	200,000	200,000
Demand	36,369	43,534	46,387	49,230	52,223	54,773
Percent of Capacity	18%	22%	23%	25%	26%	27%
VFR						
Hourly Capacity	77	77	77	77	77	77
Demand	15	15	17	18	19	21
Percent of Capacity	19%	19%	22%	23%	25%	27%
IFR						
Hourly Capacity	57	57	57	57	57	57
Demand	5	4	5	4	5	4
Percent of Capacity	9%	7%	9%	7%	9%	7%
Source: URS Greiner Woodward Clyde, 2000.						

4.1.4 Facility Requirements

In the previous section the capacity of the airfield was reviewed along with the existing airfield configuration and its ability to accommodate the operational demands currently and in the future. The facility requirements will look at the various components on the airfield and review their adequacy to accommodate the anticipated demand.

4.1.4.1 Number of Runways

The number of runways required at an airport primarily depends upon factors such as wind coverage and operational capacity. Wind coverage indicates the percentage of time that crosswind components are below an acceptable velocity. The FAA recommends that an airport's runways provide a wind coverage of at least 95 percent. If an airport does not provide the recommended wind coverage, additional runways should be considered.

As detailed in Section 2 – Airport Inventory, a review of wind data for TXK reveals that Runways 04/22 and 13/31 provide a wind coverage of 99.98 percent during all-weather conditions, with a maximum crosswind component of 16 knots. In fact under each of the weather conditions examined, there is no wind coverage that is below 99 percent. Therefore, the existing runway configuration provides adequate wind coverage.

In addition to wind coverage, the required number of runways depends upon capacity needs. The results of the demand/capacity analysis indicate that Runways 4/22 and 13/31 will provide adequate capacity on both an annual and hourly basis throughout the study period. Therefore, on the basis of both wind coverage and capacity requirements, existing two runway configuration will be adequate to serve the future needs of TXK.

4.1.4.2 Runway Length

Advisory Circular 150/5325-4A Runway Length Requirements for Airport Design provides guidance for determining runway length. According to this AC:

> "The recommended length for the primary runway is determined by considering either the family of airplanes having similar performance characteristics or a specific airplane needing the longest runway. In either case, the choice should be based on airplanes that are forecasted to use the runway on a regular basis. A regular basis is considered to be at least 250 takeoffs a year."

To determine runway length requirements, the FAA has developed a computer program that considers the following items:

- Airport elevation
- Mean daily maximum temperature of the hottest month
- Maximum difference in runway centerline elevation
- Length of haul for airplanes of more than 60,000 pounds
- Pavement conditions (wet or dry)

Information relevant to TXK for the above items was entered into the program. The program's results are specified for aircraft of more than 60,000 pounds and aircraft of less than 60,000 pounds. The category of less than 60,000 pounds is further subdivided by the groups of aircraft and their gross takeoff weight. **Table 4.5** lists some of the aircraft types that comprise the fleet mix of each aircraft weight group.

TABLE 4.5 TYPICAL AIRCRAFT IN THE FLEET MIX Texarkana Regional Airport	
Large aircraft less than 60,000 pounds that comprise approximately 10 percent of the fleet include the following:	
Manufacturer	**Model**
Gates Lear Jet	Lear Jet (20, 30, & 50 series)
Rockwell International	Sabreliner (40, 60, 75, & 80 series)
Cessna	Citation (II & III)
Dassault Brequet	Falcon (10, 20, & 50 series)
British Aerospace	HS-125 (400, 600, & 700 series)
Israel Aircraft Ind.	1124 Westwind
Large aircraft less than 60,000 pounds that comprise approximately 10 percent of the fleet include the following:	
Manufacturer	**Model**
Canadair	Challenger 601
Dassault Brequet	Falcon (900 series)
Grumman	Gulfstream (I - IV)
Lockheed	Jetstar
Source: URS Greiner Woodward Clyde, 2001.	

The results of this analysis are presented in **Table 4.6**. FAA criteria specify that the runway length requirements for a commercial service airport such as TXK be determined using the "75 percent fleet at 90 percent useful load" unless a critical aircraft having a greater requirement can be identified. As the table indicates, a runway length of 6,680 feet is required. For aircraft greater than 60,000 pounds, the required runway length is 5,150 feet based on a haul length of 500 miles. This haul length was selected because it is sufficient to reach the next layer of hub airports not currently serving TXK such as Denver, Chicago and Miami.

TABLE 4.6 RUNWAY LENGTH ANALYSIS Texarkana Regional Airport	
Category	**Recommended Runway Length (Feet)[1]**
Aircraft of 60,000 Pounds or Less	
75% of these aircraft at:	
60% useful load	5,280
90% useful load	6,680
100% of these aircraft at:	
60% useful load	5,550
90% useful load	7,000
Aircraft more than 60,000 pounds[2]	5,150
Note: [1]Assumes wet runway conditions. [2]Assumes a haul length of 500 miles.	
Source: FAA Advisory Circular 150/5325-4A, Airport Design Program 4.2d.	

Because TXK is predominantly serviced by commercial airline commuter aircraft and large aircraft by charter operators, it was deemed desirable to also examine the specific runway length requirements of some of the commuter and air carrier charter aircraft that currently operate, or are expected to operate, at TXK on a regular basis. As previously indicated the predominate aircraft include the Boeing 737, ATR-72 and Canadair Regional Jet. Many airlines are replacing their turbo-prop aircraft with regional jets as well as looking to the aircraft manufacturers to produce larger versions of the regional aircraft. Currently the runway length requirements for these aircraft are presented in **Table 4.7**.

As indicated, all of these aircraft can operate from a runway length of 7,000 feet and travel to the farthest likely hub airport destination. On the basis of these analyses, it is recommended that Runway 4/22 be extended to its maximum length of 7,100 feet. In view of airline greater utilization of the regional jet, it was found that several airlines typically would not schedule or serve airports with the regional jet unless the runway length is a minimum of 7,000 feet. Therefore, the recommended length of 7,100 feet will meet all current and future needs of aircraft expected to use TXK through the planning period while adding to the overall safety of this airfield component. This runway length has been previously identified in other planning efforts of the Airport and is shown on the existing ALP as an extension of the runway to the west.

TABLE 4.7
RUNWAY LENGTH REQUIREMENTS BY AIRCRAFT TYPE
Texarkana Regional Airport

Aircraft Type	Runway Length Requirement
Aerospatiale ATR-42	4,134[1]
Aerospatiale ATR-72	5,118[1]
Beech 1900 Airliner	4,098[1]
Canadair Dash-8	3,700[1]
Canadair RJ	6,290[2]
Embraer 120	5,840[1]
Embraer 145	5,643[3] / 6,000[4]
Fokker 50	4,475[1]
Fokker 70	5,761[1]
Jetstream 31	5,866[1]
Jetstream 41	5,584[1]
Saab 340	4,823[1]
Saab 2000	4,500[5]
Shorts 330	4,692[1]
Shorts 360	4,807[1]
Boeing 727	6,000[6]
B737-300, DC-9-30, MD 90-30, MD 80 Series	6,000[7]

Note: [1]Maximum payload on standard day plus 20°C at sea level.
[2]Takeoff weight of 45,835 lbs. and haul length of 504 nautical miles.
[3]Balanced field length.
[4]Maximum payload and haul length of 700 miles.
[5]Flaps at 15° and maximum takeoff weight of 50,265 lbs.
[6]80% of MGTW on standard day plus 13.9°C.
[7]90% of MGTW on standard day plus 15°C.

Source: Aircraft Manufacturer's Engineering Departments (Canadair, Embraer and Saab), 1996.
Flight International - Regional and Utility Aircraft Directory, May 1995.
URS Greiner Woodward Clyde.

4.1.4.3 Runway Width

Runway width requirements are determined by the ARC, in particular the airplane design group standards. In accordance with Airplane Design Group III standards, it is recommended that Runway 4/22 be maintained at its current width of 150 feet. Based on the aircraft primarily served, it is recommended that the existing width of Runway 13/31 be reduced to 100 feet. This change keeps the runway to parallel taxiway separation in compliance with ADG II standards and reduces maintenance costs.

4.1.4.4 Runway Strength

Pavement strength requirements are related to the following primary factors:

- the weight of aircraft anticipated to use the airport
- the landing gear type and geometry
- the volume of aircraft operations

According to FAA Master Record Form 5010-1, Runway 4/22 has a pavement strength of 50,000 pounds single-wheel loading, 86,000 pounds dual-wheel loading, and 120,000 pounds dual-wheel tandem loading. Although this strength is sufficient to accommodate all aircraft in Design Group II, it will not support the weight of all existing and future aircraft projected to regularly operate at TXK. Currently TXK does have operations from charter activities that utilize a B737. The B737 falls into Design Group III with a maximum takeoff weight of 138,500 lbs. with a dual wheel loading. Future facilities are planned to accommodate Design Group III aircraft, which require a dual-wheel loading strength to accommodate the B737. Therefore it is recommended that the pavement strength for Runway 4/22 be increased to 140,000-lbs. dual-wheel loading strength as part of the Airport's Capital Improvement Program.

Runway 13/31 currently has a runway pavement strength of 25,000 pounds single wheel loading. Although this pavement strength is sufficient for all Class A, Class B and some Class C aircraft, it is recommended that the next major rehabilitation of the runway increase the pavements strength to 80,000 pound dual-wheel loading to accommodate most Class C aircraft as an alternate runway for operations. This pavement strength will provide Runway 13/31 with the capability to accommodate the majority of the various aircraft types that utilize the airport including the larger corporate business jets, which are the fastest growing aircraft segment in GA and the commercial service regional jets.

A heliport is located on the northwest side of the airport and is 60 feet long by 60 feet wide in size. This pavement area is constructed of concrete and has pavement strength of 21,000 pounds single wheel loading. This pavement is sufficient to accommodate the rotorcraft over the planning period.

4.1.4.5 Taxiways

Taxiways are needed to accommodate the movement of aircraft from parking aprons to the runways and vice versa. In order to provide for the efficient movement of aircraft, it is desirable to have a parallel taxiway and several exit taxiways associated with each runway. The taxiway system at TXK complements the runway system and conveniently provides access to all operational areas of the airport.

The recommended taxiway width for airports serving aircraft in Design Group III is 50 feet or 60 feet for airports where the aircraft wheelbase is equal to or greater than 60 feet. Currently Taxiway A, B and the portion of Taxiway C between the Terminal Apron and both Runways have widths of 60 feet which are the appropriate design of Runway 4/22. Taxiways C and its connector Taxiway C1 have a width of 50 feet. These taxiway widths are sufficient for the current and forecasted development scenarios at TXK. It should be noted that the taxiways should be strengthened to the same strength as the runway design that they service.

Taxilanes are paved movement areas that lead back from the apron area to typically storage or maintenance areas. At TXK the taxilanes are paved with Portland Cement Concrete and are in good condition. A new taxilane has been constructed between TACAir's corporate hangar and the Yates Aviation hangar. This taxilane will lead to a small ramp area for future corporate GA hangar development and an A&P School.

4.1.4.6 Holding Bays

Currently, there are no holding bays at TXK. The purpose of a holding bay is to provide space for one aircraft to pass another in order to reach the runway end. This reduces airfield delays when one aircraft is conducting engine run-ups or is being held for the proper ATC clearance. Consultation with air traffic control personnel at TXK revealed that holding bays would be very beneficial at TXK. No delays are experienced on Runway 4/22 due to the ability to taxi traffic along Taxiways A and B. Delays occasionally occur on both the approach ends of Runway 4/22, when a GA aircraft blocks a commuter aircraft from being able to depart until after the other aircraft has finished its pre-takeoff checklist and obtains the necessary clearances to depart the airfield. In previous master planning efforts, holding bays were identified as a CIP item that is needed and future Airport Layout Plans show this development. This item should remain in the Airport's CIP as a necessary airfield improvement to assist in the reduction of delays and facilitate the movement of aircraft at the approach ends to the runway.

4.1.4.7 Navigational Aids

As described in Section 2, Airport Inventory, TXK is equipped with a variety of navigational aids that provide one precision and six non-precision instrument approaches. The Airport has precision instrument approach capabilities with a full ILS on Runway 22 and two additional non-precision approaches available to this runway. Two different non-precision approaches are also available to Runway 4, and one each available to Runway 13 and 31. No additional navigational aids or instrument approaches will be required during the study period. The Approach Plates for each of these instrument approaches is included in Appendix B.

4.1.4.8 Approach and Runway Protection Zone

Since it is unlikely that the available approaches will change over the planning period, the size and shape of the Approach and Runway Protection Zones will remain the same as they are today. Therefore the only requirement for the future will be to assure that current FAA standards are attained.

4.1.4.9 Approach Lighting

The current lighting systems at the Airport meet all FAA standards. Although only minimal improvements and upgrades are anticipated to be required, the systems will need to be maintained and upgraded periodically.

As indicated in Section 2, Airport Inventory, Runway 4/22 is classified as a Precision Instrument Runway and is equipped with a MALSR, which is a standard approach lighting system for runways with instrument approach capabilities. This system will be adequate for the 20-year planning period.

Runway 4 does not have an ILS approach and does not have an approach lighting system. It is not anticipated that there will be a need for an additional ILS to TXK during the planning period for Runway 4.

Runway 13/31 is classified as a non-precision instrument runway and is not equipped with an approach lighting system. It is not anticipated that this classification will change during the planning period or that an approach lighting system will be needed for this runway.

4.1.4.10 Runway and Taxiway Lighting

Runway 04/22 is currently equipped with HIRL, the standard for runways equipped with an ILS. Runway 13/31 is currently equipped with MIRL, which will be sufficient for the 20-year planning period.

The taxiway system at TXK is lighted with MITL, which is sufficient to serve future needs under all scenarios.

4.1.4.11 Airfield Signage

Based on the approved Airfield Signage Plan, the entire airfield at TXK has operational signs at locations on runways and taxiways to give better situational awareness and reduce chances for aircraft mishaps. These comply with all FAA requirements and will need to be maintained and upgraded periodically.

4.2 AIRSPACE

Airspace in the vicinity of TXK is relatively free of constraints that would adversely affect the capacity of TXK. Constraints that can affect capacity are regulatory, physical and operational factors. A brief description of these factors is provided in the following paragraphs.

With respect to regulatory constraints, a Military Operations Area, ANNE MOA, is located approximately 15 nautical miles southeast of the Airport. This designated airspace is controlled by the Fort Worth Air Traffic Control Center and is restricted to use by military aircraft only during the hours sunrise to sunset, Monday through Friday. This MOA does not impact the capacity of the airspace in the vicinity of TXK and there are no other restricted areas in the vicinity of TXK.

There are few physical constraints located in the general vicinity of the Airport. As depicted in Exhibit 2.13 Airspace Sectional Chart, several towers are located within five nautical miles of the Airport. With heights ranging from 279 feet Above Ground Level (AGL) to 453 feet AGL, none of these obstructions impact the operational capacity of TXK airspace.

There are no other operational constraints near TXK. Two private airfields, Flying W and Shilling, are located northwest of TXK and do not interfere with operations at TXK. The nearest public use airports are Hope Airport, located approximately 24 nautical miles northeast of TXK, and Atlanta Airport, located approximately 23 nautical miles southwest of TXK. The separation between these airports is sufficient to eliminate any interaction of operations at the airports.

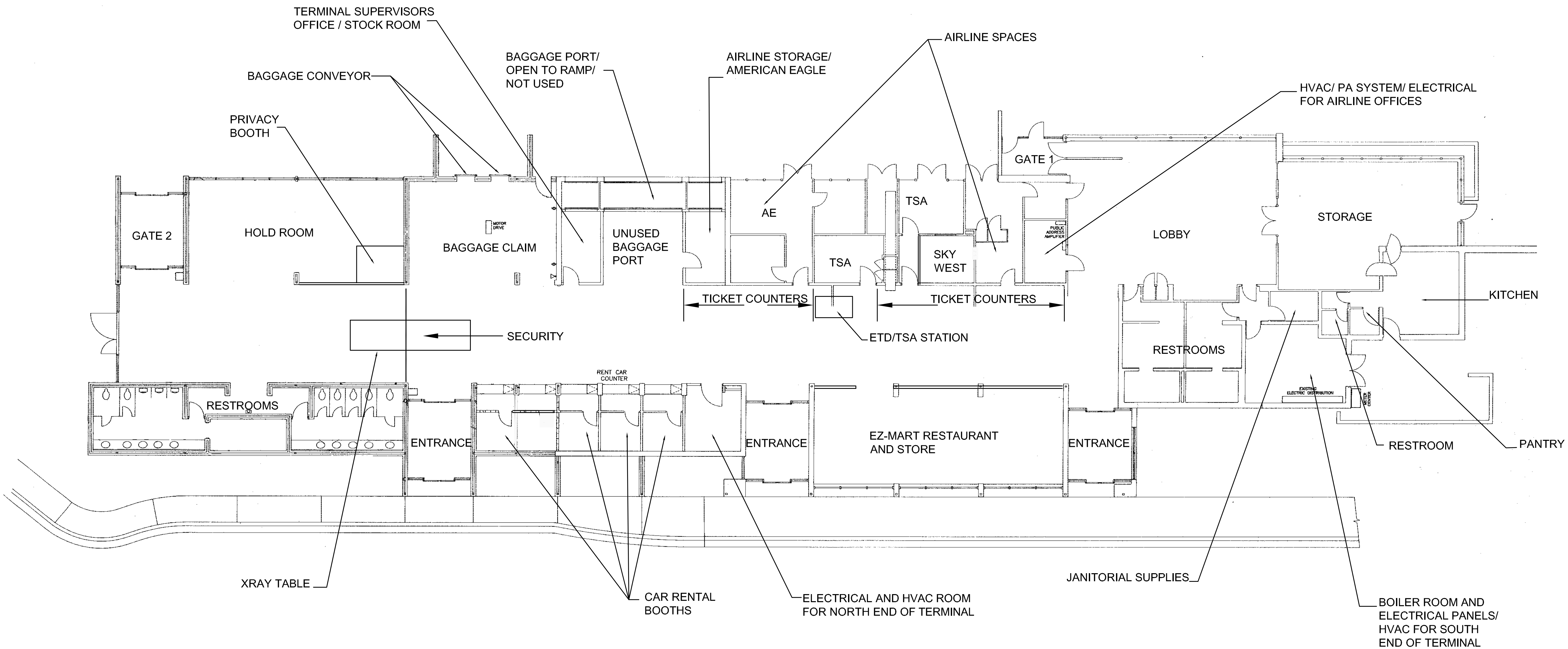
In conclusion, airspace in the vicinity of TXK will be capable of accommodating projected levels of aircraft operations without incurring airspace delays.

4.3 PASSENGER TERMINAL

The capacity of terminal area facilities was calculated and compared to the forecasted levels of passenger demand as defined in Section 3. To accommodate this forecast growth, this section will define the space needed to balance building capacity with demand. The space program is based on sound planning principles and experience and is used to define functional relationships, adjacencies and sizes. These will allow the development of a space plan that will enable the Airport to proceed with final programming and design. Final program space requirements will be based on input required from the individual users and tenants of the facility.

The terminal and support area is the portion of the Airport that will be most affected by future growth in activity.   Certain planning parameters must be analyzed to determine the potential and possible need for expansion. Actual sizing criteria of a terminal building does not exist for every situation; however several sources provide planning guidance, including FAA AC 150 / 5360 - 13, Planning and Design Guidelines for Airport Terminal Facilities (4/22/88) and AC 150 / 5360-9, Planning and Design of Airport Terminal Facilities at Nonhub Locations, (4/4/80). From these sources, as well as the past experience and judgement of the consultant, general gross spatial requirements can be determined for TXK.

The primary area analyzed in this section is the passenger terminal building. The interior layout of the TXK Terminal Building is depicted in **Exhibit 4.2**. The capacities of the terminal components were evaluated in relation to forecasted demand to determine the overall adequacies of each area of the terminal. The future demand for space in the passenger terminal was calculated using a bottom-up methodology. This method consists of calculating the amount of space required for each terminal function. Within the terminal building, several independent activities occur which require spatial analysis to accommodate design-hour activity, including ticketing, waiting areas, baggage claim and storage, security stations, airport management and operations facilities, car rental agencies, public restrooms and concessions.   The amount of space required for each of these functions is then added together to determine the total amount of terminal space required. This approach requires that planning factors or dimensions be specified for each terminal function. For the general sizing requirements, a breakdown of space by activity follows.



TERMINAL BUILDING (2003)

TEXARKANA REGIONAL AIRPORT
AIRPORT MASTER PLAN UPDATE

URS Greiner Woodward Clyde

SCALE 1"=20'

EXHIBIT 4.2

4.3.1 Ticket Counters and Lobby

As the primary Airport terminal building occupants, the commercial airlines have very specialized requirements for space and facilities within the terminal area. Counters for ticketing, passenger processing and baggage check-in should be situated near the entrance and be clearly visible and readily accessible from the terminal curb and lobby areas. The need for ticket counter space varies from airline to airline and from one terminal to another. The principal variables which determine the facility requirements for a given number of enplaned passengers are:

- Average (per passenger) processing time
- Maximum ticket counter queue time desirable
- Number of ticket agent positions to be staffed

The design-hour enplaning passenger load is also considered to be the design-hour passenger load on the ticket counter. Although some passengers arrive at the terminal more than an hour before their flight departs, other passengers departing on flights within the next (non-peak) hour may also arrive early for ticketing. Because of this irregular typical passenger activity patterns, the peak 30-minute demand load may consist of 60 percent of the design hour's activities. Therefore, it is recommended that the capability to serve 60 percent of the design-hour enplanements within 30 minutes should be provided.

The number of ticket agent positions, which should be available, is determined by dividing 60 percent of the design-hour enplanements by the number of passengers who can be served by one agent within 30 minutes. Agent position and ticket counter space varies depending upon the airline's technique at the ticket counter. However based on planning standards, the following average space requirements are used: 6 feet of counter frontage (including baggage wells); a minimum of 10 feet for the counter and operating space (to the back wall); and a queue space of 4 feet per person or 25 feet in depth plus a minimum of 20 feet clear added to the queue depth to allow for the orderly lateral circulation behind the passengers queued at the ticket counter. These criteria translate into the following formulas used to calculate the ticket counter and lobby space requirements:

- ✈ Ticket Counter Frontage = Number of Agent Positions x 6 feet
- ✈ Ticket Counter Area = Number of Agent Positions x 6 feet x 10 feet
- ✈ Ticket Lobby Area = Ticket Counter Length x 45 feet

As depicted in Exhibit 4.2, there are currently 4 ticket counters within the terminal building at TXK serving the two airlines. **Table 4.8** on the following page summarizes the existing ticket counter and ticket lobby space area at TXK, as well as the future requirements in accordance with the above planning criteria and future demand loads.

4.3.2 Airline Operations and Office Space

In addition to the ticket counter, an airline's operation requires space for administrative and operational needs. Normally, office space with access to both the ticketing and baggage make-up areas is provided behind the ticket counter and is primarily used by the agents as workspace. Additional space is frequently provided for a lounge, training room and the station manager's office. A multi-purpose room may also be used for all of these functions.

Along with the space allotted for airline offices, an area for operations and maintenance facilities should be planned. Typically, each carrier requires space in the terminal accessible to the crews for flight planning purposes, which also may include a crew lounge. Limited maintenance space and storage for aircraft supplies are also required and can be located near the aircraft parking apron or as part of the space behind the ticket counter. Although specific space requirements will vary among carriers depending upon the type of service provided at the airport, typical sizing for both airline office and operational facilities is calculated as follows:

- ✈ Airline Office / Operations Space = Length of Ticket Counter x 25 feet.

As depicted in Exhibit 4.2, each of the four ticket areas at TXK includes administrative office space. Table 4.8 summarizes the existing Airline operations area and future office space requirements based on the above planning criteria and future demand loads.

TABLE 4.8 AIRLINE OPERATIONS AREA SPACE REQUIREMENTS Texarkana Regional Airport				
	Existing Facility	**2005**	**2010**	**2020**
Design-hour Enplaned Passengers (Medium Growth Scenario)	17	20	22	30
Peak 30-Minute Demand	10	12	13	18
Optimum Passenger per Agent	6	6	6	6
Number of Agent Positions	2	2	3	4
Ticket Counter Length (lf)	30	12	18	24
Ticket Counter Area (SF)	467	120	180	240
Ticket Lobby Area (SF)	375	540	810	1080
Airline Operations / Office Space (SF)	615	300	450	600
Source: URS Greiner Woodward Clyde, 2001.				

There is adequate ticket counter length and area currently available to accommodate the projected demand through the planning period. The ticket lobby area is sufficient to accommodate short-term demand, however additional area will be required to meet the demand in the intermediate and long term. The airlines appear to have adequate operational and office space in the current configuration through the intermediate planning period. Due to individual airline operations, additional space will be required beyond the intermediate term.

4.3.3 Baggage Operations Area

As passenger volume and the number of design-hour aircraft operations increase, there is an increasing need for space to accumulate and separate baggage received from the ticket counter area prior to transfer to the aircraft for loading. As this volume increases, it is assumed the sophistication of the baggage handling system will also improve.

Baggage loaded onto handcarts and delivered to the aircraft by tugs requires space to maneuver and load a baggage cart with bags destined to one aircraft position. Each departing flight will require one such cart position within the baggage operations area for each design-hour departing flight. Each cart occupies a floor space of 5 feet by 10 feet and a loading and clearance area of approximately the same area, or a total of 100 square feet per cart. In addition to this space, maneuvering space for the circulation of tugs, space for transporting the baggage to the baggage claim area, and space for storage and sorting of received baggage must be estimated to be 1.5 times the space occupied by the carts. These criteria translate into the following formulas used to calculate the baggage operations space requirements:

- ✈ Cart Position Area = Number of Carts x 100 SF
- ✈ Maneuvering Space = 1.5 x Cart Position Area

The operations area should be readily accessible to the aircraft apron without conflicting with the movement of passengers on the apron. It is recommended that this space be in close proximity to the ticket counter area to keep the transportation of bags to the operations area as short and direct as possible. The tug maneuvering area may also serve as the baggage unloading operations area in the interest of having a diversified use of the space.

Table 4.9 illustrates the space requirements for the baggage operations area throughout the planning period years. For planning purposes, it is assumed that two baggage carts will be required to service each design-hour aircraft based on the projected aircraft fleet mix for TXK. These space requirements are for planning purposes only; actual design may reduce the space as diversity of use is considered.

TABLE 4.9 BAGGAGE OPERATIONS SPACE REQUIREMENTS Texarkana Regional Airport				
Description	**Existing Facilities**	**2005**	**2010**	**2020**
Design-hour No. of Aircraft Departures	2	3	3	3
Total No. of Baggage Cart Positions	4	6	6	6
Cart Position Area (SF)	400	600	600	600
Baggage Receiving and Tug Maneuvering (SF)	600	900	900	900
Total Area Required (SF)	**1,000**	**1,500**	**1,500**	**1,500**
Source: URS Greiner Woodward Clyde, 2001.				

4.3.4 Baggage Claim Area

The baggage claim facility consists of non-public circulation and unloading space for baggage carts, claim counter, and space for passengers awaiting baggage. The non-public portion of the baggage claim facility should be easily accessible from the aircraft apron area and could be connected with the outbound baggage facility in order to conserve space. For convenience, the claiming facility can be situated at the end of the deplaning passenger flow pattern, and in proximity to the terminal curb. The total quantity of baggage claim space required (non-public and public) is determined by the seating capacity of the arriving aircraft, the number of deplaning passengers and the quantity of baggage.

Assuming an average of two bags checked per passenger, the claim operations will be required to display 80 percent of the baggage for the claim from the design-hour arriving flights in 20 minutes. As passenger loads and flight frequencies increase, the need for more effective baggage claim facilities will increase towards the latter part of the planning period, but for the current level of activity, the existing conveyor system will suffice. From observation and analysis of similar installations, it is estimated that a baggage claim counter device may deliver 0.125 bags per linear foot of public frontage per minute to the waiting passenger for claim, an average of 2.5 bags claimed in 20 minutes for each linear foot of a claim device. Eighty percent of the design-hour baggage claim requirements should be satisfied in a 20-minute period.

The area requirements for such baggage claim devices and the passengers waiting to claim, waiting and circulation space is estimated as follows: for each linear foot of claim device, five square feet is required for the device itself; the first five feet adjacent to the claim device is required for active claiming; five feet beyond that is needed for passengers waiting to occupy the frontage area; and an additional ten feet is needed to circulate within the baggage claim lobby. Therefore, a minimum of 20 square feet per linear foot of claim device should be allowed within the baggage claim lobby for the passengers claiming their bags.

Additional to the above area requirements is the need for general circulation space and space for public waiting by visitors who have come to meet arriving passengers. A 20 percent increase of the baggage claim area will normally accommodate this need. These criteria translate into the following formulas used to calculate the baggage claim area requirements:

- Peak 20-minute Inbound Bags = (80 percent x design-hour deplanements) x (2 bags per arriving passengers)
- Bag Claim Device Linear Frontage = (Number of inbound bags) / 2.5 bags
- Claim Device = Device frontage x 5 feet
- Passenger Claim Area = Device Frontage x 20 feet
- Circulation and Waiting Area = 20 percent of Passenger Claim Area

Currently the baggage claim system consists of loading and unloading bags from aircraft onto carts and transporting the carts to the terminal where passengers pick up their bags from a baggage claim area with a moving display baggage conveyor. **Table 4.10** summarizes the baggage area requirements through the planning period. The analysis indicates the baggage claim area is able to easily accommodate the demand throughout most of the planning period. Additional space will be required as the airport increases its volume towards the end of the long term planning period.

TABLE 4.10 BAGGAGE CLAIM AREA REQUIREMENTS Texarkana Regional Airport				
Description	**Existing Facilities**	**2005**	**2010**	**2020**
Design –Hour Deplaning Passengers	17	20	22	30
Peak Inbound Bags	27	32	36	48
Bag Claim Conveyor Linear Frontage (LF)	22	13	15	20
Bag Claim Device Requirements (SF)	198[1]	65	75	100
Passenger Claim Area (SF)	302	260	300	400
Circulation and Waiting Area (SF)	60	52	60	80
Total Baggage Claim Area (SF)	**560**	**377**	**435**	**580**
Note: [1]Existing Device = 22 feet x 9 feet.				
Source: URS Greiner Woodward Clyde, 2001.				

4.3.5 Passenger Waiting Lobby

A lobby directly accessible from the curb with space for waiting and seating should be provided adjacent to the ticketing area. The lobby must be large enough to accommodate passengers who arrive early, passengers with delayed flights, and people who accompany passengers to the airport. It should be located with easy access to restrooms, telephones, security stations and baggage claim areas. The lobby is the hub of the circulatory route throughout the terminal; as such, the seating should not conflict with passengers in line at the ticket counters or with passenger traffic flow.

A central waiting space is usually sized to accommodate approximately 65 percent of the design-hour enplaned passengers plus visitors. It is assumed that the design-hour visitor-to passenger ratio will be 1:1. The allowance of 20 square feet per passenger/ visitor, the capacity required to meet the projected level of activity, represents a large portion of the total terminal requirements. These criteria translate into the following formulas used to calculate the passenger waiting area requirements:

- ✈ Lobby Area Seating = (65 percent x Design-hour enplaning passengers) x 2
- ✈ Lobby Area = Seats x 20 SF

Currently there are two hold areas in the terminal. Gate 1, the West gate, is used by charter flights and does not have security screening. The hold area is approximately 420 square feet and currently includes eleven seats, with a capacity of 50 seats. Gate 2, the east gate, is used by the airlines and has one security screening station. The hold area is approximately 820 square feet and currently has 50 seats. An adjacent area baggage port area has the capacity for an additional 24 seats.

As shown in **Table 4.11**, the design-hour enplaned passenger demand is projected to grow from 17 to 30 by the year 2020. These space requirements are for planning purposes only; actual design may increase the space required as diversity of use is considered. However, the existing square footage of the two designated lobby areas should easily accommodate this demand throughout the entire planning period.

TABLE 4.11
PASSENGER WAITING AREA
Texarkana Regional Airport

Description	Existing Facilities	2005	2010	2020
Design-Hour Enplaned Passengers	17	20	22	30
Lobby Area Seats Gate 1: Gate 2:	 11[1] 50	26	29	39
Total Passenger Waiting Area (SF) Gate 1: Gate 2:	 820 420	520	580	780
Note: [1]Gate 1 Capacity = 50 seats.				
Source: URS Greiner Woodward Clyde				

4.3.6 Rental Car Agencies

Counters for rental car transactions should be located in or near the baggage claim public circulation space. This space within the terminal often includes a small office space behind or reasonably close to the counter for administrative purposes and supplies. Also, if possible, the agency should have direct access to the rental car parking area. A minimum terminal area space of 8 feet by 6 feet should be provided for each company, plus an a minimum of 10 feet for queues in front of the counter, providing a total of 108 square feet per rental car agency. **Table 4.12** depicts the space requirements for rental car facilities within the terminal building.

Currently there are four rental agencies at TXK: Avis, Budget, Hertz, and National. Rental car agencies require little counter frontage at TXK. A single agent position is all that is required for each agency throughout the planning period and the existing facilities should adequately accommodate the future needs.

4.3.7 Restaurant and Concessions

A wide variety of concessions and/or restaurant facilities can be located within a terminal building. It is unlikely that small specialty businesses such as barber shops or gift shops would generate sufficient activity to remain profitable at TXK, however a vending machine area, larger concession store and restaurant could be successful at present and long-term projected levels of activities. To assure the design of the terminal has an appropriate balance, typically 15 to 18 percent of the terminal building is designated for concession and restaurant space. For planning purposes, a figure of 15 percent was assumed at TXK for restaurant and concession area combined, and held constant throughout the planning period.

The designated restaurant area is located at the southern end of the terminal building. The restaurant has had several owners over the years and closed for business in December 2000. The restaurant area consists of approximately 1,035 square feet including the kitchen and office areas, with seating for 44 patrons at six booths and five tables.

A new E-Z Mart, located in the area across from the ticket counters, was opened in May 2001. This concession offers a wide variety of food and beverages and convenience items. The E-Z Mart Quick Service Restaurant (QSR) has 3 tables with 12 seats.

Table 4.12 depicts the existing and future space requirements for concessions. Although the restaurant is currently closed, it is recommended this space continue to be utilized as concession space in the future.

4.3.8 Restrooms

Public restrooms must be sized for anticipated design-hour building occupancies in accordance with codes applicable to the local community, the state etc. Space allowances used for airports vary a great deal. Restroom facilities should be at locations convenient to the ticket lobby, restaurant facilities and baggage claim areas. In most terminal buildings, restroom facilities can be grouped in one centralized location. Private facilities are sometimes provided in conjunction with operational and administrative facilities in non-public-use areas.

Currently there are two locations for restroom facilities. The larger facilities are located on the northern end of the terminal building, across from the hold room and within the secured area. Smaller secondary facilities are located at the southern end of the terminal, outside of the restaurant area and adjacent to the hold room area.

A minimum of 300 square feet should be provided to meet current sizing requirements, increasing to approximately 500 square feet through the planning period. Table 4.12 depicts the space requirements for restroom facilities within the terminal building and indicates the restroom facilities are capable of accommodating the future demand throughout the planning period.

4.3.9 Telephones

Public telephones should be located in proximity to the ticket lobby and baggage claim area. Typically, each telephone and the surrounding area requires approximately nine square feet. Currently, there are a total of four telephones located throughout the terminal area: two in Gate 1, one in baggage claim, and one in gate 2. For current requirements, these four telephones will be sufficient through the short-term. As design-hour activity increases, the need for more telephones will increase so that approximately eight telephones will be needed by the year 2020.

TABLE 4.12 CONCESSION SPACE REQUIREMENTS Texarkana Regional Airport				
Description	**Existing Facilities**	**2005**	**2010**	**2020**
Rental Car Facilities (SF)	500	424	424	424
Restaurant (SF)	1,035	1,000	1,000	1,000
Concessions (SF)	950	950	950	950
Vending Machine Facilities (SF)	40	40	40	40
Restrooms (SF)	825	300	300	500
Public Telephones	3	4	6	8
Public Telephone Space (SF)	50	36	48	72
Total (SF)	**3,400**	**2,750**	**2,762**	**2,986**
Source: URS Greiner Woodward Clyde, 2001.				

4.3.10 Passenger Security Screening

Commercial operators operating aircraft now fall under Title 49 CFR (TSR[2]) Part 1540.105 (under FAR 121 Section 121.538) and must screen all passengers prior to boarding the aircraft. A typical security screening station requires approximately 100 to 150 square feet. Queuing space should be provided at the security inspection station to accommodate queues which can quickly develop when a person must be rescreened or physically searched or when baggage must be physically inspected. In order to avoid queues extending into circulation areas, an additional 100 to 150 square feet per station is recommended.

Currently, the Airport operates under FAR Part 121 and TSR Part 1540.105, and has a security screening system consisting of one station occupying approximately 200 square feet in the northern section of the terminal adjacent to the hold room for Gate 2. This station area was recently re-configured and moved within the circulation area. Restrooms are now located within the secured area to allow waiting passengers to use the facilities without being re-screened. Based upon current levels of activity, this security station will provide sufficient capacity for design-hour passengers through the 20-year planning period. The designated hold room at the opposite end of the terminal at Gate 1 does not have a security station, as screening is not required for the charter operations that utilize this area. However, if future airlines operating under FAR Part 121 and TSR Part 1540.105 requirements utilize Gate 1 or the federal security screening requirements change, an additional security screening device will be required to service Gate 1.

4.3.11 Circulation / Building Mechanical and Maintenance Space

In addition to identifying the sizing requirements of the major passenger functions of the terminal, additional area is required for circulation space, hallways and miscellaneous needs. The amount of circulation space required for the gross terminal area varies from approximately 20 to 30 percent depending upon the layout, degree of centralization of the facilities and size. For planning purposes, a figure of 30 percent of the gross terminal area will be used, which may be adjusted to specific needs.

A space allowance for building mechanical systems such as heating, ventilation, air conditioning, electrical and telephone equipment usually requires approximately 15 percent of the total gross terminal area. In addition, the building structure (columns, walls etc.) also requires space of approximately 5 percent of the gross terminal area. Finally, an area for maintenance and janitorial supplies used for the building is needed. This space will vary depending upon the types of maintenance and storage facilities available in other buildings owned by the airport, but a minimum of 3 percent of total gross terminal area is used for preliminary planning purposes.

These percentages determined for building requirements will be held constant throughout the planning period because no major changes can be foreseen. **Table 4.13** indicates the space requirements for circulation, mechanical and maintenance needs based upon the gross terminal area requirements identified in Sections 4.3.1 through 4.3.9.

---

[2] Transportation Security Administration Regulations.

TABLE 4.13 CIRCULATION, MECHANICAL, AND MAINTENANCE REQUIREMENTS Texarkana Regional Airport				
Description	**Existing Facilities**	**2005**	**2010**	**2020**
Gross Terminal Area (SF)	**7,522**	**4,752**	**5,382**	**6,431**
General Circulation = 30% (SF)	4,300	1,457	1,642	1,955
Mechanical = 15% (SF)	615	729	821	977
Structure = 5% (SF)	400	243	274	326
Maintenance = 3% (SF)	260	145	164	195
Subtotal (SF)[1]	**5,575**	**2,574**	**2,901**	**3,453**
Note: [1]Subtotal does not include Gross Terminal Area				
Source: URS Greiner Woodward Clyde, 2001.				

4.3.12 Consolidated Passenger Terminal Requirements

Once all the separate functions within the terminal have been determined, they can be consolidated and analyzed as one single facility. The analysis of **Table 4.14** presents a summary of the terminal space requirements during the 20-year planning period. As the table indicates, the total terminal square footage is adequate to meet the demand throughout the entire planning period, however individual components within the terminal will require additional space by reconfiguring the interior of the terminal. Options for addressing the identified terminal deficiencies will be presented in Section 5, Alternatives Analysis.

TABLE 4.14 CONSOLIDATED TERMINAL AND SUPPORT AREA REQUIREMENTS Texarkana Regional Airport				
Description	**Existing Facilities**	**2005**	**2010**	**2020**
Design-Hour Commuter Enplaned Passenger	17	20	22	30
Airline Ticket Counter Length (lf)	30	12	18	24
Ticketing Counter Area (SF)	**467**	**120**	**180**	**240**
Ticket Lobby Area (SF)	**375**	**540**	**810**	**1,080**
Baggage Operations Area (SF)	1,000	1,000	1,500	1,500
Airline / Operational / Office Space (SF)	**890**	**300**	**450**	**600**
Baggage Claim Frontage (lf)		13	15	20
Baggage Claim Area (SF)	**560**	**377**	**435**	**580**
Hold Rooms/ Waiting Area (SF)	**1300**	**520**	**580**	**780**
Restaurant (SF)	**1035**	**1000**	**1000**	**1000**
Concession (SF)	**950**	**950**	**950**	**950**
Vending Machine Facilities (SF)	**40**	**40**	**40**	**40**
Rental Car Facilities (SF)	**500**	**424**	**424**	**424**
Public Telephone Area (SF)	**50**	**36**	**54**	**72**
Security Screening Area (SF)	**250**	**250**	**250**	**250**
Restroom Facilities (SF)	**825**	**300**	**300**	**500**
Unused Area	**280**	**--**	**--**	**--**
Gross Terminal Area (SF) Subtotal	**7,522**	**4,857**	**5,473**	**6,516**
Circulation = 30% (SF)	4,300	1,457	1,642	1,955
Mechanical = 15% (SF)	615	729	821	977
Structure = 5% (SF)	400	243	274	326
Maintenance = 3% (SF)	260	145	164	195
Total Terminal Building Area (SF)	**13,097**	**7,431**	**8,374**	**9,969**
Note: The numbers in bold are included in the calculation of Gross Terminal Area square footage.				
Source: URS Greiner Woodward Clyde, 2001.				

4.4 SURFACE TRANSPORTATION

The purpose of this section is to evaluate existing and future vehicle traffic operations and identify any improvement needs for the surface transportation system supporting TXK, including the airport circulation roadway, the terminal curb frontage, the parking facilities (employees and public) and the car rental areas.

4.4.1 Access Road

Access to an Airport should be clearly marked with adequate signs directing people to the proper areas. Traffic should flow in one direction, counterclockwise, and parking facility entrances should be placed before the entrance to the terminal.

TXK is served by Airport Drive, a 2-lane asphalt access road that connects the Airport to Highway 67 and Loop 14 and provides access to the Airport's public parking entrance and exit drives, the terminal curbside and the employee and rental car lots.

4.4.2 Automobile Parking

Automobile parking facilities are intended to provide space for passengers, visitors, off-peak passengers, employees and rental car agencies. Points of entering and exiting the parking lots should be clearly identified and sufficiently separated to avoid confusion. A single exit is preferable and should be situated to permit the parking patron to re-circulate the terminal curb for passenger and baggage pick-up.

Typically, 15 to 20 percent of the total public spaces nearest the terminal are allotted to short-term parking and the balance of spaces are designated for long-term parking. The short-term parking turnover rate is usually 3 or more times higher than long-term, thus more spaces are provided where needed. Planning guidelines suggest that at least 10 close-in parking spaces should be provided for each rental car facility as well. A factor of 380 square feet per parking space is used, which includes the parking and circulation space.

Table 4.15 depicts the existing facilities and future automobile parking requirements at TXK.

TABLE 4.15 AUTOMOBILE PARKING REQUIREMENTS Texarkana Regional Airport				
	Existing Facilities	**2005**	**2010**	**2020**
Terminal Area Parking Spaces	**188**	**282**	**329**	**376**
Short-term (20%)	40	60	70	80
Long-term (80%)	148	222	259	296
Terminal Area Parking Area (SF)	71,440	107,160	125,020	142,880
Rental Car Spaces	**35**	**52**	**61**	**70**
Rental Car Parking Area (SF)	13,300	19,760	23,180	26,600
Employee Parking Spaces	**111**	**111**	**111**	**111**
Employee Parking Area (SF)	42,180	42,180	42,180	42,180
Source: URS Greiner Woodward Clyde, 2001.				

Typically, the peak parking occupancy rate should not exceed 85 to 90 percent in order to avoid excessive vehicular circulation by motorists searching for an empty space. Based on the existing demand, it is evident that the existing parking facilities are already operating over the desirable capacity during peak travel periods and will need to be expanded to better accommodate the airport's parking demands and be able to accommodate any future growth at TXK. Table 4.15 lists the estimated parking needs for future years for the general public, the employee parking areas and the car rental facilities.

Discussions with the Airport revealed long-term parking exceeds its capacity typically three to four days of the week, with the remaining days having a utilization of nearly 50 percent. Short-term parking typically exceeds its capacity on a regular basis. Since TXK is an Origin and Destination (O&D) airline market, coupled with the casino charter activity, it experiences travelers' higher need for long-term parking. Therefore, for design purposes, the future year parking requirements were calculated by doubling the current number of parking spaces through the planning period. Most parking areas currently need expansion with the only exception being employee parking. As shown in this table, approximately 188 additional public parking spaces will be needed by the year 2020, with approximately 35 additional spaces needed to accommodate the rental car agencies. In addition to the need for more parking spaces and improvement of the long-term parking area, the terminal parking area layout, circulation and lighting needs significant consideration for improvement.

4.5 TERMINAL APRON AIRCRAFT PARKING APRON

The aircraft apron requirements are based upon the number of parking positions needed and the size of aircraft, including maneuvering space, utilizing these parking positions. The number of parking positions required for commercial operations at TXK is based on the forecast of design-hour operations, aircraft arrival/ departure rates and average parking position occupancy time.

Section 4.1.2.2 discusses the types of commercial aircraft expected to be serving TXK during the planning period. **Table 4.16** presents the number of design-hour parking positions required for each aircraft type and basic aircraft sizing criteria. The aircraft sizing criteria and resulting apron area requirements include sufficient space for aircraft maneuvering clearances required for a power-in, power-out procedure.

TABLE 4.16 COMMERCIAL SERVICE PARKING APRON REQUIREMENTS Texarkana Regional Airport					
	Existing Facilities	**2005**	**2010**	**2015**	**2020**
Design-hour Parking Positions					
EMB-120	1	1	1	--	--
Saab 340	2	2	1	1	1
Regional Jet	--	--	1	2	2
TOTAL	**3**	**3**	**3**	**3**	**3**
Apron Area (SF)					
EMB-120	12,425	12,425	12,425	--	--
Saab 340	19,600	19,600	9,800	9,800	9,800
Regional Jet	--	--	8,992	17,984	17,984
TOTAL	**32,025**	**32,025**	**31,217**	**27,784**	**27,784**
Note: Existing facility numbers present current demand only.					
Source: URS Greiner Woodward Clyde, 2001.					

The aircraft parking apron adjoining the passenger terminal has over 360 linear feet of frontage along the face of the building. The terminal apron encompasses a total area of approximately 400,000 square feet of total terminal apron area, with 105,000 square feet available for commercial aircraft parking. The existing apron, based on the current fleet mix, is capable of accommodating four EMB-120 and four Saab-340 commuter aircraft simultaneously on the apron in front of the Terminal. Considering the future fleet mix of the air carrier's the existing apron could accommodate two EMB-120, two Saab 340, and four RJ aircraft at the same time.

It has been assumed in the development of the aviation forecasts that the average seats per flight and aircraft load factor will gradually increase throughout the planning period. Applying these factors (30 to 50 seats/flight and 40 to 50 percent load factor) to the forecast scenario's peak hour deplaned passengers indicates up to three arriving flights would occur during the peak hour in 2020.

Because the existing apron is capable of accommodating the projected demand, no expansion is recommended.

4.6 GENERAL AVIATION AREA

The purpose of this evaluation is to determine the capacity of existing GA facilities and their ability to meet forecasted levels of demand during the planning period. In this analysis, the following types of facilities were evaluated:

- GA terminal
- Storage hangars
- Based aircraft apron
- Transient aircraft apron

4.6.1 General Aviation Terminal

The ground activity at an airport that provides services to GA aircraft usually focuses on a central multi-function building. It is advisable to discourage use of the passenger terminal building and adjacent apron by GA pilots so that these facilities will be free for exclusive use by scheduled carriers. To accomplish this, it is best that a full range of GA services and facilities should be provided in one separate location.

GA requirements needed for the future is calculated based on design period factors at GA airports. The FAA recommends using a basic criterion of 49 square feet per design-hour passenger. **Table 4.17** provides a breakdown of what is included in the 49 square feet.

TABLE 4.17 GENERAL AVIATION TERMINAL BUILDINGS PASSENGER AREA REQUIREMENTS Texarkana Regional Airport	
Operational Use	**Area Required (SF)**
Waiting Area / Pilot's Lounge	15
Management Operations	3
Public Conveniences	1.5
Concessions / Dining	5
Circulation, Mechanical, Maintenance	24.5
TOTAL	**49**
Source: "Aviation Demand and Airport Facility Requirement Forecast for Medium Air Transportation Hubs through 1980" Federal Aviation Administration, January 1969.	

Based on the General Aviation Peaking Characteristics Forecast presented in Section 3, design-hour passengers were calculated at a rate of 1.75 passengers per design-hour itinerant operation. **Table 4.18** depicts the GA terminal building space requirements for TXK. Currently, the TACAir Terminal fulfills this function.

TABLE 4.18 GENERAL AVIATION TERMINAL BUILDING MINIMUM SPACE REQUIREMENTS Texarkana Regional Airport			
Description	**2005**	**2010**	**2020**
Design-hour Itinerant Operations	9	10	11
Design-hour Passengers	16	18	20
Waiting Area / Pilot's Lounge (SF)	240	270	300
Management / Operations (SF)	48	54	60
Public Conveniences (SF)	24	27	30
Concessions / Dining (SF)	80	90	100
Circulation, Mechanical, Maintenance (SF)	392	441	490
Total Building Area (SF)	**784**	**882**	**980**
Source: URS Greiner Woodward Clyde, 2001.			

4.6.2 Storage Hangars

The demand for storage hangars is dependent upon the number and types of aircraft expected to be based at the airport, as well as local climatic conditions, airport security, and owner preferences. The percentage of based aircraft that are stored in hangars varies from state to state, but is usually greatest in regions that are subject to extreme weather conditions. At TXK, all aircraft owners store their aircraft in hangars.

The demand for storage hangars at TXK will vary according to aircraft type and owner preference. It is estimated that 95 percent of the single-engine aircraft and 100 percent of the multi-engine aircraft, turboprop, jet, and rotorcraft will desire hangar space. However, accommodations should be provided for open ramp tie-down space as well. For planning purposes, it is recommended that aircraft apron tie-down space for 5 percent of the single-engine aircraft anticipated to be based at TXK be provided.

The demand for both large conventional aircraft hangars and T-Hangars was estimated for TXK. Most often, the principle users of conventional hangars are larger aircraft whose owners desire convenient access to maintenance and related services and the primary users of T-Hangars are owners of single-engine and some small multi-engine aircraft. T-Hangars have become popular because they provide individual privacy, security, easy access by aircraft owners and are a cost effective asset storage. At TXK, 95 percent of the based single-engine aircraft are planned to be stored in T-Hangars. Some small multi-engine aircraft can be stored in T-Hangars, but typically, the majority of these aircraft types desire conventional aircraft storage. It is planned that 85 percent of the based multi-engine aircraft will utilize conventional hangars and 15 percent of the multi-engine aircraft will utilize T-Hangars at TXK. The remaining aircraft types, turboprops, jet and rotary aircraft, typically prefer and require conventional hangar space.

Planning criteria used in calculating space requirements were applied to forecasted levels of demand of based aircraft to determine the approximate sizing of facilities required during the planning period. Based on general industry standards, space requirements of 1,500 square feet for single-engine and rotary aircraft; 2,500 square feet for multi-engine aircraft; and 3,500 square feet for jet aircraft were used to determine the hangar facility requirements at TXK. T-Hangar units were calculated based on number of single engine aircraft. Often several aircraft are located in one conventional hangar depending on the aircraft and hangar size. Therefore, only the total square feet required for conventional hangars are presented. **Table 4.19** summarizes the demand/capacity analysis for aircraft storage hangars.

TABLE 4.19

T-HANGAR UNIT REQUIREMENTS

Texarkana Regional Airport

Aircraft	Existing	2005	2010	2020
Single-engine	42	31	33	35
Multi-engine	--	5	6	6
Total Units	**42**	**36**	**39**	**41**
15% Planning Allocation	**6**	**5**	**6**	**6**
Grand Total	**48**	**41**	**45**	**47**

Conventional Hangar Requirements

Aircraft Type	Existing		2005		2010		2020	
	No. Aircraft	Area (SF)	No. Aircraft	Area (SF)	No. Aircraft	Area (SF)	No. Aircraft	Area (SF)
Multi-engine	26	--	28	70,000	29	72,500	31	77,500
Jet	2	--	2	7,000	2	7,000	2	7,000
Helicopter	5	--	5	14,500	6	16,000	6	16,000
Total	**3**	**--**	**35**	**94,000**	**37**	**95,500**	**39**	**100,500**

Source: URS Greiner Woodward Clyde, 2001.

On the basis of the projected fleet mix and demand/capacity analysis, there does not appear to be a requirement for additional T-Hangars. However it should be noted that the T-Hangars routinely do fill to capacity as the number of based aircraft fluctuates from year to year and the Airport has maintained a T-Hangar waiting list for the past several years. Therefore it is recommended that an allocation of 15 percent more T-Hangars be planned for throughout the planning period. Also, additional small multi-engine aircraft may utilize T-Hangars if conventional hangar space is not available. Section 5, Alternatives Analysis will present alternatives for conventional hangars, as well as additional future T-Hangars.

4.6.3 General Aviation Aircraft Apron

GA apron areas should be provided for both transient aircraft visiting the Airport and based aircraft that do not desire hangar storage. The amount of aircraft tie downs required for based aircraft is relatively small because the majority of aircraft owners in the area require hangar space for their aircraft. Using a planning standard of 3,250 square feet of pavement per tie-down position including maneuvering space.

Transient or itinerant aircraft visiting an airport will typically park at an apron area adjacent to the FBO or GA terminal building because these passengers are most likely to use the terminal facilities. Transient aircraft parking apron requirements are determined by applying the following assumptions to the itinerant movements performed by transient aircraft on the average day of the peak month:

- The majority of transient aircraft will arrive and depart on the same day.
- The actual number of aircraft utilizing the parking apron is half (50) percent of the transient movements on the average day of the peak month.
- Forty (40) percent of the transient aircraft will be on the ground at any given time and will need parking space.
- Itinerant operations are composed of 50 percent single-engine, 30 percent multi-engine aircraft and 20 percent turboprop/jet aircraft.
- Apron space required per itinerant aircraft for parking and maneuvering area for Single-engine is 3,250 square feet, Multi-engine is 5,500 square feet, and Turboprop/Turbojet is 6,800 square feet.
- Based aircraft positions composed of 85 percent single-engine and 15 percent multi-engine aircraft.

Table 4.20 presents the GA apron parking requirements based on the above criteria and the forecasted number of transient and based aircraft presented in Section 3.

TABLE 4.20 GENERAL AVIATION PARKING APRON AREA REQUIREMENTS Texarkana Regional Airport								
Aircraft Type	Existing		2005		2010		2020	
	Aircraft	Area (SF)	Aircraft	Area (SF)	Aircraft	Area (SF)	Aircraft	Area (SF)
Based Aircraft								
Single-engine	5	16,250	2	6,500	2	6,500	2	6,500
Sub-Total	**5**	**16,250**	**2**	**6,500**	**2**	**6,500**	**2**	**6,500**
Itinerant Aircraft								
Single-engine	6	19,500	9	29,250	10	32,500	11	35,750
Multi-engine	4	22,000	5	27,500	6	33,000	7	38,500
Turboprop/Jet	3	20,400	4	27,200	4	27,200	5	34,000
Sub-Total	**13**	**61,900**	**18**	**83,950**	**20**	**92,700**	**23**	**108,250**
GRAND TOTAL	**19**	**78,150**	**20**	**90,450**	**22**	**99,200**	**25**	**114,750**
Source: URS Greiner Woodward Clyde, 2001.								

4.6.4 Aircraft Maintenance

The sizing criteria for aircraft maintenance facilities typically allows for one maintenance apron parking space for every 10 average-day aircraft. It has been determined that the following apron area is required per aircraft for maintenance purposes to allow for building clearances and apron and maneuvering areas:

- ✈ Single-engine: 3,200 square feet
- ✈ Multi-engine: 4,700 square feet
- ✈ Turboprop/Turbojet: 6,100 square feet

The results of this evaluation for space requirements for based aircraft maintenance purposes are presented in **Table 4.21**. The areas presented include total maintenance space requirements of hangar and apron area.

TABLE 4.21 GENERAL AVIATION MAINTENANCE AREA REQUIREMENTS Texarkana Regional Airport								
Aircraft Type	**Existing**		**2005**		**2010**		**2020**	
	Aircraft	**Area (SF)**	**Aircraft**	**Area (SF)**	**Aircraft**	**Area (SF)**	**Aircraft**	**Area (SF)**
Single-engine	6	20,480	8	25,600	9	28,800	9	28,800
Multi-engine	4	18,048	4	16,800	4	16,800	5	21,000
Turboprop/Jet	3	15,616	3	18,300	3	18,300	3	18,300
TOTAL	**13**	**54,144**	**15**	**60,700**	**16**	**63,900**	**17**	**68,100**
Source: URS Greiner Woodward Clyde, 2001.								

4.7 AIRCRAFT RESCUE AND FIREFIGHTING

As described in Section 2, ARFF services are currently provided from an ARFF station located south of the approach end to Runway 4. These services meet the requirements of Index A as specified by Advisory Circular 150/5210-6C. Currently, the Airport has a cost sharing agreement with the local cities to operate the ARFF Building and Operations – Consolidated Fire Station No. 4.

On the basis of the forecasts presented in Section 2, it is projected that the airport will remain in Index A throughout the planning period. The existing facility will be sufficient for the short to mid-term planning period. However as the airport grows, a new and larger facility within the terminal area should be planned to meet the requirements and needs of TXK. Section 5, Alternatives Analysis will examine alternative locations for a new ARFF station.

4.8 AVIATION FUEL STORAGE FACILITIES

Currently the airport has capacity of 40,000 gallons Jet-A fuel and 13,000 gallons AvGas. The 20,000-gallon above ground tank was installed in 2002 to replace a damaged underground tank. A 20,000-gallon Jet-A tank and a 12,000-gallon AvGas tank remain underground and should be replaced with above ground tanks due to the high water table.

The 12,000-gallon AvGas tank should be replaced with a 20,000-gallon tank to meet future needs. Typically, an airport the size of TXK should have a minimum of five days of aviation fuel available.

Table 4.22 provides the results of an analysis of recent fuel sales for TXK. It is apparent that there is adequate fuel storage capacity for Jet-A fuel throughout the planning period. As GA operations increase, it may be necessary to add additional capacity for AvGas in the mid to long term planning period.

TABLE 4.22
AVIATION FUEL SALES
Texarkana Regional Airport

Description	Gallons	Fuel Tank Capacity (Gallons)	Capacity – Number of Days
Total Monthly Average	72,189		
Jet-A Monthly Average	28,798		
AvGas Monthly Average	43,905		
Total Daily Average	2,384		
Jet-A Daily Average	960	40,000	42
AvGas Daily Average	1,416	13,000	9

Source: TACAir: 1999-2000.
URS Greiner Woodward Clyde, 2001.

4.9 AIRPORT ADMINISTRATION

Airport management facilities vary a great deal according to the size of staff and type of operation performed. Therefore specific requirements must be matched to individual airports. Airport administration is located in a building that was originally constructed in 1936 as the Airport's first terminal building. The building includes offices for the Airport Manager and Accountant, reception and work area for the Administrative Assistant, a file storage room, a conference room, and restrooms. The building was renovated within the past five years and should accommodate the future needs of the Airport Administration throughout the planning period.

4.10 AIRPORT MAINTENANCE

The maintenance function at an airport is responsible for a wide range of facilities including buildings, pavements, utility systems (lighting, drainage, fueling) and open land. In conjunction, the supplies and equipment required to maintain each of these facilities/systems are numerous and varied. As a result, most commercial service airports have a separate maintenance workshop and storage facility located on the airport.

4.11 SUMMARY OF FACILITY REQUIREMENTS

This section has identified the general facility requirements necessary to meet the 20-year demand based on the medium growth scenario. The facility requirements are based upon the forecast activity and the space/ area requirements are approximate. The relative size of these facilities will permit the planning of the terminal area and the establishment of general spatial relationships for support facilities. Specific space/ area plans must be developed after detailed study and negotiations with the users of the facilities. Prior to the actual layout of these facilities, specific refinement must be accomplished to enable the Airport to develop in a coherent and logical manner. **Table 4.23** provides a summary of the future facility requirements at TXK.

TABLE 4.23 SUMMARY OF CONSOLIDATED FACILITY REQUIREMENTS Texarkana Regional Airport				
	Existing Facilities	**2005**	**2010**	**2020**
Facilities				
Passenger Terminal (SF)	13,097	7,431	8,376	9,969
General Aviation Terminal (SF)	--	784	882	980
Auto Parking				
Terminal Area Parking Spaces	188	282	329	376
Short-term (20%)	40	56	66	75
Long-term (80%)	148	226	253	301
Terminal Area Parking Area (SF)	71,440	107,160	125,020	142,880
Rental Car Spaces	35	52	61	70
Rental Car Parking Area (SF)	13,300	19,760	23,180	26,600
Employee Parking Spaces	111	111	111	111
Employee Parking Area (SF)	42,180	42,180	42,180	42,180
Aircraft Parking Apron				
Commercial Aircraft (SF)	32,025	32,025	31,217	27,284
General Aviation (SF)	110,500	90,450	99,200	114,750
Total Area (SF)	142,525	122,475	130,417	142,034
Hangars				
T-Hangar Units	42	41	45	47
Conventional Hangars (SF)	--	94,000	95,500	100,500
Maintenance Area (SF)	--	60,700	63,900	68,100
Source: URS Greiner Woodward Clyde, 2001.				

SECTION 5 ALTERNATIVES ANALYSIS

5.0 INTRODUCTION

The purpose of this section is to examine ways to provide the airport facilities identified in Section 4 of this master plan update, as well as those identified by airport management. The overall goal of the alternative analysis is to provide a balanced airside and landside complex. The recommendations resulting from the analysis in this section will be the basis for TXK's long-term development plan. Four areas of development are addressed:

- Airfield
- Terminal Area
- GA Area
- Aircraft Rescue and Fire Fighting Services

The plan is developed through a process that identifies alternative ways to meet facility requirements, evaluates these alternatives to determine which best satisfies the need, and selects a preferred development plan based on the evaluation. The selection of the preferred alternative is the culmination of the master plan process. Work that follows consists of refining and developing the selected recommendations.

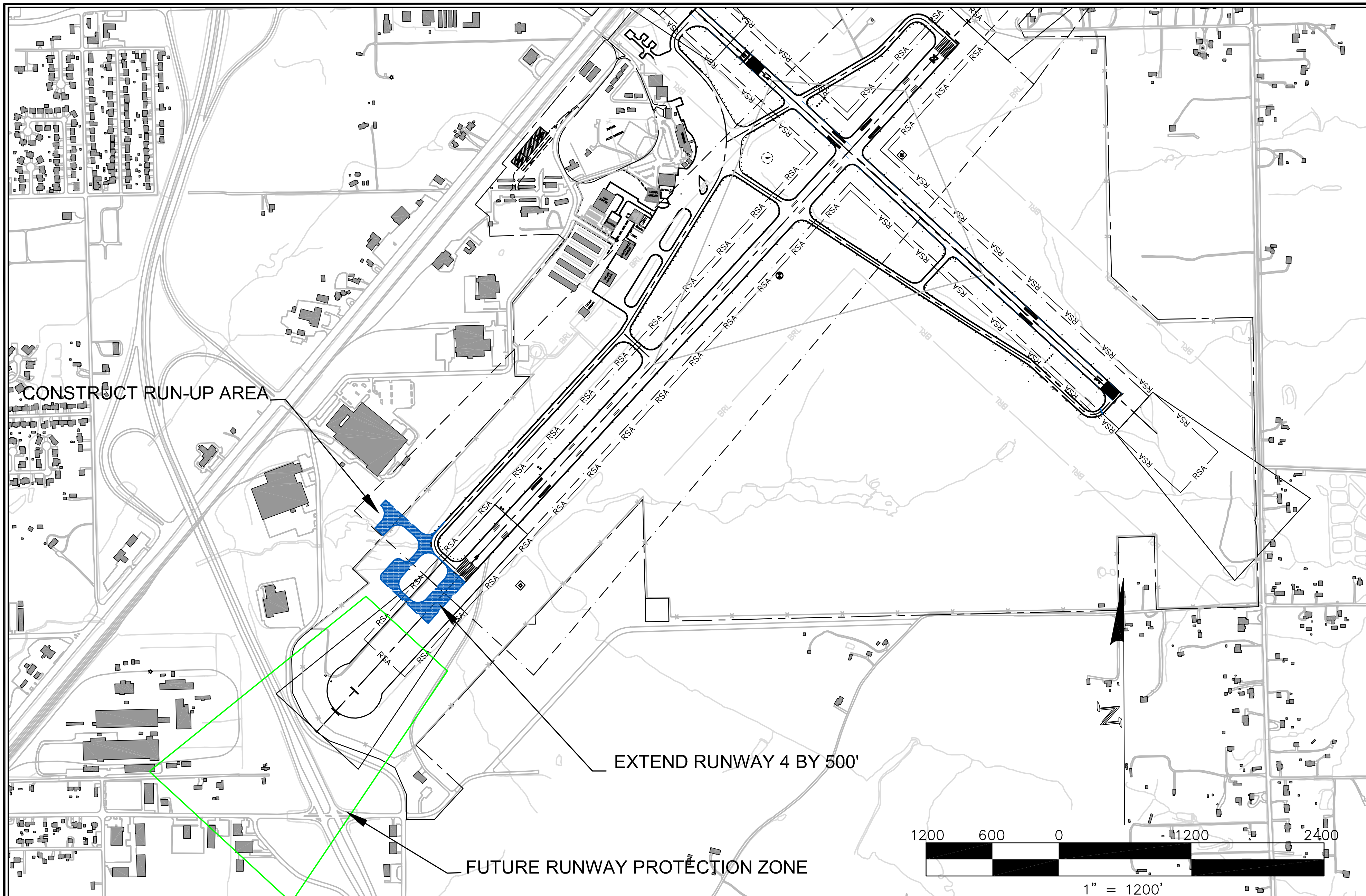
5.1 AIRFIELD DEVELOPMENT

Airfield development at TXK must have the ability to respond to future changes in type and size of aircraft using the airport and changes in FAA standards. This subsection evaluates and updates recommendations made in the previous master plan and identifies an alternative that satisfies future airfield facility requirements. As the existing airfield is well developed, it was not necessary to look for alternative ways in which to improve airfield facilities. However, the following improvements are recommended to ensure adequate airfield capacity and flexibility in the future:

- The extension of Runway 4/22 by 500 feet to the southwest. This improvement was proposed in the previous airport master plan and is shown on the existing ALP. The recommended length of 7,100 feet will meet all current and future needs of the aircraft expected to use TXK during the planning period, as determined subsection 4.1.4.2. In addition, the runway extension enhances the overall safety of the airfield.

- ✈ The extension of Taxiway A by 500 feet to full length of extended Runway 4/22.
- ✈ The construction of holding bays on Runway 4/22 to assist in the reduction of delays and facilitate the movement of aircraft at the approach end of the runway. These improvements were also identified in the previous master planning effort and are shown on the existing ALP.
- ✈ The construction of a run-up area to be located west of the future holding bay for Runway 4.
- ✈ The pavement strength for Runway 4/22 be increased to 140,000-lbs. dual-wheel loading strength.

No other airfield improvements are warranted within the 20-year planning horizon. It is noted that a 480-foot extension to Runway 13/31 was proposed in the previous master plan. Based on the determinations made in Section 4 “Demand/Capacity and Facility Requirements” of this study, neither the extension of the runway by 480 feet to southeast nor the upgrade of the non-precision approaches through improved lighting and navigational aids to Runway 13/31 can be justified. This determination is based upon the future operations and aircraft fleet mix forecast for the 20-year planning period. Moreover, based on the topography in the area, construction costs are potentially high and prohibitive when compared to the benefits associated with the extension to Runway 13/31. **Exhibit 5.1** depicts the proposed airfield development for the 20-year planning period.



PROPOSED AIRFIELD DEVELOPMENT

TEXARKANA REGIONAL AIRPORT
AIRPORT MASTER PLAN UPDATE

URS Greiner Woodward Clyde

SCALE 1"=1200'

EXHIBIT 5.1

5.2 TERMINAL AREA DEVELOPMENT

It was determined in Section 4 of this study that major expansion of the terminal building was not required, although additional automobile parking is needed to meet the long-term demand. Since there is sufficient land area in the existing terminal area to accommodate future expansion of the automobile parking area, relocation of the terminal building to an alternative site was not considered as part of this study.

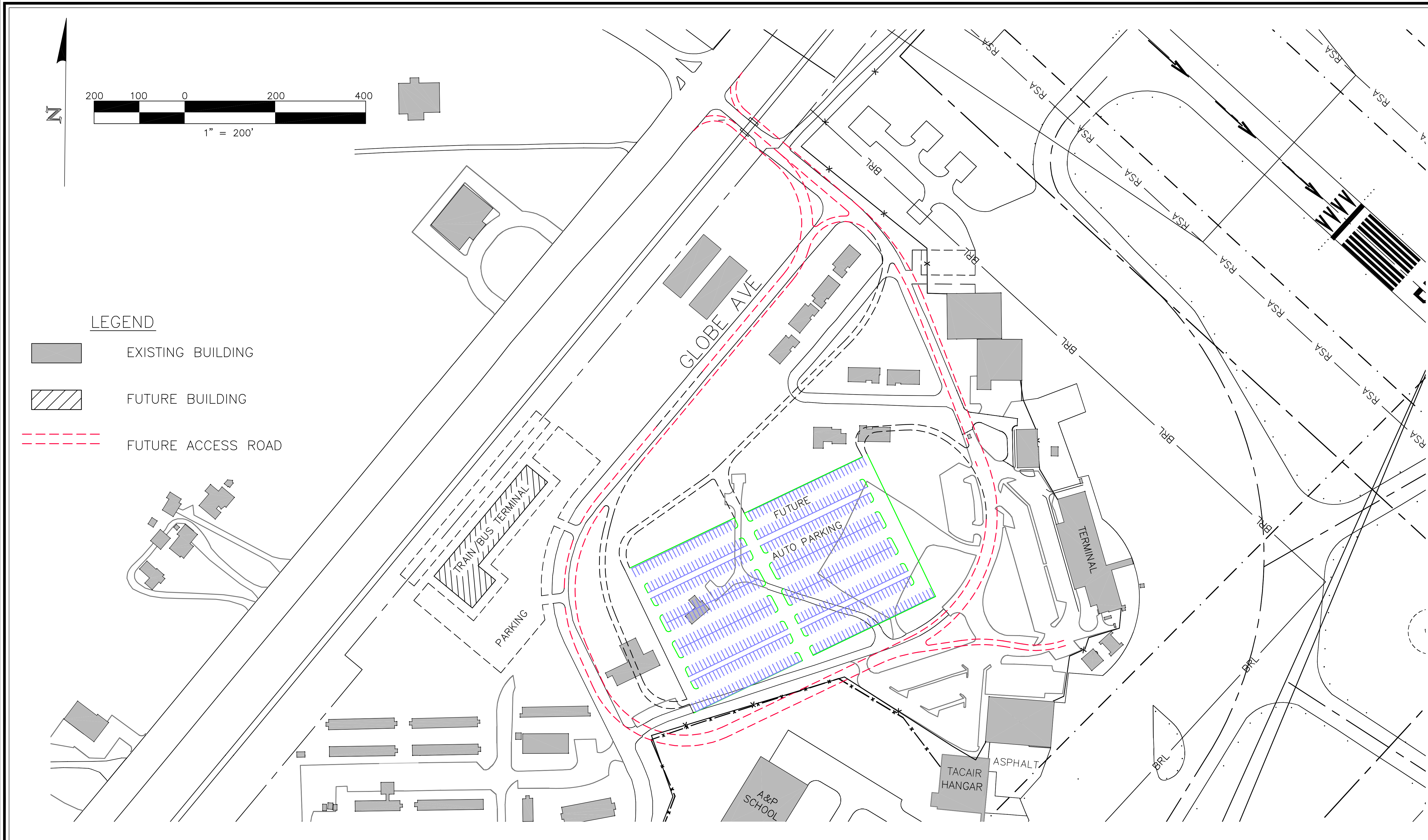
Key considerations in the development of considered improvements to the terminal area at TXK include the following based on recent discussions with Airport staff:

1. A new terminal building serving both passenger trains and buses is being planned on TXK property between Globe Drive and the existing railroad tracks.

2. The Arkansas Highway and Transportation Department (AHTD) is being asked to plan the development of a bridge from Arkansas Boulevard into the Airport's entrance road. The bridge will span over Highway 67 and the railroad tracks to alleviate safety hazards and projected vehicular traffic congestion generated by the new train/bus terminal.

Exhibit 5.2 depicts a potential layout of the future bridge overpass into the terminal area from Arkansas Boulevard. Also shown is the location and potential layout of the future train and bus terminal. Included in Exhibit 5.2 is a parking lot expansion and configuration plan that will meet the Airport's long-term needs.

Since the design of the future bridge overpass is still very preliminary, a second layout was developed for consideration. **Exhibit 5.3** depicts a loop roadway and a linear configuration for the train/bus terminal. The advantages of the linear configuration are the provision of an extended dual curb for passenger drop-off by car or bus. The scheme also features a centralized lobby for train and bus passengers, as well as a staging area for buses.

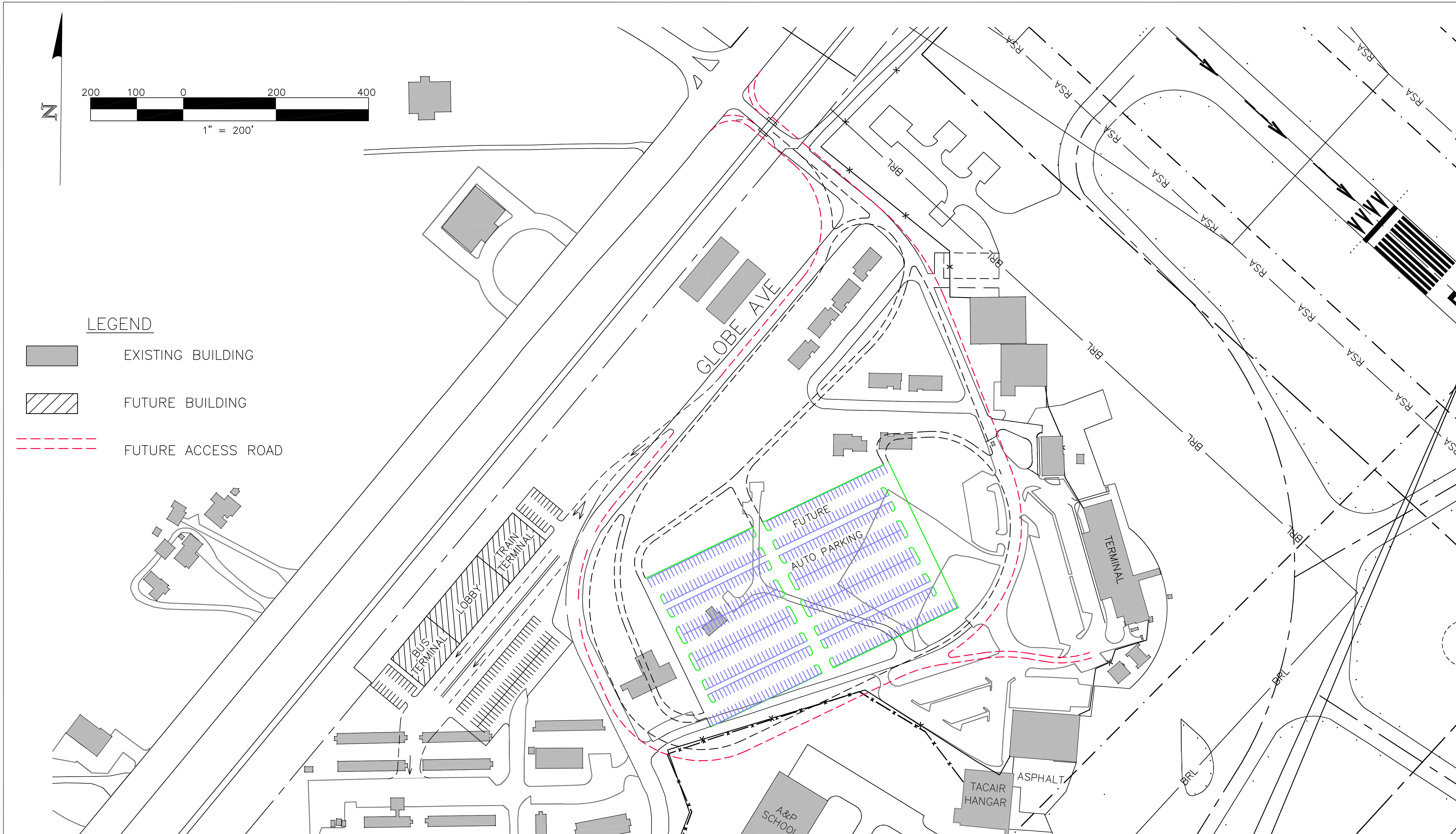


TERMINAL AREA DEVELOPMENT – ALTERNATIVE 1

TEXARKANA REGIONAL AIRPORT
AIRPORT MASTER PLAN UPDATE

URS Greiner Woodward Clyde

SCALE	EXHIBIT
1"=200'	5.2



TERMINAL AREA DEVELOPMENT – ALTERNATIVE 2

TEXARKANA REGIONAL AIRPORT
AIRPORT MASTER PLAN UPDATE

URS Greiner Woodward Clyde

SCALE 1"=200'

EXHIBIT 5.3

The existing airport passenger terminal building area is 13,097 square feet and the year 2020 minimum area requirement is 9,969 square feet. This indicates that 3,128 square feet surplus of space is potentially available within the terminal. Although, the total terminal square footage is adequate to meet demand throughout the planning period, some of the individual components require additional space and/ or reconfiguration. These areas include the ticket lobby, baggage operations, baggage claim, public telephone, and mechanical space. By reconfiguring the interior, surplus areas such as the circulation and unused space may be utilized to accommodate future demand.

In order to determine the possibilities for reconfiguration of the internal space, the long-term surplus and deficiencies were calculated and are presented in **Table 5.1**. It should be noted that the baggage operations area is the space required for storage and separation of baggage received from the ticket counter prior to aircraft loading. This area is also includes maneuvering space for the circulation of tugs, space for transporting baggage to the claim area, and space for sorting and storage baggage received. Therefore, this area is only partially included within the terminal building structure with the majority of space reserved on the adjacent apron.

Three airport passenger terminal building layout alternatives were developed in which the interior space is reconfigured; taking into consideration the requirements for adjacent functions, as well as highest and best use of space based on spatial location. These layouts were developed with the following considerations and goals:

- Achieve a balanced layout which resolves the spatial deficiencies identified in Table 5.1.
- Maintain the current concession area.
- Maintain the restaurant facilities.
- Maintain the newer restrooms located at the north end of the terminal.
- Provide improved and efficient space for passenger screening and security functions and relocate this function to allow the full usage of existing entry/exit doors.
- Provide one common hold room for two separate aircraft gates.
- Improve the utilization of the existing terminal apron.

TABLE 5.1 TERMINAL AND SUPPORT AREA SURPLUSES AND DEFICIENCIES Texarkana Regional Airport			
Description	**Existing**	**2020**	**Surplus/(Deficiency)**
Ticketing Counter Area (SF)	467	240	227
Ticket Lobby Area (SF)	375	1,080	(705)
Airline / Operational / Office Space (SF)	890	600	290
Baggage Operations Area (SF)	1,000	1,500	(500)
Baggage Claim Area (SF)	560	580	(20)
Hold Rooms/ Waiting Area (SF)	1300	780	520
Restaurant (SF)	1035	1000	35
Concession (SF)	950	950	0
Vending Machine Facilities (SF)	40	40	0
Rental Car Facilities (SF)	500	424	76
Public Telephone Area (SF)	50	72	(22)
Security Screening Area (SF)	250	250	0
Restroom Facilities (SF)	825	500	325
Unused Area (SF)	280	0	280
Circulation (SF)	4,300	1,961	2,339
Mechanical (SF)	615	980	(365)
Structure (SF)	400	327	73
Maintenance (SF)	260	196	64
Source: Table 4.14, Demand/Capacity and Facility Requirements. URS Greiner Woodward Clyde, 2002.			

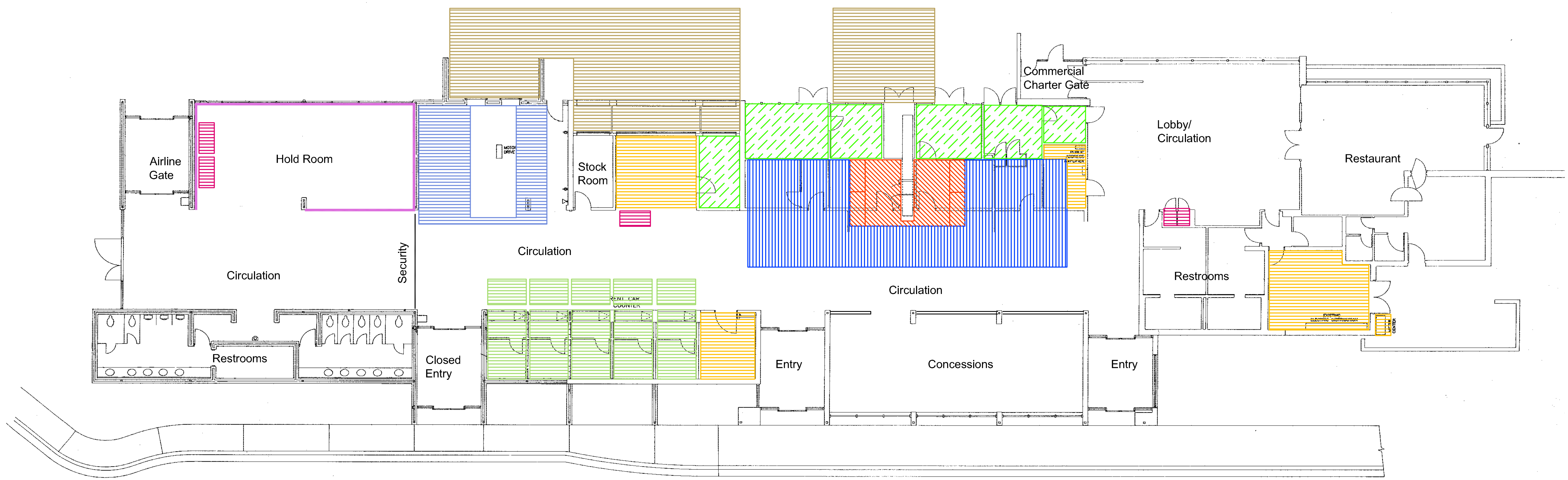
5.2.1 Terminal Layout Alternative 1 (TL-1)

Exhibit 5.4 presents a layout for the passenger terminal that is geared towards meeting the identified deficiencies in the Year 2020. The main features of the plan include:

- Preservation of the existing security screening area, restaurant, concession area, hold rooms, restroom facilities and other passenger facilities in the their present location.
- Realignment of the existing ticket counters and reconstruction of airline office space to accommodate expanded ticket lobby areas adjacent to the counters. An 8-foot corridor between the ticket lobby and the concession area is maintained for circulation.
- Reservation of areas adjacent to the baggage claim and conveyer system for baggage operations including maneuvering space for carts.
- Preservation of the rental car office space and conversion of the unused baggage port to accommodate expanded mechanical/electrical/HVAC facilities. Preservation of the existing mechanical/electrical/HVAC facility space.
- Reservation of excess circulation space for additional public telephones.

RECONFIGURED TERMINAL/SUPPORT AREAS

- Ticket Counter Area = 260 SF
- Ticket Lobby Area = 1,020 SF
- Airline/Operational/Office = 700 SF
- Baggage Claim Area = 580 SF
- Baggage Operations Area = 1,600 SF
- Rental Car/Queue Area = 560 SF
- Public Telephone Area = 70 SF
- Mechanical/Electrical/HVAC = 715 SF
- Hold Room = 885 SF



TERMINAL LAYOUT ALTERNATIVE 1

TEXARKANA REGIONAL AIRPORT
AIRPORT MASTER PLAN UPDATE

URS Greiner Woodward Clyde

SCALE 1"=20'

EXHIBIT 5.4

5.2.2 Terminal Layout Alternative 2 (TL-2)

Exhibit 5.5 presents a second alternative layout for the passenger terminal. The main features of this plan include:

- Preservation of the existing security screening area, restaurant, concession area, hold rooms, restroom facilities and other passenger facilities in the their present location.
- Relocation of the existing ticket counters to the far wall of the terminal to create and add additional depth for the ticket queues and an expanded ticket lobby area. This requires reconstruction of airline office space. As with Alternative 1, an 8-foot corridor between the ticket lobby and the concession area is maintained for circulation.
- Reservation of areas adjacent to the baggage claim and conveyer system for baggage operations including maneuvering space for carts.
- Preservation of the rental car office space and conversion of the unused baggage port to accommodate expanded mechanical/electrical/HVAC facilities. Preservation of the existing mechanical/electrical/HVAC facility space.
- Reservation of excess circulation space for additional public telephones.

5.2.3 Terminal Layout Alternative 3 (TL-3)

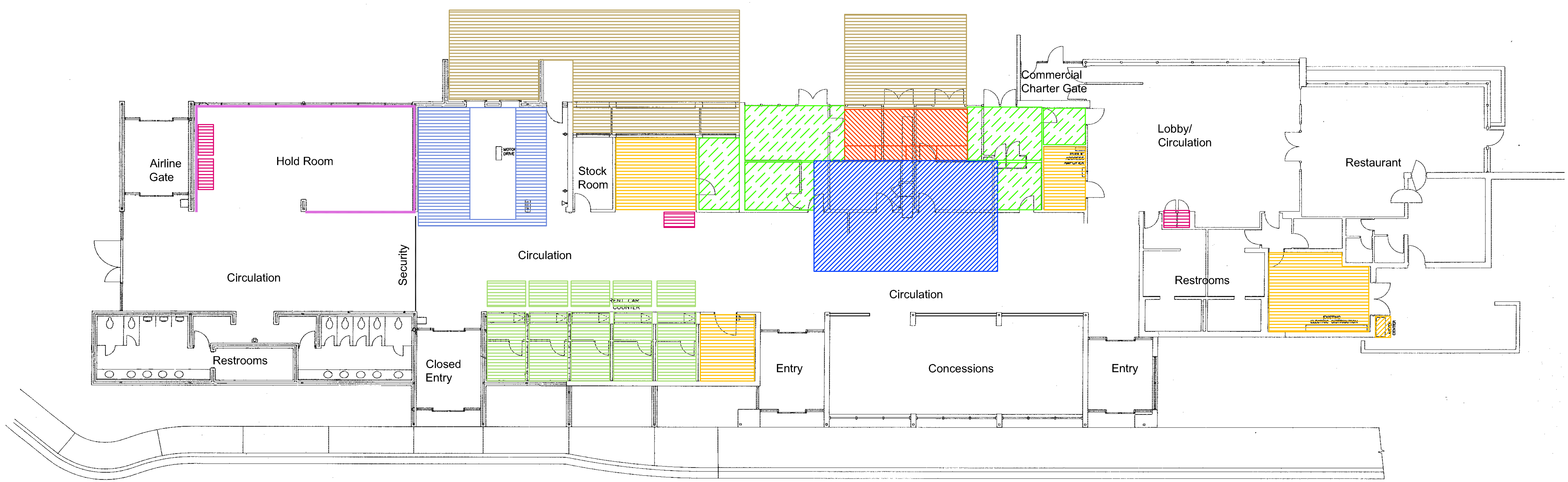
Exhibit 5.6 presents a third alternative layout for the passenger terminal. The main features of this plan include:

- Preservation of the restaurant, concession area and restroom facilities (north terminal) in their present location.
- Relocation of the airline ticket offices, ticket counters and lobby to the southern end of the terminal, adjacent to the restaurant. This requires the demolition of the restroom facilities and a reduction in the mechanical/electrical/HVAC facility space at the south end of the terminal.
- Construction of new restroom facilities at the southern end of the building, expanding the terminal building by 600 square feet.
- Provision of a common hold room, security screening area, and two airline gates. This requires demolition of the existing terminal supervisor's office, baggage port, airline spaces, terminal staff break room, and HVAC/PA system room.

- Reservation of areas adjacent to the baggage claim and conveyer system for baggage operations including maneuvering space for carts.
- Preservation of the rental car office space and conversion the adjacent mechanical/electrical/HVAC space to a Concessions Area.
- Provision of additional mechanical/electrical/HVAC space at the north end of the terminal.
- Reservation of excess circulation space for additional public telephones.

RECONFIGURED TERMINAL/SUPPORT AREAS

- Ticket Counter Area = 240 SF
- Ticket Lobby Area = 780 SF
- Airline/Operational/Office = 740 SF
- Baggage Claim Area = 580 SF
- Baggage Operations Area = 1,160 SF
- Rental Car/Queue Area = 560 SF
- Public Telephone Area = 70 SF
- Mechanical/Electrical/HVAC = 755 SF
- Hold Room = 885 SF



TERMINAL LAYOUT ALTERNATIVE 2

TEXARKANA REGIONAL AIRPORT
AIRPORT MASTER PLAN UPDATE

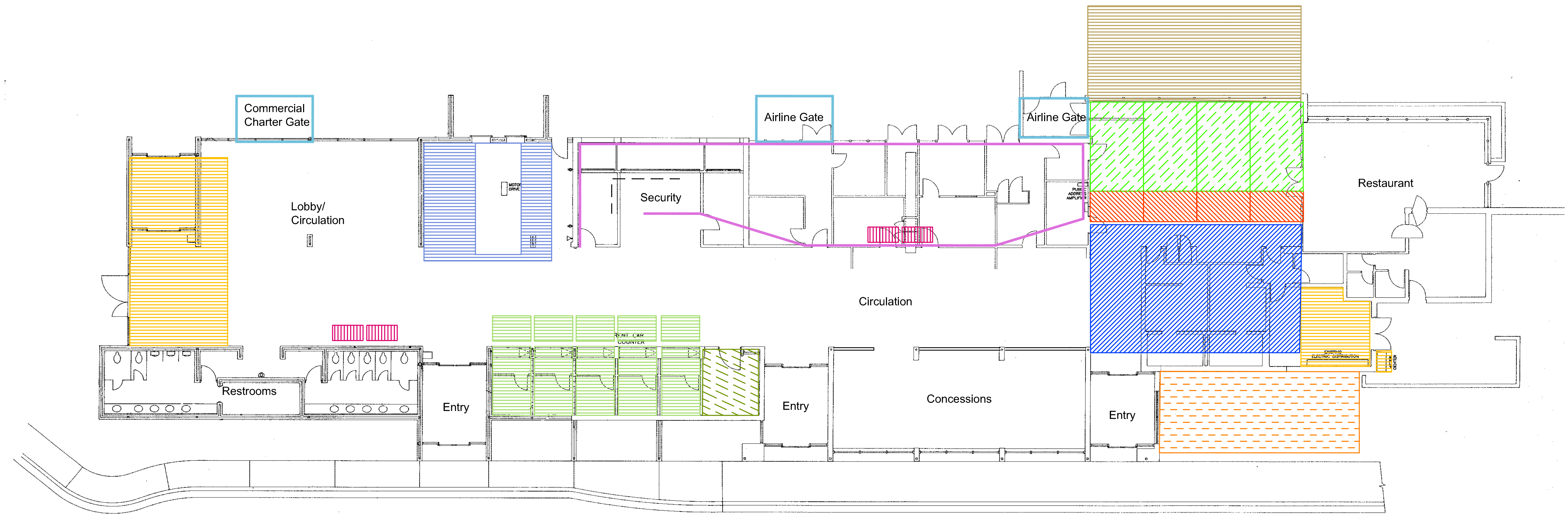
URS Greiner Woodward Clyde

SCALE 1"=20'

EXHIBIT 5.5

RECONFIGURED TERMINAL/SUPPORT AREAS

- Ticket Counter Area = 240 SF
- Ticket Lobby Area = 1,040 SF
- Airline/Operational/Office = 740 SF
- Baggage Claim Area = 580 SF
- Baggage Operations Area = 1,160 SF
- Rental Car/Queue Area = 760 SF
- Public Telephone Area = 70 SF
- Mechanical/Electrical/HVAC = 920 SF
- Sterile Hold Room = 1,390 SF
- Concessions Area = 140 SF
- Restroom Facilities = 600 SF
- Passenger Gates



TERMINAL LAYOUT ALTERNATIVE 3

TEXARKANA REGIONAL AIRPORT

AIRPORT MASTER PLAN UPDATE

URS Greiner Woodward Clyde

SCALE 1"=20'

EXHIBIT 5.6

5.2.4 Terminal Layout Alternatives Evaluation

An evaluation weighing the inherent strengths and weakness of each alternative in comparison to the others was conducted. The following evaluation criteria were used: passenger convenience, phasing/construction, and operational effectiveness.

- **Passenger Convenience** pertains to the provision of passenger amenities, accessibility, and the provision of adequate circulation space for passenger movement.
- **Phasing/Construction** pertains to include the ability to phase construction, the impact on existing facilities, and the associated costs.
- **Operational Effectiveness** compares the overall operational efficiency and the functional adjacency of existing or proposed infrastructure related to passenger and baggage flows.

An evaluation matrix was generated based on the consultant's assessment of the alternatives. **Table 5.2** is a quantitative representation of the results of the analysis.

5.2.4.1 Passenger Convenience

Table 5.1 presented the long-term terminal facility requirements. The alternatives presented meet the stated requirements for passenger amenities such as concessions and restrooms. However, with the improvements to restroom facilities on the southern end of the terminal and the additional space preserved for concessions, Alternative TL-3 was rated higher than Alternatives TL-1 and TL-2. With respect to passenger accessibility to facilities, it was determined that the requirement to close the northernmost entrance to the terminal impacts accessibility in the case of Alternatives TL-1 and TL-2. Alternative TL-3 does not require this entrance closure and thus reduces walking distances from bag claim to the curb. In considering passenger flows, no significant differences between the circulation in the terminal were noted between the alternatives. However, Alternative TL-3 was penalized because the circulation space between the ticket lobby and the restaurant is limited.

TABLE 5.2 TERMINAL LAYOUT ALTERNATIVES EVALUATION MATRIX Texarkana Regional Airport			
Evaluation Factors	**Alternative 1**	**Alternative 2**	**Alternative 3**
Passenger Convenience			
Amenities	3	3	4
Accessibility	2	2	4
Circulation	4	4	3
Subtotal	**9**	**9**	**11**
Phasing/Construction			
Ability to phase construction	3	3	4
Impact on existing facilities	2	2	2
Construction costs	4	3	2
Subtotal	**9**	**8**	**8**
Operational Effectiveness			
Operational efficiency and functionality adjacency	3	2	4
Subtotal	**3**	**2**	**4**
Evaluation Score	**21**	**19**	**23**
Ratings: 1 - Poor 2 - Fair 3 - Satisfactory 4 - Very Good 5 - Excellent			
Source: URS Greiner Woodward Clyde, 2002.			

5.2.4.2 Phasing/Construction

The ability to phase construction examines the impact of construction on airport operations and measures to ability to mitigate these impacts by phasing of construction, the provision of temporary facilities and/or operational changes to provide relief. Construction is not anticipated to have a significant effect on airport operations in case of Alternative TL-3 since the only mitigation measure needed is to provide an alternative facility for commercial charter aviation operations currently utilizing Gate 1. In addition, airline operations will not be affected since new office facilities will be built prior to relocation. However, Alternatives TL-1 and TL-2 must provide temporary facilities or consolidate facilities for airline offices during construction.

The impact on existing facilities evaluates the effect of new construction. This pertains to ability to maintain normal facility operation or function, as well as the need for facility relocation. All three alternatives will temporarily impact existing facilities to some extent during construction. No significant differences between the alternatives were determined.

Construction costs associated with capital improvements will be the greatest in the case of Alternative TL-3 because of the demolition required and the construction of new airline offices and restroom facilities. It is also determined that construction costs for TL-2 will be greater than TL-1 as it requires demolition and relocation of the baggage conveyor system.

5.2.4.3 Operational Effectiveness

Operational effectiveness is an evaluation of potential operational problems related to terminal layout and the efficiency and functionality of the terminal with respect to the passenger processing and baggage handling. A good terminal layout is one in which the various components are located in a sequence pattern that coincides with the natural movement and services each requires. Moreover, functionally dependent activities and operations should be placed adjacent to each other. No significant differences were noted between Alternatives TL-1 and TL-2 in the sequencing of passenger and baggage flows between terminal components. Comparatively, Alternative TL-3 is rated highest since it provides greater passenger and baggage handling efficiencies in its layout.

5.2.5 Terminal Layout Recommendations

The alternatives presented are all viable options that satisfy the 20-year terminal space requirements at TXK. Based on the evaluation, Alternative TL-3 is recommended for implementation at TXK. As a large amount of Airline/Operational space is affected in the alternative, close coordination with the airlines serving TXK will be required prior to the commencement of final planning. Moreover, future redevelopment may present opportunities for multi-use flight information displays or common use ticket counters. It is noted that terminal reconstruction should not be based on the short, intermediate and long-term planning periods identified. Redevelopment of the terminal should be based on increases in passenger enplanement levels that may occur earlier or later than forecast.

5.2.6 Preferred Terminal Layout

A preferred terminal layout incorporating recent developments ensuing from the regulations of the TSA was developed. The deadline for the TSA to screen every checked bag at airports expired on December 31st 2002. To meet these new requirements an Explosives Trace Detector (ETD) was installed at TXK. This machine is currently located between the airline ticket counters. In addition, office and training space has been provided for TSA personnel resulting in the loss of the restaurant area.

Terminal throughput operations are impacted by these new developments. The space occupied by the ETD station and the time required to screen bags creates a bottleneck in the ticket queue area that is already deficient. The layout of ETD machine, operator and queue area significantly impedes circulation in the ticket lobby/main hallway. Furthermore, a second ETD station is planned for the terminal.

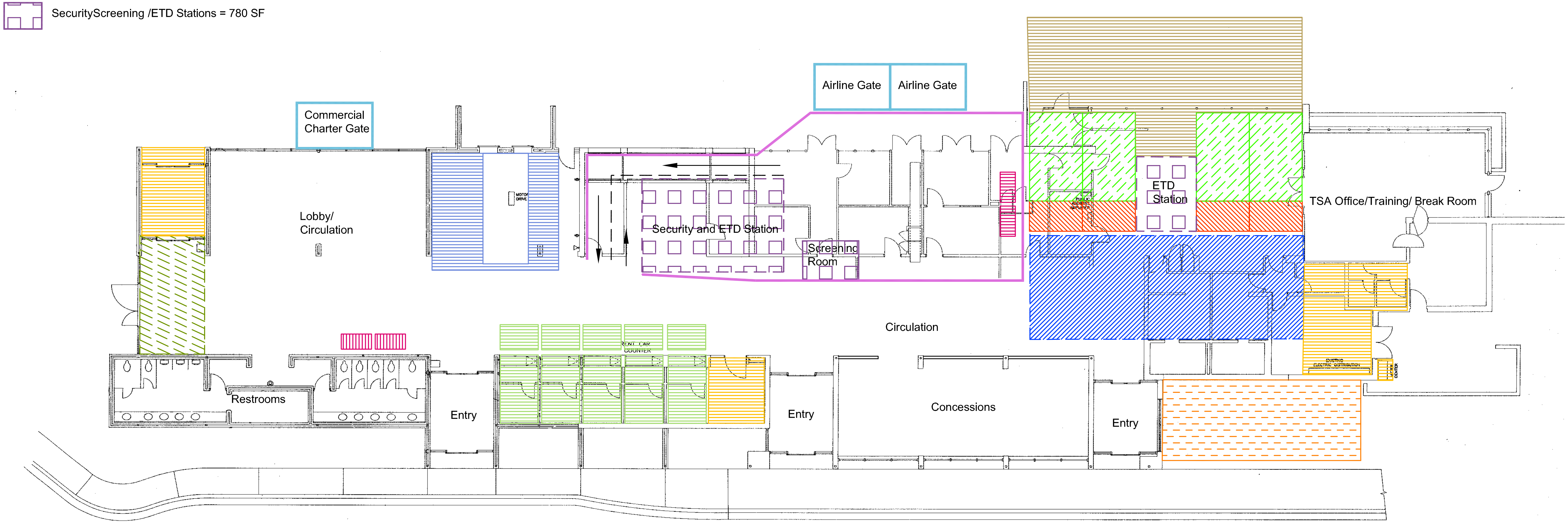
The preferred terminal layout seeks to mitigate these impacts while providing the 20-year space requirements for other aspects of the facility. The preferred layout is a modified version of TL-3 presented earlier in this section. Factors considered include:

- The integration of the baggage screening (ETD) station with the baggage handling needs of the airlines;
- The space requirements for the existing and future ETD stations that were not factored into the initial analyses; and
- The loss of restaurant/concessionaire space.

The preferred terminal layout is depicted in **Exhibit 5.7**.

RECONFIGURED TERMINAL/SUPPORT AREAS

- Ticket Counter Area = 240 SF
- Ticket Lobby Area = 1,100 SF
- Airline/Operational/Office = 740 SF
- Baggage Claim Area = 580 SF
- SecurityScreening /ETD Stations = 780 SF
- Baggage Operations Area = 1,130 SF
- Rental Car/Queue Area = 760 SF
- Public Telephone Area = 70 SF
- Mechanical/Electrical/HVAC = 830 SF
- Sterile Hold Room = 1,350 SF
- Concessions Area = 300 SF
- Restroom Facilities = 600 SF
- Passenger Gates



PREFERRED TERMINAL LAYOUT

TEXARKANA REGIONAL AIRPORT
AIRPORT MASTER PLAN UPDATE

URS Greiner Woodward Clyde

SCALE 1"=20'

EXHIBIT 5.7

5.3 GENERAL AVIATION DEVELOPMENT ALTERNATIVES

The existing GA facilities at TXK are located west of Runway 4/22 in close proximity to the passenger terminal area. This area is almost fully developed and therefore there is limited space for expansion at the site. Alternative concepts for expanding the GA facilities at TXK were considered. Each concept was designed to meet the projected requirements and enhance the facilities available to GA patrons. For ease of reference, **Table 5.3** summarizes the existing and long-term requirements for GA facilities at TXK. Corporate aviation requirements have been included in the summary representing an unconstrained growth scenario. Inclusion of these space requirements in the development alternatives affords the Airport the ability to respond to unforeseen changes in demand and tenant needs.

TABLE 5.3
GENERAL AVIATION REQUIREMENTS
Texarkana Regional Airport

Description	Existing	2020
T-Hangar (Units)	42	47
GA/ FBO Terminal (SF)	--	980
Conventional Hangar (SF)	--	100,500
GA Based Aircraft Apron (SF)	16,250	6,500
GA Transient Aircraft Apron (SF)	78,150	114,750
Aircraft Maintenance Hangar and Apron (SF)	54,144	68,100
Corporate Aviation Hangars (SF)	--	100,000

Source: Tables 4.18, 4.19, 4.20 & 4.21, Demand/Capacity and Facility Requirements.
URS Greiner Woodward Clyde, 2002.

5.3.1 GA Alternatives Description

The main objective in the development of alternatives was to optimize facility provision in a centralized location. Seven functional areas were identified for GA development as follows:

- Based Aircraft Apron – includes the based aircraft tie-down and maneuvering areas.
- Transient Aircraft Apron – consists of the transient aircraft parking and special use/aircraft fueling areas.

- GA Hangar Storage – encompasses conventional hangar, maintenance, and T-Hangar storage for the 20-year planning period.
- GA/FBO Terminal – includes the GA terminal and offices for at least two additional FBO operations.
- Support Facilities – includes areas reserved for fuel truck parking as well as optional fuel farm facilities.
- Vehicular Access and Parking – consists of all landside access roads and automobile parking lots.
- Corporate Aviation – encompasses the airside, landside and hangar storage facilities for unconstrained corporate aviation growth.

5.3.1.1 Alternative GA-1

GA Alternative 1 (GA-1) is located in the midfield area south of the intersection between Runways 13/31 and 4/22 as depicted in **Exhibit 5.8**. To maintain the safety of the airport operations area, all GA development is planned outside the future runway visibility zone (RVZ). The layout provides for two separate FBO operations each providing 200,000 square feet of combined GA terminal, conventional hangar storage and maintenance space. Each terminal area provides 4,450 square feet of automobile parking space for aviation patrons and employees. The apron edge is designed with dual Aircraft Design Group (ADG) III taxilanes to enhance ground movement between the FBOs and the aircraft parking areas. The transient aircraft parking and based aircraft tie-down aprons provide a total of 132,000 square feet and 143,000 square feet of space, respectively. Two one-acre aviation support areas have been reserved for fuel truck parking and/or an ultimate fuel farm to serve the terminal area. A 48-foot right of way (ROW) has been reserved to provide landside access to the midfield area from Arkansas Highway to the east and Old Post Road to the south of the Airport.

Adjacent to each FBO terminal area, a five-acre area is reserved for corporate aviation activities. These corporate aviation areas provide a total of 120,000 square feet of combined office and hangar storage, including 5,500 square feet of automobile parking space. Moreover, in order to accommodate larger business jets, ADG III taxilanes provide access to the corporate aviation areas. T-Hangar storage is provided in a centralized area adjacent to the based aircraft tie-down. A maximum of 72 storage units may be accommodated. It is noted that Alternative

GA-1 exceeds the forecast 20-year GA demand for facilities listed in Table 5.2. Therefore the layout should be considered a long-range plan for the ultimate build-out of the midfield area.

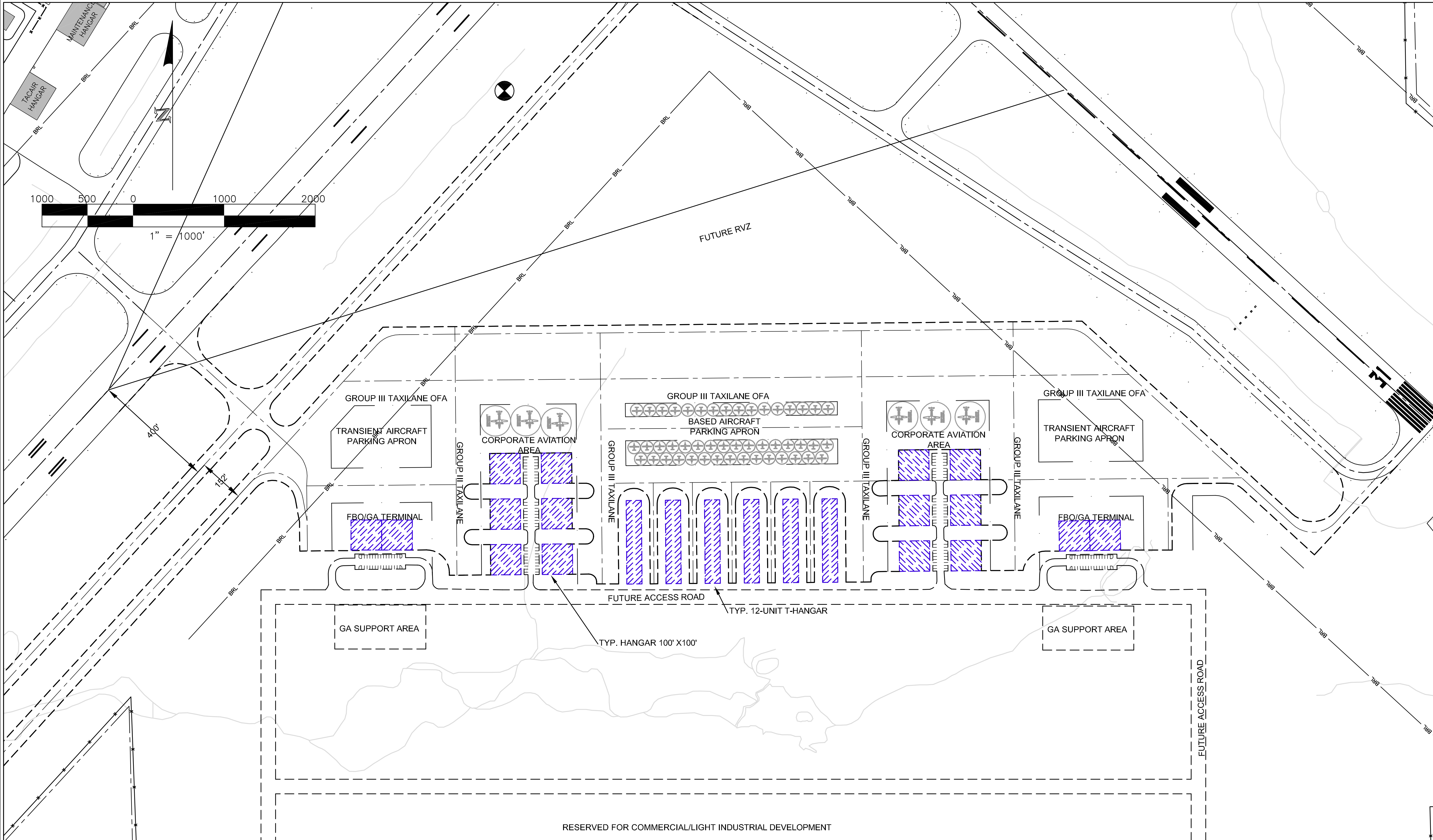
5.3.1.2 Alternative GA-2

GA Alternative 2 (GA-2) is also located in the midfield area, west of Runway 31 as depicted in **Exhibit 5.9**. This conceptual layout provides a centralized GA terminal area flanked by corporate aviation facilities to the north and based aircraft facilities to the south. The 5,000-square foot terminal may accommodate two or more FBOs. Abutting the terminal are two 150,000-square foot conventional hangars for aircraft storage and maintenance. The adjacent automobile lot provides 8,900 square feet of parking space. The transient aircraft parking and based aircraft tie-down aprons provide a total of 108,000 square feet and 89,400 square feet of space, respectively. A two-acre area has been reserved for aviation support facilities such as fuel truck parking and/or an ultimate fuel farm to serve the GA area. In, addition 48-foot ROW has been reserved to provide landside access to the site from Arkansas Highway to the east and Old Post Road to the south of the Airport.

The 7.5-acre corporate aviation area is designed to provide a total of 100,000 square feet of combined office and hangar storage space and 5,500 square feet of automobile parking space. In order to provide access for larger business jets, ADG III taxilanes have been maintained in the corporate aviation area. Sixty T-Hangar storage units are provided adjacent to the based aircraft tie-down apron. As seen with Alternative GA-1, Alternative GA-2 also meets or exceeds the forecast 20-year GA demand for facilities listed in Table 5.2.

5.3.1.3 Alternative GA-3

GA Alternative 3 (GA-3) is a conceptual plan for expanding GA facilities at the existing site west of Runway 4/22. **Exhibit 5.10** depicts the layout that provides 19 new T-Hangar storage units.



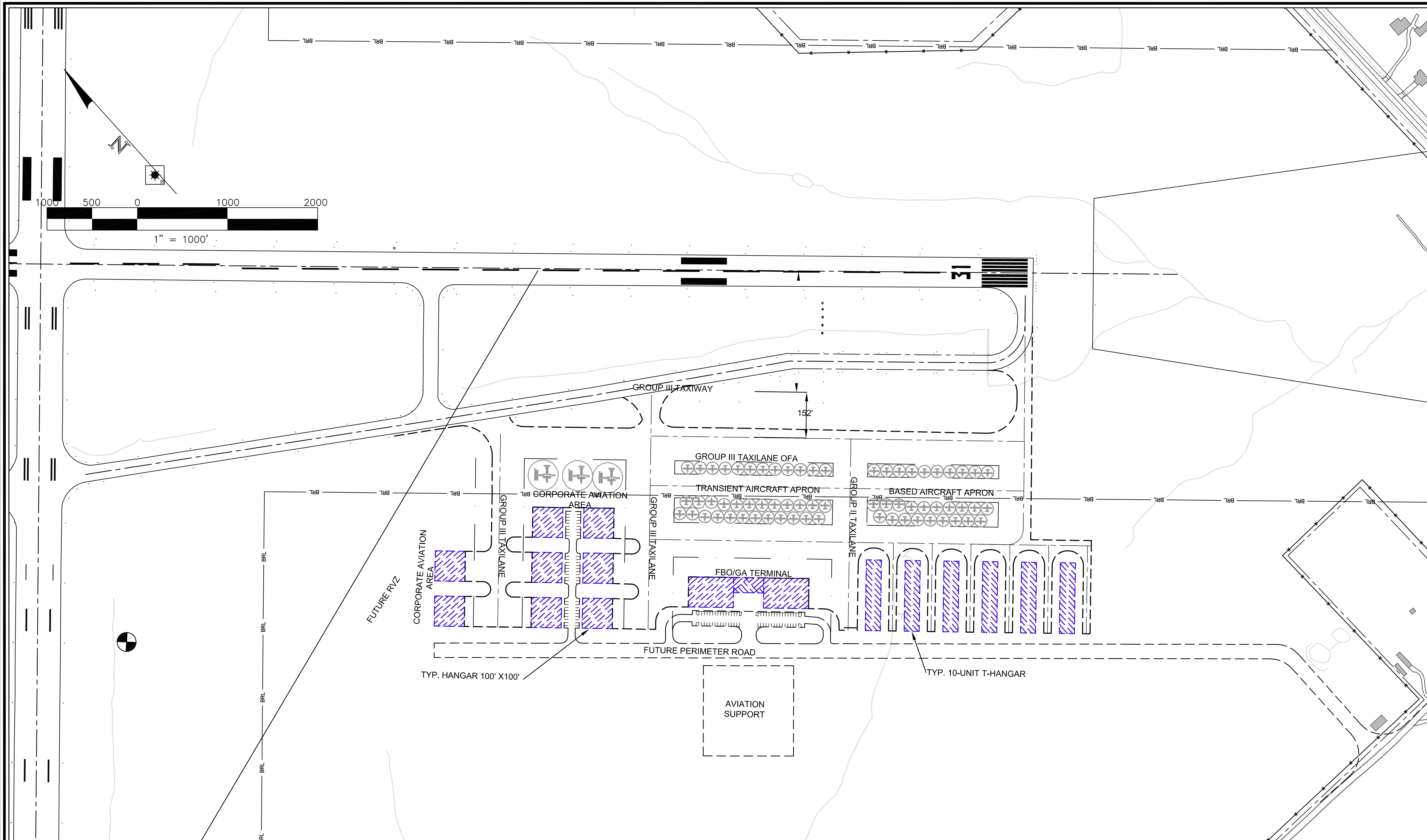
GENERAL AVIATION ALTERNATIVE 1

TEXARKANA REGIONAL AIRPORT
AIRPORT MASTER PLAN UPDATE

URS Greiner Woodward Clyde

SCALE 1"=300'

EXHIBIT 5.8



GENERAL AVIATION ALTERNATIVE 2

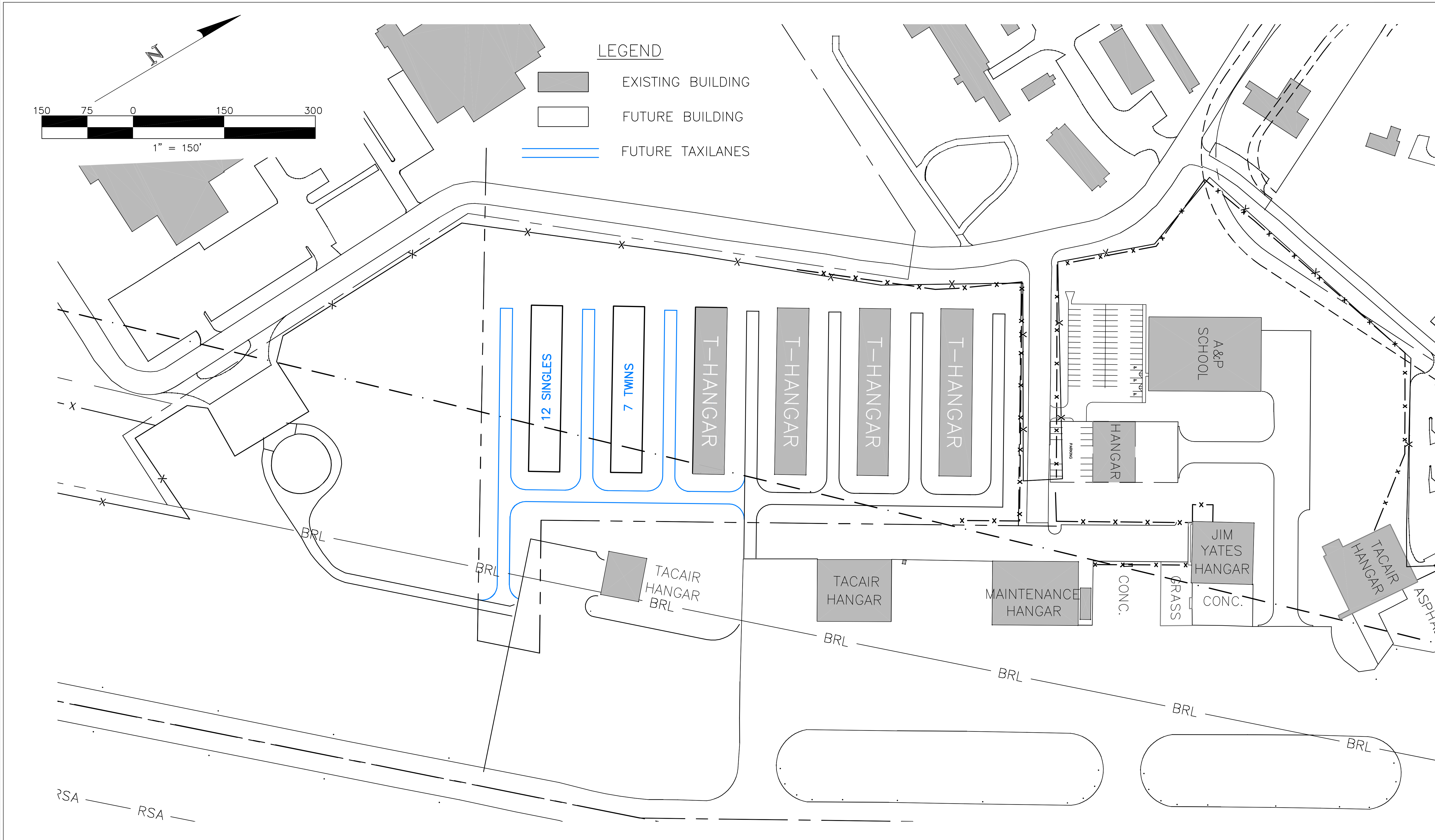
TEXARKANA REGIONAL AIRPORT

AIRPORT MASTER PLAN UPDATE

URS Greiner Woodward Clyde

SCALE 1"=300'

EXHIBIT 5.9



GENERAL AVIATION ALTERNATIVE 3

TEXARKANA REGIONAL AIRPORT

AIRPORT MASTER PLAN UPDATE

URS Greiner Woodward Clyde

SCALE	EXHIBIT
1"=150'	5.10

5.3.2 GA Alternatives Evaluation

The evaluation of alternatives will determine which of three concepts presented should be recommended to serve as the framework for future GA development. The evaluation process weighs the inherent strengths and weakness of each alternative in comparison to the others. The following evaluation categories were used: flexibility, phasing/construction, and operational effectiveness.

- **Flexibility** pertains to the total growth potential of each concept and the process inherent to achieving that growth. The criteria associated with this category include the ability to respond to uncertain demand levels, the ability to satisfy changing tenant demands, and the ability to maximize the use of facilities.
- **Phasing/Construction** pertains to the designated land uses and the associated construction impacts to airport operations, the cost of construction, as well as the level of difficulty involved in implementing the proposed land uses. The criteria associated with this category include the ability to phase construction, the impact on existing facilities, and the ability to incrementally expand site development.
- **Operational Effectiveness** compares the overall efficiency levels and usage of existing or proposed infrastructure associated with the GA area. The criteria associated with this category include the compatibility with the long-range airfield, roadway access to the development area, the competitive environment and highest and best use.

An evaluation matrix was generated based on the consultant's assessment of the alternatives. **Table 5.4** is a quantitative representation of the results of the analysis.

TABLE 5.4 GENERAL AVIATION ALTERNATIVES EVALUATION MATRIX Texarkana Regional Airport			
Evaluation Factors	**Alternative 1**	**Alternative 2**	**Alternative 3**
Flexibility			
Ability to respond to uncertain demand levels	4	4	1
Ability to satisfy changing tenant demands	4	4	2
Ability to maximize the use of facilities	3	4	3
Subtotal	**11**	**12**	**6**
Phasing/Construction			
Construction costs	1	1	4
Ability to phase construction	3	3	3
Impact on existing facilities	4	4	3
Ability to incrementally expand	4	4	4
Subtotal	**12**	**12**	**14**
Operational Effectiveness			
Compatibility with the long-range airfield	4	3	4
Roadway access to the development areas	1	2	5
Competitive environment	3	4	2
Highest and best use	4	4	4
Subtotal	**12**	**13**	**15**
Evaluation Score	**35**	**37**	**35**
Ratings: 1 - Poor 2 - Fair 3 - Satisfactory 4 - Very Good 5 - Excellent			
Source: URS Greiner Woodward Clyde, 2002.			

5.3.2.1 Concept Flexibility

The ability to respond to uncertain demand levels is a criterion that measures each alternative's ability to accommodate demand in excess of or lower than that anticipated. It is noted that development may be suspended in any of the alternative concepts, if demand is lower than anticipated in the future. With respect to accommodating excess demand, Alternatives GA-1 and GA-2 meet or exceed the long-range requirements identified in **Table 5.3**. Comparatively, Alternative GA-3 does not provide enough space to meet the 20-year facility requirement.

The ability to satisfy changing tenant demands evaluates the ability to accommodate changing needs of FBOs. This pertains directly to the accommodation of growth of FBO operations. All of the concepts presented would pose some constraint on FBO facilities if the concepts were to be expanded or reconstructed. Alternative GA-3 was rated the least able to satisfy changing tenant demands as site expansion is constrained by the limited amount of vacant space available.

The ability to maximize the use of existing and future facilities is a measure of the degree to which aviation facilities are utilized. All of the concepts maximize the use of the existing airfield facilities by utilizing the existing pavements for runway access. Alternative GA-2 proposes joint use of the future terminal by FBOs thereby maximizing this function. It was thus rated slightly higher than the other concepts.

5.3.2.2 Concept Phasing/Construction

The cost of constructing each of the GA alternatives was considered. Comparatively, the costs associated constructing Alternative GA-3 is far less than costs associated with Alternatives GA-1 and GA-2. The latter require extensive site preparation such as clearing and grading prior to development, as well as the provision of new access roads and utilities.

The ability to phase construction examines the impact of construction on airport operations and measures to ability to mitigate these impacts by phasing of construction, the provision of temporary facilities and/or operational changes to provide relief. Construction phasing is not anticipated to have a significant effect on airport operations in any of the alternatives. No notable differences between alternatives were determined.

The impact on existing facilities evaluates the effect of new construction. This pertains to ability to maintain normal facility operation or function, as well as the need for facility relocation. None of the three concepts propose relocation of any existing navigational aids, building or airfield facilities. However, during construction the normal functioning of the existing T-Hangars in Alternative GA-3 may be temporarily disrupted.

The ability to incrementally expand evaluates the ease with which site build-out may be conducted in phases. It is noted that special attention should be paid to construction of the joint use terminal building in Alternative GA-2. If the terminal building is to be expanded in increments, the foundation for initial construction must take into consideration future expansion. No significant differences in the ability to expand in increments were determined between the three concepts.

5.3.2.3 Concept Operational Effectiveness

Concept compatibility with the long-range airfield is an evaluation of potential operational problems related to long-term development of the airfield. It has been determined that the existing airfield system will meet the needs of the various activity generators. No differences were noted between Alternatives GA-1 and GA-3. Comparatively, Alternative GA-2 was rated less compatible due to the site's distance from the runway ends preferred for departure.

Roadway access to the development areas addresses the ability of the existing roadway network to accommodate the proposed development. Alternatives GA-1 and GA-2 both require the development of new internal/perimeter roads for landside access to the development site. In comparison, Alternative GA-1 was rated very highly because the requirement for roadway development at this site is minimal.

The number of FBOs and their location influences the provision of a competitive environment. It is generally accepted that transient traffic inherently uses the first FBO facility identified when taxiing. On this premise, Alternative GA-1 does not provide a very competitive environment with provision for a single FBO. Due to the higher level of traffic on Runway 4/22, Alternative GA-1 with two midfield FBO locations gives the westernmost FBO an advantage over the other. Comparatively, Alternative GA-2 with a shared terminal provides the most competitive environment.

Highest and best use determines the adequacy of land use and ability of the site to promote aviation-related activity. On-airport areas with direct access to the airfield are considered prime land for aviation-related uses. No significant differences were found between the alternatives as all of the layouts serve to promote aviation-related activity.

5.3.3 GA Development Recommendations

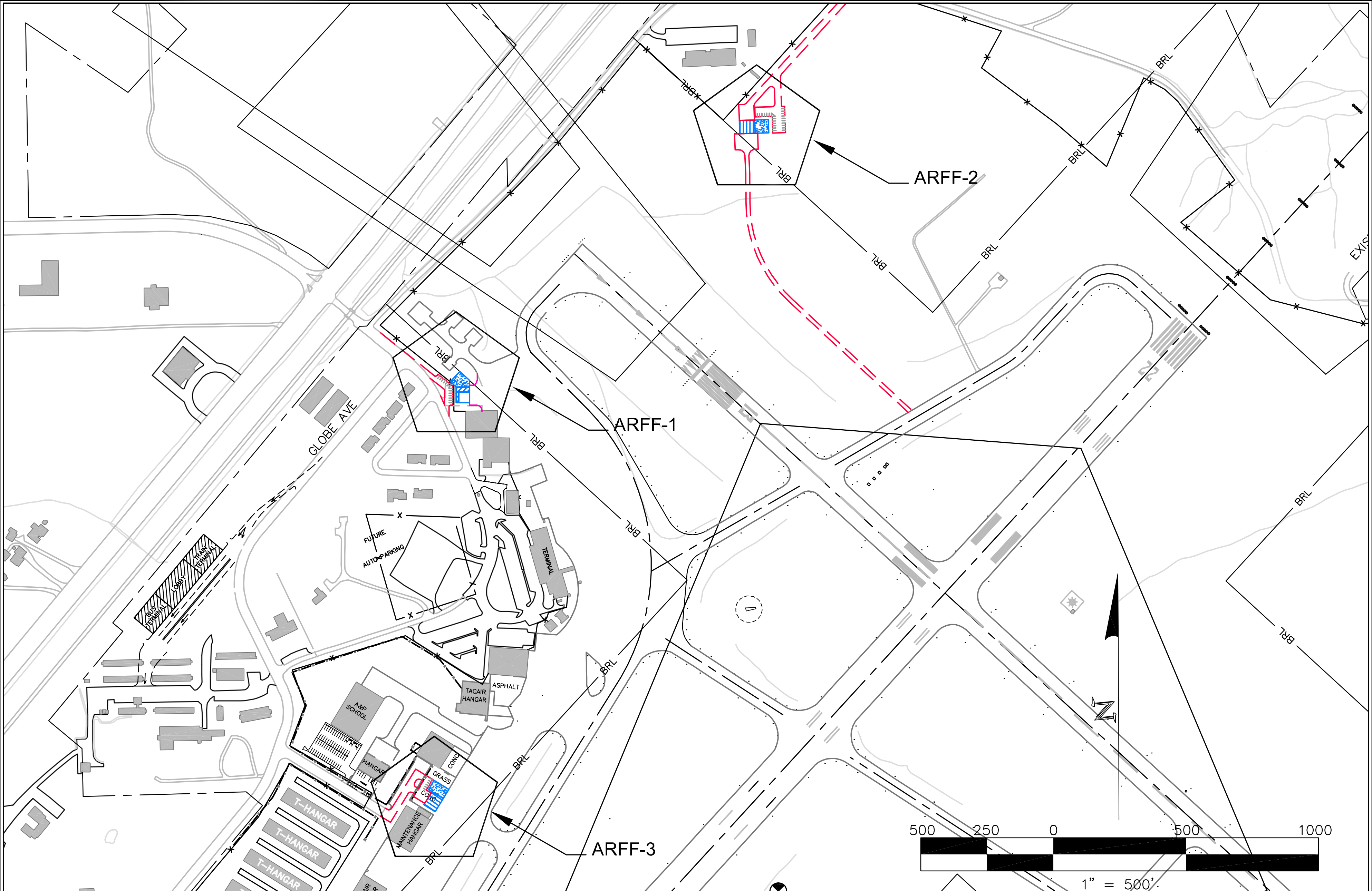
Alternative GA-2 is the preferred concept based on the results of the evaluation. However due the topography of the midfield area, grading of the site for construction may be substantial. The Airport may first consider expansion at the existing location (GA-3) to be followed by expansion at GA-2 when demand levels are established.

5.4 ARFF DEVELOPMENT ALTERNATIVES

This subsection examines alternatives for ARFF facilities at TXK. In 1986, the City of Texarkana, Arkansas agreed to provide ARFF protection to the airport in conjunction with housing a structural fire detachment at the airport station. In 2000, the City transferred the ARFF responsibility to the airport and subsequently withdrew the structural fire unit in early 2002. The station will remain in use until a new station is built. As discussed in Section 4, TXK is presently an Index A airport and meets the requirements as specified by FAA Advisory Circular 150/5210-6C. Based on the forecast of airline operations and projected fleet mix, TXK will be categorized as an Index B airport requiring additional equipment and support, by the end of the planning period. An interim site for the ARFF station has been chosen which is adjacent to Leslie Aviation. Prior to the development of a permanent ARFF facility, it was considered prudent to study alternative locations for a larger Index B station and to analyze the ability to expand at the interim site.

5.4.1 ARFF Alternatives Description

Three alternative locations were analyzed and evaluated with respect to their ability to meet FAA requirements and operational needs of TXK throughout the planning period. For ease of reference, **Exhibit 5.11** depicts the three alternative sites for the ARFF facility.



ARFF DEVELOPMENT SITES

TEXARKANA REGIONAL AIRPORT

AIRPORT MASTER PLAN UPDATE

URS Greiner Woodward Clyde

SCALE 1"=500'

EXHIBIT 5.11

5.4.1.1 Alternative ARFF-1

ARFF Alternative 1 (ARFF-1) is located in the northeast terminal area adjacent to the Leslie Aviation Hangar and has been identified as a suitable interim site. This area is presently used for helicopter parking. The use of this site as an interim ARFF station will have little impact on the helicopter pads in the area. The interim station will provide approximately 1,600 square feet of space to house the existing ARFF vehicles. Ultimately, the ARFF station will be expanded to provide a 2,900-square foot bay area for ARFF vehicles and approximately 2,600 square feet of station facilities including watch room, department office, fire fighting materials storage and conveniences as required for Index B[3] station. Landside access to the station is provided by Airport Circle. A 1,500-square foot automobile parking lot is planned to accommodate both ARFF station staff on duty and visitors to the station. ARFF-1 affords direct access to the airfield pavements and to the terminal area buildings. Moreover ARFF-1 meets the three-minute response time to the midfield required under FAR Part 139. ARFF-1 is depicted in **Exhibit 5.12**.

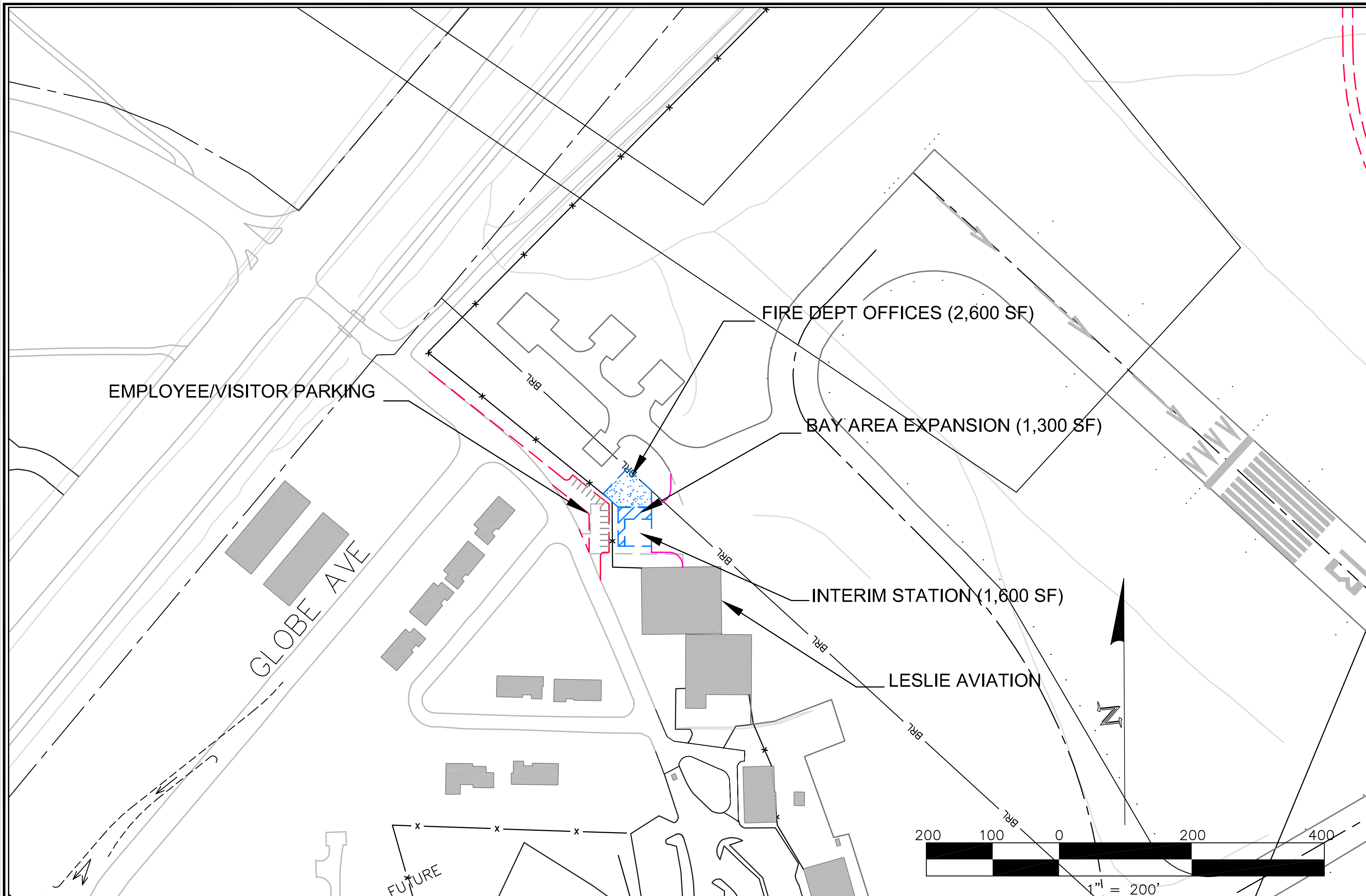
5.4.1.2 Alternative ARFF-2

ARFF Alternative 2 (ARFF-2), depicted in **Exhibit 5.13**, is located adjacent to the National Guard Armory in the northern quadrant of the Airport. The future station is planned to provide 5,500 square feet of space, including a 2,900-square foot bay area. Planned facilities include watch room, fire department office, training room, day room, dormitories, storage for fire fighting materials, and other conveniences. The bay area is designed with two doors to afford fire fighting vehicle access to the station from both landside and airside. A future internal roadway provides landside access to the station from Airport Road. A 2,750-square foot automobile parking lot is also planned to accommodate both ARFF station staff on duty and visitors to the station. ARFF-2 affords full surveillance of the air operations area, direct access to the airfield pavements, and meets the three-minute response time required under FAR Part 139.

5.4.1.3 Alternative ARFF-3

Exhibit 5.14 depicts ARFF Alternative 3 (ARFF-3) that is located in the terminal area between Hangars H-3 and H-4. The station will provide 5,500 square feet of space, including a 2,900-square foot bay area. Planned facilities also include watch room, fire department office, training room, day room, dormitories, storage for fire fighting materials, and other conveniences.

[3] As set forth in FAA AC 150/5210-15



ARFF ALTERNATIVE 1

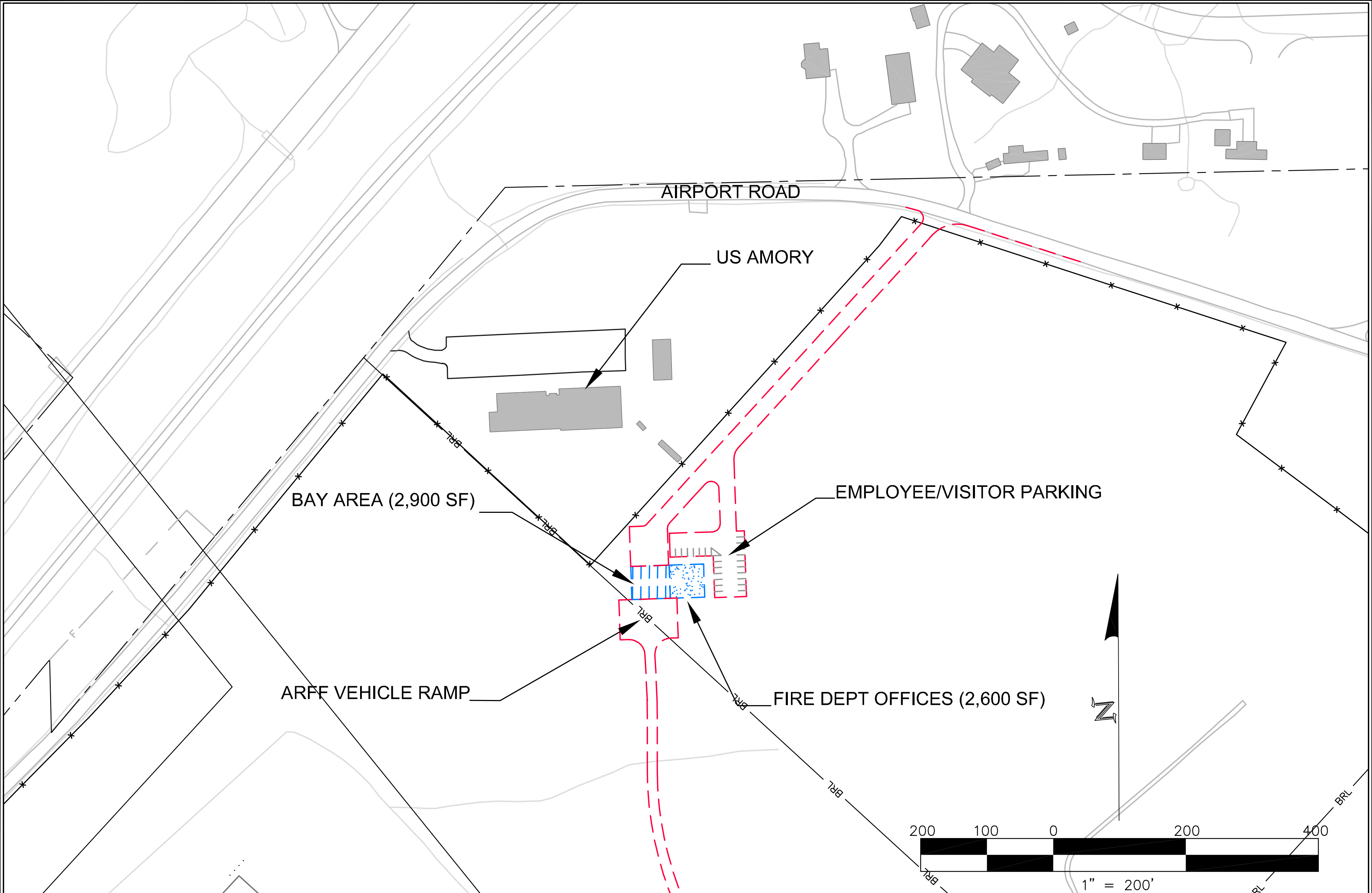
TEXARKANA REGIONAL AIRPORT
AIRPORT MASTER PLAN UPDATE

TXK TEXARKANA REGIONAL AIRPORT

URS Greiner Woodward Clyde

SCALE 1"=200'

EXHIBIT 5.12



ARFF ALTERNATIVE 2

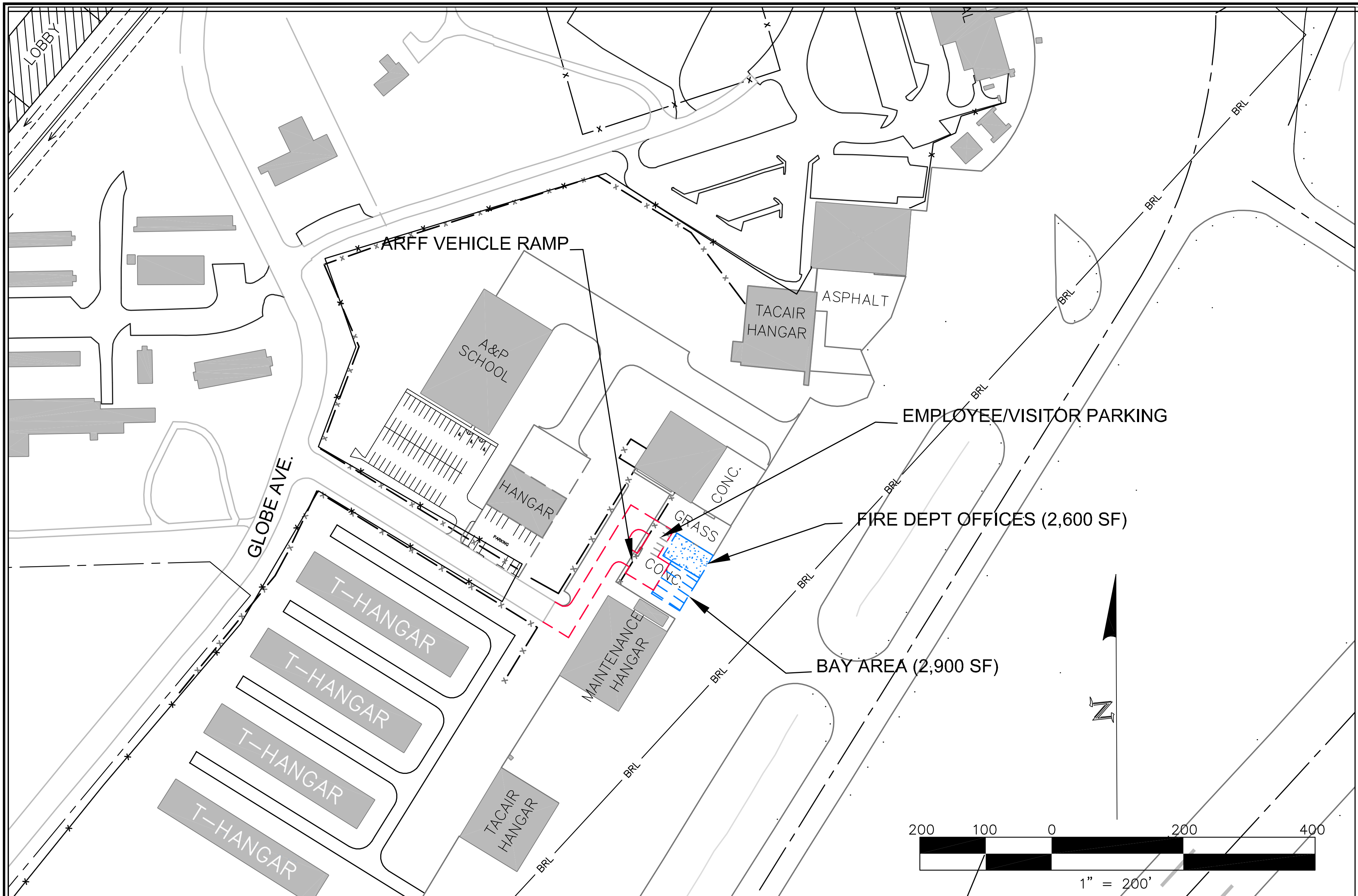
TEXARKANA REGIONAL AIRPORT

AIRPORT MASTER PLAN UPDATE

URS Greiner Woodward Clyde

SCALE 1"=200'

EXHIBIT 5.13



ARFF ALTERNATIVE 3

TEXARKANA REGIONAL AIRPORT

AIRPORT MASTER PLAN UPDATE

URS Greiner Woodward Clyde

SCALE	EXHIBIT
1"=200'	5.14

The bay area is designed with two doors to afford fire fighting vehicle access to the station from both landside and airside. Landside access to the station is provided from Globe Avenue and a 1,400-square foot automobile parking lot is planned. Similar to ARFF-2, ARFF-3 affords surveillance of the air operations area, direct access to the airfield pavements, and meets the three-minute response time required under FAR Part 139.

5.4.2 ARFF Alternatives Evaluation

The criteria by which the sites were evaluated included operational response factors, lot size, physical facilities, topography and station orientation, and accessibility as recommended by the FAA in AC 150/5210-15. Of these criteria operational response factors is given the most importance in the evaluation. It includes provision of the following:

- Immediate, straight, and safe access toward the airside
- Direct access to the terminal aprons without crossing active runways
- Noninterference with the air traffic control tower's line-of-sight
- Maximum surveillance of the air operations area (AOA)
- Shortest response times to the most probable accident areas
- Noninterference of ARFF vehicle or station telecom equipment with airport navigational facilities

The alternatives were assessed with respect to the aforementioned criteria and an evaluation matrix was generated from the analysis. **Table 5.5** presents the results of the analysis.

TABLE 5.5 ARFF ALTERNATIVES EVALUATION MATRIX Texarkana Regional Airport			
Evaluation Factors	**Alternative 1**	**Alternative 2**	**Alternative 3**
Operational Response Factors			
Immediate, straight, and safe access to the airside	4	4	4
Direct access to the terminal aprons	4	3	4
Noninterference with the ATCT's line-of-sight	4	4	4
Maximum surveillance of the air operations area	1	4	3
Shortest response times to accident areas	3	3	4
Noninterference with airport navigational facilities	3	3	3
Subtotal	**19**	**21**	**22**
Lot Size			
Ability to accommodate future additions/expansion	2	4	3
Provision of exterior amenities	2	4	4
Subtotal	**4**	**8**	**7**
Physical Facilities			
Existing utility tie-in	4	3	4
Existing airport access and service roads	4	3	4
Construction costs	4	2	3
Subtotal	**12**	**8**	**11**
Topography and Station Orientation			
Site grade	4	3	4
Station orientation	3	3	3
Subtotal	**7**	**6**	**7**
Accessibility			
ARFF vehicle accessibility	4	4	4
Subtotal	**4**	**4**	**4**
Evaluation Score	**46**	**47**	**51**
Ratings: 1 - Poor 2 - Fair 3 - Satisfactory 4 - Very Good 5 – Excellent			
Source: URS Greiner Woodward Clyde, 2002.			

5.4.2.1 Operational Response Factors

The assessment of the alternatives with respect to maximum surveillance of the AOA revealed that Alternative ARFF-1 would not provide adequate coverage of the AOA. This station's location and orientation does not afford surveillance of the AOA south of the runway intersection. Comparatively, ARFF-2 and ARFF-3 provide for surveillance of most of the AOA. With respect to the provision of direct access to the terminal aprons without crossing active runways, taxiways, or difficult terrain, ARFF-1 and ARFF-3 were rated higher than ARFF-2 due their location in the terminal area. Vehicles leaving ARFF-2 must utilize a short portion of Taxiway B to reach the terminal apron. With respect to the shortest response time to most probable accident sites ARFF-3 was rated higher than ARFF-1 and ARFF-2 due to its centralized location. No significant differences between the alternatives with respect to the other operational response factors were identified.

5.4.2.2 Lot Size

Due to the limited depth of the property beyond the building restriction line, ARFF-1 will not accommodate major future additions or expansion to the station structure. This limited depth also poses constraints on the provision of employee automobile parking space and ARFF vehicle servicing areas. Moreover as Exhibit 5.10 illustrates, ARFF-1 does not provide a vehicle apron on the landside. This limits ARFF vehicle maneuverability at the station. In comparison, ARFF-2 and ARFF-3 provide vehicle servicing areas and do not have major constraints with respect to lot size.

5.4.2.3 Physical Facilities

The availability of physical facilities and costs associated with their provision was considered. These facilities included access to electrical power and other power sources such as gas, telephone lines, water supply, and sewer system. While it was determined that all the ARFF sites would have reasonable access to utilities, ARFF-1 and ARFF-3 were rated higher than ARFF-2 due to their proximity to existing utilities. With respect to existing airport access and service roads, a similar determination was made. ARFF-2 requires the development of an internal roadway for landside access to the site and a service road for access to the airside. Due to the availability of facilities, the potential costs associated with developing ARFF-1 are less than that of ARFF-2 and ARFF-3. ARFF-2 incurs additional costs with need for access road construction, the distance from utility tie-in, and site preparation.

5.4.2.4 Topography and Station Orientation

With respect to topography, a level station site reduces the costs associated with construction. The existing ground contours show a gentle sloping grade at the ARFF-2 site. In comparison, ARFF-1 and ARFF-3 are located at pre-graded sites and were therefore given a higher rating. It is observed that proper station orientation can reduce energy costs by moderating the effects of the sun and wind and can lower exterior noise level exposure and the associated costs for acoustical treatments. No significant differences between the alternatives with respect to station orientation were identified.

5.4.2.5 Accessibility

The accessibility of ARFF vehicles to fire fighting personnel is an important consideration if the station is staffed with volunteers or other auxiliary personnel employed by the airport. Moreover, accessibility has direct impact on emergency response times. The alternatives provide staff accommodations within the station layout. Therefore there is no indication that accessibility will be an issue for the alternatives presented.

5.4.3 ARFF Development Recommendations

Alternative ARFF-3 is the preferred alternative based on the results of the evaluation. Although Alternative ARFF-1 is in close proximity to the terminal area it does not afford satisfactory surveillance of the AOA and most probable aircraft accidents sites which are on the primary runway. While the ARFF-2 site is in a satisfactory location, the potential costs associated with construction are far greater than those of ARFF-3.

5.5 SUMMARY OF ALTERNATIVES

The result of these decisions regarding development of the individual functional areas at TXK is an integrated plan for the overall development of the facility. The combined improvements result in a balanced airfield, terminal, aviation support and GA facility that will continue to meet the air transportation needs of Texarkana and surrounding area. The development is consistent with the Airport's goals and objectives identified in the initial phase of this study. The following section will evaluate the impacts of the proposed improvements on the environment.

SECTION 6 ENVIRONMENTAL OVERVIEW

6.0 INTRODUCTION

The purpose of this section is to discuss potential environmental impacts that may result from implementation of the recommendations made in Section 5, Alternatives Analysis of this study effort. This environmental overview will provide federal, state, and local officials and the public with an understanding of the potential environmental impacts of the proposed airport development. The overview presented in this chapter is modeled after the format of an Environmental Assessment, described in FAA Order 5050.4A, "Airport Environmental Handbook".

FAA Order 5050.4A lists 22 impact categories that should be analyzed to determine impacts that may occur as a result of certain airport actions. These categories are as follows:

- Noise
- Compatible Land Use
- Social Impacts
- Induced Socioeconomic Impacts
- Air Quality
- Water Quality
- Department of Transportation Act, Section 303 (c)
- Historic, Architectural, Archaeological & Cultural Resources
- Biotic Communities
- Endangered & Threatened Species
- Wetlands
- Floodplains
- Coastal Zone Management
- Coastal Barriers
- Wild and Scenic Rivers
- Prime and Unique Farmlands
- Energy Supply and Natural Resources
- Light Emissions
- Solid Waste
- Construction Impacts
- Hazardous Materials
- Environmental Justice

It is emphasized that the information included in this section is not a formal Environmental Assessment (EA), or Environmental Impact Statement (EIS) as referred to in the National Environmental Policy Act of 1969 (NEPA) or the Airport and Airway Improvement Act (1982). However, this overview will point out those areas that may be potentially impacted by the proposed action at TXK and that may require further environmental study before project implementation.

6.1 ENVIRONMENTAL PROCESS

Airport improvement projects that are considered to be federal actions or receive federal funding must be assessed from an environmental standpoint in order to comply with NEPA, the Airport and Airway Improvement Act (1982), and other pertinent laws. Further guidance is provided in FAA Order 1050.1D, "Policies and Procedures for Considering Environmental Impacts"; Order 5050.4A, "Airport Environmental Handbook"; as well as the Council on Environmental Quality's "Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act", found in 40 CFR 1500-1508.

For any proposed airport action, the FAA performs an initial environmental determination that considers type of action and its potential effect upon the environment. The result of the determination is usually the selection of one of the three following processes:

- An Environmental Impact Statement (EIS) is prepared for major federal actions that are generally known to have the potential for significant environmental impacts. Actions that normally require an EIS include: initial Airport Layout Plan or airport location approval; and Federal financial participation in or airport layout approval for a new runway capable of handling air carrier aircraft at a commercial service airport. An EIS involves thorough evaluation and documentation of the proposed action's purpose and need, alternatives, affected environment, and environmental consequences.

- An Environmental Assessment (EA) is prepared for proposed actions with minor or uncertain environmental impact potential. An EA requires similar analysis and documentation as an EIS but with less detail and coordination. If certain environmental thresholds of significance are not exceeded an EA will lead to a Finding of No Significant Impact (FONSI), or otherwise require the preparation of an EIS.

- A Categorical Exclusion (CE) applies when a proposed action does not result in significant environmental impacts for which an EA or EIS would be required. The CE may require a brief documentation of the project's description and environmental impact potential in order to support its processing as a CE.

When the FAA determines that an environmental evaluation is required, FAA Order 5050.4A, "Airport Environmental Handbook", is used as a guide in the preparation of such studies.

6.2 IDENTIFICATION OF PROPOSED ACTION

The master plan study identifies several projects for improving the airport's ability to meet future demand and facility requirements. As described in Section 5, Alternatives Analysis of this report, airside improvements include a 500-foot extension of Runway 4/22 to the west and parallel taxiway extension. Other improvements include the realignment/expansion of the passenger terminal parking lot, T-Hangar and corporate aviation hangar expansion.

6.3 EXAMINATION OF ENVIRONMENTAL IMPACT CATEGORIES

This subsection provides a brief overview of the potential environmental impacts associated with the proposed improvements at TXK. It should be noted that this analysis does not constitute a formal submittal for FAA decision-making purposes.

6.3.1 Noise

The noise environment at TXK was modeled in order to determine potential noise impacts on neighboring properties generated by operations conducted at the Airport. Noise contours were calculated for the base year 1999, and future year 2020 conditions using the FAA's Integrated Noise Model (INM), Version 6.0c.

INM V6.0c features enhancements that enable it to produce more accurate noise predictions than previous versions. INM V6.0c also has the capability to compute noise levels from aircraft engine run-ups and to create dispersed tracks, which more accurately represent actual flight tracks.

The analysis used the Day-Night Average Sound Level (L_{dn} or DNL) noise metric as a descriptor of cumulative aircraft noise exposure. DNL is a 24-hour logarithmic average of noise levels in A-weighted decibels, as recommended by the FAA for evaluating aircraft noise impacts. Since sound occurring during nighttime hours is usually found to be more annoying due to sleep disruption, the DNL metric requires the addition of a 10-decibel penalty (twice as loud) to nighttime operations taking place between the hours of 10 p.m. and 7 a.m. The DNL noise metric was developed by the NEPA and is used by the FAA, the Department of Housing and Urban Development, and other federal agencies concerned with community noise levels.

Noise contours generated by the FAA INM do not depict a strict demarcation of where the noise levels end or begin. Their purpose is to describe the generally expected noise exposure. It must be recognized that although the INM is the current state-of-the-art aircraft noise modeling software, input variables to the INM require several simplifying assumptions to be made, such as: aircraft types flown, flight track utilization, day-night operational patterns, and arrival/departures profiles flown. Further, the noise contours represent average annual conditions rather than single event occurrences. Noise exposure on any one day may be greater or less than the average day. The noise model is useful for comparison of noise impacts and can provide a reasonable basis for performing airport noise compatibility planning. It is important to note that the noise exposure contours presented in this report do not consider operational noise abatement measures that could reduce projected noise impacts.

The INM was used to generate the base year (1999) noise levels, depicting the existing conditions. The INM was also used for comparison of noise levels between a future year (2020) “no-build” alternative and the alternative to extend Runway 4/22 to the southwest by 500 feet.

The purpose of the comparison was to determine if noise-sensitive areas would experience an increase in noise exposure or exceed recommended thresholds. Three scenarios were developed and three sets of contours were modeled at the base and future year levels of activity as follows:

- Case I – Existing conditions year 1999.
- Case II – Future year 2020 under no build conditions.
- Case III – Future year 2020 under build conditions (extend Runway 4 by 500 feet).

6.3.1.1 Noise Modeling Assumptions

The information needed to perform a noise analysis typically includes:

- The number of aircraft operations by time of day, aircraft type, and stage length for an average day;
- Operational information, including the use of the runways;
- The location and use of flight tracks; and
- Departure and arrival profiles.

Aircraft Fleet Mix and Operations – Federal legislation required the complete phase out of noisier Stage 2 aircraft at all civil airports by December 31, 1999. However, it should be noted that Stage 3 requirements do not apply to military aircraft or aircraft weighing less than 75,000 pounds, including privately owned jet aircraft, corporate, and business jets that operate at TXK. The existing and future fleet mix at TXK was segregated into three operational categories: commercial (regional airline and air carrier), military, and GA.

An aircraft operation is defined as one takeoff or one landing. For purposes of noise modeling, base and future year operational levels were obtained from activity forecasts presented in Section 3 of this study.

Runway Utilization – Runway use includes the number, location, and orientation of the active runways, as well as the directions and types of operations that occur on each runway. Runway use depends primarily on wind direction and speed. It is also a function of factors such as ATC procedures and separation standards, terminal location, taxiing distances, and available runway length. Runway utilization rates for the base year were obtained from Section 4 of this study. Moreover, future utilization rates were projected from current runway strategies while considering the aforementioned factors including runway length.

Flight Tracks – Flight track information is an important input to the INM. However, because it is not possible to input all of the tracks followed by individual aircraft, the FAA suggests that the tracks be consolidated to represent corridors consisting of estimated average or typical flight tracks. Based on the consultant's experience and operational levels, it was determined that straight-in approaches and straight-out departures would adequately model future flight procedures and patterns, for purposes of this comparative analysis. Flight tracks modeling touch-and-go activity at the Airport were also developed in a similar manner.

6.3.1.2 Noise Impacts

The INM V6.0c was used to generate noise contours for DNL 65 to 85, at 5dB intervals. To develop noise contours, the INM calculates noise levels at many points along the flight track. Once a noise level has been calculated for each of those points, the INM determines which points have equal noise levels and connects them. The result is a noise contour for the level and metric selected.

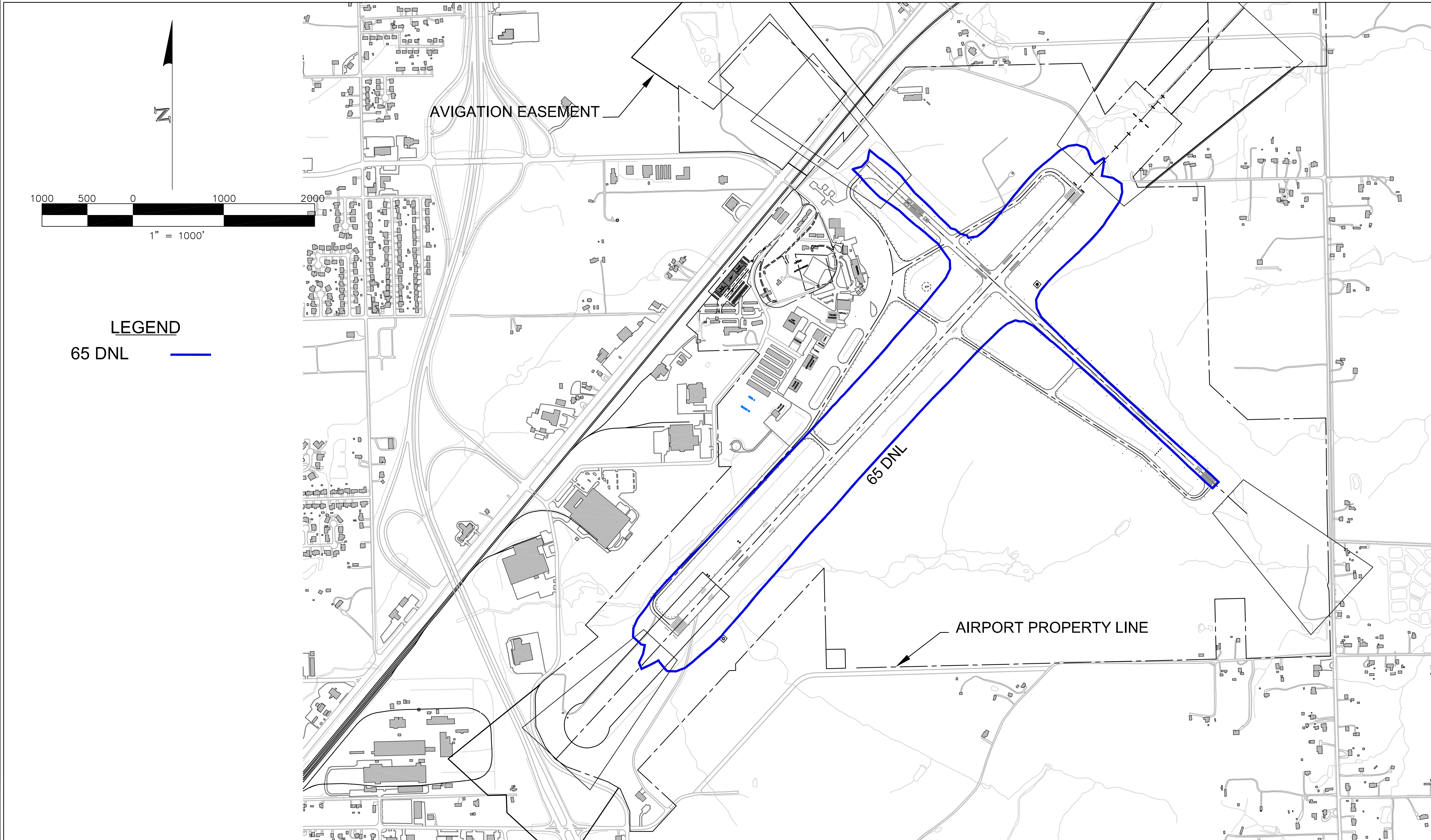
Noise Contours – Exhibit 6.1 illustrates the existing noise environment exposed to 65 DNL or greater overlaid onto a base map of TXK and environs. Furthermore, **Exhibit 6.2** depicts the future year 65 DNL in the build and no-build conditions. This illustration identifies areas impacted by noise and compares the changes in noise exposure at the future activity levels with or without the proposed runway extension.

Noise Exposure Estimates – Table 6.1 lists the estimated noise impacts associated with each of the three case studies in terms of land area affected. While total land area affected is central to assessing noise impacts under this study, the identification of land uses and population within these areas is more critical.

TABLE 6.1 LAND AREAS EXPOSED TO NOISE Texarkana Regional Airport					
	Land Area (Acres) [1]				
Case Study	**65 – 69 DNL**	**70 – 74 DNL**	**75 – 79 DNL**	**80 – 84 DNL**	**85 DNL & >**
I [2]	76	44	28	7	0
II [3]	115	55	34	16	2
III [4]	112	60	34	16	2

Note: [1]This includes areas exposed to noise both on-airport and off-airport.
[2]Case I - Existing Conditions, Year 1999.
[3]Case II - Future Conditions, Year 2020 No-Build.
[4]Case III - Future Year Conditions, Year 2020 With Runway Extension.

Source: URS Greiner Woodward Clyde, 2002.



EXISTING NOISE CONTOURS - YEAR 1999

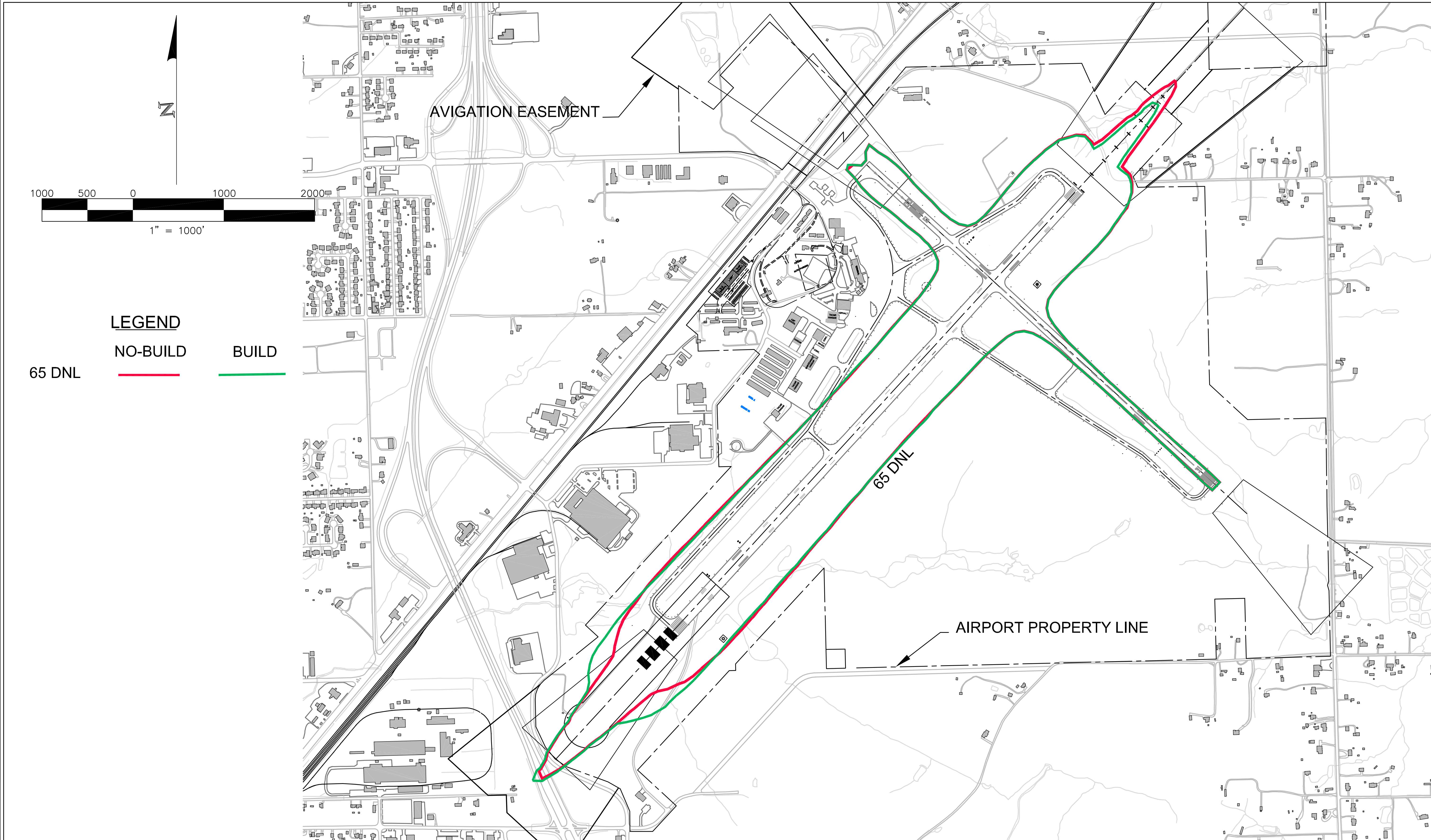
TEXARKANA REGIONAL AIRPORT

AIRPORT MASTER PLAN UPDATE

URS Greiner Woodward Clyde

SCALE 1"=1000'

EXHIBIT 6.1



FUTURE NOISE CONTOURS - YEAR 2020

TEXARKANA REGIONAL AIRPORT
AIRPORT MASTER PLAN UPDATE

URS Greiner Woodward Clyde

SCALE	EXHIBIT
1"=1000'	6.2

For ease of reference, **Table 6.2** presents FAA Guidelines and Land Use Compatibility with DNL Sound Levels (65, 70, 75, etc.). Most land uses, with the exception of residential and outdoor amphitheaters, are compatible with airport noise outside the 75 DNL contour. This determination is based on the assumption that in most instances a degree of noise attenuation has been incorporated into the design of structures. The 65 DNL contour is generally accepted as the threshold level at which residential land use is considered compatible.

The noise analysis indicates that under the existing conditions all areas exposed to the 65 DNL or greater lie within the Airport's property line as shown in Exhibit 6.1. The noise analysis also indicates that under the future year no-build conditions (Case II), most areas exposed to 65 DNL or greater lie within the existing property line. About 0.8 acres of land exposed to 65 through 69 DNL lies just southwest and northeast of the Runway 4/22 as shown in Exhibit 6.2. The area to the southwest overlays S.H. 245 and the area to the northeast is presently vacant and zoned M-1 (Limited Manufacturing).

In addition, Exhibit 6.2 reveals that under the future year build conditions (Case III), most areas exposed to the 65 DNL or greater lie within the Airport's property line. The area immediately southwest of Runway 4/22, totaling approximately 1.2 acres, is exposed to 65 through 69 DNL. This area overlays the S.H. 245 corridor.

TABLE 6.2 LAND USE COMPATIBILITY WITH YEARLY DAY-NIGHT AVERAGE SOUND LEVELS Texarkana Regional Airport						
	Yearly day-night average sound level, DNL in decibels					
LAND USE	**Below 65**	**65-70**	**70-75**	**75-80**	**80-85**	**Over 85**
Residential Use						
Residential, other than mobile & transient lodgings	Y	N(1)	N(1)	N	N	N
Mobile home parks	Y	N	N	N	N	N
Transient lodgings	Y	N(1)	N(1)	N(1)	N	N
Public Use						
Schools	Y	N(1)	N(1)	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums and concert halls	Y	25	30	N	N	N
Government services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(2)	N(3)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(3)	Y(4)	N
Commercial Use						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale & retail – building materials, hardware, & farm equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Retail trade – general	Y	Y	25	30	N	N
Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Communication	Y	Y	25	30	N	N
Manufacturing and Production						
Manufacturing (general)	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock farming and breeding	Y	Y(6)	Y(7)	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
Recreational						
Outdoor sports arenas and spectator	Y	Y(5)	Y(5)	N	N	N
sports	Y	N	N	N	N	N
Outdoor music shells, amphitheaters	Y	Y	N	N	N	N
Nature exhibits and zoos	Y	Y	Y	N	N	N
Amusements, parks, resorts and camps	Y	Y	25	30	N	N
Golf courses, riding stables and water recreation						

TABLE 6.2 LAND USE COMPATIBILITY WITH YEARLY DAY-NIGHT AVERAGE SOUND LEVELS Texarkana Regional Airport
Notes: **SLUCM** Standard Land Use Coding Manual **Y (Yes)** Land Use and related structures compatible without restrictions. **N (No)** Land Use and related structures are not compatible and should be prohibited. **NLR** Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise-attenuation into the design and construction of the structure. **25, 30 or 35** Land use and related structures generally compatible; measures to achieve NLR or 25, 30 or 35 must be incorporated into design and construction of structure. 1. Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal construction can be expected to provide an NLR of 20 dB, thus, the reduction requirements are often stated as 5, 10 or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems. 2. Measures to achieve NLR to 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low. 3. Measures to achieve NLR to 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low. 4. Measures to achieve NLR to 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low. 5. Land uses compatible, provided special sound reinforcement systems are installed. 6. Residential buildings require an NLR of 25. 7. Residential buildings require an NLR of 30. 8. Residential buildings not permitted.
Source: Federal Aviation Administration.

6.3.2 Compatible Land Use

The compatibility of existing or future land uses in the vicinity of an airport is usually associated with noise impacts related to that airport. The land uses in areas to the north and northeast of the Airport are primarily vacant. The eastern area between Airport property and Rondo Road includes scattered residential development. The area beyond and east of Rondo Road is outside the City limits and is primarily vacant. The areas to the southeast of the Airport include only scattered development, although the area south of McClure Road and east of Rondo Road is platted as a subdivision.

The land south of the Airport is entirely within the City limits and has limited development. The area southwest of the Airport is a mixture of industrial, commercial and residential development. The land directly southwest of Airport property includes a large industrial complex located between S.H. 245 and U.S. 67. A large residential area lies further southwest and areas further south along E. 9th Street and west along U.S 67 are a mixture of commercial and industrial uses.

The area directly west of Airport property, between U.S. 67 and S.H. 245 is primarily vacant. Much of the area west of S.H. 245 includes residential developments and some commercial development is located along the main thoroughfare of Arkansas Boulevard.

The area immediately northwest of the Airport and U.S. 67 is primarily vacant. Additional commercial development within this district is located along S.H. 245 and Arkansas Boulevard. The area further west of S.H. 245 continues with various residential developments.

With respect to noise, there are no incompatible land uses within 1999 and 2020 noise contours. The runway extension reduces the noise exposure to areas northeast of Runway 4/22, as aircraft departing the future Runway 4 end are at higher altitudes when passing over these areas.

6.3.3 Social Impacts

An action is judged to have significant social impacts if it involves:

- The relocation of residences or businesses;
- The alteration of surface transportation patterns;
- The disruption established communities;
- The division or disruption of orderly planned development; or
- The creation of an appreciable change in employment.

The Proposed Action will not require the relocation of any residences or businesses; alter surface transportation patterns; divide or disrupt established communities; disrupt orderly, planned development; or cause an appreciable change in employment.

6.3.4 Induced Socioeconomic Impacts

Induced or secondary socioeconomic impacts to surrounding communities may be evident in shifts in patterns of population movement or growth, public service demands, and changes in business and economic activity to the extent influenced by airport development. Induced impacts are normally not significant unless there are significant impacts in other categories such as noise, land use or direct social impacts.

The Proposed Action at TXK will not cause shifts in population growth since residential areas are not being displaced. It is not anticipated that public services such as police, fire and emergency services will be significantly impacted.

6.3.5 Air Quality

According to the guidelines set forth in FAA Order 5050.4A, "Airport Environmental Handbook," an air quality analysis may be required if the proposed action involves the following:

- Airport location (new airport site),
- Airport development allowing an increase in aircraft operations,
- The construction or expansion of passenger handling or parking facilities.

The air quality assessment procedures outlined in FAA-EE-82-21, Air Quality Procedures for Civilian and Air Force Bases must be followed to determine if an Air Quality Analysis is needed. These procedures state that if an air carrier airport has less than 1.3 million annual passenger enplanements and less than 180,000 GA aircraft operations, within the time frame of the proposed action, no air quality assessment is needed.

According to the procedures outlined in 5050.4A, a proposed Federal action that occurs within a state that does not have applicable indirect source review (ISR) the projected airport activities will be examined to determine if an air quality analysis will be needed. It is projected that TXK will handle 81,000 enplaned passengers (scheduled and charter) and 42,823 annual GA operations by the year 2020. These values do not exceed the thresholds specified in 5050.4A, therefore, an air quality assessment is not warranted. It should be noted that Miller County is designated as an attainment area for Carbon Monoxide (CO), Particulate Matter (PM-10), Ozone (O_3), Sulfur Dioxide (SO_2), Lead, and Nitrogen Dioxide (NO_2).

Although no air quality analysis will be needed, according to the 1982 Airport Act, projects involving major runway extensions will need to be approved by the governor of the state in which the project is located to ensure that projects are in compliance with applicable air quality standards.

6.3.6 Water Quality

Development of the Proposed Action will require the addition of new impervious surfaces (pavements) that would result in slight increases in stormwater runoff to the airport stormwater drainage systems and, subsequently, to the Days Creek. The Days Creek, according to the Texarkana Water Utility, Pollution Control Division, flows into the Sulfur River which, in turn, flows into the Red River. TXK currently has an active State Water Permit (ARR00C004) for stormwater runoff.

The guidelines in FAA Order 5050.4A indicate that the water quality assessment shall reflect the results of consultation with regulating/permitting agencies and with agencies that must review the proposed action, as applicable:

- A water quality certification will be required by the governor of the state to approve the proposed action, as mandated by the 1982 Airport Act.
- The Arkansas Department of Environmental Quality (ADEQ), Water Division may need to be consulted to ensure that the increase of stormwater runoff will be covered under the current permit. Additionally, the ADEQ Water Division should also be consulted to determine if a NPDES permit is required. A NPDES permit under Section 402 of the Clean Water Act is required for discharges into navigable waters, a Section 404 permit is required for dredged or fill material in navigable waters, and a Section 10 permit under the Rivers and Harbors Act of 1899 is required for obstruction or alteration of navigable waters.
- The Fish & Wildlife Service may need to be consulted to ensure that no water resources will be affected by the proposed action.
- The EPA regional office will not need to be consulted since the area does not contain a sole source aquifer.

- ✈ The City of Texarkana, Public Works Department will need a set of the construction plans to ensure that the flow of the stormwater runoff is not changed.

Conformance with new and existing federal and state stormwater quality and quantity permit requirements will minimize potential adverse impacts to the receiving water body.

6.3.7 Department of Transportation Act, Section 303(c)

Section 303(c) of the Department of Transportation (DOT) Act requires the approval of the Secretary of the DOT for any project that impacts publicly owned lands such as public parks, recreation areas, or wildlife refuges of national, state, or local significance. Approval of the Secretary of the DOT is also required for any project that impacts a historic site of national, state, or local significance.

Section 303(c) lands and facilities adjacent to the Airport include the Four States State Fairgrounds and Bobby F. Ferguson Park located approximately one-half mile northwest of the Airport in an area zoned C-3 Open Display Commercial. The proposed action at TXK does not directly impact these lands, nor is there any recommendation for acquisition of these properties.

6.3.8 Historic, Architectural, Archaeological and Cultural Resources

This category of impact must be in compliance with two laws, the National Historic Preservation Act of 1966 and the Archeological and Historic Preservation Act of 1974, which seek to ensure the preservation of historic sites.

URS reviewed information obtained from EDR's NEPA Report, and the Arkansas Historic Preservation Program (AHPP) database. According to these resources, no listings appear within a one-mile radius of the proposed action on the National Register of Historic Places. Additionally, URS submitted a request to the AHPP to identify any potential historic sites within the proposed action area. The AHPP responded to the request and indicated that no known historic sites will be affected by the proposed action.

6.3.9 Biotic Communities

A review of U.S. Geological Service Quadrangle maps, aerial photographs, information from EDR's NEPA Report, and United States Fish and Wildlife Service (USFWS) National Wetlands

Inventory (NWI) maps revealed that the airport property is comprised of man-dominated upland areas, interspersed with small forested communities located adjacent north, south, and east of airport property.

According to information provided in the EDR NEPA Report, no federally listed natural areas are located within one mile of the airport. In addition, no national wildlife refuges or wildlife management areas exist adjacent to the subject property. The closest wildlife area is the Sulfur River State Wildlife Management Area located approximately 16 miles south of the airport.

When reviewing aerial photographs of the airport, it appears that new development at the Airport would cause only a minor permanent alteration of existing habitat, due to the absence of vegetation in these areas. The majority of vegetation is concentrated on the east side of the runway away from future development areas. Additional coordination with the USFWS and state agencies should be made prior to construction of buildings or associated airport related developments to determine if any areas at the airport could be considered significant biotic communities.

6.3.10 Endangered and Threatened Species

Consultation with the Arkansas USFWS, the Arkansas Game and Fish Commission (AGFC), and the Arkansas Natural Heritage Commission (ANHC) has been conducted to identify any federal or state flora or fauna considered threatened and/or endangered that may occur on or within a mile of the project area.

Ms. Liz Stafford of the USFWS in Arkansas and Ms. Cindy Osborne of the ANHC were contacted regarding potential threatened and endangered species being located on or near TXK. No information could be provided by the AGFC for this area, according to Mr. John Way. At the time this report was written, no information regarding threatened and endangered species for the airport area had been received from these agencies. If pertinent information regarding threatened and endangered species is found for the airport area by these agencies, an addendum to this report will be forwarded to the client. Given that information regarding threatened and endangered species for the site remains outstanding, documents provided by the USFWS and the ANHC should be reviewed prior to implementation of the proposed action to assess if potential species in the area of the project site could be impacted.

6.3.11 Wetlands

A review of the EDR NEPA Report and aerial photography of the airport property indicated that the airport site is designated as uplands (non-wetland areas). No wetlands were reported within one-half mile of the airport boundary. USFWS National Wetlands Inventory (NWI) maps were ordered for the airport area, but were not available for review at the time this report was written. If wetlands are found on airport property or adjacent properties on USFWS NWI maps, an addendum to this report will be forwarded to the client stating the findings.

6.3.12 Floodplains

According to the Federal Emergency Management Agency (FEMA) and the EDR NEPA Report, the airport property is located in areas determined to be outside the 100- and 500-year floodplains. No floodplains appear to be located within a one-half mile radius of the Airport boundaries.

6.3.13 Coastal Zone Management Act

TXK is not located in a coastal zone as defined by the Coastal Zone Management Act. Therefore, this airport is not included in the Coastal Zone Management Program, and development of the proposed action will not impact coastal resources.

6.3.14 Coastal Barriers

TXK is located inland, and development of the proposed action will not impact any areas designated as coastal barriers.

6.3.15 Wild and Scenic Rivers

The Federal Wild and Scenic Rivers Act (PL 90-542 as amended) describes those areas eligible to be included in a system afforded protection under the Act as free flowing and possessing "…outstandingly remarkable, scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values". The Act restricts development within 1,000 feet of rivers identified as wild and scenic.

Research of the U.S. Fish & Wildlife's National Inventory of Wild and Scenic Rivers from Ms. Cindy Gabrielsen of the Austin office indicates that there are no designated "Wild and Scenic Rivers" within a 1,000-foot radius of TXK.

6.3.16 Prime and Unique Farmland

Prime farmland is land that is best suited for producing food, feed, forage, fiber and oilseed crops. Soils that make up prime farmland typically have adequate moisture supply either from precipitation or irrigation. Unique farmlands are lands that are suitable for the production of high-value crops or high yields of a specific crop(s).

According to the Farmland Protection Policy Act (FPPA P.L 97-98), lands already committed to urban development, such as the airport, do not meet the definition of prime or unique farmlands. Soils within these areas are already disturbed, and committed to urban residential, industrial and commercial uses. These soils consist of the Sacul-Urban land complex with 3-8 percent slopes and the Eylau-Urban land complex with 3-5 percent slopes. In addition, Sacul fine sandy loam soils could also be disturbed in this area, but are also poorly suited for crop production. According to the Soil Survey of Miller County, Arkansas from the U.S. Department of Agriculture's Soil Conservation Service Office, these above-mentioned soils, which could be impacted by development, are not classified as "prime farmland".

However, in the future if additional property is acquired for expansion, this could impact some agricultural land and an assessment would likely have to be made at that time.

6.3.17 Energy Supply and Natural Resources

Impacts on energy supplies and natural resources are related to changes of stationary facilities, such as airfield lightning or terminal buildings, as well as any increase of fuel consumption by aircraft or ground vehicles. Energy requirements will increase as a result of the runway extension, terminal automobile parking lot expansion, and GA development. However, this increase is not deemed sufficient to have a significant effect on local energy supplies. Fuel consumption by aircraft and ground vehicles will also increase over the planning period. This increase in fuel needs is not considered sufficient to have a significant effect on local supplies.

6.3.18 Light Emissions

Light emissions are assessed on the basis of creating an annoyance within residential areas or wildlife habitats in the vicinity of proposed facilities. Review of the quantity, location and characteristics of the lighting associated with the terminal and apron areas indicates that proposed action will not adversely impact residential or wildlife corridors. The proposed extension of Runway 4/22 with edge lighting to the southwest is not expected to significantly increase light emissions and their impact.

6.3.19 Solid Waste

The portion of the proposed development that relates strictly to airside facilities (runway, taxiway, lighting systems, etc.) will not create any impacts related to solid waste collection or disposal, other than temporary impacts associated with the generation and disposal of construction and demolition debris.

6.3.20 Construction Impacts

Construction impacts resulting from the proposed action at TXK will be temporary in nature. The following environmental impacts are anticipated:

- ✈ An increase noise from construction operations;
- ✈ A temporary increase in water turbidity in drainage area during the period when excavated areas are exposed, prior to paving or planting cover; and
- ✈ A temporary degradation in air quality from construction generated dust during certain projects.

In order to minimize these potential temporary construction impacts, all on-site activities should be conducted in accordance with AC 150/5370-10A “Standards for Specifying Construction of Airports”, and with the use of best management practices. These controls should be considered throughout the preparation of the plans and specifications and should be maintained by the contractor during the life of the construction project. The aforementioned measures will mitigate most of the construction-related impacts that may be considered significant to the environment or the surrounding community.

6.3.21 Hazardous Materials/Wastes

According to this Master Plan Study for TXK, one company provides aircraft maintenance at this airport, Leslie Aviation. Leslie Aviation, located in a large box hangar leased from TACAir, provides major and minor engine maintenance and body repair for privately owned aircraft. Maintenance and repair facilities such as these generally contain hazardous materials and wastes, which originate from aircraft maintenance activities. The amount of hazardous materials and wastes has the potential of increasing with new development at this airport.

TXK has a fuel farm that was installed in 1992. The fuel vendor, Phillips 66, supplies both 100 Low Lead Aviation Gasoline (Avgas) and Jet A fuel. There is one 11-year old fiberglass underground fuel tank and one 1-year old aboveground tank containing the Jet A fuel, each having a 20,000-gallon capacity. There is one 11-year old steel underground tank with a 12,000-gallon capacity containing the Avgas fuel. Also, located near the T-Hangars is one aboveground 1,000-gallon capacity, self-serve steel tank containing Avgas. This self-contained tank is six years old and was reported to be in excellent condition. The FBO is equipped with three fuel trucks. The fuel farm is owned by the Airport and is leased to TACAir, which provides fueling to all aircraft at TXK.

According to the EDR Radius Map Report (EDR, 2002), two Leaking Underground Storage Tanks (LUSTs) were reported at the Airport. Approximately 450 gallons of jet fuel was reported to have leaked from these LUSTs causing soil and groundwater contamination in the vicinity of the tanks, at two separate times, once in 1986 and once in 2001.

At the time this Environmental Overview was written, a Hazardous Waste Management Plan or similar document was not available for review. This plan generally identifies the responsibilities and procedures for managing hazardous waste, used petroleum products, polychlorinated biphenyls, and other wastes. In addition, a Spill Prevention and Response Plan, which usually details what hazardous materials are used at a facility, was not available for review. The Spill Prevention and Response Plan also identifies spill prevention practices and site-specific contingency plans in case a spill occurs. No other information regarding the use of hazardous materials/hazardous wastes could be provided by the client at the time this report was written. Evaluation of hazardous materials/hazardous wastes should be conducted and consultation with local officials should be made to assess if a potential problem might exist with the capacity of local disposal facilities or location which may violate any local, state, or Federal regulations. In addition, a file review with local regulatory agencies should be conducted to assess the current status of the jet fuel contamination from the LUSTs.

6.3.22 Environmental Justice

The United States Environmental Protection Agency Office of Environmental Justice defines environmental justice as:

> "The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations and policies. Fair treatment means that no group of people, including racial, ethnic, or socioeconomic group should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local and tribal programs and policies."

An analysis of the area's composition and the Proposed Action at TXK did not identify any disproportionately high and adverse human health or environmental effects on low-income population, minority population, or Native American tribes.

6.4 SUMMARY OF POTENTIAL IMPACTS

Based on the review of the proposed improvements identified in this Master Plan, it is anticipated that additional coordination with appropriate local, state and federal agencies including the City of Texarkana Public Works Division, ADEQ Water Division, UGFC, USFWS, and ANHC will be required for potential impacts to water quality, threatened and endangered species and biotic communities. This coordination should be made prior to any new construction including runway and taxiway extensions, aircraft parking apron expansion, terminal expansion and new hangar development. Although no significant air quality impacts are anticipated, approval by the State Arkansas Governor is required for the runway extensions to ensure compliance with acceptable air quality standards. Moreover, an evaluation of hazardous materials/wastes at TXK in consultation with local authorities is recommended.

It is anticipated that noise impacts will increase slightly by the year 2020. This increase in noise is attributable to the increased number of aircraft operations forecast for TXK by the year 2020. As depicted in Exhibits 6-1 and 6-2, there are no incompatible land uses identified within the 65 DNL in the existing and future year condition.

SECTION 7 FINAL DEVELOPMENT PLAN

7.0 INTRODUCTION

The major improvements and identified preferred concepts for the passenger terminal area, GA and other functional areas on the Airport were incorporated into the updated ALP drawing set. The ALP is a group of drawings that will serve as the primary tool to guide growth at TXK for the 20-year planning period. The drawings depict the recommendations with respect to aviation development ensuing from this master plan study update. For ease of reference, the ALP drawing set was reduced from full size (30” x 42”) and incorporated in this section. The drawings in this ALP set include:

- Title Sheet
- Data Sheet
- Airport Layout Plan
- Airport Airspace Drawing (2)
- Runway Protection Zone Drawing (2)
- Terminal Area Plan (2)
- Land Use and Access Plan
- Airport Property Map

7.1 TITLE SHEET

The sheet is the ALP drawing set cover sheet and provides basic information that includes the official airport name, airport owner, associated Cities and States, and the party responsible for preparing the ALP set. An index of the drawings, graphic representation of the airport location and the airport vicinity are also presented on the title sheet.

7.2 DATA SHEET

The scale and size of the ALP sheet limits the amount of information that may be presented. The data sheet (Sheet 1 of the TXK ALP set) provides additional space for information typically presented in tabular form on the Airport Layout Plan sheet. Tables and graphics on the data sheet include wind rose and associated data, the airport data table, the runway data table and other appropriate information. Information specific to the airport such as airport elevation (highest point of the usable landing area), airport reference point coordinates, runway identification, airfield lighting and marking, runway instrumentation, pavement surface type, and electronic navigational aids are listed in the tables.

7.3 AIRPORT LAYOUT PLAN

The Airport Layout Plan, as shown on Sheet 2 of the drawing set, is a graphical representation of the existing and proposed airport facilities. The ALP provides clearance and dimensional information required to show conformance with applicable FAA design standards. Moreover, the future airfield configuration and major functional areas of the airport are established on the drawing.

The improvements programmed for TXK can be subdivided into the following major categories: airfield, passenger terminal area, airport support facilities, GA area and surface access. Items depicted on the Airport Layout Plan, within the 20-year capital program, or scheduled as ultimate improvements are briefly described in the following paragraphs.

Airfield improvements for TXK include the extension of Runway 4/22 by 500 feet to the southwest and a matching extension of parallel Taxiway A. The construction of holding bays on both ends of Runway 4/22 and a run-up area at the Runway 4 end are also depicted. There are no navigational aid upgrades recommended in the 20-year capital program. However, an ultimate upgrade of the non-precision instrument approach to a precision instrument approach is planned for Runway 4. Early planning for this ultimate capability enables protection of nearby airspace and promotes compatibility with adjacent land uses.

The surface access to the passenger terminal area will be improved during the 20-year planning period. The Arkansas Highway and Transportation Department (AHTD) is being asked to plan an overpass from Arkansas Boulevard into the airport's entrance and a rail/bus. The terminal area development also includes station an expanded automobile parking lot. The passenger terminal interior space is to be reconfigured (not shown on the plan) and results in a 1,000 square foot expansion of the terminal building. Greater detail of the build out may be found on the terminal area plan sheet.

The GA areas will be improved during the various phases of the 20-year capital program. The existing GA area will be expanded to include two new T-Hangars and access taxiways.

The midfield area has also been reserved for long term and ultimate GA and corporate aviation development.

Other surface transportation improvements are planned in an effort to accommodate traffic generating sources including commercial passengers and GA patrons. An access road to the midfield area is also proposed.

7.4 AIRPORT AIRSPACE DRAWINGS (2)

The Airport Airspace Drawing, shown on two sheets, is a graphic representation of the imaginary surfaces described within FAR Part 77. The imaginary surfaces are established in relation to the airport elevation, runway end points and elevations, and define those areas where the heights of objects should be regulated for maintaining the safe operation of aircraft. Local government then achieves regulation through the establishment of a Height Zoning Ordinance. The size of the each imaginary surface is based on the runway category and type of existing or planned approach, whichever is the most demanding. Please refer to Sheets 3 and 4 of the TXK ALP drawing set.

7.5 RUNWAY PROTECTION ZONE (RPZ) DRAWINGS (2)

The Runway Protection Zone Drawings depict the plan and profile views of the approach to each of the existing and future runway ends at TXK. The horizontal and vertical scales for the plan profiles views are shown as per FAA guidelines. The plan and profile views encompass an area that extends from each runway end to about 1,000 feet beyond the outer limits of the RPZ. All known obstructions to navigable airspace within these extents are identified through the use of the NOAA Obstruction Chart for TXK and aerial mapping. The RPZ drawings may be found on Sheets 5 and 6 of the TXK ALP drawing set.

7.6 TERMINAL AREA PLAN (2)

The Terminal Area Plan drawing sheets depict, in greater detail, the improvements identified in the ALP for the terminal area. The existing and planned facilities are presented on Sheets 7 and 8 of the ALP set at an enlarged scale of 1"= 100 feet. The plan shows those improvements in the vicinity of where the majority of commercial and GA occurs. Rooftop and high-point elevations are shown for the existing structures and features.

7.7 LAND USE AND ACCESS PLAN

The Land Use and Access Plan illustrates the recommended future land uses for TXK and surface access improvements planned for the Airport. In addition, the drawing depicts the existing DNL 65 dBA noise contour. The drawing provides general guidelines for on-airport land uses in order to ensure compatibility with airport operations. Top-down planning is critical because planned projects may be constructed ahead of schedule and unanticipated but beneficial projects may be desired. It is important for the Airport Sponsor to have a general "roadmap" to follow as development options arise. The Land Use and Access Plan, shown on Sheet 9 of the TXK ALP drawing set, provides such guidance by categorizing all areas of the Airport by specific functional use.

7.8 AIRPORT PROPERTY MAP

The Airport Property Map, commonly referred to as "Exhibit A", defines the existing and future airport boundary for TXK in graphic form. The drawing provides the information necessary for analyzing the current and future aeronautical use of land acquired with Federal funds. Future acquisition areas are shown along with existing metes and bounds. It should be noted that these metes and bounds were not field verified as a part of this study. Please refer to Sheet 10 of the TXK ALP drawing set.

AIRPORT LAYOUT PLANS

TEXARKANA REGIONAL AIRPORT

TEXARKANA, ARKANSAS

Prepared For:

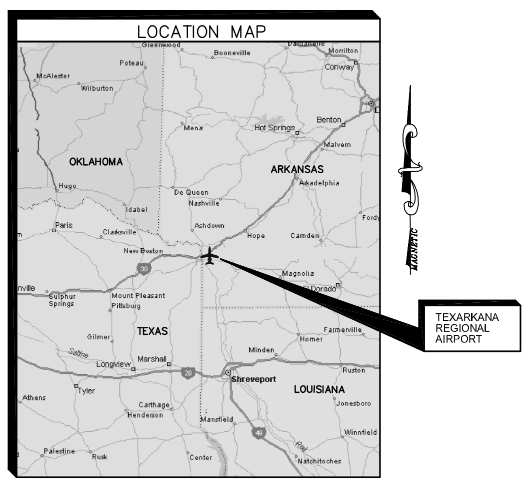
TEXARKANA AIRPORT AUTHORITY

Prepared By:

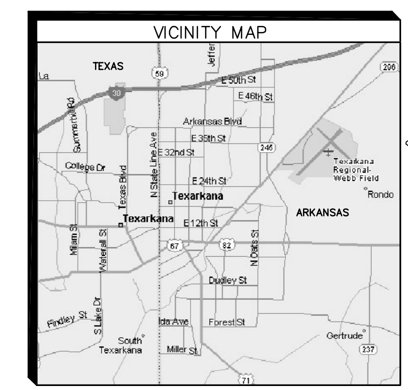
URS Greiner Woodward Clyde

3010 LBJ FREEWAY
SUITE 1300
DALLAS, TEXAS 75234
(972) 406-6950
www.urscorp.com

LOCATION MAP



VICINITY MAP



INDEX OF DRAWINGS

TITLE	SHEET NO.
AIRPORT LAYOUT PLAN - DATA SHEET	1 OF 10
AIRPORT LAYOUT PLAN	2 OF 10
AIRSPACE DRAWING (WEST)	3 OF 10
AIRSPACE DRAWING (EAST)	4 OF 10
RUNWAY 4-22 RPZ PLANS / APPROACH PROFILES	5 OF 10
RUNWAY 13-31 RPZ PLANS / APPROACH PROFILES	6 OF 10
TERMINAL AREA PLAN WEST	7 OF 10
TERMINAL AREA PLAN MID FIELD	8 OF 10
NOISE CONTOURS / SURROUNDING LAND USE / ACCESS PLAN	9 OF 10
AIRPORT PROPERTY MAP	10 OF 10

FEDERAL AVIATION ADMINISTRATION	TEXARKANA REGIONAL AIRPORT
APPROVED ____ DIRECTOR ____ DATE	APPROVED ____ AIRPORT MANAGER ____ DATE
APPROVED ____ CHIEF ENGINEER ____ DATE	APPROVED ____ CHAIRMAN ____ DATE

REVISION BLOCK

NO	BY	DESCRIPTION	DATE

RUNWAY DATA

ITEM	RUNWAY 4		RUNWAY 22		RUNWAY 13		RUNWAY 31	
	EXISTING	FUTURE	EXISTING	FUTURE	EXISTING	FUTURE	EXISTING	FUTURE
RUNWAY LENGTH	6601'	7100'	6601'	7100'	5200'	5200'	5200'	5200'
RUNWAY WIDTH	150'	150'	150'	150'	100'	100'	100'	100'
DISPLACED THRESHOLD	--	--	--	--	641'	641'	--	--
RUNWAY GRADIENT (%)	.725	.399	.725	.399	.557	.557	.557	.557
PAVEMENT TYPE	ASPHALT	ASPHALT	ASPHALT	ASPHALT	ASPHALT	ASPHALT	ASPHALT	ASPHALT
PAVEMENT STRENGTH: GEAR/LOAD (X 1000)	SW 50 DW 86 DT 120	SW 80 DW 140 DT 140	SW 50 DW 86 DT 120	SW 80 DW 140 DT 140	SW 25	SW 60 DW 80	SW 25	SW 60 DW 80
RUNWAY LIGHTING	HIRL	HIRL	HIRL	HIRL	MIRL	MIRL	MIRL	MIRL
RUNWAY MARKING	PRECISION	PRECISION	PRECISION	PRECISION	NON-PRECISION	NON-PRECISION	NON-PRECISION	NON-PRECISION
NAVIGATIONAL AIDS	NDB/DME	ILS,NDB,DME	ILS,NDB,DME	ILS,NDB,DME	NDB	NDB	NDB	NDB
APPROACH LIGHTING	--	MALSR	MALSR	MALSR	--	--	--	--
AIRCRAFT APPROACH CATEGORY	C	C	C	C	C	C	C	C
AIRPLANE DESIGN GROUP	III	III	III	III	II	II	II	II
CRITICAL AIRCRAFT	B-737	B-737	B-737	B-737	CRJ	CRJ	CRJ	CRJ
APPROACH	NON-PRECISION	PRECISION	CAT-I	CAT-I	NON-PRECISION	NON-PRECISION	NON-PRECISION	NON-PRECISION
RPZ	500' X 1010' X 1700'	1000' X 1750' X 2500'	1000' X 1750' X 2500'	1000' X 1750' X 2500'	500' X 1010' X 1700'	500' X 1010' X 1700'	500' X 1010' X 1700'	500' X 1010' X 1700'
DESIGN GLIDE	34:1	50:1	50:1	50:1	34:1	34:1	34:1	34:1
RUNWAY END COORDINATES (NAD 83): LATITUDE:	33°26'46.501"	33°26'43.01"	33°27'32.703"	33°27'32.703"	33°27'36.343"	33°27'36.343"	33°26'59.974"	33°26'59.974"
LONGITUDE:	94°00'04.887"	94°00'09.05"	93°59'09.823"	93°59'09.823"	93°59'37.171"	93°59'37.171"	93°58'53.770"	93°58'53.770"
GPS SURVEYED 2000								
RSA LENGTH *	1000	1000	1000	1000	1000	1000	1000	1000
RSA WIDTH	500	500	500	500	500	500	500	500
ROFA LENGTH *	1000	1000	1000	1000	1000	1000	1000	1000
ROFA WIDTH	800	800	800	800	800	800	800	800
ROFZ LENGTH *	200	200	200	200	200	200	200	200
ROFZ WIDTH	400	400	400	400	400	400	400	400
VISIBILITY MINIMUMS	≥ 1 MILE	≥ 1 MILE	≥ 1/2 MILE	≥ 1/2 MILE	≥ 1 MILE	≥ 1 MILE	≥ 1 MILE	≥ 1 MILE

* - LENGTH FROM END OF RUNWAY

DECLARED DISTANCES RUNWAY 13/31

RUNWAY	TORA	TODA	ASDA	LDA
13	5200'	5200'	5200'	4559'
31	5200'	5200'	4559'	4559'

AIRPORT DATA

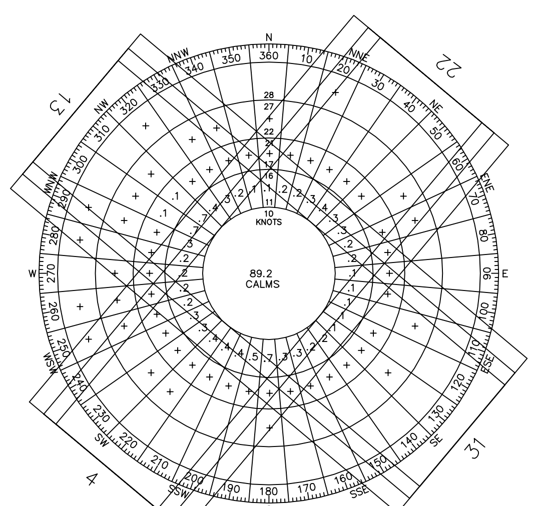
AIRPORT ID: TXK FAA SITE NO. 01188.A

CITY: TEXARKANA COUNTY: MILLER STATE: AR

ITEM	EXISTING	FUTURE
AIRPORT ELEVATION (AMSL)	389.2'	389.2'
AIRPORT REFERENCE (ARP) *	LAT. 33° 27' 12.23" LONG. 93° 59' 29.29"	LAT. 33° 27' 12.23" LONG. 93° 59' 29.29"
AIRPORT PROPERTY (ACRES)	921	1200
TEMPERATURE, MEAN MAX., HOTTEST MONTH	92.6° F	92.6° F
TERMINAL NAVAIDS	VORTAC, NDB, DME ATCT, GS, LOC LOM, MM, OM	VORTAC, NDB, DME ATCT, GS, LOC LOM, MM, OM
VISUAL AIDS	ROTATING BEACON, LTD WIND CONE, SEGMENTED CIRCLE, PAPI, VASI, MALSR	ROTATING BEACON, LTD WIND CONE, SEGMENTED CIRCLE, PAPI, VASI, MALSR
NPIAS CATEGORY SERVICE LEVEL	PRIMARY COMMERCIAL SERVICE	PRIMARY COMMERCIAL SERVICE
AIRPORT ROLE	TRANSPORT	TRANSPORT
AIRPORT REFERENCE CODE	C-III	C-III
APPROACH CATEGORY	C	C
DESIGN GROUP	III	III
CRITICAL AIRCRAFT	B-737	B-737

* - NEW CALCULATION

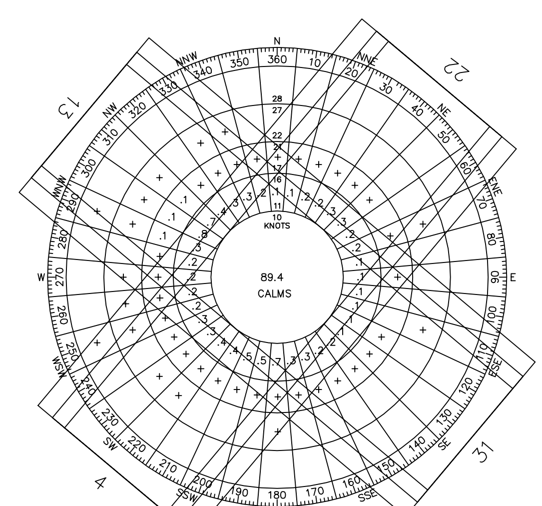
ALL WEATHER WINDROSE



STATION: TEXARKANA AP, TEXAS
PERIOD: 1989-1998
NO. OBSERVATIONS: 73,316
SOURCE: NOAA, 2000

WIND SPEED	COVERAGE
10.5 KTS (12 MPH)	99.70%
13.0 KTS (15 MPH)	99.95%
16.0 KTS (18.5 MPH)	99.98%

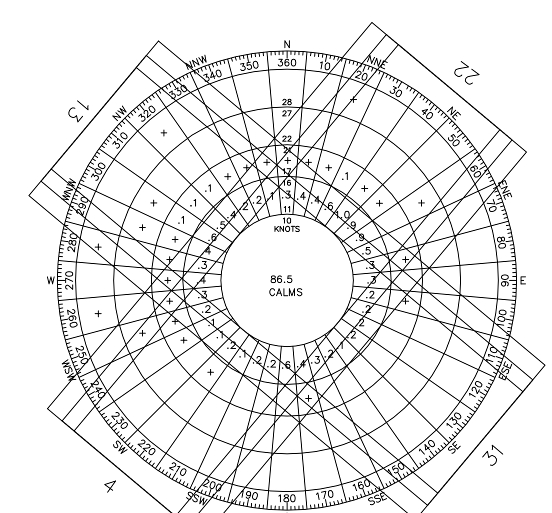
VFR WINDROSE



STATION: TEXARKANA AP, TEXAS
PERIOD: 1989-1998
NO. OBSERVATIONS: 65,081
SOURCE: NOAA, 2000

WIND SPEED	COVERAGE
10.5 KTS (12 MPH)	99.74%
13.0 KTS (15 MPH)	99.97%
16.0 KTS (18.5 MPH)	99.99%

IFR WINDROSE



STATION: TEXARKANA AP, TEXAS
PERIOD: 1989-1998
NO. OBSERVATIONS: 7,020
SOURCE: NOAA, 2000

WIND SPEED	COVERAGE
10.5 KTS (12 MPH)	99.54%
13.0 KTS (15 MPH)	99.92%
16.0 KTS (18.5 MPH)	99.98%

REVISION DATE

DATE BM DRAWN UJ CHECK DA APPROVED IN CHARGE

URS Greiner Woodward Clyde
4100 AMON CARTER BLVD.
SUITE 108
FORT WORTH, TEXAS 76155
817-545-0891

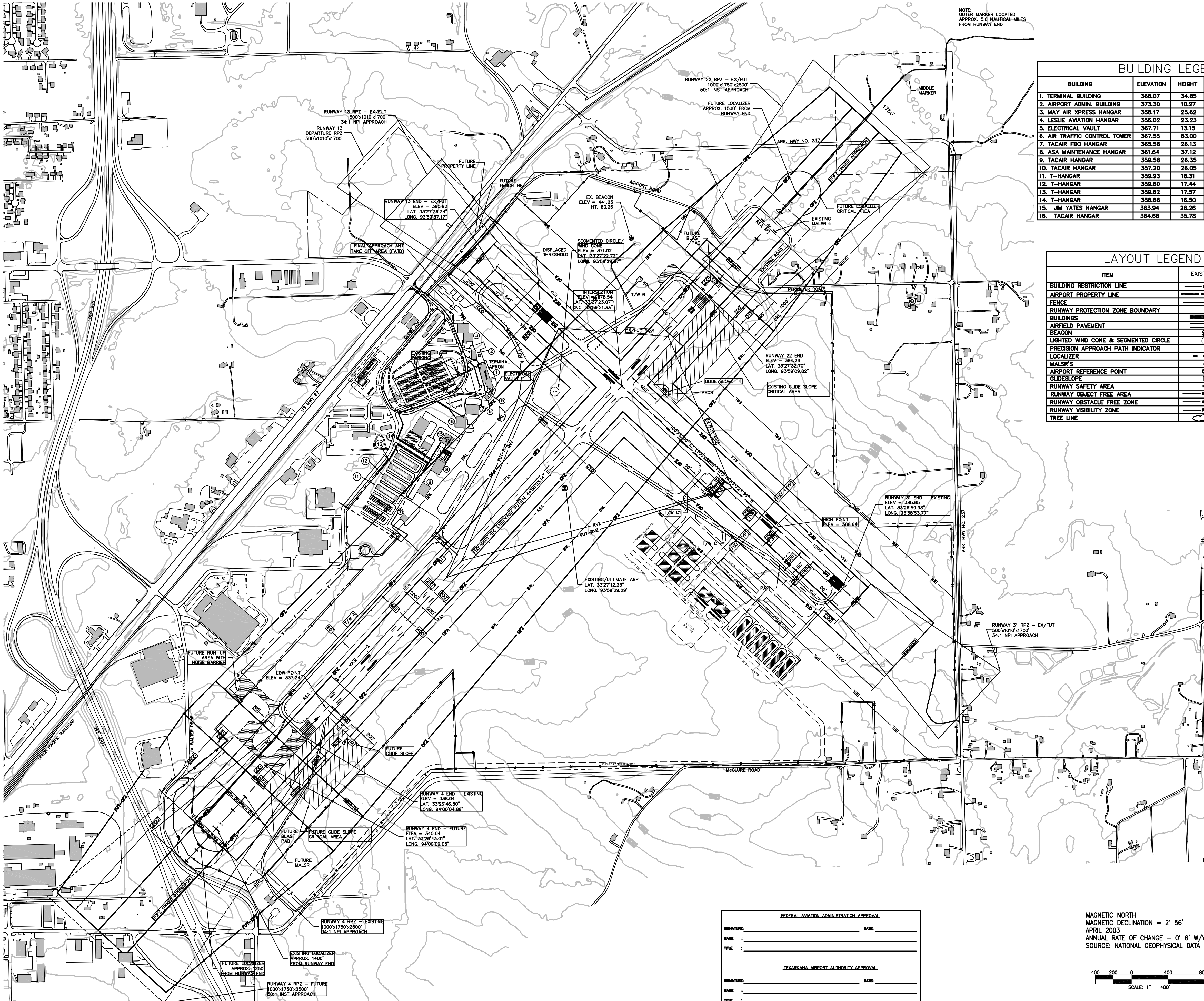
AIRPORT LAYOUT PLAN-DATA SHEET

TEXARKANA REGIONAL AIRPORT - WEBB FIELD
TEXARKANA, ARKANSAS

FEDERAL PROJECT NO. 305-0062-16-99

DRAWING 1 OF 10

E700001059



BUILDING LEGEND

BUILDING	ELEVATION	HEIGHT	LATITUDE	LONGITUDE
1. TERMINAL BUILDING	368.07	34.85	33° 27' 24.86"	93° 59' 38.98"
2. AIRPORT ADMIN. BUILDING	373.30	10.27	33° 27' 27.19"	93° 59' 40.36"
3. MAY AIR XPRESS HANGAR	358.17	25.62	33° 27' 29.15"	93° 59' 41.00"
4. LESLIE AVIATION HANGAR	356.02	23.23	33° 27' 30.12"	93° 59' 41.60"
5. ELECTRICAL VAULT	367.71	13.15	33° 27' 22.84"	93° 59' 38.41"
6. AIR TRAFFIC CONTROL TOWER	367.55	83.00	33° 27' 22.49"	93° 59' 38.94"
7. TACAIR FBO HANGAR	365.58	26.13	33° 27' 21.21"	93° 59' 40.87"
8. ASA MAINTENANCE HANGAR	361.64	37.12	33° 27' 15.15"	93° 59' 45.62"
9. TACAIR HANGAR	359.58	26.35	33° 27' 12.72"	93° 59' 47.61"
10. TACAIR HANGAR	357.20	26.05	33° 27' 09.72"	93° 59' 50.31"
11. T-HANGAR	359.93	18.31	33° 27' 12.56"	93° 59' 52.39"
12. T-HANGAR	359.80	17.44	33° 27' 13.67"	93° 59' 51.50"
13. T-HANGAR	359.62	17.57	33° 27' 14.77"	93° 59' 50.61"
14. T-HANGAR	358.88	16.50	33° 27' 15.88"	93° 59' 49.72"
15. JIM YATES HANGAR	363.94	26.26	33° 27' 18.05"	93° 59' 44.26"
16. TACAIR HANGAR	364.68	35.78	33° 27' 20.50"	93° 59' 42.54"

LAYOUT LEGEND PLAN

ITEM	EXISTING	FUTURE
BUILDING RESTRICTION LINE	BRL	SAME
AIRPORT PROPERTY LINE		F
FENCE	x	x
RUNWAY PROTECTION ZONE BOUNDARY		
BUILDINGS		
AIRFIELD PAVEMENT		
BEACON		SAME
LIGHTED WIND CONE & SEGMENTED CIRCLE		SAME
PRECISION APPROACH PATH INDICATOR		
LOCALIZER		
MALSR'S		
AIRPORT REFERENCE POINT		
GLIDESLOPE		
RUNWAY SAFETY AREA	RSA	FUT–RSA
RUNWAY OBJECT FREE AREA	OFA	FUT–OFA
RUNWAY OBSTACLE FREE ZONE	OFZ	FUT–OFZ
RUNWAY VISIBILITY ZONE	RVZ	FUT–RVZ
TREE LINE		N/A

MAGNETIC NORTH
MAGNETIC DECLINATION = 2° 56'
APRIL 2003
ANNUAL RATE OF CHANGE – 0° 6' W/YEAR
SOURCE: NATIONAL GEOPHYSICAL DATA CENTER

FEDERAL AVIATION ADMINISTRATION APPROVAL

SIGNATURE: ______________ DATE: ______
NAME: ______________
TITLE: ______________

TEXARKANA AIRPORT AUTHORITY APPROVAL

SIGNATURE: ______________ DATE: ______
NAME: ______________
TITLE: ______________

REVISION | DATE

DATE
DRAWN BM
CHECK UJ
APPROVED DA
IN CHARGE

URS Greiner Woodward Clyde
4100 AMON CARTER BLVD.
SUITE 108
FORT WORTH, TEXAS 76155
817-545-0891

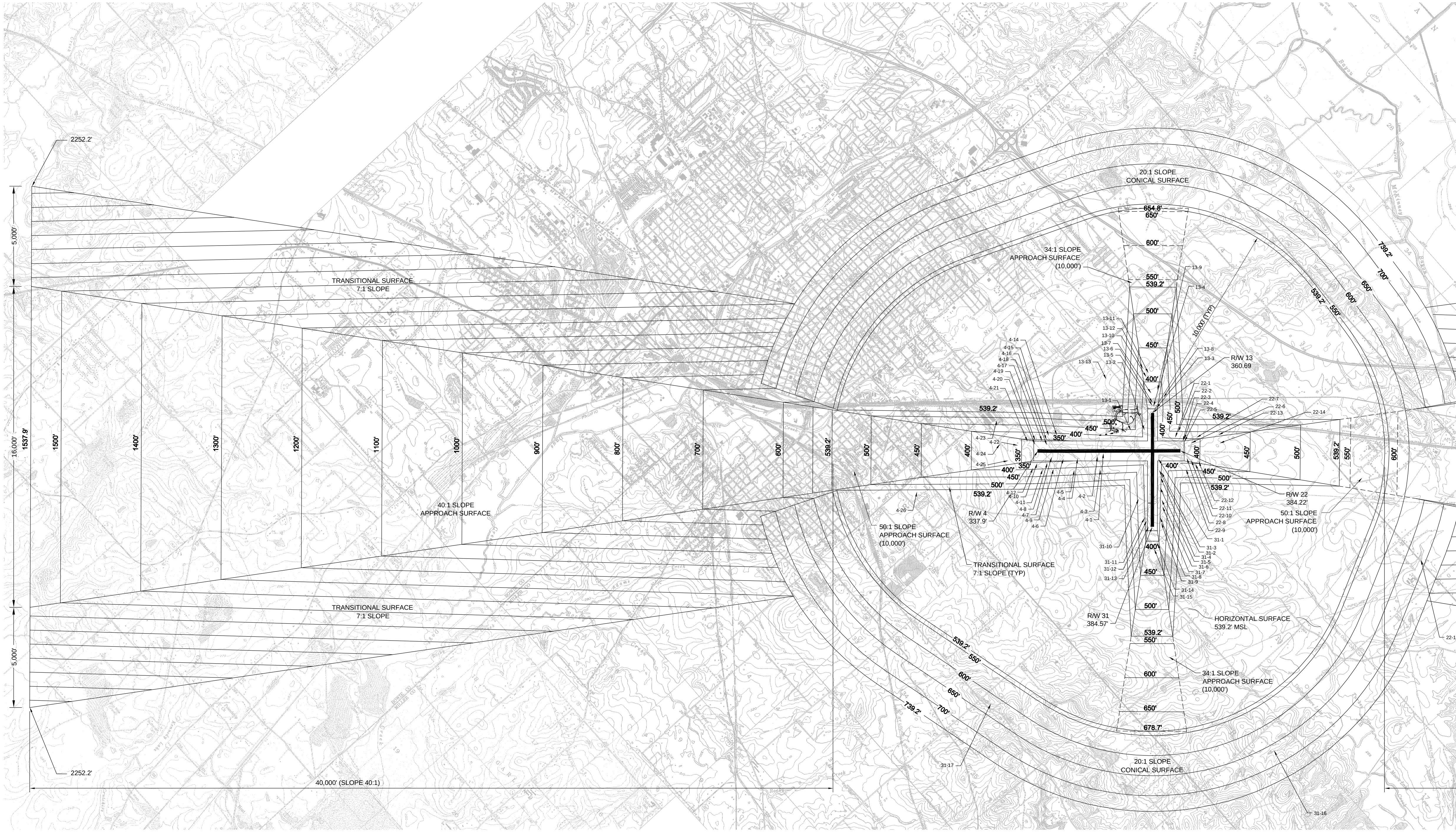
AIRPORT LAYOUT PLAN

TEXARKANA REGIONAL AIRPORT – WEBB FIELD
TEXARKANA, ARKANSAS

FEDERAL PROJECT NO.
305-0062-16-99

DRAWING
2 OF 10

E700001059



OBSTRUCTION NUMBER	OBSTRUCTION TYPE	OBSTRUCTION TOP ELEV.	IMAGINARY SURFACE ELEVATION	PENETRATION OF SURFACE	RECOMMENDED ACTION
4-1	TREE	431	355	76	REMOVE
4-2	TREE	380	352	28	REMOVE
4-3	TREE	427	421	6	TRIM
4-4	TREE	380	340	40	REMOVE
4-5	TREE	402	413	*	TRIM
4-6	TREE	374	339	35	REMOVE
4-7	BUSH	350	338	12	REMOVE
4-8	TREE	378	356	22	TRIM/REMOVE
4-9	TREE	421	401	20	TRIM
4-10	TREE	382	355	27	TRIM
4-11	TREE	423	400	23	TRIM
4-12	TREE	421	388	33	TRIM
4-14	TREE	411	386	25	TRIM
4-15	TREE	391	379	12	TRIM
4-16	TREE	370	350	20	REMOVE
4-17	TREE	366	376	*	REMOVE
4-18	BUSH	353	337	16	REMOVE
4-19	TREE	372	381	*	REMOVE
4-20	BUSH	357	353	4	REMOVE
4-21	TREE	379	377	2	REMOVE
4-22	OL ON DME	370	356	14**	NONE
4-23	OL ON TOWER	467	374	93**	NONE
4-24	TREE	401	390	11	TRIM
4-25	TREE	394	539	*	NONE
4-26	ANTENNA	519	539	*	NONE

OBSTRUCTION NUMBER	OBSTRUCTION TYPE	OBSTRUCTION TOP ELEV.	IMAGINARY SURFACE ELEVATION	PENETRATION OF SURFACE	RECOMMENDED ACTION
22-1	OL ON DF ANT	408	405	3	NONE
22-2	OL ON BEACON	441	447	*	NONE
22-3	TREE	398	384	14	REMOVE
22-4	TREE	416	395	21	REMOVE
22-5	TREE	399	384	15	REMOVE
22-6	TREE	402	391	11	REMOVE
22-7	TREE	428	404	24	TRIM
22-8	TREE	398	387	11	REMOVE
22-9	TREE	440	443	*	NONE
22-10	TREE	404	391	13	REMOVE
22-11	TREE	438	405	33	REMOVE
22-12	TREE	401	399	2	REMOVE
22-13	TREE	411	422	*	NONE
22-14	TREE	415	420	*	NONE
22-15	OL ON TOWER	560	688	*	NONE

OBSTRUCTION NUMBER	OBSTRUCTION TYPE	OBSTRUCTION TOP ELEV.	IMAGINARY SURFACE ELEVATION	PENETRATION OF SURFACE	RECOMMENDED ACTION
13-1	OL ON ATCT	455	422	13	NONE
13-2	OL ON WNDSCK	390	381	9	NONE
13-3	GROUND	364	372	*	NONE
13-4	FENCE POST	369	375	*	NONE
13-5	ROAD	376	375	1	NONE
13-6	RAILROAD	370	380	*	NONE
13-7	TREE	390	393	*	NONE
13-8	TREE	417	411	6	TRIM
13-9	TREE	408	398	10	TRIM
13-10	TREE	414	407	7	TRIM
13-11	TREE	416	413	3	TRIM
13-12	TREE	422	419	3	TRIM
13-13	OL ON WTR TNK	497	539	*	NONE

OBSTRUCTION NUMBER	OBSTRUCTION TYPE	OBSTRUCTION TOP ELEV.	IMAGINARY SURFACE ELEVATION	PENETRATION OF SURFACE	RECOMMENDED ACTION
31-1	OL ON GLD SLP	421	380	41	NONE
31-2	TREE	409	385	24	TRIM
31-3	TREE	437	401	36	TRIM
31-4	TREE	434	397	37	TRIM
31-5	TREE	440	395	45	TRIM
31-6	TREE	444	409	35	TRIM
31-7	TREE	464	417	47	TRIM
31-8	TREE	443	400	43	TRIM
31-9	TREE	447	411	36	TRIM
31-10	TREE	450	441	9	TRIM
31-11	TREE	445	403	42	TRIM
31-12	TREE	423	386	37	REMOVE
31-13	TREE	410	386	24	REMOVE
31-14	TREE	426	403	23	TRIM
31-15	TREE	423	412	11	TRIM
31-16	OL ON TOWER	604	665	*	NONE
31-17	OL ON TOWER	616	622	*	NONE

* THESE OBSTRUCTIONS IDENTIFIED BY THE FAA DO NOT PENETRATE PART 77 SURFACES

** PENETRATION OF SURFACE BASED ON FUTURE CONDITIONS ONLY

LEGEND

OBSTRUCTION

N

2,000 1,000 0 2,000 4,000

1" = 2,000'

REVISION

DATE

DATE

DRAWN BM

CHECK UJ

APPROVED DA

IN CHARGE

URS Greiner Woodward Clyde

4100 AMON CARTER BLVD.
SUITE 108
FORT WORTH, TEXAS 76155
817-545-0891

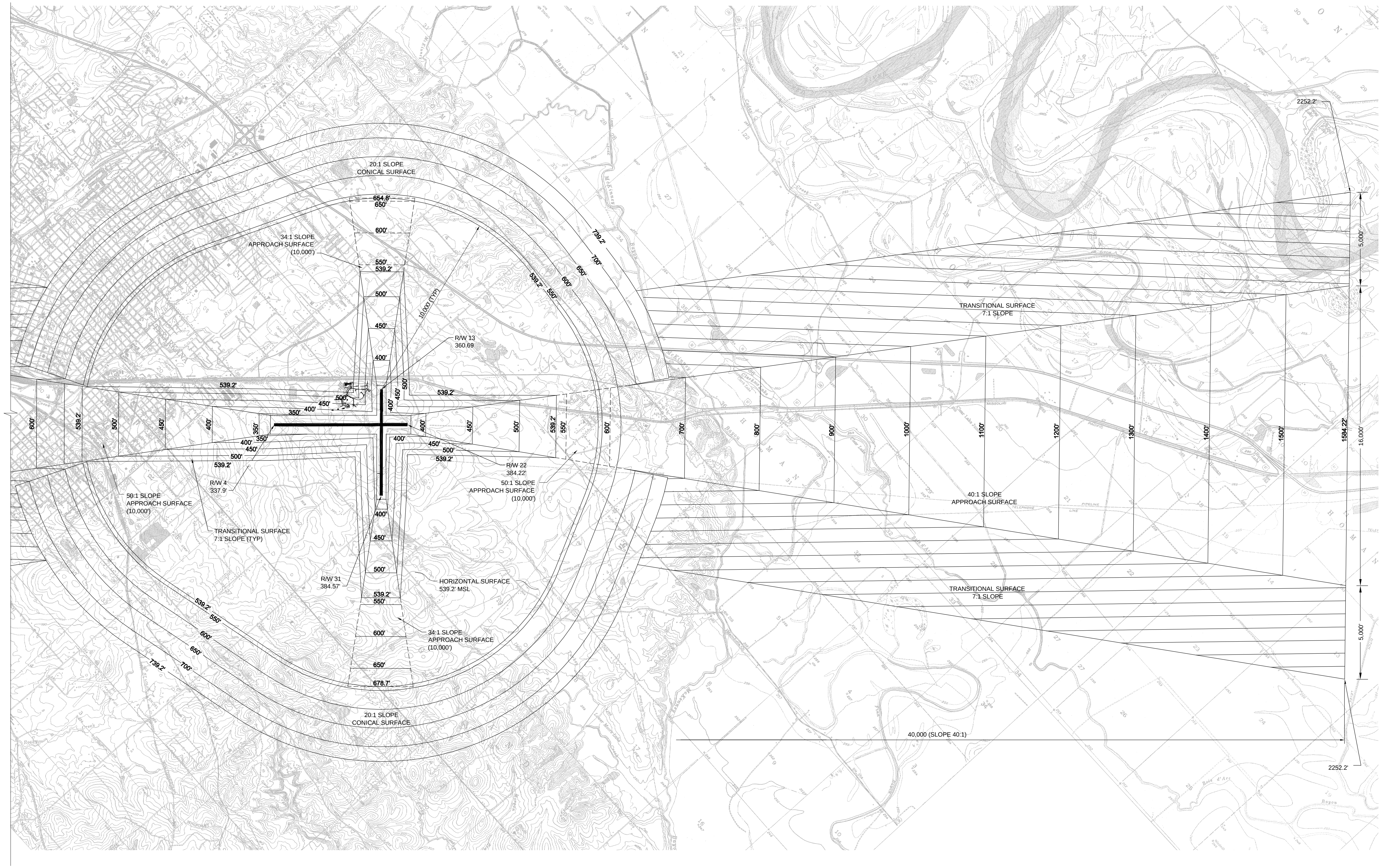
AIRPORT AIRSPACE DRAWING (WEST)

TEXARKANA REGIONAL AIRPORT - WEBB FIELD
TEXARKANA, ARKANSAS

FEDERAL PROJECT NO.
305-0062-16-99

DRAWING
3 OF 10

E700001059



REVISION | DATE

DATE
DRAWN BM
CHECK UJ
APPROVED DA
IN CHARGE

URS Greiner Woodward Clyde
4100 AMON CARTER BLVD.
SUITE 108
FORT WORTH, TEXAS 76155
817-545-0891

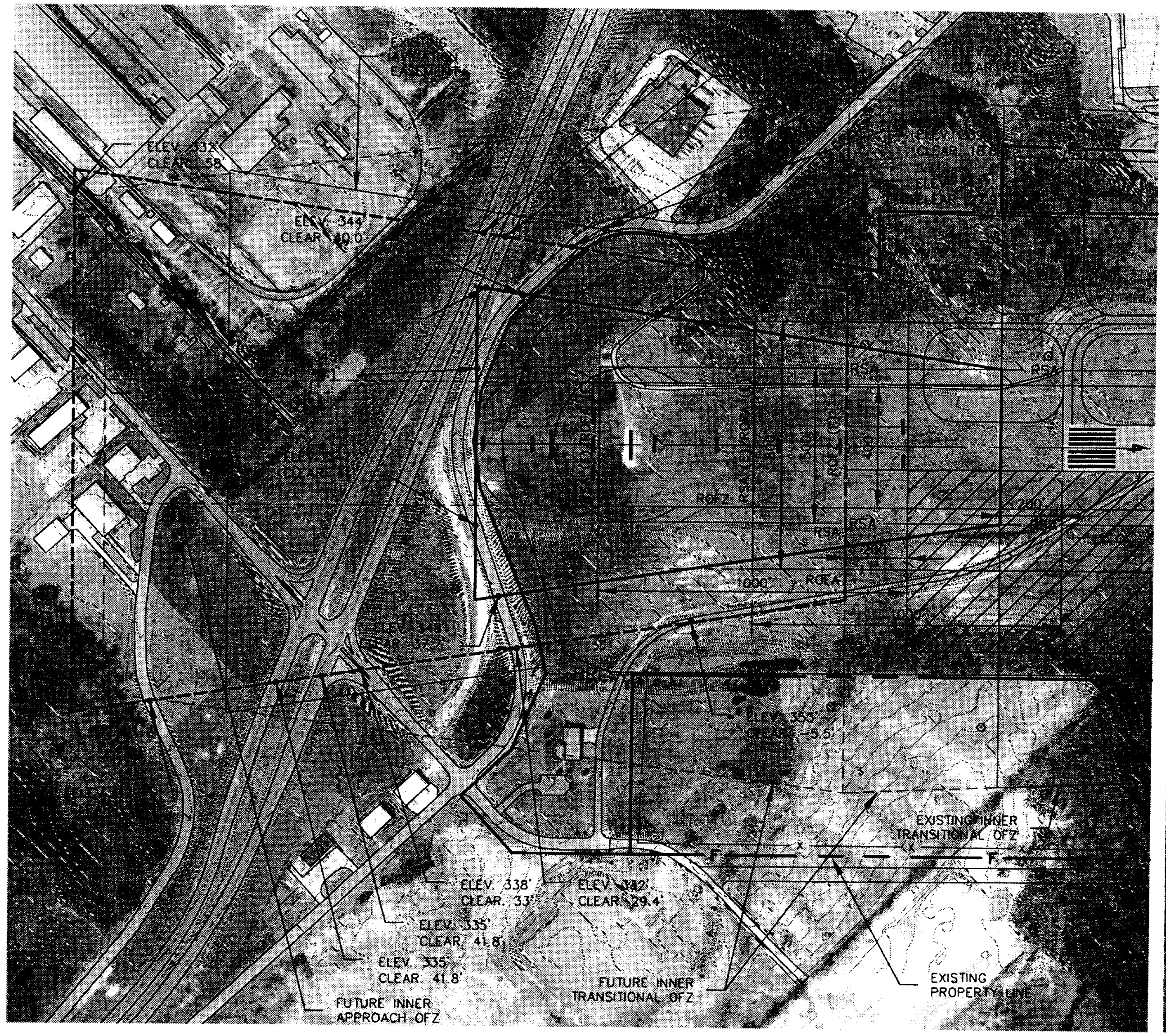
AIRPORT AIRSPACE DRAWING (EAST)

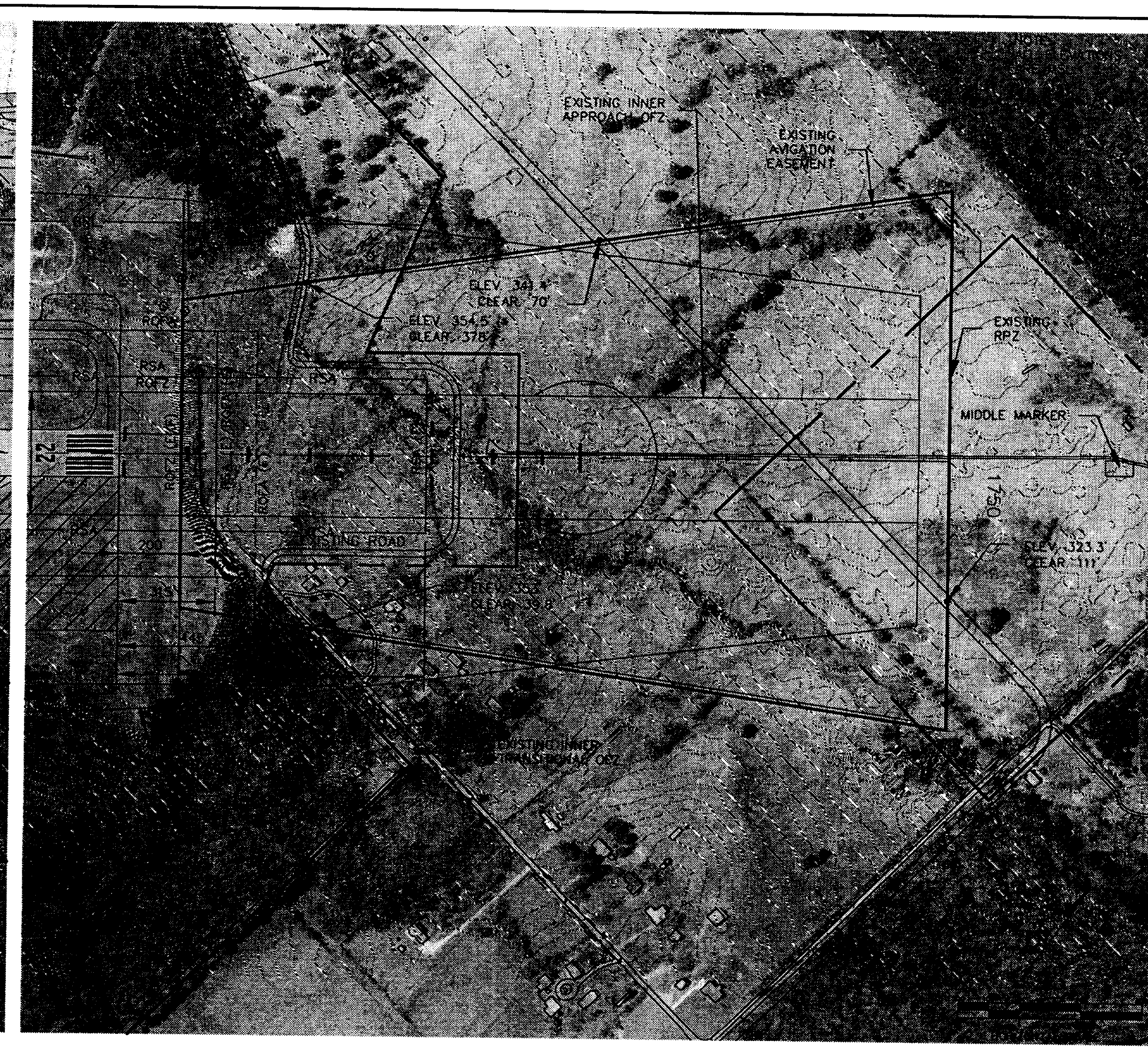
TEXARKANA REGIONAL AIRPORT – WEBB FIELD
TEXARKANA, ARKANSAS

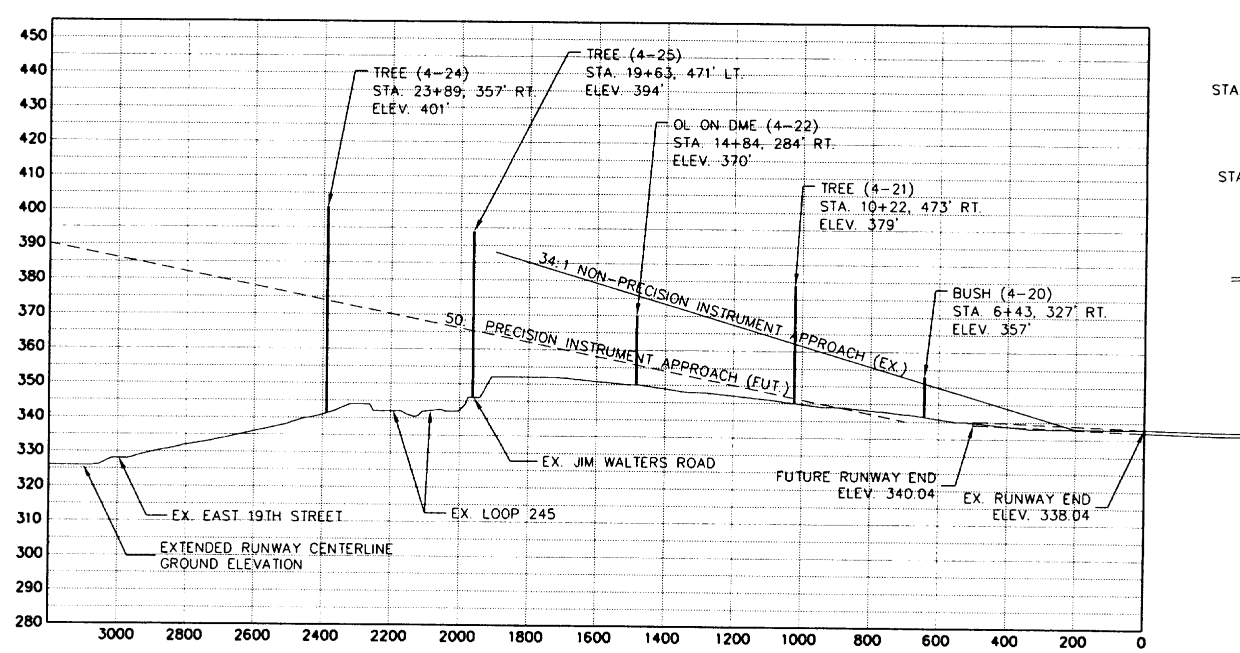
FEDERAL PROJECT NO.
305-0062-16-99

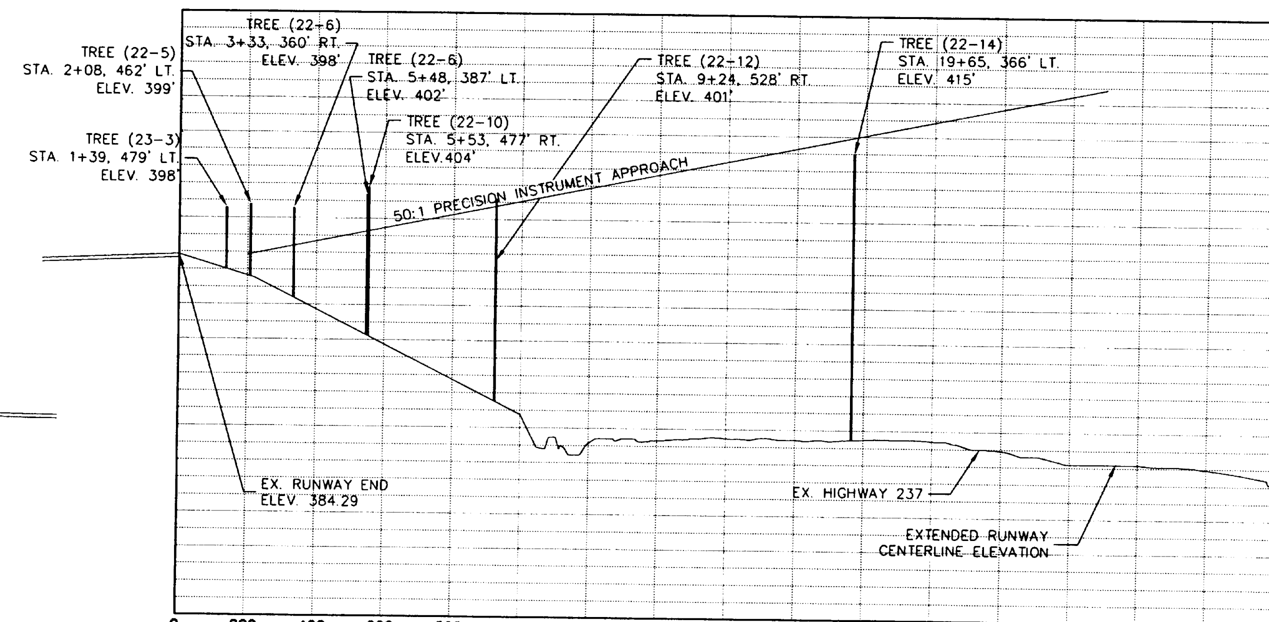
DRAWING
4 OF 10

E700001059









PROFILE SCALE:
1" = 200' HZ
1" = 20' VERT

RUNWAY 4-22 RPZ PLANS/ APPROACH PROFILES

TEXARKANA REGIONAL AIRPORT - WEBB FIELD
TEXARKANA, ARKANSAS

URS Greiner Woodward Clyde
4100 AMON CARTER BLVD.
SUITE 108
FORT WORTH, TEXAS 76155
817-545-0891

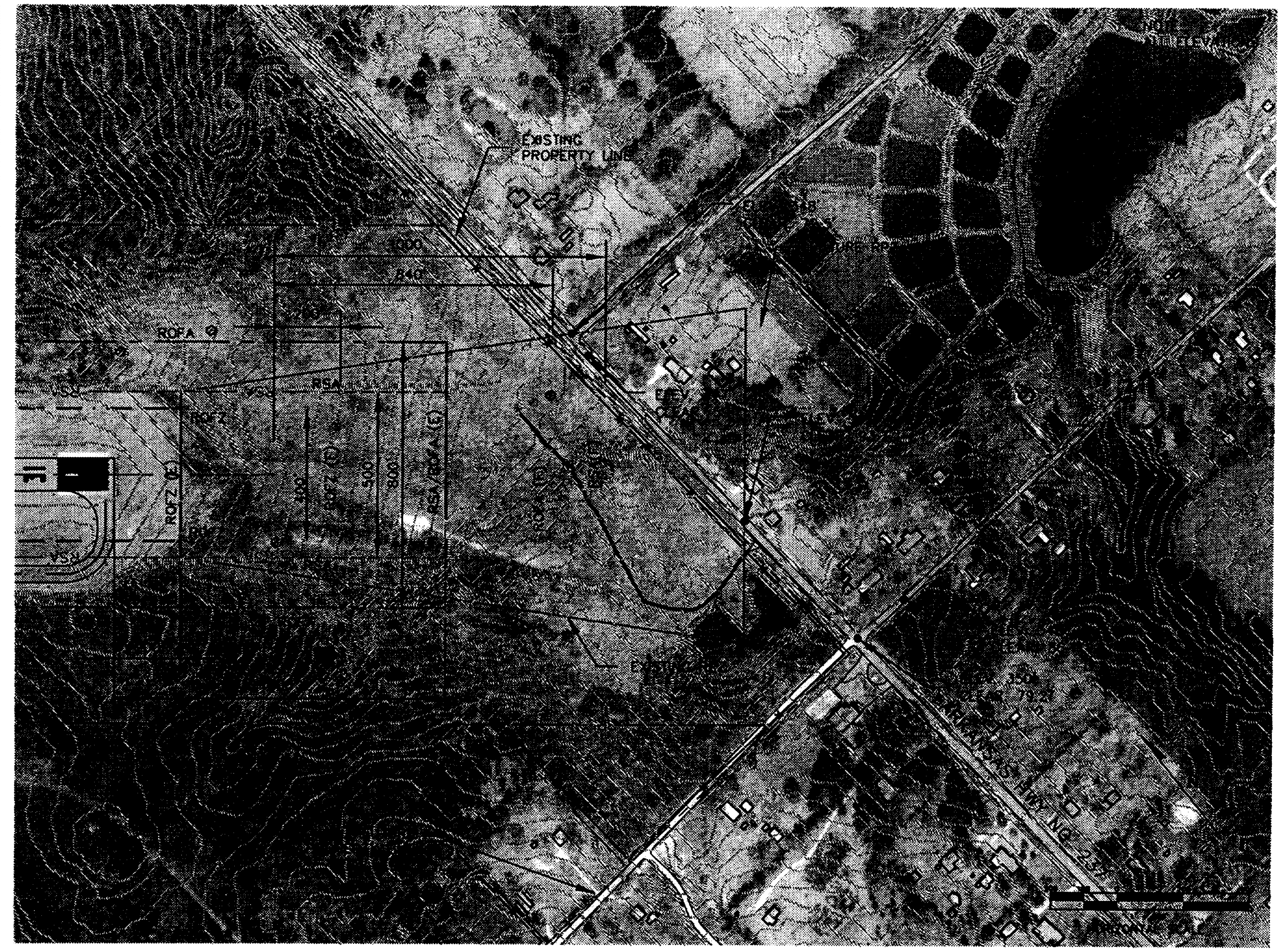
DATE | DRAWN BM | CHECK UJ | APPROVED DA | IN CHARGE

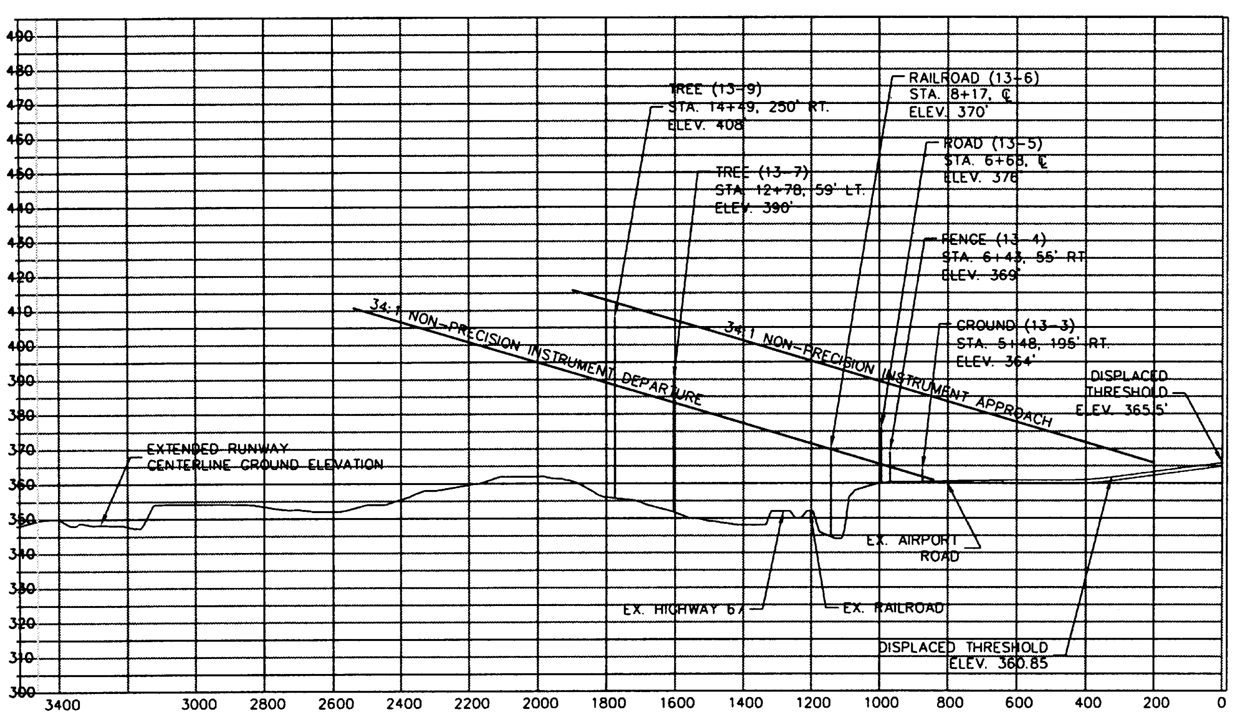
DATE | REVISION

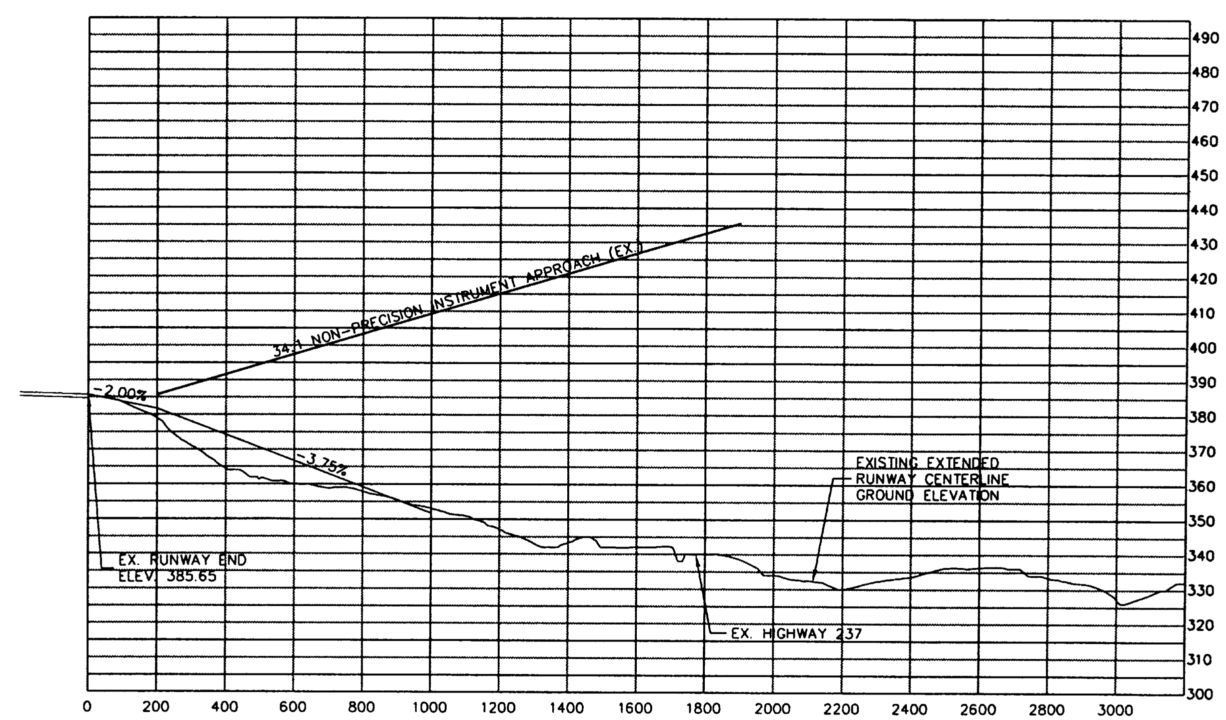
FEDERAL PROJECT NO. 305-0062-16-99

DRAWING
5 OF 10

E700001059







PROFILE SCALE:
1" = 200' HZ
1" = 20' VERT

DATE	
DRAWN	BM
CHECK	UJ
APPROVED	DA
IN CHARGE	

REVISION | DATE

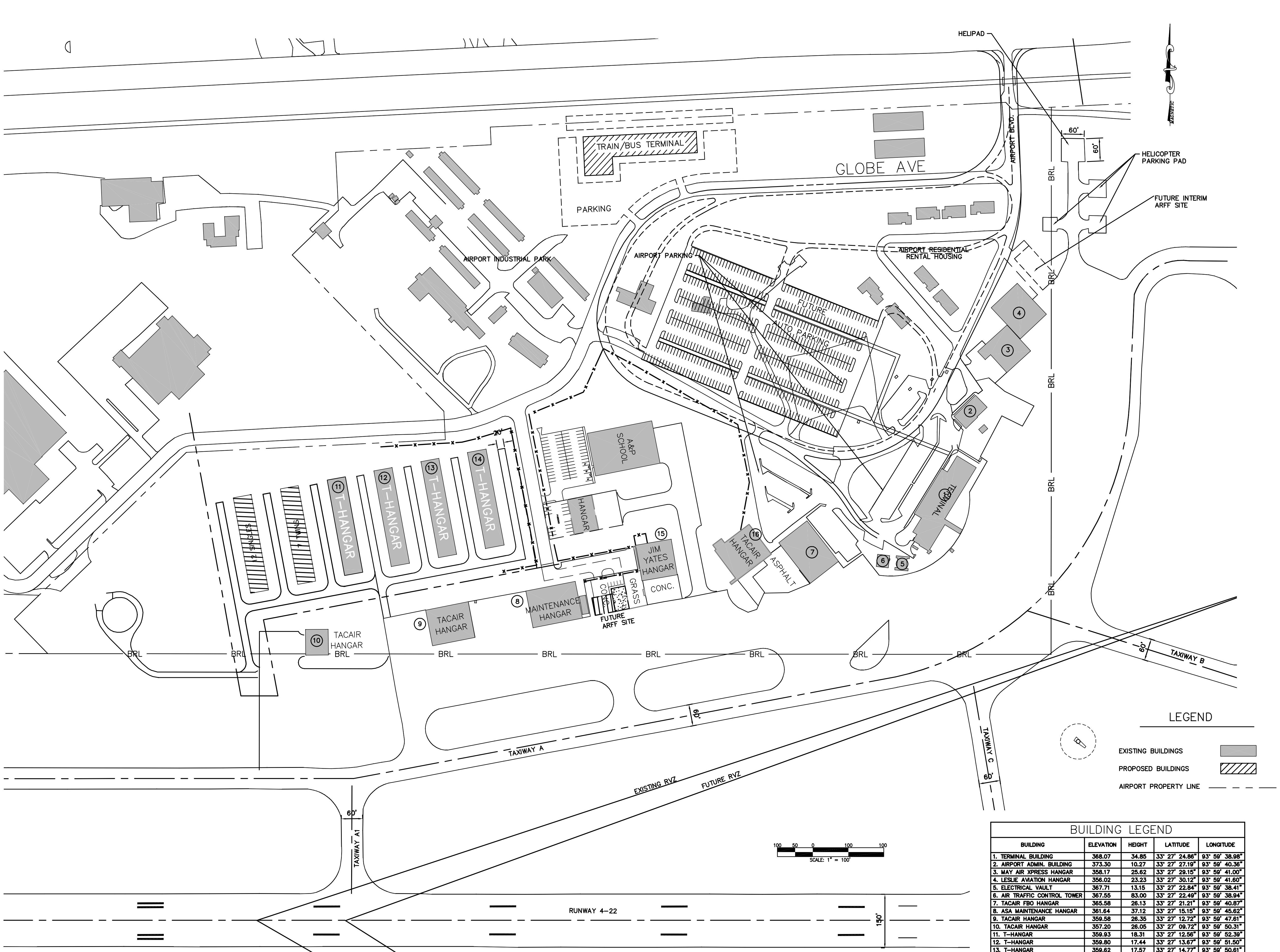
URS Greiner Woodward Clyde
4100 AMON CARTER BLVD.
SUITE 108
FORT WORTH, TEXAS 76155
817-545-0891

RUNWAY 13-31 RPZ PLANS/ APPROACH PROFILES
TEXARKANA REGIONAL AIRPORT - WEBB FIELD
TEXARKANA, ARKANSAS

FEDERAL PROJECT NO.
305-0062-16-99

DRAWING
6 OF 10

E700001059



BUILDING LEGEND

BUILDING	ELEVATION	HEIGHT	LATITUDE	LONGITUDE
1. TERMINAL BUILDING	368.07	34.85	33° 27' 24.86"	93° 59' 38.98"
2. AIRPORT ADMIN. BUILDING	373.30	10.27	33° 27' 27.19"	93° 59' 40.36"
3. MAY AIR XPRESS HANGAR	358.17	25.62	33° 27' 29.15"	93° 59' 41.00"
4. LESLIE AVIATION HANGAR	356.02	23.23	33° 27' 30.12"	93° 59' 41.60"
5. ELECTRICAL VAULT	367.71	13.15	33° 27' 22.84"	93° 59' 38.41"
6. AIR TRAFFIC CONTROL TOWER	367.55	83.00	33° 27' 22.49"	93° 59' 38.94"
7. TACAIR FBO HANGAR	365.58	26.13	33° 27' 21.21"	93° 59' 40.87"
8. ASA MAINTENANCE HANGAR	361.64	37.12	33° 27' 15.15"	93° 59' 45.62"
9. TACAIR HANGAR	359.58	26.35	33° 27' 12.72"	93° 59' 47.61"
10. TACAIR HANGAR	357.20	26.05	33° 27' 09.72"	93° 59' 50.31"
11. T-HANGAR	359.93	18.31	33° 27' 12.56"	93° 59' 52.39"
12. T-HANGAR	359.80	17.44	33° 27' 13.67"	93° 59' 51.50"
13. T-HANGAR	359.62	17.57	33° 27' 14.77"	93° 59' 50.61"
14. T-HANGAR	358.88	16.50	33° 27' 15.88"	93° 59' 49.72"
15. JIM YATES HANGAR	363.94	26.26	33° 27' 18.05"	93° 59' 44.26"
16. TACAIR HANGAR	364.68	35.78	33° 27' 20.50"	93° 59' 42.54"

REVISION
DATE

DATE
DRAWN BM
CHECK UJ
APPROVED DA
IN CHARGE

URS Greiner Woodward Clyde
4100 AMON CARTER BLVD.
SUITE 108
FORT WORTH, TEXAS 76155
817-545-0891

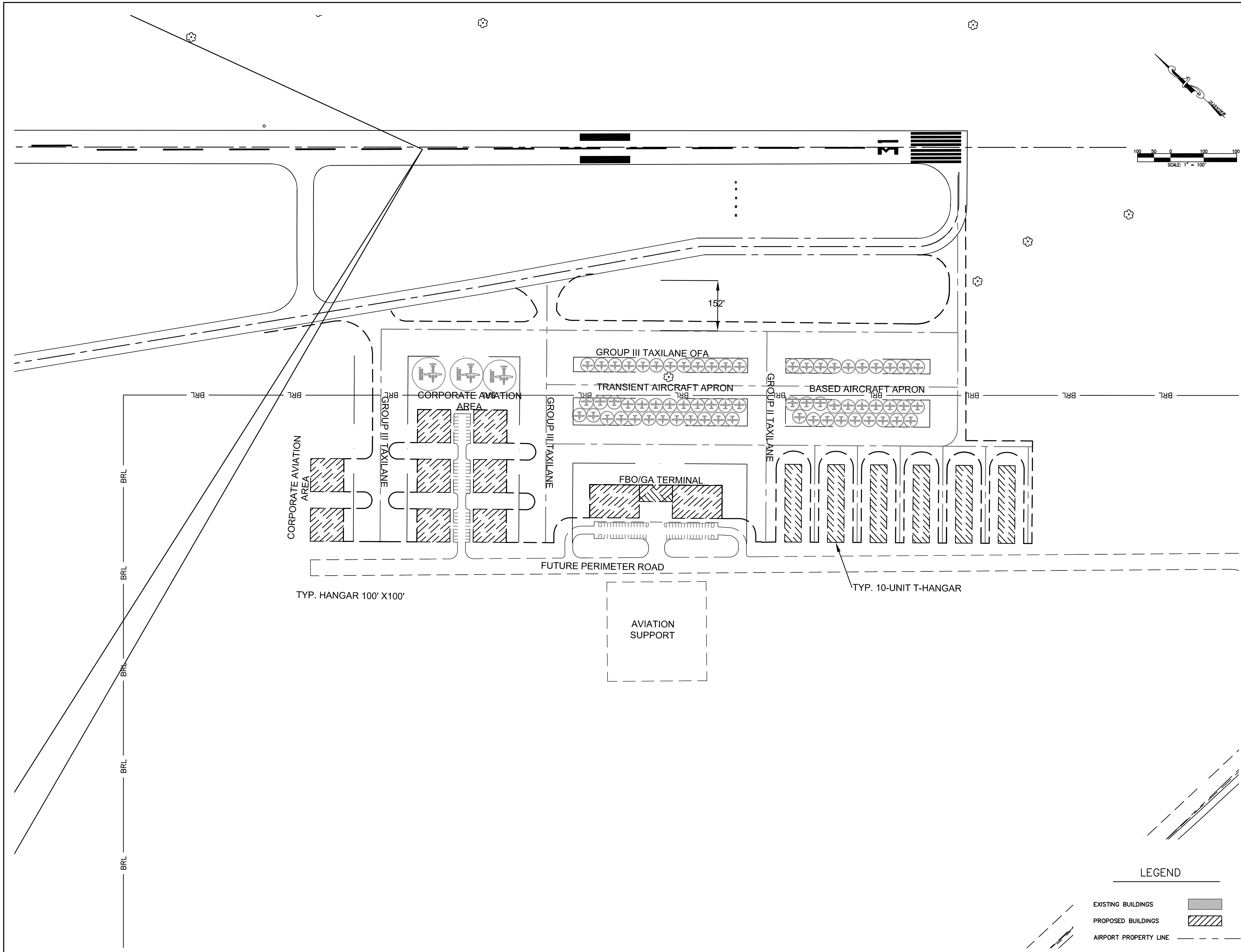
TERMINAL AREA PLAN WEST

TEXARKANA REGIONAL AIRPORT – WEBB FIELD
TEXARKANA, ARKANSAS

FEDERAL PROJECT NO. 305-0062-16-99

DRAWING 7 OF 10

E700001059



REVISION

DATE

DATE

DRAWN BM

CHECK UJ

APPROVED DA

IN CHARGE

URS Greiner Woodward Clyde

4100 AMON CARTER BLVD.
SUITE 108
FORT WORTH, TEXAS 76155
817-545-0891

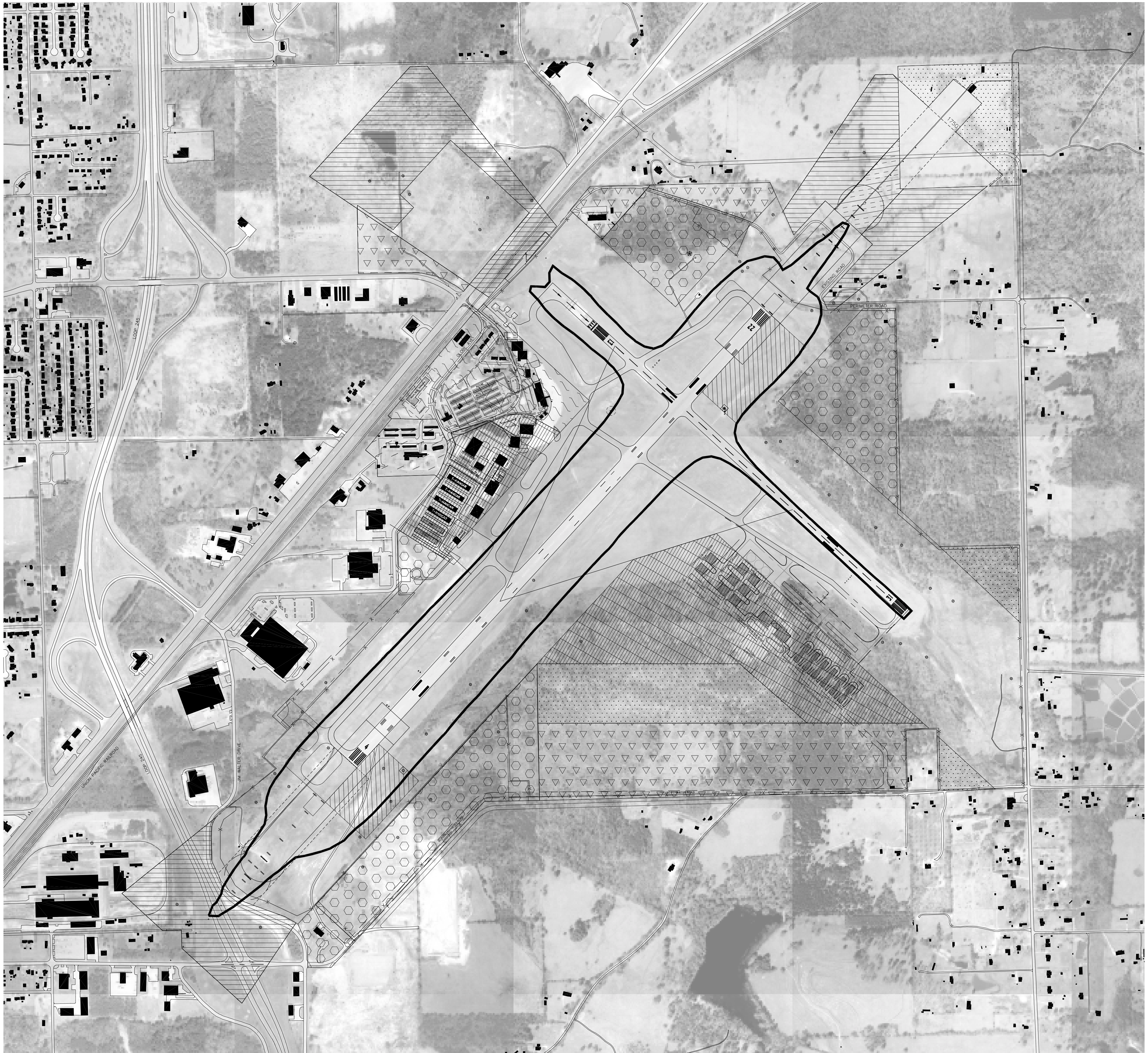
TERMINAL AREA PLAN MID FIELD

TEXARKANA REGIONAL AIRPORT – WEBB FIELD
TEXARKANA, ARKANSAS

FEDERAL PROJECT NO.
305-0062-16-99

DRAWING
8 OF 10

E700001059



LEGEND

- AIRPORT OPERATIONS AREA
- AIRPORT SUPPORT/ AVIATION RELATED DEVELOPMENT
- AVIGATION EASEMENT
- BUFFER/ VACANT
- GENERAL AVIATION/ CORPORATE AVIATION AREA
- TERMINAL AREA DEVELOPMENT
- INDUSTRIAL DEVELOPMENT
- NON–AVIATION RELATED DEVELOPMENT
- LANDING AIDS EASEMENT
- EXISTING PROPERTY LINE
- FUTURE PROPERTY LINE
- 65 DNL NOISE CONTOUR

N

400 200 0 400 800

1" = 400'

REVISION	DATE

DATE	
DRAWN	BM
CHECK	UJ
APPROVED	DA
IN CHARGE	

URS Greiner Woodward Clyde
4100 AMON CARTER BLVD.
SUITE 108
FORT WORTH, TEXAS 76155
817-545-0891

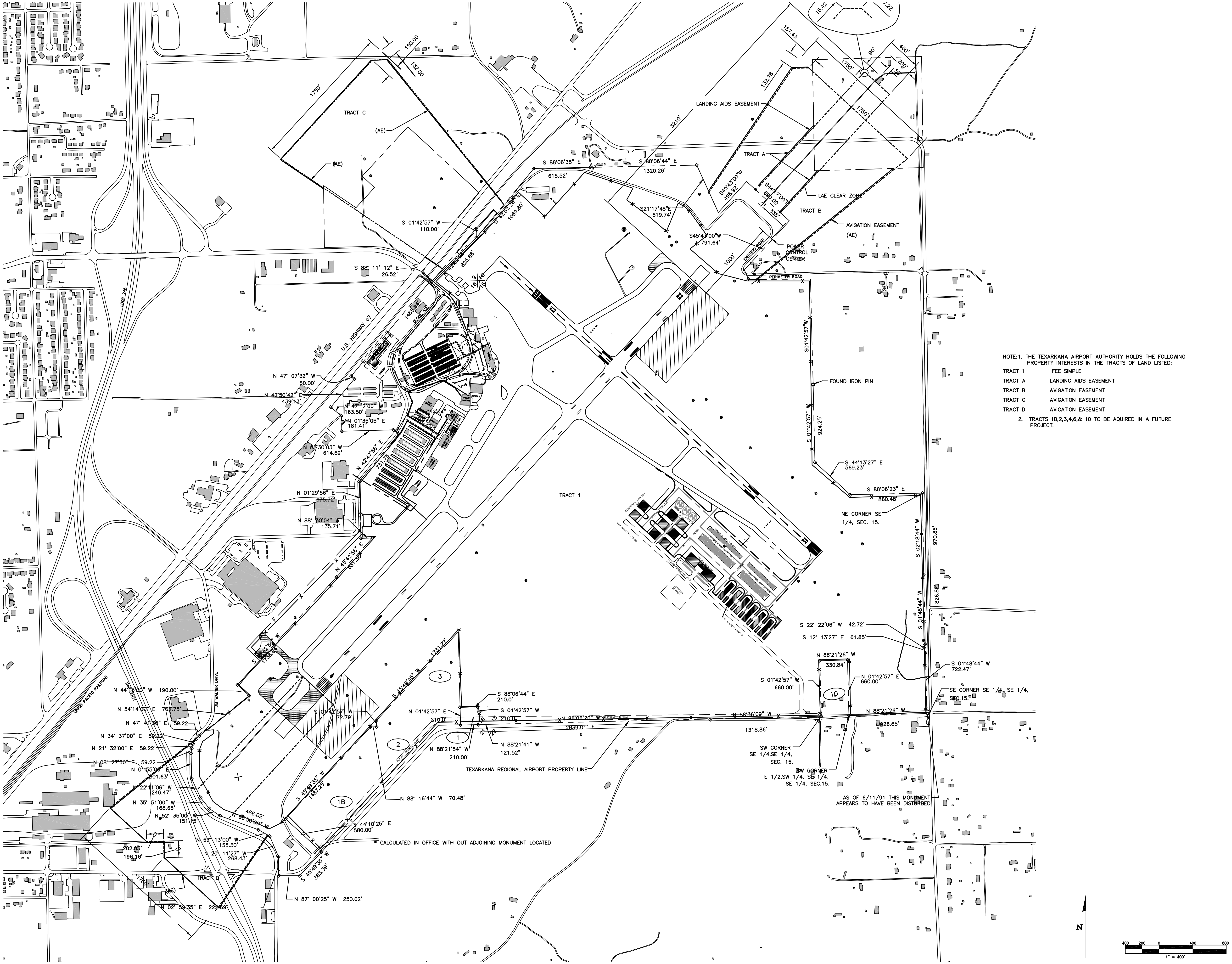
NOISE CONTOURS/SURROUNDING LANDUSE/ACCESS PLAN

TEXARKANA REGIONAL AIRPORT – WEBB FIELD
TEXARKANA, ARKANSAS

FEDERAL PROJECT NO.
305–0062–16–99

DRAWING
9 OF 10

E700001059



URS Greiner Woodward Clyde
4100 AMON CARTER BLVD.
SUITE 108
FORT WORTH, TEXAS 76155
817-545-0891

DATE	
DRAWN	BM
CHECK	UJ
APPROVED	DA
IN CHARGE	

REVISION | DATE

AIRPORT PROPERTY MAP

TEXARKANA REGIONAL AIRPORT - WEBB FIELD
TEXARKANA, ARKANSAS

FEDERAL PROJECT NO.
305-0062-16-99

DRAWING
10 OF 10

E700001059

SECTION 8 IMPLEMENTATION PLAN AND COST ESTIMATES

8.0 INTRODUCTION

The establishment of a financially feasible implementation plan is essential to ensuring orderly and fiscally sound development at Texarkana Regional Airport (TXK). The following plan summarizes the recommended capital improvements for the 20-year planning period, categorizes and prioritizes the projects in a development schedule, and provides cost estimates for implementation.

8.1 CAPITAL IMPROVEMENT PROJECTS

The proposed capital improvements for TXK were developed from recommendations ensuing from Section 4, Demand/Capacity and Facility Requirements and Section 5, Alternatives Analysis, of this study as well as those identified by airport management. The projects and costs described in this implementation plan address recommended improvements through the planning horizon that ends in the year 2019. The plan does not include projects identified as "ultimate" which fall beyond the year 2019.

The development projects at TXK are scheduled to fall within one of three phases. Phase I include projects scheduled for the first five years of the plan (present - 2004), Phase II covers the next five years (2005 – 2009), and Phase III covers the last ten years (2010 – 2019).

8.1.1 Development Costs and Program Phasing

Phasing development allows the airport sponsor and participating parties to plan for implementation in an orderly manner. As a rule of thumb, safety related improvements should be regarded as having a higher priority than those scheduled to accommodate forecast demand. The cost estimates presented are based on Year 2000 dollars and take into account projected costs for mobilization, administration, engineering, construction management and other contingencies. These costs should be considered preliminary and subject to more detailed engineering design. Tables 8.1, 8.2, and 8.3 present the projects and associated costs by phase. The major improvement projects are also illustrated by category and phase in Exhibits 8-1 through 8-3.

TABLE 8.1 PHASE I CAPITAL IMPROVEMENT PROJECTS (Present – 2004) Texarkana Regional Airport			
Number	**Category**	**Title and Description**	**Amount**
I-01	Terminal Area / Support Facility	**Security Fence Installation**	$250,000
I-02	Airfield	**Seal Coat Runway 4/22**	$200,000
I-03	Airfield	**Taxiway C Rehabilitation**	$300,000
I-04	Terminal Area / Support Facility	**Resurface T-Hangar Taxilanes**	$100,000
I-05	Airfield	**Taxiway A Rehabilitation**	$616,000
I-06	Terminal Area / Support Facility	**Design Terminal**	$160,000
I-07	Terminal Area / Support Facility	**Phase I - Repair T-Hangar Roofs**	$30,000
I-08	Terminal Area / Support Facility	**Design ARFF Station Relocation**	$83,740
I-09	Terminal Area / Support Facility	**Hangar H-3 Renovation (Re-roof and Paint)**	$100,000
I-10	Terminal Area / Support Facility	**Quonset Hut** Demolish or repair two units.	$12,000
I-11	Terminal Area / Support Facility	**Phase I – Terminal Renovation**	$760,000
I-12	Terminal Area / Support Facility	**Phase II - Repair T-Hangar Roofs**	$20,000
I-13	General Aviation	**Site Preparation for the Midfield Development Area-Phase I** Prepare the midfield area for development. Includes 12 acres of clearing and grading as well roadway and utility corridor provision.	$2,434,500
I-14	Surface Access	**On-Airport Roadway Development** Construct 18,800 square yards of paved roadway	$841,110

TABLE 8.1 PHASE I CAPITAL IMPROVEMENT PROJECTS (Present – 2004) Texarkana Regional Airport			
Number	**Category**	**Title and Description**	**Amount**
		access from McClure Road to the midfield development area.	
I-15	Airfield	**Runway 22 Holding Bay Construction** Construct a 3,000 square yard holding bay at the entrance to Runway 22.	$469,380
I-16	General Aviation	**Phase I - General Aviation/Midfield Area Development** The first phase of general aviation development in the midfield area includes 28,000 square yards of apron for aircraft parking and aircraft maintenance.	$1,078,621
		Add five 100,000 square foot conventional hangars and 2,150 square yards of paved parking facilities.	$4,042,779
I-17	General Aviation	**Phase I – T-hangar Expansion** Construct two T-hangars (one 7-unit and one 12-unit)	$917,700
		Develop 2,700 square yards of paved taxiway access to the facilities.	$559,300
Total Phase I			**$12,975,130**
Source: URS Greiner Woodward Clyde, 2003.			

TABLE 8.2 PHASE II CAPITAL IMPROVEMENT PROJECTS (2005 – 2009) Texarkana Regional Airport			
Number	**Category**	**Title and Description**	**Amount**
II-01	Terminal Area / Support Facility	**ARFF Station Construction** Construct a new 5,500 square foot ARFF station with 7,650 square feet of surface access and vehicular parking facilities. Construct a 2,350 square foot landside vehicle apron.	$753,660
II-02	Terminal Area / Support Facility	**Third ARFF Vehicle Procurement**	$325,000
II-03	Terminal Area / Support Facility	**Administration Building Renovation**	$100,000
II-04	Airfield	**Taxiway B Rehabilitation**	$300,000
II-05	Terminal Area / Support Facility	**Phase II – Terminal Renovation** Expand airline offices and ticket counters.	$850,000
II-06	Surface Access	**Loop Road Realignment** Realignment of Loop Road.	$390,000
II-07	Surface Access	**Housing Unit Demolition** In conjunction with overpass development.	$40,000
II-08	Terminal Area / Support Facility	**Phase I Terminal Parking Lot Expansion** Expand the terminal parking lot by 42,180 square feet to provide additional space for passenger and rental car parking. Construct a new access roadway to the expanded lot that requires 4,600 square feet of pavement.	$729,760
II-09	Surface Access	**Parking Island and Gates** Configure for 24-hour paid parking.	$30,000
II-10	Surface Access	**Auto Parking Covered Walkway** Connect to curbside with cart concession.	$180,000
II-11	Terminal Area / Support Facility	**Fuel Farm Improvements** Replace with ASTs for Jet-A and AVGAS.	$90,000

TABLE 8.2 PHASE II CAPITAL IMPROVEMENT PROJECTS (2005 – 2009) Texarkana Regional Airport			
Number	**Category**	**Title and Description**	**Amount**
II-12	Airfield	**Terminal Apron Reconstruction/ Rehabilitation** Reconstruct terminal PCC ramp to achieve 140,000 lbs dual wheel weight bearing capacity.	$1,182,460
		Reconstruct terminal asphalt ramp to achieve 140,000 lbs dual wheel weight bearing capacity.	$2,952,520
II-13	Airfield	**Signs and Markings** Install signs and markings on terminal area apron	$125,000
II-14	Airfield	**Apron Lighting** Install flood light on terminal area apron	$25,000
II-15	Airfield	**Phase II – Runway 4/22 Extension and Overlay** Extend Runway 4/22 by 500 feet to the southwest. This includes 9,000 square yards of pavement construction, runway lighting and marking. Relocate localizer.	$1,659,510
		Overlay Runway 4/22 with 3” of bituminous surface course.	$1,926,510
II-16	Airfield	**Phase II – Parallel Taxiway A Extension** Extend Taxiway A by 500 feet to the full length of extended Runway 4/22. This includes 5,900 square yards of pavement construction, taxiway lighting and marking.	$870,850
II-17	Airfield	**Construction of Runway 4 Holding Bay** Construct a 3,000 square yard holding bay at the entrance to Runway 4.	$469,380
II-18	General Aviation	**Site Preparation for the Midfield Development Area-Phase II** Prepare the midfield area for development. Includes 9 acres of clearing and grading as well roadway and utility corridor provision.	$1,891,100

TABLE 8.2 PHASE II CAPITAL IMPROVEMENT PROJECTS (2005 – 2009) Texarkana Regional Airport			
Number	**Category**	**Title and Description**	**Amount**
II-19	General Aviation	**Phase II - General Aviation/Midfield Area Development** The second phase of general aviation development in the midfield area includes 56,500 square yards of apron for based and itinerant aircraft parking, maintenance and an apron edge taxilane and entrance to Runway 31.	$5,804,311
		Construct one GA Terminal with 30,000 square feet of floor space for aircraft storage and 5,000 square feet of terminal facilities. Add three 10,000 square foot conventional hangars, and 3,480 square yards of paved parking facilities.	$6,525,689
II-20	Terminal Area / Support Facility	**Phase II - Fuel Farm Expansion** Increase AVGAS storage capacity by 8,000 gallons to maintain a 14-day supply.	$365,740
		Total Phase II	**$27,586,490**
Source: URS Greiner Woodward Clyde, 2003.			

TABLE 8.3 PHASE III CAPITAL IMPROVEMENT PROJECTS (2010 – 2019) Texarkana Regional Airport			
Number	**Category**	**Title and Description**	**Amount**
III-01	Airfield	**Aircraft Run-up Area** Construct an aircraft run-up area to the west of Runway 4 end. This requires 6,650 square yards of pavement construction.	$935,500
III-02	Airfield	**Runway 4/22 and Parallel Taxiway Reconstruction** Reconstruct Runway 4/22, Taxiway A, Taxiway A1 and Taxiway B to achieve 140,000lbs dual wheel weight bearing capacity.	$25,770,650
III-03	General Aviation	**Site Preparation for the Midfield Development Area-Phase III** Prepare the midfield area for development. Includes 19 acres of clearing and grading as well roadway and utility corridor provision.	$3,986,400
III-04	General Aviation	**Phase III - General Aviation/ Midfield Area Development** The third phase of general aviation development in the midfield area includes 9,500 square yards of apron for based and itinerant aircraft parking and maintenance.	$1,193,110
		In addition, construct two 10-unit T-hangars with 2,000 square yards of taxilane access.	$414,000
III-05	Terminal Area / Support Facility	**Phase II Terminal Parking Lot Expansion** Expand the terminal parking lot by 31,280 square feet to provide additional space for passenger and rental car parking.	$481,950
III-06	Airfield	**Runway 13/31 Reconstruction** Reconstruct Runway 13/31 to achieve 80,000lbs dual wheel weight bearing capacity.	$8,031,100

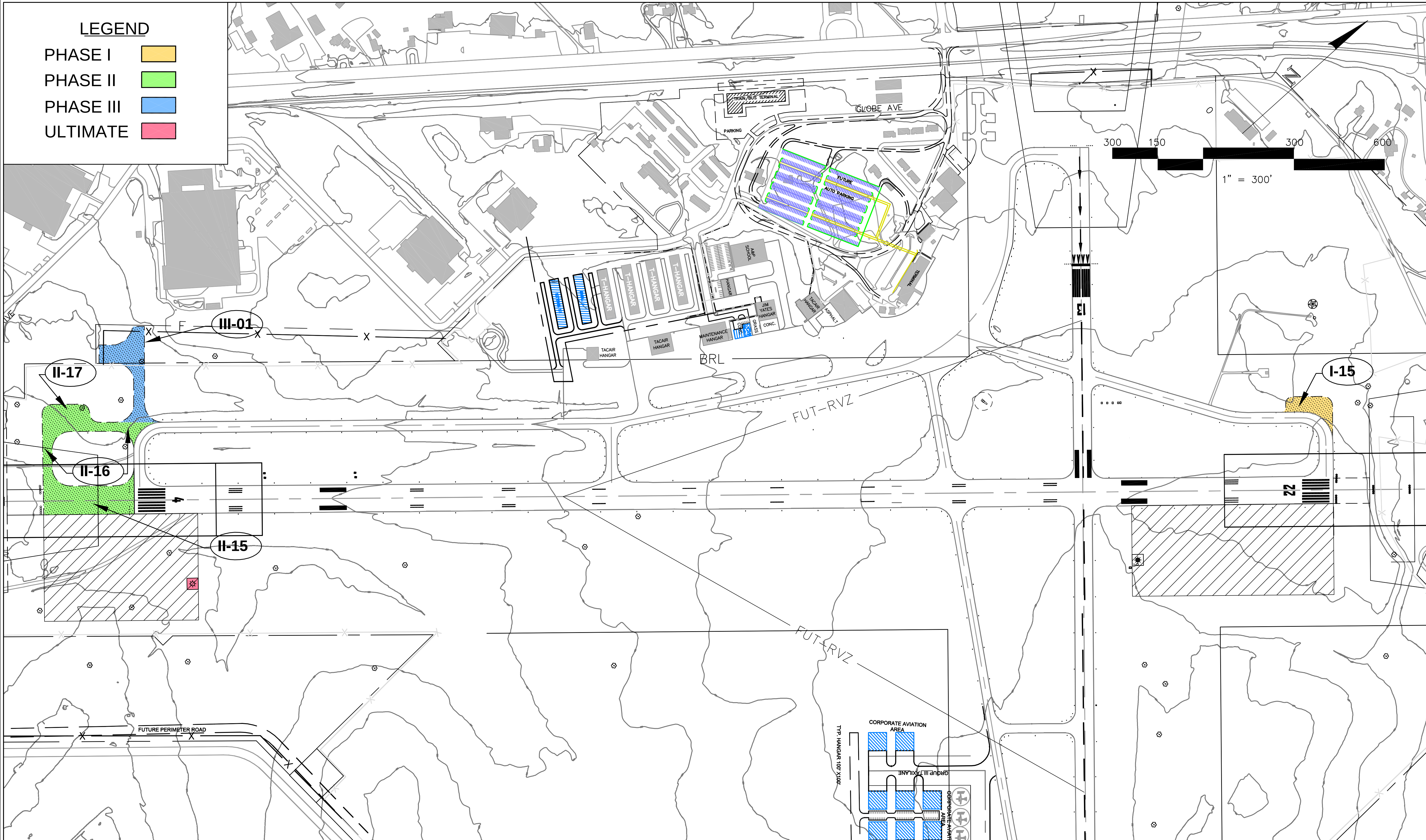
TABLE 8.3 PHASE III CAPITAL IMPROVEMENT PROJECTS (2010 – 2019) Texarkana Regional Airport			
Number	**Category**	**Title and Description**	**Amount**
III-07	Airfield	**Extend Runway 13/31 by 650 feet** Extend Runway 13/31 by 650 feet to the southeast to achieve a landing distance of approximately 5,200 feet, relocate PAPIS.	$965,000
III-08	Land Acquisition	**Acquire Property - Runway 13/31 OFA and RPZ** Acquire 21 acres of property east of McClure Road. Relocate McClure to alignment outside the OFA of the extended Runway 13/31.	$345,000
III-09	Airfield	**Taxiway C Rehabilitation** Reconstruct Taxiway C to achieve 80,000lbs dual wheel weight bearing capacity.	$4,001,820
III-10	Airfield	**Construct Commercial Terminal Ramp/ Midfield Area** Construct a 50,000 SY ramp and connector taxiway for a new midfield passenger terminal area at the end of the long-term planning period.	$10,560,000
III-11	Terminal Area / Support Facility	**Construct Commercial Passenger Terminal/ Midfield** Construct a 40,000 SF passenger terminal building, access road and 25,000 SY of paved automobile parking.	$8,725,000
III-12	Surface Access	**Construct Perimeter Access Road** Construct an on-airport perimeter access road connecting the midfield terminal area to the northeast general aviation area.	$1,600,000
III-13	Terminal	**Construct Airfield Maintenance Barn**	$500,000

TABLE 8.3 PHASE III CAPITAL IMPROVEMENT PROJECTS (2010 – 2019) Texarkana Regional Airport			
Number	**Category**	**Title and Description**	**Amount**
	Area / Support Facility	Construct airfield maintenance facility to provide space for offices, parts and equipment storage and shop, hazmat storage and a 1.5-acre staging area for maintenance operations.	
Total Phase III			**$67,509,530**
Source: URS Greiner Woodward Clyde, 2003.			

8.2 COST ESTIMATES

For ease of reference, Table 8.4 presents a summary of costs associated the 20-year implementation plan. The majority of the costs are associated with airfield, lighting and navigational aid improvements, totaling $61,360,860 over the planning period. Terminal area/ support facility, general aviation, and surface access development costs are estimated at $14,436,850, $28,847,510, and $3,426,110, respectively.

TABLE 8.4 SUMMARY OF COSTS (YEAR 2000 DOLLARS) Texarkana Regional Airport				
Category	**Phase I**	**Phase II**	**Phase III**	**Total**
Airfield	$1,585,380	$9,511,230	$50,264,070	$61,360,680
Terminal Area / Support Facility	$1,515,740	$3,214,160	$9,706,950	$14,436,850
General Aviation	$9,032,900	$14,221,100	$5,593,510	$28,847,510
Land Acquisition/ Surface Access	$841,110	$640,000	$1,945,000	$3,426,110
Grand Total	**$12,975,130**	**$27,586,490**	**$67,509,530**	**$108,071,150**
Source: URS Greiner Woodward Clyde, 2003.				

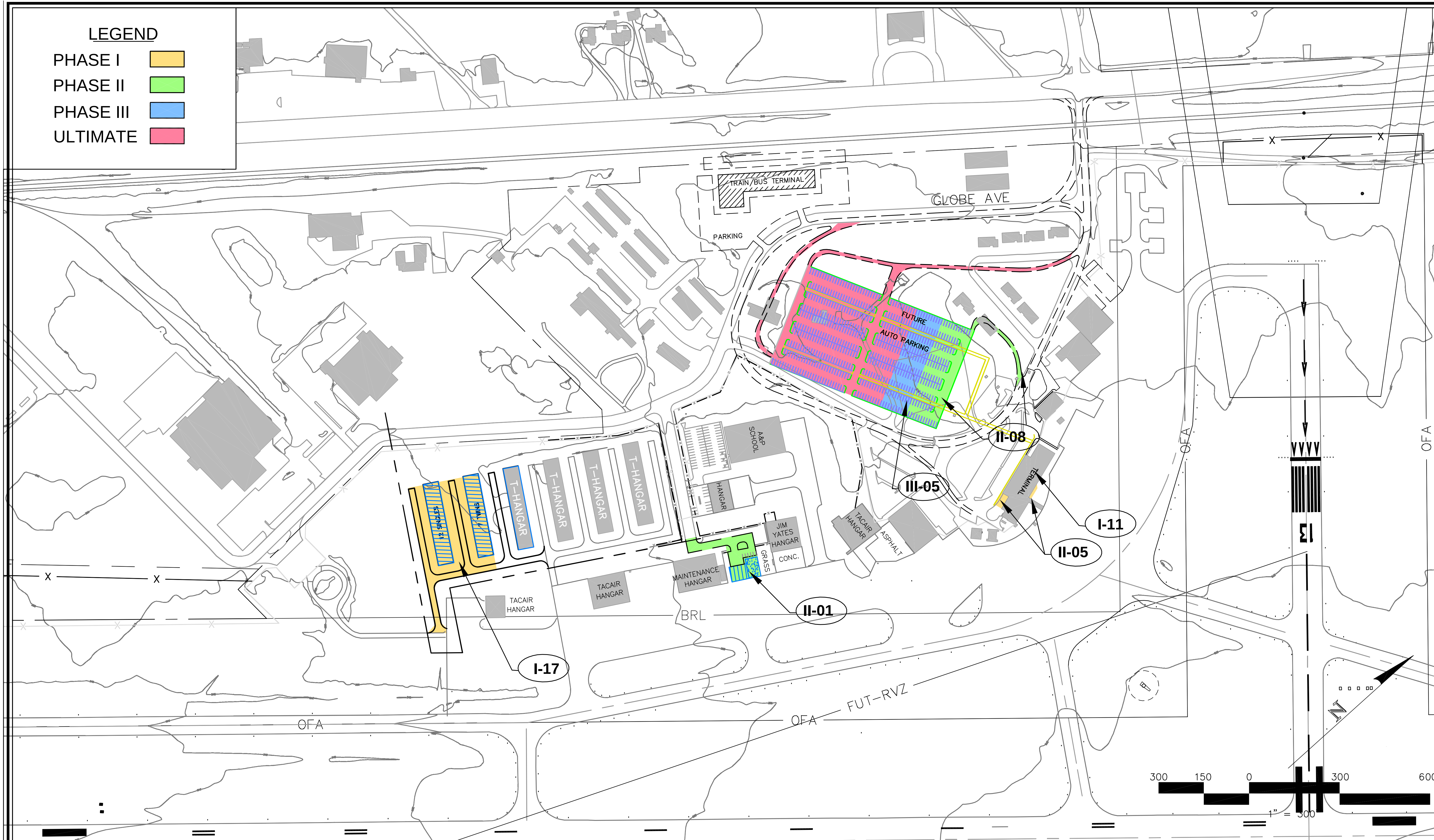


AIRFIELD IMPROVEMENTS AND DEVLOPMENT PHASING

TEXARKANA REGIONAL AIRPORT
AIRPORT MASTER PLAN UPDATE

URS Greiner Woodward Clyde

SCALE 1"=500'
EXHIBIT 8.1



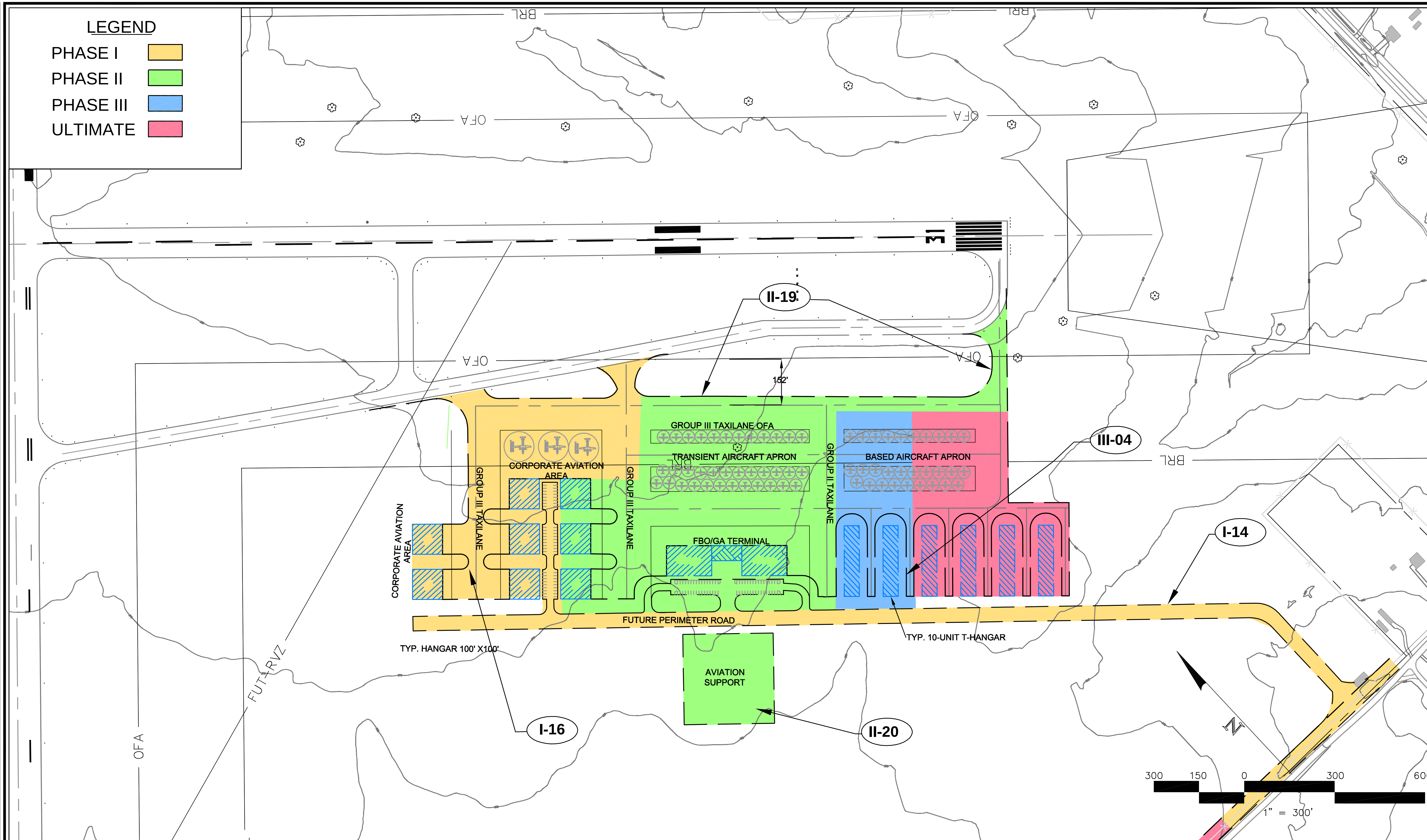
TERMINAL AREA /SUPPORT FACILITY IMPROVEMENTS AND DEVLOPMENT PHASING

TEXARKANA REGIONAL AIRPORT
AIRPORT MASTER PLAN UPDATE

URS Greiner Woodward Clyde

SCALE 1"=300'

EXHIBIT 8.2



MIDFIELD AREA/ GENERAL AVIATION IMPROVEMENTS AND DEVLOPMENT PHASING

TEXARKANA REGIONAL AIRPORT
AIRPORT MASTER PLAN UPDATE

URS Greiner Woodward Clyde

SCALE	EXHIBIT
1"=300'	8.3

SECTION 9 FINANCIAL PLAN

9.0 FINANCIAL ANALYSIS OBJECTIVES

The purpose of this analysis is to evaluate the Texarkana Airport Authority's capability to fund the TXK Airport Master Plan Capital Improvement Program (CIP) and finance operations during the five year Short Term (2003 to 2007), the five year Mid Term (2008 to 2012) and the ten year Long Term (2013 to 2022) financial planning periods of the capital program. The list of capital projects and base year estimated costs presented in the Financial Plan coincide with the Master Plan CIP but the planning periods do not. The Master Plan provides for a six-year Phase I (1999 to 2004), a five-year Phase II (2005 to 2009) and a ten-year Phase III (2010 to 2019) structure of planning periods. The financial planning periods are structured differently so that capital funding can be reviewed annually for the initial period of the CIP.

Results of the evaluation are presented in a detailed Financial Implementation Plan that provides a basis for matching the amounts and timing of estimated capital costs with projected capital funding sources. Detailed tables of projections for the capital program, operating expenses, operating revenues and cash flow are provided at the end of Section 9 in support of the Financial Plan Summary that presents the results of this evaluation.

9.1 OVERALL APPROACH

Our overall approach for conducting the Financial Implementation Analysis included the following steps:

- Gathering and reviewing key Airport documents related to historical financial results, capital improvement plans, operating budgets, regulatory requirements and Airport policies.

- Interviewing key Airport management personnel to gain an understanding of the existing operating and financial environment and overall financial management philosophy.

- Reviewing the aviation traffic forecast previously developed in the Master Plan.

- ✈ Reviewing the Master Plan CIP, cost estimates and development schedule anticipated for the planning period and projecting the overall financial requirements for the program.

- ✈ Determining and analyzing the sources and timing of capital funds available to meet the financial requirements for funding the capital program.

- ✈ Analyzing historical and budgeted operating expenses, developing operations and maintenance expense assumptions, reviewing assumptions with Airport management and projecting future operating costs for the planning period.

- ✈ Analyzing historical and budgeted revenue sources, developing revenue growth assumptions, reviewing assumptions with Airport management and projecting future revenues for the planning period.

- ✈ Completing results of the analysis and evaluation in a Financial Plan Summary that provides conclusions regarding the Airport's capability to finance the planned capital improvement program.

9.2 CAPITAL FUNDING SOURCES

The development of the Master Plan CIP is anticipated to be funded from several sources. These sources include Federal Aviation Administration (FAA) entitlement and discretionary grants, passenger facility charges, Arkansas Department of Aeronautics grants, private third party financing, capital subsidies provided by the Cities of Texarkana, Arkansas and Texarkana, Texas, other funds and funds generated from Airport operations. Each of these sources of funds is described in the following paragraphs.

9.2.1 FAA Airport Improvement Program Grants

The Airport receives grants from the FAA to finance the eligible costs of certain capital improvements. These federal grants are allocated to commercial passenger service airports through the Airport Improvement Program (AIP). AIP grants include entitlement grants, which are allocated among airports by a formula that is based on passenger enplanements, and discretionary grants which are awarded in accordance with FAA guidelines. Under the AIP reauthorization legislation enacted in 2002, the Airport is projected to receive current year entitlements of $1 million (the minimum amount granted) in 2003 and future grants which grow to $1.08 million by 2022 based on Master Plan forecast enplanements. Non-Hub airports (those with annual enplanements up to about 328,000) can accumulate up to four years of unspent entitlements before the award is revoked. Texarkana spent about $400,000 of its 2003 AIP entitlement on 2002 carryover projects that are were not included in the Master Plan CIP. Consequently, $600,000 of the 2003 entitlement remains available for Master Plan projects in 2003.

The approval of AIP discretionary funding is based on a project eligibility ranking method the FAA uses to award grants, at their discretion, based on a project's priority and importance to the national airport and airway system. For 2003, the FAA has awarded a discretionary grant of $250,000 to the Airport for a project to install security fencing on the property. It is reasonable to assume that the Airport will receive additional discretionary funding during the planning period for higher priority, eligible projects, such as ARFF facilities and vehicles and runway, taxiway and apron pavement improvements. It was assumed that about $1.3 million in discretionary grants would be provided during the Short Term financial planning period, $4.1 million during the Mid Term period and about $37 million during the Long Term period. The majority of projected discretionary funding in the Long Term period is related to the $34 million reconstruction of Runway 4/22 and its parallel taxiway.

9.2.2 Passenger Facility Charges

The Aviation Safety and Capacity Expansion Act of 1990 established the authority for commercial service airports to apply to the FAA for imposing and using a Passenger Facility Charge (PFC) of up to $3.00 per enplaned passenger. With the passage of AIR-21 in June 2000, airports can apply for an increase in the PFC collection amount from $3.00 per eligible enplaned passenger to $4.50. The proceeds from PFCs are eligible to be used for AIP eligible projects and for certain additional projects that preserve or enhance capacity, safety or security; mitigate the effects of aircraft noise; or enhance airline competition. PFCs may also be used to pay debt service on bonds (including principal, interest and issue costs) and other indebtedness incurred to carry out eligible projects. In addition to funding future planned projects, the legislation permits airports to collect PFCs to reimburse the eligible costs of projects that began on or after November 5, 1990.

Since 1994, Texarkana has submitted five PFC applications that are currently in effect. The total collection authority for these applications is $1,248,012 which has an estimated expiration date of August 2006. A small portion of one project included in the Master Plan CIP is funded with revenues the fifth PFC application. Consequently, the majority of PFC funding for CIP projects is not available until the fall of 2006.

The implementation analysis assumes that the Airport will submit additional PFC applications and amendments, as required, to ensure that the collection of PFC revenues continues beyond the authorized expiration date throughout the planning period. PFC revenues are assumed to be used throughout the planning period for numerous eligible projects identified in the Master Plan CIP.

9.2.3 Arkansas Department of Aeronautics

The Arkansas Department of Aeronautics funds airport projects from a portion of the state sales tax collected on aviation fuel. Grants are available for general aviation, primary and non-primary commercial service airports for various projects. Texarkana is designated as a primary commercial service airport. For FAA AIP eligible projects, the State provides ½ of the 10 percent local match requirement up to $250,000. The State provides 50 percent grants up to $100,000 for terminal buildings, up to $100,000 for T-hangars and up to $200,000 for conventional hangars with a limit of one grant per year. The State also provides 50 percent grants with no limit on the grant amounts for unspecified types of projects. With limited funding available, these grants are infrequent and not anticipated. The Master Plan CIP includes several projects during the planning period that are assumed to be partially funded from Arkansas Aeronautics grants.

9.2.4 Private Third Party Financing

Many airports use private third party financing when the planned improvements will be primarily used by a private business or other organization and the airport does not want to make such an investment. Projects of this kind typically include hangars, FBO facilities, rental car facilities, cargo facilities, exclusive aircraft parking aprons, industrial development areas, non-aviation commercial areas and various other projects. Such projects are not eligible for federal funding. The implementation analysis assumes that a private third party will provide a total of about $12.3 million in funding for the general aviation terminal, hangars and automobile parking projects in mid-field general aviation development area during the Short, Mid and Long Term financial planning periods.

9.2.5 Cities' Capital Subsidies

The Texarkana Airport Authority was created in 1956 by an ordinance enacted by the Cities of Texarkana, Arkansas and Texarkana, Texas. The Authority's governing body is a Board of Commissioners that consists of eight members, four of whom are residents of Texarkana, Arkansas and four of whom are residents of Texarkana, Texas. These Board members are appointed by the mayors of the two cities. The Board has responsibility for all activities related to operating, maintaining and developing the Texarkana Regional Airport.

For a number of years, the Cities of Texarkana, Arkansas and Texarkana, Texas (the Cities) have entered into agreements with the Authority to provide ARFF services to the Airport. The services have been funded through a cost-sharing arrangement where each of the Cities, as well as the Airport, provide for a portion of the funding. Additionally, the City of Texarkana, Arkansas remits to the Airport the sales tax it collects on aviation fuel sold at the Airport. The Airport uses the sales tax to fund a portion of the cost of ARFF services.

Throughout the planning period, the Airport is not anticipated to generate net revenue or sufficient operational funds to provide financing for ineligible projects or to meet all local match requirements for AIP eligible projects. This situation includes consideration of the financial support received by the Airport from the Cities for the cost of ARFF services. Consequently, significant capital will be needed from the Cities to leverage AIP grant funding and implement a large portion of the Master Plan CIP. The analysis assumes that the Cities will provide funding of about $1.4 million during the Short Term financial planning period, $7 million during the Mid Term period and $8.5 million during the Long Term period. This funding from the Cities is applied to numerous projects including major improvements such as general aviation mid-field development in the Mid Term and reconstruction of Runway 4/22, general aviation mid-field development and new passenger terminal parking projects in the Long Term planning periods.

9.2.6 Other Funding

In addition to the funding sources listed above, other unidentified funding will be required to finance a number of large projects throughout the planning period. This source has not been specified and represents a funding shortfall, including consideration of the Cities' capital subsidies, of approximately $5.1 million in the Short Term, $2.2 million in the Mid Term and $30 million in the Long Term planning periods. All other funding sources typically available to commercial service airports have been considered. This source has been referenced in the implementation analysis as "Other Funding." The implementation analysis applies Other Funding to CIP projects including general aviation mid-field development, new hangars and terminal parking expansion during the Short Term; general aviation mid-field development during the Mid Term; and, general aviation mid-field development, new passenger terminal building and apron during the Long Term planning periods.

9.2.7 Airport Operating Funds

As previously noted, the implementation analysis projects that positive net revenues (before the Cities' ARFF subsidy) will not be generated throughout the planning period and that some years during the Short Term period will need the support of operating subsidies from the Cities in addition to subsidies already provided for ARFF services. Consequently, only minimal funding for the Master Plan CIP can be provided from airport operating funds.

9.3 FINANCIAL ANALYSIS AND IMPLEMENTATION PLAN FOR THE MASTER PLAN CAPITAL IMPROVEMENT PROGRAM

This analysis, along with the Exhibits presented at the end Section 9, provides the results of evaluating the financial reasonableness of implementing the Master Plan Capital Improvement Program during the financial planning period from 2003 through 2022.

9.3.1 Estimated Project Costs and Development Schedule

The estimated project costs and development schedule is derived from previous results of the Master Plan development analysis. The program for capital expansion and improvement projects is projected for the Short Term financial planning period for years 2003 through 2007, for the Mid Term period for years 2008 through 2012 and for the Long Term period for years 2013 through 2022. For each of these financial planning periods, Exhibit 9.1 at the end of Section 9 presents the capital program for the identified projects. The estimated timing and costs are presented in this Exhibit along with the amounts and timing of the projected funding sources. As shown in Exhibit 9.1, the total estimated cost of capital projects is $108,071,150 in 2003 dollars. The estimated costs for projects scheduled during the period 2004 through 2022 are adjusted by an assumed 2 percent rate of annual inflation. The resulting total escalated costs are $133,871,811. Table 9.1 below presents a summary of Exhibit 9.1 and provides a comparison of 2003 base year costs with escalated costs adjusted for inflation for each of the planning periods.

TABLE 9.1
SUMMARY OF BASE YEAR AND ESCALATED COSTS FOR THE CAPITAL PROGRAM
Texarkana Regional Airport

Planning Periods	2003 Base Year Costs	Total Escalated Costs
Short Term Projects (2003 to 2007)	$ 16,763,550	$ 17,727,250
Mid Term Projects (2008 to 2012)	23,798,070	27,067,170
Long Term Projects (2013 to 2022)	67,509,530	89,077,391
Total Project Costs	$108,071,150	$133,871,811
Source: Leibowitz & Horton AMC Analysis, 2003.		

9.3.2 Sources and Uses of Capital Funding

As discussed in previous sections of this analysis, a variety of sources are available for funding capital improvements at the Airport. The funding structure of the capital program depends on many factors, including project eligibility for the various funding sources, the ultimate type and use of facilities to be developed, the amounts and timing of funds available and the priorities for scheduling project completion. For planning purposes, assumptions were made related to the funding source of each capital improvement. The detailed capital funding analysis is provided in Exhibit 9.2 at the end of Section 9. A summary of the capital plan with escalated project cost estimates and funding sources is presented in Table 9.2 that follows.

TABLE 9.2 SUMMARY OF SOURCES AND USES OF CAPITAL FUNDING Texarkana Regional Airport		
Sources of Capital Funding (2003 to 2022):		
	AIP Entitlement Grants	$ 19,769,398
	AIP Discretionary Grants	42,297,603
	Passenger Facility Charges	3,254,175
	Arkansas Department of Aeronautics	1,894,499
	Private Third Party Financing	12,344,410
	Cities' Capital Subsidies	16,972,280
	Other Funding	37,253,272
	Airport Operating Funds	86,174
	Total Sources of Capital Financing	$133,871,811
Uses of Capital Funding:		
	Short Term Projects (2003 to 2007)	$ 17,727,250
	Mid Term Projects (2008 to 2012)	27,067,170
	Long Term Projects (2013 to 2022)	89,077,391
	Total Project Costs	$133,871,811
Source: Leibowitz & Horton AMC Analysis		

As shown in Table 9.2, a substantial amount of funding will be needed from federal sources including an average $1 million per year throughout the planning period from AIP entitlement grants and $42.3 million in AIP discretionary grants. To fund portions of ineligible projects and the local match for AIP eligible projects, the Cities are projected to provide capital of about $1.4 million in the Short Term, $1.4 million per year in the Mid Term and $850,000 per year in the Long Term financial planning periods. The analysis identified a total of $37.3 million ($5.1 million - Short Term; $2.2 million - Mid Term; $30 million - Long Term) as a funding shortfall for which a funding source cannot be specified.

9.3.3 Projected Operations and Maintenance Expenses

Operations and maintenance expense projections for the Short Term (2003 to 2007), the Mid Term (2008 to 2012) and the Long Term (2013 to 2022) financial planning periods are based on the Airport's current budget, the anticipated impacts of inflation, aviation traffic increases, facility improvements and the recent experience of other similarly sized airports. Expenses for 2003 reflect the Airport's budgeted amounts.

9.3.3.1 Operations and Maintenance Expense Projection Assumptions

Operations and maintenance expense growth assumptions, as reflected in Exhibit 9.3, were developed to project the Airport's operating expenses during the financial planning period. Actual amounts for 2000 through 2002 and the budgeted amounts for 2003 provide a comparison with expenses that are projected for the period 2004 through 2022. The projection for the following expense categories is based on 2003 budgeted amounts and an annual growth rate of 2 percent beginning in 2004:

- Payroll Expense
- Building & Grounds Maintenance
- Utility Expense
- Insurance Expense
- Administrative Expenses
- ARFF Payroll Expense
- ARFF Operating Expenses
- Minor Capital Outlays.

9.3.3.2 Projection of Operations & Maintenance Expenses and Operating Expenses Per Enplaned Passenger

The projection of operations and maintenance expenses is provided in Exhibit 9.3 at the end of Section 9. As shown in the Exhibit, total expenses are expected to grow from $762,378 budgeted for 2003 to $846,447 projected for 2007 with a total of $4,049,878 during the five year Short Term period. During the five year Mid Term period, expenses are projected to total $4,493,041 and during the ten- year Long Term period, expenses are projected to total $11,372,218. The overall growth rate of expenditures during the projection period is 2.0 percent per year.

Exhibit 9.3 also provides a comparison of Texarkana's total operating expenses per enplaned passenger versus the industry average for non-hub airports. Texarkana's operating expenses per enplaned passenger are projected to decline from $16.29 budgeted for 2003 to $13.74 by the end of the twenty year financial planning period. During the same period, the industry average for non-hub airports ranges from $16.23 in 2003 to $23.64 during the Long Term period (Source: AAAE 2000-2001 Survey of Airport Rates and Charges with inflation adjustments after 2000). This shows that operating expenses at Texarkana are currently in line with those of other similarly sized airports and are projected to continue a declining trend throughout the twenty-year projection period. The comparison implies that the Airport is projected to operate 6 percent to 27 percent more cost efficiently than other airports of similar size and operation.

9.3.4 Projected Operating Revenues

Exhibit 9.4 presents the actual, estimated and projected operating revenues for the Airport from year 2000 through 2022. Actual amounts for 2000 through 2002 and estimated amounts for 2003 provide a comparison with revenues that are projected for the period 2004 through 2022. Assumptions for all revenues are presented in the following paragraphs.

9.3.4.1 Operating Revenue Projection Assumptions

Operating revenue projections for the Short Term (2003 to 2007), the Mid Term (2008 to 2012) and the Long Term (2013 to 2022) financial planning periods are based on the Airport's current budget, the anticipated impacts of inflation, aviation traffic increases, facility expansions and the recent experience of other similarly sized airports. Annual growth assumptions from 2003 through 2022 for the revenue categories that follow are provided below.

✈ **Airline Revenues**

- Landing Fees - Projections are based on the 2003 budget and an estimate of $45,000 for 2004 which reflects a landing fee increase that has been anticipated for the last two years and discussed by Airport management with the airlines. Beginning in 2005, fees are assumed to grow with a 2 percent annual inflation rate plus increases in aircraft landed weight using annual growth at ½ the rate of Master Plan forecast of passenger enplanements. This reflects the airlines' practice of managing increased load factors before additional flights are provided.
- Fuel Flowage Fees - Projections are based on the budget for 2003 with a 2 percent annual inflation rate plus increases in aircraft landed weight using annual growth at ½ the rate of Master Plan forecast of passenger enplanements.
- Terminal Rent - Projections are based on the budget for 2003 and an estimate of $77,000 for 2004 which reflects a terminal rent increase that has been anticipated for the last two years and discussed by Airport management with the airlines. Beginning in 2005, rental rates are assumed to grow with 2 percent annual inflation thereafter.

✈ **Non-Airline Revenues**

- Other Carrier Landing Fees - Based on the 2003 budget with growth at a 2 percent annual inflation rate plus increases in aircraft landed weight using annual growth at ½ the rate of Master Plan forecast of passenger enplanements.
- FBO Rent - Based on the 2003 budget and 2 percent annual inflation thereafter.
- Hangar Ground Leases - Based on the 2003 budget and 2 percent annual inflation thereafter.
- T-Hangar Rent - Based on the 2003 budget and 2 percent annual inflation thereafter.
- Hangar H-3 Rent - Projections are based on the budget for 2003 with estimates of $60,000 for 2004 and $66,000 for 2005 which reflect management's expectation that the maintenance hangar will be re-leased by 2004. Beginning in 2006, rental rates are assumed to grow with 2 percent annual inflation.
- Fuel Flowage Fees - Based on the 2003 budget and 2 percent annual inflation plus ½ the annual rate of forecast enplanement growth.

- City Aviation Fuel Tax - Based on the 2003 budget and 2 percent annual inflation plus ½ the annual rate of forecast enplanement growth.
- Rental Car Rent - Projections are based on the budget for 2003 with estimates of $109,000 for 2004 and $113,000 for 2005 which reflect a change in the rate structure that has been anticipated for the last two years and discussed by Airport management with the rental car companies. Beginning in 2006, rental rates are assumed to grow with 2 percent annual inflation growth.
- Public Parking Fees - Based on the 2003 budget and 2 percent annual inflation plus the annual rate of forecast enplanement growth.
- Advertising Concession Fees - Based on the 2003 budget and 2 percent annual inflation thereafter.
- Building Rent - Based on the 2003 budget and 2 percent annual inflation.
- House/Other Facility Rent - Based on the 2003 budget and 2 percent annual inflation.
- Interest Income - Based on the 2003 budget and remains fixed for each year thereafter.
- Other Revenues - Based on the 2003 budget and 2 percent annual inflation.

9.3.4.2 Projection of Operating Revenues, Airline Cost Per Enplaned Passenger and Operating Revenues Per Enplaned Passenger

The projection of operating revenues is provided in Exhibit 9.4 at the end of Section 9. As shown in the Exhibit, airline revenues are expected to grow from $77,735 budgeted for 2003 to $142,966 projected for 2007 with a total of $627,575 during the five year Short Term financial planning period. During the five year Mid Term period, airline revenues are projected to total $773,104 and during the ten-year Long Term period, revenues are projected to total $1,885,727. The overall annual growth rate for airline revenues is 5.1 percent. Non-Airline revenues are expected to grow from $497,745 budgeted for 2003 to $605,888 projected for 2007 with a total of $2,826,423 during the Short Term period. During the Mid Term period, non-airline revenues are projected to total $3,265,300 and during the Long Term period, revenues are projected to total $7,917,583. The overall annual growth rate for non-airline revenues is 2.9 percent. Total Airport revenues are expected to grow from $575,480 budgeted for 2003 to $748,854 projected for 2007 with a total of $3,453,998 during the Short Term period. During the Mid Term period, revenues are projected to total

$4,038,404 and during the Long Term period, revenues are projected to total $9,803,310. The overall annual growth rate for total revenues is 3.3 percent.

Exhibit 9.4 provides a comparison of the Airport's airline cost per enplaned passenger versus the industry average for non-hub airports. The airline cost per enplaned passenger (airline fees and rentals divided by enplaned passengers) is a measure airlines use to compare their cost of operations among the airports they serve. Texarkana's airline cost per enplaned passenger is projected to range from $1.66 budgeted for 2003 to $2.55 during the twenty year financial planning period. During the same period, the industry average for non-hub airports ranges from $5.55 in 2003 to $8.09 at the end of Long Term period (Source: AAAE 2000-2001 Survey of Airport Rates and Charges with inflation adjustments after 2000). This result shows that airline rates and charges at Texarkana are currently low and are projected to remain significantly below those of other similarly sized airports throughout the planning period. If rates could be adjusted to more closely reflect the cost of providing Airport facilities and services, an additional source of capital funding would be generated. However, the current significant financial weakness in the airline industry effectively precludes any substantive increase in airline rates and charges. In future years, when airline financial conditions improve and stabilize, the Airport should consider revising airline rates to increase their coverage of the Airport's cost of operations and capital.

Exhibit 9.4 also provides a comparison of Texarkana's total operating revenue per enplaned passenger versus the industry average for non-hub airports. Texarkana's operating revenue per enplaned passenger is projected to grow from $12.30 budgeted for 2003 to $13.26 during the twenty year financial planning period. During the same period, the industry average for non-hub airports ranges from $16.22 in 2003 to $23.62 by the end of Long Term period (Source: AAAE 2000-2001 Survey of Airport Rates and Charges with adjustments for inflation after 2000). This shows that total Airport revenues at Texarkana are currently low and are projected to remain below those of other similarly sized airports throughout the planning period. This result occurs because both airline and non-airline rates are lower than non-hub industry averages and because rate structures currently applied in Texarkana do not reflect standard approaches used in the industry for non-hub airports.

9.3.5 Financial Plan Summary

The Financial Plan Summary presented in Exhibit 9.5 at the end of Section 9 includes projection totals for operating revenues, operating expenses, capital expenditures, capital funding and cash flows that result from the projections previously presented.

In Exhibit 9.1 of this analysis, practical approaches were provided for scheduling capital expenditures to match the availability of capital financing. Exhibit 9.2 provided practical approaches for matching specific capital funding sources with each of the identified projects. Based on the assumptions underlying the Financial Implementation Plan summarized in Exhibit 9.5, implementation of the Master Plan CIP is financially possible but includes a number of large projects that are not financially feasible without significant funding from the Cities and other unidentified funding sources.

Several key assumptions supporting the financial plan relate to the availability and timeliness of the funding sources that have been identified. Receiving awards for AIP discretionary grants ($42.3 million) indicated in Exhibit 9.2 is essential for the related projects scheduled for implementation throughout the planning period. This is particularly relevant during the Long Term period when $26.6 million in discretionary funds is needed for the reconstruction of Runway 4/22, $5.5 million is needed for Runway 13/31 reconstruction and $4.4 million is needed for Taxiway C rehabilitation. AIP discretionary funding is not certain or guaranteed and represents 31 percent of the total capital funding sources. If the level of AIP funding is not available in the time frames indicated, then specific projects to which the funding is applied may need to be delayed or cancelled.

The availability of $17 million in Cities' capital subsidies and the identification of $37.3 million in other funding sources are the most essential and uncertain elements of capital funding for the Master Plan CIP throughout the planning period. This combined funding represents 41 percent of the total capital funding sources. If this funding is not available within the planned time frames, the associated projects may need to be delayed or cancelled. The availability of Cities' capital affects numerous relatively small projects during the Short Term period. During the Mid Term period, planned Cities' capital is needed for implementation of the aircraft aprons and taxilanes in the mid-field general aviation development area. During the Long Term period, Cities' capital is needed for large projects that include reconstruction of

Runway 4/22, Phase II expansion of the existing terminal parking lot, mid-field general aviation development, new mid-field passenger terminal development and the airfield maintenance facility. The identification of other funding sources affects implementation of projects in the Short Term period that include development of the mid-field general aviation area and construction of hangars in the existing general aviation area. During the Mid Term period, other funding is needed for Phase II site preparation in the mid-field general aviation development area. During the Long Term period, other funding is needed for large projects that include Phase III site preparation of the mid-field general aviation development and implementation of the new mid-field passenger terminal building and aircraft apron. If sufficient demand for these facilities does not occur in the time frames expected, then the mid-field passenger and general aviation development along with the associated funding can be delayed. Table 9.3 below provides a summary of the uncertain funding that has been projected from the Cities' and from other unidentified sources. Operating subsidies from the Cities are also included.

Additionally, the Financial Implementation Analysis relies on achievement of the Master Plan forecast of aviation activity. Actual aviation traffic may temporarily vary from the projected levels of activity without a significant adverse impact on the capital program. If decreased traffic levels occur and persist, implementation of all the proposed projects may not be financially feasible. It should also be noted, however, that if the forecast activity levels are not met, then a number of the planned capital improvements may not be necessary.

TABLE 9.3 SUMMARY OF UNCERTAIN FUNDING FROM THE CITIES AND OTHER FUNDING SOURCES ($ MILLIONS) Texarkana Regional Airport									
Planning Periods	**Short Term**						**Mid Term**	**Long Term**	**Total**
	2003	**2004**	**2005**	**2006**	**2007**	**Total**	**08-12**	**13-22**	
Cities' Subsidies									
Operating	$0.20	$0.20	$0.1	$0.1	$0.1	$0.8	$0.7	$1.7	$3.2
Capital	0.05	0.07	0.1	0.5	0.7	1.4	7.0	8.5	17.0
Subtotal	$0.25	$0.27	$0.2	$0.6	$0.8	$2.2	$7.7	$10.2	$20.2
Other Funding	$0.00	$0.00	$3.4	$0.5	$1.2	$5.1	$2.2	$30.0	$37.3
Total	$0.25	$0.27	$3.6	$1.1	$2.0	$7.3	$9.9	$40.2	$57.5
Source: Leibowitz & Horton AMC Analysis									

9.4 FINANCIAL ANALYSIS EXHIBITS

Exhibits 9.1 through 9.5 provide the detailed financial analysis for implementation of the Master Plan CIP. These exhibits are provided on the following pages.

TEXARKANA REGIONAL AIRPORT
Texarkana, Arkansas

Master Plan Capital Improvement Program
Estimated Project Costs and Development Schedule

19-Aug-03

Capital Improvement Program	Funding Schedule: Short Term Financial Planning Period 2003-07: 2003	2004	2005	2006	2007	Total	Mid Term Period 2008-2012	Long Term Period 2013-2022	Total Funding
Funds Used for Capital Improvement Projects									
AIP Entitlement Grants	$600,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$4,600,000	$5,000,000	$10,169,398	$19,769,398
AIP Discretionary Grants	250,000	0	729,583	286,526	0	1,266,109	4,052,033	36,979,460	42,297,603
Passenger Facility Charges	10,535	0	0	64,684	164,124	239,343	868,320	2,146,512	3,254,175
Arkansas Department of Aeronautics	0	158,597	105,794	163,851	280,270	708,511	523,828	662,160	1,894,499
Private Third Party Financing	0	0	0	0	4,376,034	4,376,034	7,422,112	546,264	12,344,410
Cities' Capital Subsidies	49,465	73,937	104,040	500,000	700,000	1,427,442	7,017,620	8,527,218	16,972,280
Other Funding	0	0	3,407,945	492,281	1,155,791	5,056,016	2,150,877	30,046,379	37,253,272
Airport Operating Funds	0	0	29,921	34,077	38,471	102,469	267,607	108,918	478,995
Funds Available Current Year	910,000	1,232,533	5,377,283	2,671,769	7,584,339	17,775,925	27,302,397	89,186,310	134,264,631
Funds Carried Over from Prior Year	0	60,000	270,759	202,307	(0)	0	48,675	283,902	0
Funds Used Current Year	(850,000)	(1,021,775)	(5,445,735)	(2,874,076)	(7,535,664)	(17,727,250)	(27,067,170)	(89,077,391)	(133,871,811)
Funds Carried Over to Next Year	$60,000	$270,759	$202,307	($0)	$48,675	$48,675	$283,902	$392,820	$392,820

	Capital Project Description	2003 Base Year Costs	Estimated Project Costs and Development Schedule: Short Term Financial Planning Period 2003-07: 2003	2004	2005	2006	2007	Total	Mid Term Period 2008-2012	Long Term Period 2013-2022	Total Escalated Costs
Projects for Financial Planning Period 2003-2007											
I-01	Security Fence Installation	$250,000	$250,000					$250,000			$250,000
I-02	Seal Coat Runway 4-22	200,000	200,000					200,000			200,000
I-03	Taxiway C Rehabilitation	300,000	300,000					300,000			300,000
I-04	Resurface T-Hangar Taxilanes	100,000	100,000					100,000			100,000
I-05	Taxiway A Rehabilitation	616,000		628,320				628,320			628,320
I-06	Design Terminal Renovation	160,000		163,200				163,200			163,200
I-07	Phase I - Repair T-Hangar Roofs	30,000		30,600				30,600			30,600
I-08	Design ARFF Station Relocation	83,740		85,415				85,415			85,415
I-09	Hangar H-3 Renovation	100,000		102,000				102,000			102,000
I-10	Quonset Hut	12,000		12,240				12,240			12,240
I-11	Phase I - Terminal Renovation	760,000			790,704			790,704			790,704
I-12	Phase II - Repair T-Hangar Roofs	20,000			20,808			20,808			20,808
I-13	Site Prep for Midfield GA Development - Phase I	2,434,500			2,532,854			2,532,854			2,532,854
I-14	Roadway Access to GA Development	841,110			875,091			875,091			875,091
I-15	Construct Runway 22 Holding Bay	469,380				498,110		498,110			498,110
I-16a	Phase I - Midfield GA Apron	1,078,621				741,706	402,935	1,144,641			1,144,641
I-16b	Phase I - Midfield GA Hangars & Auto Parking	4,042,779					4,376,034	4,376,034			4,376,034
I-17a	Taxiway Access to T-Hangars	559,300					605,404	605,404			605,404
I-17b	Construct 2 T-Hangars	917,700					993,348	993,348			993,348
II-01	Construct ARFF Station	753,660			784,108			784,108			784,108
II-02	Third ARFF Vehicle	325,000			338,130			338,130			338,130
II-03	Administration Building Renovation	100,000			104,040			104,040			104,040
II-04	Taxiway B Rehabilitation	300,000				318,362		318,362			318,362
II-05	Phase II - Terminal Renovation	850,000				902,027		902,027			902,027
II-06	Terminal Loop Road Realignment	390,000				413,871		413,871			413,871
II-07	Housing Unit Demolition	40,000					43,297	43,297			43,297
II-08	Phase I - Terminal Parking Lot Expansion	729,760					789,916	789,916			789,916
II-09	Parking Island and Gates	30,000					32,473	32,473			32,473
II-10	Auto Parking Covered Walkways	180,000					194,838	194,838			194,838
II-11	Fuel Farm Improvements	90,000					97,419	97,419			97,419
Total Period 2003-07 Projects		$16,763,550	$850,000	$1,021,775	$5,445,735	$2,874,076	$7,535,664	$17,727,250	$0	$0	$17,727,250

Estimated Project Costs Development Schedule

TXK TEXARKANA REGIONAL AIRPORT

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

URS Greiner Woodward Clyde

Exhibit 9.1

TEXARKANA REGIONAL AIRPORT
Texarkana, Arkansas

Master Plan Capital Improvement Program
Estimated Project Costs and Development Schedule

15-Aug-03

Capital Improvement Program	Funding Schedule: Short Term Financial Planning Period 2003-07: 2003	2004	2005	2006	2007	Total	Mid Term Period 2008-2012	Long Term Period 2013-2022	Total Funding
Funds Used for Capital Improvement Projects									
AIP Entitlement Grants	$600,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$4,600,000	$5,000,000	$10,189,398	$19,789,398
AIP Discretionary Grants	250,000	0	729,583	286,526	0	1,266,109	4,052,033	36,979,460	42,297,603
Passenger Facility Charges	10,535	0	0	64,684	164,124	239,343	868,320	2,146,512	3,254,175
Arkansas Department of Aeronautics	0	158,597	105,794	163,851	280,270	708,511	523,828	662,160	1,894,499
Private Third Party Financing	0	0	0	0	4,376,034	4,376,034	7,422,112	546,264	12,344,410
Cities' Capital Subsidies	49,465	73,937	104,040	500,000	700,000	1,427,442	7,017,620	8,527,218	16,972,280
Other Funding	0	0	3,407,945	492,281	1,155,791	5,056,016	2,150,877	30,046,379	37,253,272
Airport Operating Funds	0	0	29,921	34,077	38,471	102,469	267,607	108,918	478,995
Funds Available Current Year	910,000	1,232,533	5,377,283	2,671,769	7,564,339	17,775,925	27,302,397	89,186,310	134,264,631
Funds Carried Over from Prior Year	0	60,000	270,758	202,307	(0)	0	48,675	263,902	0
Funds Used Current Year	(850,000)	(1,021,775)	(5,445,736)	(2,874,076)	(7,535,664)	(17,727,250)	(27,067,170)	(89,077,391)	(133,871,811)
Funds Carried Over to Next Year	$60,000	$270,758	$202,307	($0)	$48,675	$48,675	$263,902	$362,820	$392,820

Capital Project Description		2003 Base Year Costs	Estimated Project Costs and Development Schedule: Short Term Financial Planning Period 2003-07: 2003	2004	2005	2006	2007	Total	Mid Term Period 2008-2012	Long Term Period 2013-2022	Total Escalated Costs
Projects for Financial Planning Period 2008-2012											
II-12a	Reconstruct Terminal Concrete Apron	$1,182,460						$0	$1,344,893		$1,344,893
II-12b	Reconstruct Terminal Asphalt Apron	2,952,520						0	3,358,103		3,358,103
II-13	Terminal Apron Signage	125,000						0	142,171		142,171
II-14	Terminal Apron Lighting	25,000						0	28,434		28,434
II-15a	Phase II - Runway 4-22 Extension	1,659,510						0	1,887,474		1,887,474
II-15b	Phase II - Runway 4-22 Overlay	1,926,510						0	2,191,151		2,191,151
II-16	Phase II - Parallel Taxiway A Extension	870,850						0	990,477		990,477
II-17	Construct Runway 4 Holding Bay	469,380						0	533,858		533,858
II-18	Site Prep for Midfield GA Development - Phase II	1,891,100						0	2,150,877		2,150,877
II-19a	Phase II - GA Midfield Apron & Taxilanes	5,804,311						0	6,601,639		6,601,639
II-19b	Phase II - GA Midfield Terminal, Hangars & Auto Prk	6,525,680						0	7,422,112		7,422,112
II-20	Phase II - Fuel Farm Expansion	365,740						0	415,981		415,981
Total Period 2008-12 Projects		$23,798,070	$0	$0	$0	$0	$0	$0	$27,067,170	$0	$27,067,170
Projects for Financial Planning Period 2013-2022											
III-01	Runway 4 Run-Up Area	$935,500						$0		$1,234,372	$1,234,372
III-02	Runway 4-22 & Parallel Taxiway Reconstruction	25,770,650						0		34,003,825	34,003,825
III-03	Site Prep for Midfield GA Development - Phase III	3,986,400						0		5,259,970	5,259,970
III-04a	Phase III - GA Midfield Apron	1,193,110						0		1,574,283	1,574,283
III-04b	Phase III - GA Midfield Hangars & Taxilanes	414,000						0		546,264	546,264
III-05	Phase II - Terminal Parking Lot Expansion	481,950						0		635,923	635,923
III-06	Runway 13-31 Reconstruction	8,031,100						0		10,596,866	10,596,866
III-07	Runway 13-31 Extension	965,000						0		1,273,297	1,273,297
III-08	Acquire Property - Runway 13-31 OFA & RPZ	345,000						0		455,220	455,220
III-09	Taxiway C Rehabilitation	4,001,820						0		5,280,317	5,280,317
III-10	Construct Midfield Pax Terminal Ramp	10,560,000						0		13,933,696	13,933,696
III-11a	Construct Midfield Pax Terminal Building	8,225,000						0		10,852,713	10,852,713
III-11b	Construct Midfield Pax Terminal Auto Parking	500,000						0		659,739	659,739
III-12	Access Road between Pax Terminal & GA Area	1,600,000						0		2,111,166	2,111,166
III-13	Construct Airfield Maintenance Barn	500,000						0		659,739	659,739
Total Period 2013-22 Projects		$87,509,530	$0	$0	$0	$0	$0	$0	$0	$89,077,391	$89,077,391
Total Project Costs		$109,071,150	$850,000	$1,021,775	$5,445,736	$2,874,076	$7,535,664	$17,727,250	$27,067,170	$89,077,391	$133,871,811

Estimated Project Costs Development Schedule

TXK TEXARKANA REGIONAL AIRPORT

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

URS Greiner Woodward Clyde

Exhibit 9.1a

TEXARKANA REGIONAL AIRPORT
Texarkana, Arkansas

Master Plan Capital Improvement Program
Projected Capital Funding Sources

19-Aug-03

	Capital Improvement Projects	Total Escalated Costs	AIP Entitlement Funding	AIP Discretionary Funding	Total AIP Funding	Passenger Facility Charges	Arkansas Dept of Aeronautics	Private Third Party Financing	Cities' Capital Subsidies	Other Funding	Airport Operating Funds	Total Funding
Projects for Short Term Financial Planning Period 2003-2007												
I-01	Security Fence Installation	$250,000		$250,000	$250,000							$250,000
I-02	Seal Coat Runway 4-22	200,000	180,000		180,000				20,000			200,000
I-03	Taxiway C Rehabilitation	300,000	270,000		270,000	10,535			19,465			300,000
I-04	Resurface T-Hangar Taxilanes	100,000	90,000		90,000				10,000			100,000
I-05	Taxiway A Rehabilitation	628,320	565,488		565,488		31,416		31,416			628,320
I-06	Design Terminal Renovation	163,200	146,880		146,880		8,160		8,160			163,200
I-07	Phase I - Repair T-Hangar Roofs	30,600			0		22,950		7,650			30,600
I-08	Design ARFF Station Relocation	85,415	76,873		76,873		4,271		4,271			85,415
I-09	Hangar H-3 Renovation	102,000			0		91,800		10,200			102,000
I-10	Quonset Hut	12,240			0				12,240			12,240
I-11	Phase I - Terminal Renovation	790,704	711,634		711,634	39,793	39,278					790,704
I-12	Phase II - Repair T-Hangar Roofs	20,808			0		10,404				10,404	20,808
I-13	Site Prep for Midfield GA Development - Phase I	2,532,854			0					2,532,854		2,532,854
I-14	Roadway Access to GA Development	875,091			0					875,091		875,091
I-15	Construct Runway 22 Holding Bay	498,110	448,299		448,299	24,905	24,905					498,110
I-16a	Phase I - Midfield GA Apron	1,144,641	95,128		95,128		57,232		500,000	492,281		1,144,641
I-16b	Phase I - Midfield GA Hangars & Auto Parking	4,376,034			0			4,376,034				4,376,034
I-17a	Taxiway Access to T-Hangars	605,404	544,864		544,864		30,270		30,270			605,404
I-17b	Construct 2 T-Hangars	993,348			0		250,000			743,348		993,348
II-01	Construct ARFF Station	784,108	286,526	425,266	711,792	33,110	39,205					784,108
II-02	Third ARFF Vehicle	338,130		304,317	304,317	16,907	16,907					338,130
II-03	Administration Building Renovation	104,040			0				104,040			104,040
II-04	Taxiway B Rehabilitation	318,362		286,526	286,526	15,918	15,918					318,362
II-05	Phase II - Terminal Renovation	902,027	811,824		811,824	45,101	45,101					902,027
II-06	Terminal Loop Road Realignment	413,871	372,484		372,484	20,694	20,694					413,871
II-07	Housing Unit Demolition	43,297			0						43,297	43,297
II-08	Phase I - Terminal Parking Lot Expansion	789,916			0				377,473	412,443		789,916
II-09	Parking Island and Gates	32,473			0						32,473	32,473
II-10	Auto Parking Covered Walkways	194,838			0				194,838			194,838
II-11	Fuel Farm Improvements	97,419			0				97,419			97,419
Total Period 2003-07 Projects		$17,727,250	$4,600,000	$1,266,109	$5,866,109	$206,963	$708,511	$4,376,034	$1,427,442	$5,056,016	$86,174	$17,727,250
Projects for Mid Term Financial Planning Period 2008-2012												
II-12a	Reconstruct Terminal Concrete Apron	$1,344,893	$1,210,403		$1,210,403	$67,245	$67,245					$1,344,893
II-12b	Reconstruct Terminal Asphalt Apron	3,358,103	3,022,292		3,022,292	167,905	167,905					3,358,103
II-13	Terminal Apron Signage	142,171	127,954		127,954	7,109	7,109					142,171
II-14	Terminal Apron Lighting	28,434			0	27,012	1,422					28,434
II-15a	Phase II - Runway 4-22 Extension	1,887,474		1,698,727	1,698,727	94,374	94,374					1,887,474
II-15b	Phase II - Runway 4-22 Overlay	2,191,151	639,350	981,405	1,620,755	460,839	109,558					2,191,151
II-16	Phase II - Parallel Taxiway A Extension	990,477		891,429	891,429	49,524	49,524					990,477
II-17	Construct Runway 4 Holding Bay	533,858		480,472	480,472	26,693	26,693					533,858
II-18	Site Prep for Midfield GA Development - Phase II	2,150,877			0					2,150,877		2,150,877
II-19a	Phase II - GA Midfield Apron & Taxilanes	6,601,639			0				6,601,639			6,601,639
II-19b	Phase II - GA Midfield Terminal, Hangars & Auto Prk	7,422,112			0			7,422,112				7,422,112
II-20	Phase II - Fuel Farm Expansion	415,981			0				415,981			415,981
Total Period 2008-12 Projects		$27,067,170	$5,000,000	$4,052,033	$9,052,033	$900,700	$523,828	$7,422,112	$7,017,620	$2,150,877	$0	$27,067,170

Projected Capital Funding Sources

TXK TEXARKANA REGIONAL AIRPORT

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

URS Greiner Woodward Clyde

Exhibit 9.2

TEXARKANA REGIONAL AIRPORT
Texarkana, Arkansas

Master Plan Capital Improvement Program
Projected Capital Funding Sources

19-Aug-03

Capital Improvement Projects		Total Escalated Costs	AIP Entitlement Funding	AIP Discretionary Funding	Total AIP Funding	Passenger Facility Charges	Arkansas Dept of Aeronautics	Private Third Party Financing	Cities' Capital Subsidies	Other Funding	Airport Operating Funds	Total Funding
Projects for Long Term Financial Planning Period 2013-2022												
III-01	Runway 4 Run-Up Area	$1,234,372	$1,110,935		$1,110,935	$61,719	$61,719					$1,234,372
III-02	Runway 4-22 & Parallel Taxiway Reconstruction	34,003,825	4,000,000	26,603,443	30,603,443	264,016			3,136,367			34,003,825
III-03	Site Prep for Midfield GA Development - Phase III	5,259,970			0					5,259,970		5,259,970
III-04a	Phase III - GA Midfield Apron	1,574,283			0		250,000		1,324,283			1,574,283
III-04b	Phase III - GA Midfield Hangars & Taxilanes	546,264			0			546,264				546,264
III-05	Phase II - Terminal Parking Lot Expansion	635,923			0				635,923			635,923
III-06	Runway 13-31 Reconstruction	10,596,866	4,000,000	5,537,179	9,537,179	1,059,687						10,596,866
III-07	Runway 13-31 Extension	1,273,297	1,058,463		1,058,463	151,169	63,665					1,273,297
III-08	Acquire Property - Runway 13-31 OFA & RPZ	455,220		409,698	409,698	22,761	22,761					455,220
III-09	Taxiway C Rehabilitation	5,280,317		4,429,140	4,429,140	587,160	264,016					5,280,317
III-10	Construct Midfield Pax Terminal Ramp	13,933,696			0					13,933,696		13,933,696
III-11a	Construct Midfield Pax Terminal Building	10,852,713			0					10,852,713		10,852,713
III-11b	Construct Midfield Pax Terminal Auto Parking	659,739			0				659,739			659,739
III-12	Access Road between Pax Terminal & GA Area	2,111,166			0				2,111,166			2,111,166
III-13	Construct Airfield Maintenance Barn	659,739			0				659,739			659,739
Total Period 2013-22 Projects		$89,077,391	$10,169,398	$36,979,460	$47,148,858	$2,146,512	$662,160	$546,264	$8,527,218	$30,046,379	$0	$89,077,391
Total Project Costs		$133,871,811	$19,769,398	$42,297,603	$62,067,001	$3,254,175	$1,894,499	$12,344,410	$16,972,280	$37,253,272	$86,174	$133,871,811

Projected Capital Funding Sources

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

TXK TEXARKANA REGIONAL AIRPORT

URS Greiner Woodward Clyde

Exhibit 9.2a

TEXARKANA REGIONAL AIRPORT
Texarkana, Arkansas

Master Plan Capital Improvement Program
Actual, Budgeted and Projected Operations & Maintenance Expenses

19-Aug-03

Operations & Maintenance Expenses	Actual 2000	Actual 2001	Actual 2002	Short Term Financial Planning Period 2003-07 Budgeted 2003	Projected 2004	Projected 2005	Projected 2006	Projected 2007	Total	Mid Term Period 2008-2012	Long Term Period 2013-2022
Payroll Expense	$295,407	$279,146	$325,509	$331,569	$338,200	$344,964	$351,864	$358,901	$1,725,498	$1,905,090	$4,821,922
Annual Growth Rate	-	-5.5%	16.6%	1.9%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Building & Grounds Maintenance	73,805	66,996	73,625	57,200	58,344	59,511	60,701	61,915	297,671	328,653	831,845
Annual Growth Rate	-	-9.2%	9.9%	-22.3%	2.0%	2.0%	2.0%	2.0%	-3.4%	2.0%	2.0%
Utility Expense	72,707	66,500	75,585	77,000	78,540	80,111	81,713	83,347	400,711	442,417	1,119,791
Annual Growth Rate	-	-8.5%	13.7%	1.9%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Insurance Expense	29,911	28,751	53,785	62,389	63,637	64,910	66,208	67,532	324,675	358,467	907,307
Annual Growth Rate	-	-3.9%	87.1%	16.0%	2.0%	2.0%	2.0%	2.0%	4.7%	2.0%	2.0%
Administrative Expenses	103,895	79,177	76,082	79,300	80,886	82,504	84,154	85,837	412,680	455,632	1,153,239
Air Show Expense	90,348	0	0	0	0	0	0	0	0	0	0
Annual Growth Rate	-	-59.2%	-3.9%	4.2%	2.0%	2.0%	2.0%	2.0%	2.4%	2.0%	2.0%
ARFF Expenses:											
Payroll Expense	49,625	96,412	95,280	95,280	97,186	99,129	101,112	103,134	495,841	547,448	1,385,632
Operating Expenses	34,309	27,385	28,318	59,640	60,833	62,049	63,290	64,556	310,369	342,672	867,329
Total ARFF Expenses	83,934	123,797	123,598	154,920	158,018	161,179	164,402	167,690	806,210	890,121	2,252,961
Annual Growth Rate	-	47.5%	-0.2%	25.3%	2.0%	2.0%	2.0%	2.0%	6.3%	2.0%	2.0%
Minor Capital Outlays	112,641	28,646	13,500	0	20,000	20,400	20,808	21,224	82,432	112,660	285,152
Annual Growth Rate	-	-74.6%	-52.9%	-100.0%	-	2.0%	2.0%	2.0%	9.5%	2.0%	2.0%
Total Operations & Maintenance Expenses and Minor Capital Outlays	$862,648	$673,013	$741,684	$762,378	$797,626	$813,578	$829,850	$846,447	$4,049,878	$4,493,041	$11,372,218
Annual Growth Rate	-	-22.0%	10.2%	2.8%	4.6%	2.0%	2.0%	2.0%	2.7%	2.0%	2.0%
Operating Expenses Per Enplaned Passenger:											
Texarkana Regional Airport	$21.33	$15.85	$16.64	$16.29	$16.23	$15.77	$15.64	$15.52	$15.87	$15.14	$15.50
Non-Hub Industry Average	$15.29	$15.60	$15.91	$16.23	$16.55	$16.88	$17.22	$17.56	$16.89	$18.65	$21.45

Actual, Budgeted and Projected Operations & Maintenance Expenses

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

TXK TEXARKANA REGIONAL AIRPORT

URS Greiner Woodward Clyde

Exhibit 9.3

TEXARKANA REGIONAL AIRPORT
Texarkana, Arkansas

Master Plan Capital Improvement Program
Actual, Estimated and Projected Operating Revenues

19-Aug-03

Operating Revenues	Actual 2000	Actual 2001	Actual 2002	Short Term Financial Planning Period 2003-07: Estimated 2003	Projected 2004	Projected 2005	Projected 2006	Projected 2007	Total	Mid Term Period 2008-2012	Long Term Period 2013-2022
Airline Revenues											
Landing Fees	$33,773	$29,600	$31,214	$31,214	$45,000	$47,047	$48,664	$50,338	$222,263	$278,888	$721,632
Fuel Flowage Fees	4,905	3,433	9,453	9,333	9,758	10,202	10,552	10,915	50,760	60,474	156,479
Terminal Rent	47,058	32,440	37,188	37,188	77,000	78,540	80,111	81,713	354,552	433,743	1,007,617
Total Airline Revenues	$85,736	$65,473	$77,855	$77,735	$131,758	$135,788	$139,328	$142,966	$627,575	$773,104	$1,885,727
Annual Growth Rate	-	-23.6%	18.9%	-0.2%	69.5%	3.1%	2.6%	5.3%	12.9%	2.6%	2.7%
Airline Cost Per Enplaned Passenger:											
Texarkana Regional Airport	$2.12	$1.54	$1.75	$1.66	$2.68	$2.63	$2.63	$2.62	$2.46	$2.61	$2.57
Non-Hub Industry Average	$5.23	$5.33	$5.44	$5.55	$5.66	$5.77	$5.89	$6.01	$5.78	$6.38	$7.41
Non-Airline Revenues											
Other Carrier Landing Fees	$2,400	$2,400	$2,400	$2,400	$2,509	$2,623	$2,713	$2,807	$13,053	$15,550	$40,237
FBO Rent	67,121	66,000	68,790	68,790	70,166	71,569	73,000	74,461	357,986	395,245	918,185
Hangar Ground Leases	13,327	13,900	17,135	20,771	21,186	21,610	22,042	22,483	108,093	119,344	277,244
T-Hangar Rent	64,785	62,569	79,590	79,590	81,182	82,805	84,462	86,151	414,190	457,299	1,062,339
Hangar H-3 Rent	66,780	61,600	53,916	40,840	60,000	66,000	67,320	68,666	302,826	364,490	846,737
Fuel Flowage Fees	9,810	6,867	18,907	18,667	19,516	20,403	21,105	21,831	101,521	120,948	312,958
City Aviation Fuel Tax	856	6,278	7,136	8,000	8,364	8,744	9,045	9,356	43,509	51,835	134,125
Rental Car Rent	81,769	83,000	83,000	83,000	109,000	113,000	115,260	117,565	537,825	624,050	1,449,716
Public Parking Fees	88,178	74,000	62,215	70,000	74,967	80,287	84,203	88,310	397,768	510,563	1,471,060
Advertising Concession Fees	4,495	2,560	5,472	5,472	5,581	5,693	5,807	5,923	28,477	31,440	73,038
Building Rent	20,944	17,700	15,936	58,000	59,160	60,343	61,550	62,781	301,834	333,249	774,164
House/Other Facility Rent	39,963	39,300	37,015	37,015	37,755	38,510	39,281	40,066	192,628	212,676	494,063
Air Show Revenues	36,352	0	0	0	0	0	0	0	0	0	0
Interest Income	3,802	2,460	1,700	1,700	1,700	1,700	1,700	1,700	8,500	8,500	17,000
Other Revenue	15,639	55,000	11,668	3,500	3,570	3,641	3,714	3,789	18,214	20,110	46,717
Total Non-Airline Revenues	$516,221	$493,634	$464,880	$497,745	$554,657	$576,931	$591,203	$605,888	$2,826,423	$3,265,300	$7,917,583
Annual Growth Rate	-	-4.4%	-5.8%	7.1%	11.4%	4.0%	2.5%	5.0%	5.4%	2.5%	2.6%
Total Revenues	$601,957	$559,107	$542,735	$575,480	$686,415	$712,719	$730,530	$748,854	$3,453,998	$4,038,404	$9,803,310
Annual Growth Rate	-	-7.1%	-2.9%	6.0%	19.3%	3.8%	2.5%	5.1%	6.7%	2.5%	2.6%
Operating Revenues Per Enplaned Passenger:											
Texarkana Regional Airport	$14.89	$13.17	$12.17	$12.30	$13.97	$13.81	$13.77	$13.73	$13.54	$13.61	$13.36
Non-Hub Industry Average	$15.28	$15.59	$15.90	$16.22	$16.54	$16.87	$17.21	$17.55	$16.88	$18.63	$21.64

Actual, Estimated and Projected Operating Revenues

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

URS Greiner Woodward Clyde

Exhibit 9.4

TEXARKANA REGIONAL AIRPORT
Texarkana, Arkansas

Master Plan Capital Improvement Program
Financial Plan Summary
Estimated and Projected Net Revenues, Capital Funding, Capital Expenditures and Cash Flow

19-Aug-03

Operating/Capital Cash Flow and Summary of Cities' Subsidies	Short Term Financial Planning Period 2003-07 Estimated 2003	Projected 2004	2005	2006	2007	Total	Mid Term Period 2008-2012	Long Term Period 2013-2022
OPERATING CASH FLOW								
Revenues:								
Airline Revenues	$77,735	$131,758	$135,788	$139,328	$142,966	$627,575	$773,104	$1,885,727
Non-Airline Revenues	497,745	554,657	576,931	591,203	605,888	2,826,423	3,265,300	7,917,583
Total Revenues	$575,480	$686,415	$712,719	$730,530	$748,854	$3,453,998	$4,038,404	$9,803,310
Operations & Maintenance Expenses:	762,378	797,626	813,578	829,850	846,447	4,049,878	4,493,041	11,372,218
Projected Net Revenue	($186,898)	($111,211)	($100,859)	($99,319)	($97,592)	($595,880)	($454,637)	($1,568,908)
Less Existing Debt Service	(60,000)	(61,753)	0	0	0	(121,753)	0	0
Cities' Operating Subsidies:								
ARFF	125,702	128,216	130,780	133,396	136,064	654,158	722,244	1,677,826
Needed to Balance Operations	121,196	44,748	0	0	0	165,944	0	0
Total Cities' Operating Subsidies	246,898	172,964	130,780	133,396	136,064	820,102	722,244	1,677,826
Total Operating Funds Available For Capital Expenditures	$0	$0	$29,921	$34,077	$38,471	$102,469	$267,607	$108,918
CAPITAL CASH FLOW								
Beginning Cash Balance	$0	$60,000	$270,759	$202,307	($0)	$0	$48,675	$283,902
Other Capital Funding Sources:								
AIP Entitlement Grants	$600,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$4,600,000	$5,000,000	$10,169,398
AIP Discretionary Grants	250,000	0	729,583	286,526	0	1,266,109	4,052,033	36,979,460
Passenger Facility Charges	10,535	0	0	64,684	164,124	239,343	868,320	2,146,512
Arkansas Department of Aeronautics	0	158,597	105,794	163,851	280,270	708,511	523,828	662,160
Private Third Party Financing	0	0	0	0	4,376,034	4,376,034	7,422,112	546,264
Cities' Capital Subsidies	49,465	73,937	104,040	500,000	700,000	1,427,442	7,017,620	8,527,218
Other Funding	0	0	3,407,945	492,281	1,155,791	5,056,016	2,150,877	30,046,379
Total Other Capital Funding Sources	910,000	1,232,533	5,347,361	2,637,692	7,545,868	17,673,455	27,034,790	89,077,391
Total Funds Available for Capital Expenditures	910,000	1,292,533	5,648,042	2,874,076	7,584,339	17,775,925	27,351,072	89,470,212
Capital Improvement Program Expenditures	850,000	1,021,775	5,445,735	2,874,076	7,535,664	17,727,250	27,067,170	89,077,391
Ending Cash Balance	$60,000	$270,759	$202,307	($0)	$48,675	$48,675	$283,902	$392,820

SUMMARY OF CITIES' SUBSIDIES	2003	2004	2005	2006	2007	Total	2008-2012	2013-2022	Totals
Operating	$246,898	$172,964	$130,780	$133,396	$136,064	$820,102	$722,244	$1,677,826	$3,220,172
Capital	49,465	73,937	104,040	500,000	700,000	1,427,442	7,017,620	8,527,218	16,972,280
Total Subsidy	$296,363	$246,901	$234,820	$633,396	$836,064	$2,247,544	$7,739,864	$10,205,044	$20,192,452

Financial Plan Summary

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

URS Greiner Woodward Clyde

Exhibit 9.5

APPENDIX A

GLOSSARY OF TERMS

APPENDIX A: GLOSSARY OF TERMS

ABBREVIATIONS

AC	Advisory Circular
ADF	Automatic Direction Finder
AGL	Above Ground Level
AIP	Airport Improvement Program
ALP	Airport Layout Plan
ALS	Approach Lighting System
AOPA	Aircraft Owners and Pilots Association
ARC	Airport Reference Code
ARFF	Airport Rescue and Fire Fighting
ARP	Airport Reference Point
ARTCC	Air Route Traffic Control Center
ASDA	Accelerate-Stop Distance Available
ASR	Airport Surveillance Radar
ASV	Annual Service Volume
ATC	Air Traffic Control
ATCT	Airport Traffic Control Tower
AVGAS	Aviation Gasoline
BRL	Building Restriction Line
CIP	Capital Improvement Program
dBA	A-weighted Decibels
DH	Decision Height
DME	Distance Measuring Equipment
DNL	Day-Night Sound Levels
DOT	Department of Transportation
EA	Environmental Assessment
EIS	Environmental Impact Statement
EP	Enplaned Passenger
EPA	The United States Environmental Protection Agency
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
FBO	Fixed Base Operator
FIS	Federal Inspection Service
FSS	Flight Service Station
FTZ	Free Trade Zone

GA	General Aviation
GPS	Global Positioning System
HIRL	High Intensity Runway Lights
IFR	Instrument Flight Rules
ILS	Instrument Landing System
INM	Integrated Noise Model
LDA	Landing Distance Available
LDA	Landing Directional Aid
LDN	Day-Night Sound Levels (See DNL)
LIRL	Low Intensity Runway Lights
MALSR	Medium-Intensity Approach Lighting System with Runway Alignment Indicators
MIRL	Medium Intensity Runway Lights
MITL	Medium Intensity Taxiway Lighting
MLS	Microwave Landing System
MSL	Mean Sea Level
NAVAID	Air Navigation Facility/Aid
NDB	Non-Directional Beacon
NPIAS	National Plan of Integrated Airport Systems
OFA	Object Free Area
OFZ	Obstacle Free Zone
PAPI	Precision Approach Path Indicator
PFC	Passenger Facility Charge
PIR	Precision Instrument Runway
REIL	Runway End Identifier Lights
RSA	Runway Safety Area
RPZ	Runway Protection Zone
TAF	FAA Terminal Area Forecasts
TODA	Take-Off Distance Available
TORA	Take-Off Run Available
TXK	Texarkana Regional Airport
VASI	Visual Approach Slope Indicator
VFR	Visual Flight Rules

DEFINITIONS

Active Aircraft: Aircraft registered with the FAA and reported to have flown during the preceding calendar year.

Activity: Used in aviation to refer to any kind of movement, e.g., cargo flights, passenger flights, or passenger enplanements. Without clarification it has no particular meaning.

ADF: Automatic Direction Finder.

Advisory Circular (AC): A series of Federal Aviation Administration (FAA) publications providing guidance and standards for the design, operation and performance of aircraft and airport facilities.

AGL: Above Ground Level.

Airport Improvement Program (AIP): A congressionally mandated program through which the FAA provides funding assistance for the development and enhancement of airport facilities.

Air Cargo: Commercial freight, including express packages and mail, transported by passenger or all-cargo airlines.

Air Carrier: An airline providing scheduled air service for the commercial transport of passengers or cargo.

Air Navigation Facility (NAVAID): Although generally referring to electronic radio wave transmitters (VOR, NDB, ILS), it also includes any structure or mechanism designed to guide or control aircraft involved in flight operations.

Air Route Traffic Control Center (ARTCC): FAA-manned facility established to provide air traffic control services to aircraft operating in controlled airspace, en route between terminal areas. Although designed to handle aircraft operating under IFR conditions, some advisory services are provided to participating VFR aircraft when controller work loads permit.

Air Taxi: An air carrier certificated in accordance with FAR Part 135 and authorized to provide, on demand, public transportation of persons and property by aircraft. Air taxi operators generally operate small aircraft "for hire" for specific trips.

Air Traffic Hub: Air traffic hubs are not airports; they are cities and Metropolitan Statistical Areas requiring aviation services and may include more than one airport. Communities fall into four classes as determined by each community's percentage of the total enplaned passengers by scheduled air carriers in the 50 United States, the District of Columbia, and other U.S. areas designated by the Federal Aviation Administration. Hub designations are determined by the following criteria:

1. Large Hub: 1.00 percent
2. Medium Hub: 0.25 percent to 0.99 percent
3. Small Hub: 0.05 percent to 0.249 percent
4. Non-Hub: Less than 0.05 percent.

Aircraft Approach Category: A grouping of aircraft based on a speed of 1.3 times the stall speed in the landing configuration at maximum gross landing weight. The aircraft approach categories are:

Category A: Speed less than 91 knots;
Category B: Speed 91 knots or more but less than 121 knots;
Category C: C Speed 121 knots or more but less than 141 knots;
Category D: C Speed 141 knots or more but less than 166 knots; and,
Category E: C Speed 166 knots or more.

Aircraft Gate Position: An aircraft operational stand close to the terminal building and related to a specific passenger loading gate.

Aircraft Mix: The classification of aircraft into groups that are similar in size, noise, and operational characteristics.

Aircraft Operations: The airborne movement of aircraft. There are two types of operations: local and itinerant defined as follows:

1. Local Operations are performed by aircraft which:
   (a) operate in the local traffic pattern or within sight of the airport;
   (b) are known to be departing for or arriving from a local practice area.

2. Itinerant operations are all others.

Airfield: A defined area on land or water including any buildings, installations, and equipment intended to be used either wholly or in part for the arrival, departure or movement of aircraft.

Airplane Design Group: A grouping of airplanes based on wingspan. The groups are:

Group I:	Up to, but not including 49 feet
Group II:	49 feet up to, but not including 79 feet
Group III:	79 feet up to, but not including 118 feet
Group IV:	118 feet up to, but not including 171 feet
Group V:	171 feet up to, but not including 214 feet
Group VI:	214 feet up to, but not including 262 feet.

Airport Layout Plan (ALP): An FAA required map of an airport depicting existing and proposed facilities and uses, with clearance and dimensional information showing compliance with applicable standards.

Airport Reference Code (ARC): A coding system used to relate airport design criteria to the operational and physical characteristics of the airplanes intended to operate at the airport. It is a combination of the aircraft approach category and the airplane design group.

Airport Reference Point (ARP): The location at which the designated latitude and longitude for an airport are measured.

Airport Service Area: The geographic area that generates demand for aviation services at an airport.

Airport Surveillance Radar (ASR): Radar providing position of aircraft by azimuth and range data without elevation data. It is designed for a range of approximately 50 miles.

Airport Traffic Area: Unless otherwise specifically designated that airspace with a horizontal radius of five statute miles from the geographic center of any airport at which a control tower is operating, extending from the surface up to but not including 3,000 feet above the surface.

Airside: That portion of the airport facility where aircraft movements take place, airline operations areas, and areas that directly serve the aircraft (taxiway, runway, maintenance, and fueling areas). Also called the airport operations area.

Airspace: The area above the ground in which aircraft travel. It is divided into corridors, routes, and restricted zones for the control and safety of aircraft.

All-Cargo Carrier: An air carrier certificated in accordance with FAR Part 121 to provide scheduled air freight, express, and mail transportation over specific routes, as well as the conduct of nonscheduled operations that may include passengers.

Alternate Airport: An alternate destination airport if flight to the original destination cannot be completed.

Ambient Noise Level: Background noise level, exclusive of the contribution made by aircraft.

Annual Service Volume (ASV): A reasonable estimate of an airport's annual capacity. It accounts for differences in runway use, aircraft mix, weather conditions, etc., that would be encountered over a year's time.

Approach End of Runway: The near end of the runway as viewed from the cockpit of a landing aircraft.

Approach Surface: An imaginary 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 the runway based upon the planned approach. The inner edge of the approach surface is the same width as the primary surface and expands uniformly depending upon the planned approach.

Approved Instrument Approach: Instrument approach meeting the design requirements, equipment specifications, and accuracies, as determined by periodic FAA flight checks, and which are approved for general use and publication by the FAA.

Apron: A defined area where aircraft are maneuvered and parked and where activities associated with the handling of flights can be carried out.

ARFF: Aircraft Rescue and Fire Fighting.

ATC: Air Traffic Control

ATCT: Air Traffic Control Tower.

AVGAS: Aviation gasoline. Fuel used in reciprocating (piston) aircraft engines. Avgas is manufactured in the following grades; 80/87, 100LL, 100/130, and 115/145.

Avigation Easement: A form of limited property right purchase that establishes legal land-use control prohibiting incompatible development of areas required for airports or aviation related purposes.

Based Aircraft: Aircraft stationed at an airport on an annual basis.

BRL: Building Restriction Line.

Capacity: (Throughput capacity). A measure of the maximum number of aircraft operations which can be accommodated on the airport component in an hour.

Capital Improvement Program (CIP): A scheduled of planned projects and costs, often prepared and adopted by public agencies.

CAT I (one): Category I Instrument Landing System which provides for approach to a height above touchdown of not less than 200 feet and with Runway Visual Range of not less than 1,800 feet.

CAT II (two): Category II ILS approach procedure which provides for approach to a height above touchdown of not less than 100 feet and a RVR of not less than 1,200 feet.

CAT III (three): Category III ILS approach that provides for an approach with no decision height and a RVR of not less than 700 feet.

Ceiling: The height above the ground of the base of the lowest layer of clouds or obscuring phenomena aloft that is reported as broken or overcast and not classified as scattered, thin, or partial. Ceiling figures in aviation weather reports may be determined as measured, estimated, or indefinite.

Certificated Route Air Carrier: One of a class of air carriers holding certificates of public convenience and necessity. These carriers are authorized to perform scheduled air transportation over specified routes and a limited amount of nonscheduled activity.

Charter: A nonscheduled flight offered by either a supplemental or certificated air carrier.

Circling Approach: An instrument approach procedure in which an aircraft executes the published instrument approach to one runway, the maneuvers visually to land on a different runway. Circling approaches are also used at airports that have published instrument approaches with a final approach course that is not aligned within 30 degrees of any runway.

Clear Zone: See Runway Protection Zone

Clearway: A clearway is an area available for the continuation of the take-off operation that is above a clearly defined area connected to and extending beyond the end of the runway. The area over which the clearway lies need not be suitable for stopping aircraft in the event of an aborted take-off. Clearways are applicable only in the take-off operations of turbine-engined aircraft.

Commercial Air Carriers: An air carrier certificated in accordance with FAR Parts 121 or 127 to conduct scheduled services on specified routes. These air carriers may also provide nonscheduled or charter services as a secondary operation. Four carrier groupings have been designated for statistical and financial data aggregation and analysis:

1.	Majors:	Air carriers with annual operating revenues greater than $1 billion.
2.	Nationals:	Air carriers with annual operating revenues of between $100 million and $1 billion.
3.	Large Regionals:	Those carriers whose revenues are between $10 million and $99,999,999.
4.	Medium Regionals:	Air carriers with annual revenues less than $10 million.

Commuter Air Carrier: An air carrier certificated in accordance with FAR Part 135 which operates aircraft with a maximum of 60 seats, and provides at least five scheduled round trips per week between two or more points, or carries mail.

Commuter / Air Taxi Operations: Those arrivals and departures performed by air carriers certificated in accordance with FAR Part 135.

Condemnation: Proceedings under which a property interest may be forcibly acquired: government may condemn land through the power of eminent domain: an individual may apply inverse condemnation to obtain just compensation for a property interest taken by the government without prior agreement.

Conical Surface: An imaginary surface extending outward and upward from the periphery of the horizontal surface at a slope of 20:1 for a horizontal distance of 4,000 feet.

Control Areas: These consist of the airspace designated as Federal Airways, additional Control Areas, and Control Area Extensions, but do not include the Continental Control Areas.

Control Tower: A central operations facility in the terminal air traffic control system consisting of a tower cab structure using air/ground communications and/or radar, visual signaling, and other devices to provide safe and expeditious movement of air traffic.

Control Zones: nental control area. Control zones that do not underlie the continental control area have no upper limit. A control zone may include one or more airports and is normally a circular area with a radius of five statute miles and any extensions necessary to include instrument departure and arrival paths.

Controlled Airspace: Airspace designated as continental control area, control area, control zone, or transition area within which some or all aircraft may be subject to air traffic control.

Critical Aircraft: The aircraft that controls one or more design items based on wingspan, approach speed and/or maximum certificated take off weight. The same aircraft may not be critical to all design items.

Crosswind: When used concerning wind conditions, the word means a wind not parallel to the runway or the path of an aircraft.

Dba: Decibels measured on the A-weighted scale to factor out anomalies.

Decibel (dB): The standard unit of noise measurement relating to a logarithm scale in which 10 units represent a doubling of acoustic energy.

Decision Height (DH): During a precision approach, the height (or altitude) at which a decision must be made to either continue the approach or execute a missed approach.

Declared Distances: The distances the airport owner declares available and suitable for satisfying an airplane's take-off distance, accelerated-stop distance, and landing distance requirements. The distances are:

> Take-off run available (TORA): The runway length declared available and suitable for the ground run of an airplane taking off.

Take-off distance available (TODA): The TORA plus the length of any remaining runway and/or clearway (CWY) beyond the far end of the TORA.

Accelerate-stop distance available (ASDA): The runway plus stopway (SWY) length declared available and suitable for the acceleration and deceleration of an airplane aborting take-off.

Landing distance available (LDA): The runway length declared available and suitable for a landing airplane.

Design Hour: The design hour is an hour close to the peak but not the absolute peak, which is used for airport planning and design purposes. It is usually the peak hour of the average day of the peak month.

Displaced Threshold: Actual touchdown point on specific runways designated due to obstructions that make it impossible to use the actual physical runway end.

Distance Measuring Equipment (DME): An airborne instrument that indicates the distance the aircraft is from a fixed point, usually a VOR station.

DOT: Department of Transportation.

Effective Runway Gradient: The maximum difference between runway centerline elevations divided by the runway length, expressed as a percentage.

Eminent Domain: Right of the government to take property from the owner, upon compensation, for public facilities or other purposes in the public interest.

Environmental Assessment (EA): A report prepared under the National Environmental Policy Act (NEPA) analyzing the potential environmental impacts of a federally funded project.

Environmental Impact Statement (EIS): A report prepared under NEPA fully analyzing the potential significant environmental impacts of a federally funded project.

EPA: The United States Environmental Protection Agency.

FAR Part 77: Federal Aviation Regulations that establish standards for determining obstructions in navigable airspace.

Federal Aviation Administration (FAA): A branch of the U.S. Department of Transportation responsible for the regulation of all civil aviation activities.

Fixed Base Operator (FBO): An individual or company located at an airport providing commercial general aviation services.

Final Approach: The flight path of an aircraft which is inbound to the airport on an approved final instrument approach course, beginning at the point of interception of that course and extending to the airport or the point where circling for landing or missed approach is executed.

Fixed Wing: For the purposes of this report, any aircraft not considered rotorcraft.

Flight Plan: A description or outline of a planned flight that a pilot submits to the FAA, usually through a Flight Service Station.

Flight Service Station (FSS): Air traffic facility operated by the FAA to provide flight service assistance such as pilot briefing, en route communications, search and rescue assistance and weather information.

General Aviation: All civil aviation operations other than scheduled air services and non-scheduled air transport operations for remuneration or hire.

Global Positioning System (GPS): GPS uses a group of many satellites orbiting the earth to determine the position of users on or above the earth's surface. This system will provide at least non-precision approach capability to any airport having published instrument approach procedures.

HIRL: High Intensity Runway Lights.

Horizontal Surface: A horizontal plane 150 feet above the established airport elevation, the perimeter of which is constructed by swinging arcs with a radius of 5,000 feet for all runways designated as utility or general; and 10,000 feet for all other runways from the center of each end of the primary surface and connecting the adjacent arc by tangent lines.

Instrument Flight Rules (IFR): These rules govern the procedures for conducting instrument flight. Pilots are required to follow these rules when operating in controlled airspace with visibility of less than three miles and/or ceiling lower than 1,000 feet.

Instrument Landing System (ILS): ILS is designed to provide an exact approach path for alignment and descent of aircraft. Generally consists of a localizer, glide slope, outer marker, middle marker, and approach lights.

Instrument Runway: A runway equipped with electronic and visual navigation aids for which a precision or non-precision approach procedure having straight-in landing minimums has been approved.

Itinerant Operation: All aircraft operations at an airport other than local.

Landing Area: That part of the movement area intended for the landing and takeoff of aircraft.

LDN: Day-night sound levels; a method of measuring noise exposure.

Local Operation: Aircraft operation in the traffic pattern or within sight of the tower, or aircraft known to be departing or arriving from flight in local practice areas, or aircraft executing practice instrument approaches at the airport.

LIRL: Low Intensity Runway Lights.

Mean Sea Level (MSL): Elevation above Mean Sea Level.

Medium-Intensity Approach Lighting (MALSR): This system includes runway alignment indicator lights. An airport lighting facility which provides visual guidance to landing aircraft.

Microwave Landing System (MLS): An instrument landing system operating in the microwave spectrum that provides lateral and vertical guidance to aircraft with compatible equipment.

Minimums: Weather condition requirements established for a particular operation or type of operation.

MIRL: Medium-Intensity Runway Lights.

Movement Area: The runways, taxiways and other areas of the airport used for taxiing, takeoff and landing of aircraft, exclusive of loading ramps and parking areas.

Navigational Aid (NAVAID): Any visual or electronic device airborne or on the surface which provides point to point guidance information or position data to aircraft in flight.

Non-Directional Beacon (NDB): Transmits a signal on which a pilot may "home" using equipment installed in the aircraft.

Non-Precision Instrument Approach: An instrument approach procedure with only horizontal guidance or area-type navigational guidance for straight-in approaches.

Object Free Area (OFA): A two dimensional ground area surrounding runways, taxiways, and taxilanes which is clear of objects except those whose location is fixed by function.

Object Free Zone (OFZ): The airspace defined by the runway OFZ and, as appropriate, the inner- approach OFZ and the inner-transitional OFZ, which is clear of object penetrations other than frangible NAVAIDS.

> Runway OFZ - The airspace above a surface centered runway centerline.
>
> Inner-approach OFZ - The airspace above a surface centered on the extended runway centerline. It applies to runways with an approach lighting system.

Inner-transitional OFZ - The airspace above the surfaces located on the outer edges of the runway OFZ and the inner-approach OFZ. It applies to precision instrument runways.

Obstruction: An object that penetrates an imaginary surface described in FAR Part 77.

Peak Factor: The factor applied to the annual operations to determine the peak hour activity.

PIR: Precision Instrument Runway.

Precision Approach Path Indicator (PAPI): Provides visual approach slope guidance to aircraft during approach to landing by radiating a directional pattern of high intensity focused light beams.

Precision Instrument Approach: An instrument approach procedure in which electronic vertical and horizontal guidance is provided, e.g. ILS and MLS.

Primary Surface: A surface longitudinally centered on the runway, extending 200 feet beyond each end of the runway. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline.

Rotorcraft (e.g., Helicopter): A heavier-than-air aircraft supported in flight by the reactions of the air on one or more power-driven rotors on substantially vertical axis.

Runway End Identifier Lights (REIL): These lights aid in early identification of the approach end of the runway.

Runway Protection Zone (RPZ): The ground area under the approach surface that extends from the primary surface to a point where the approach surface is fifty feet above the ground. This was formerly known as the clear zone.

Runway Safety Area (RSA): A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway.

Segmented Circle: A system of visual indicators designed to provide traffic pattern information at airports without operating control towers.

Touch and Go Operation: Practice flight performed by a landing touch down and continuous take off without stopping or exiting the runway.

Transitional Surfaces: These surfaces extend outward and upward at right angles to the runway centerline and the extended runway centerline at a slope of 7:1 from the sides of the primary surface and from the sides of the approach surfaces. Transitional surfaces for those portions of a precision approach surface which project through and beyond the limits of the conical surface extend a distance of 5,000 feet measured horizontally from the edge of the approach surface and at right angles to the runway centerline.

Transport Airport: An airport designed, constructed and maintained to serve airplanes in aircraft approach category C and D.

Utility Airport: An airport designed, constructed and maintained to serve airplanes in aircraft approach category A and B.

VASI: Visual Approach Slope Indicator. See definition of PAPI.

Visual Flight Rules (VFR): Flight rules by which aircraft are operated by visual reference to the ground. Weather conditions for flying under these rules must include a ceiling greater than 1,000 feet, three-miles visibility and standard cloud clearance.

Wind Coverage: Wind coverage is the percent of time for which aeronautical operations are considered safe due to acceptable crosswind components.

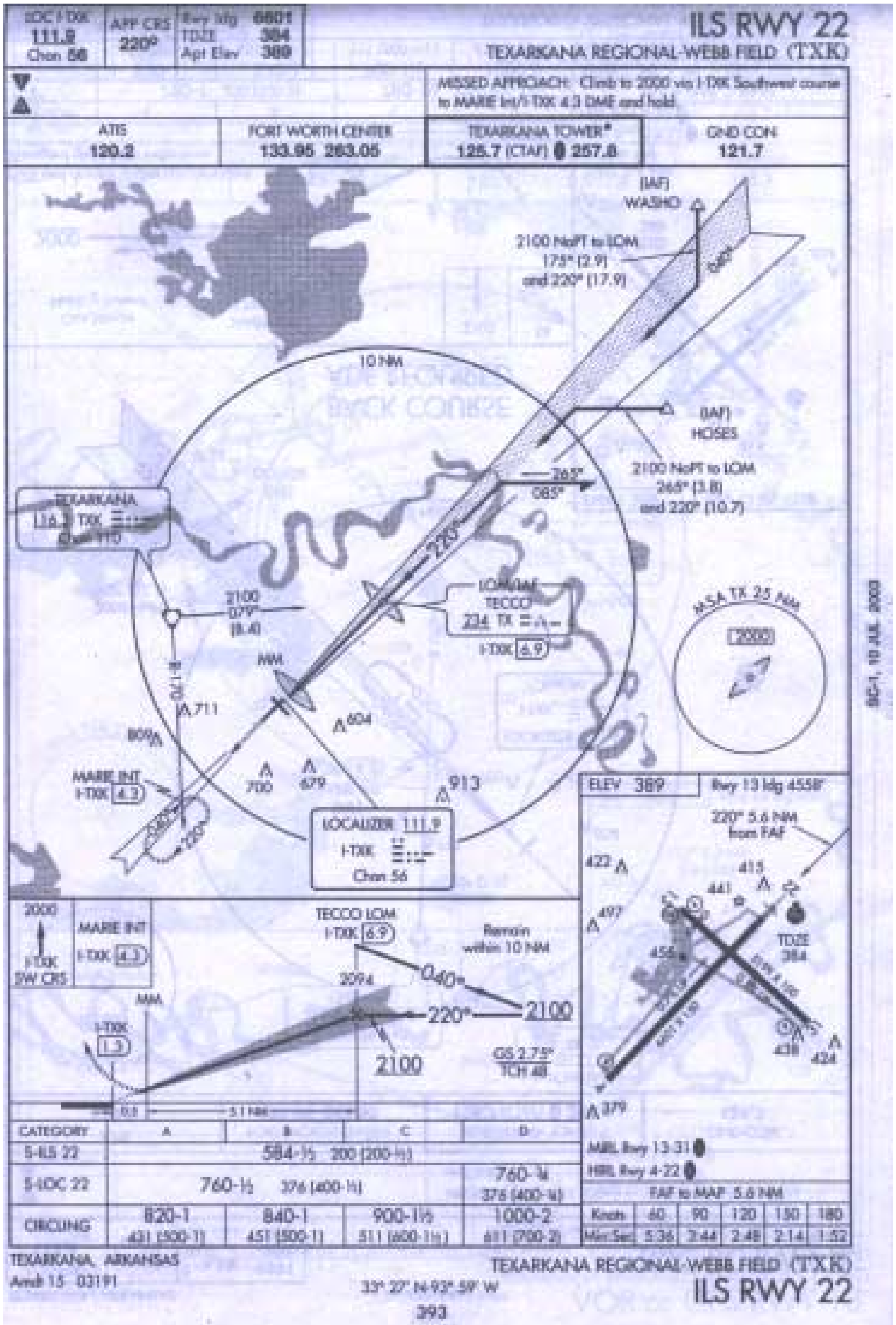
Wind Rose: A scaled graphical presentation of wind information.

APPENDIX B

INSTRUMENT APPROACH PLATES

APPENDIX B: INSTRUMENT APROACH PLATES

Approach Plate	**Exhibit**
ILS Runway 22	B-1
NDB Runway 22	B-2
GPS Runway 22	B-3
GPS Runway 4	B-4
Loc Back Course Runway 4	B-5
VOR or GPS Runway 13	B-6
GPS Runway 31	B-7
Airport Diagram	B-8



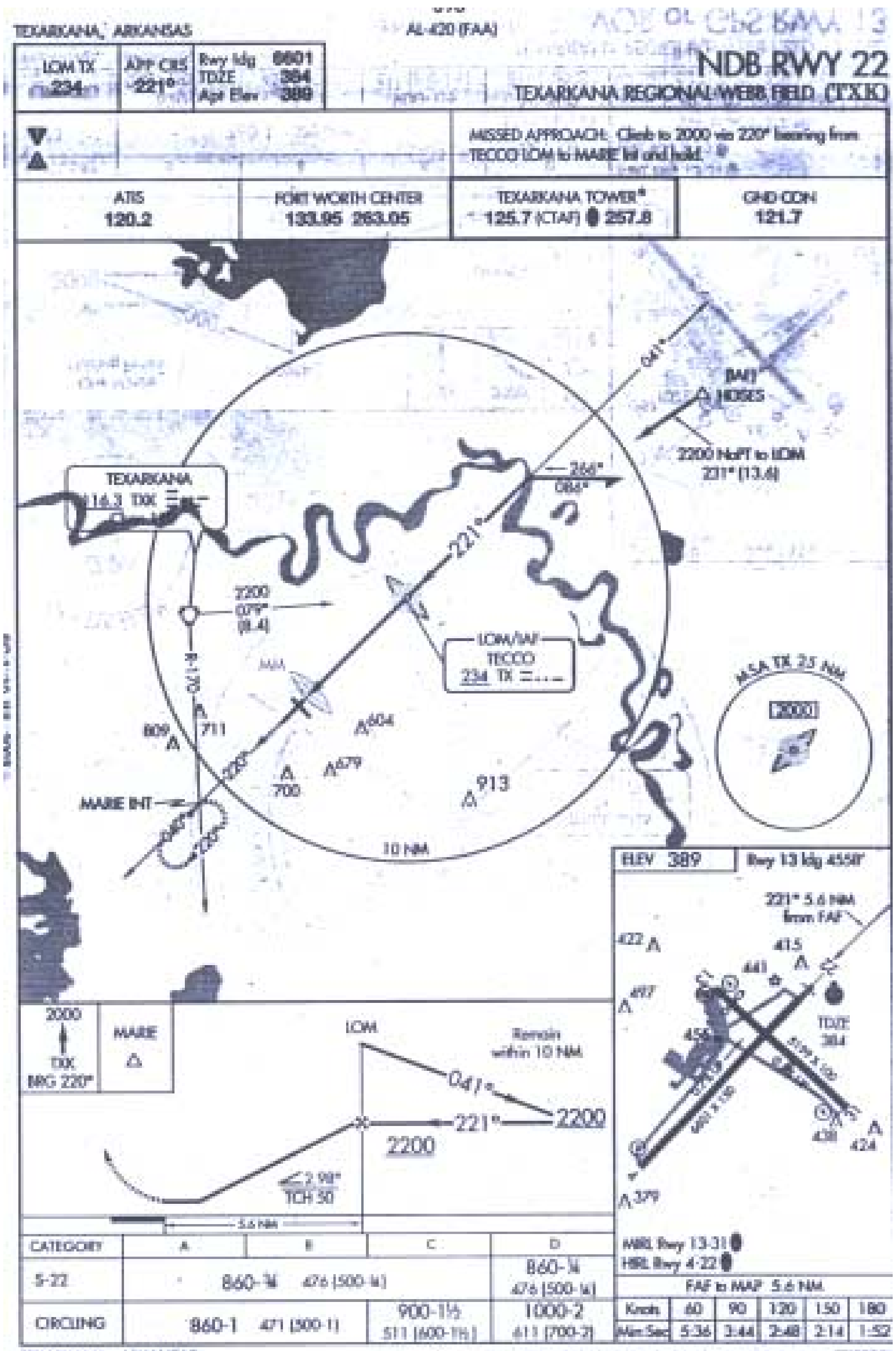
APPROACH PLATE ILS RWY 22

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

TXK
TEXARKANA REGIONAL AIRPORT

URS Greiner Woodward Clyde

B-1

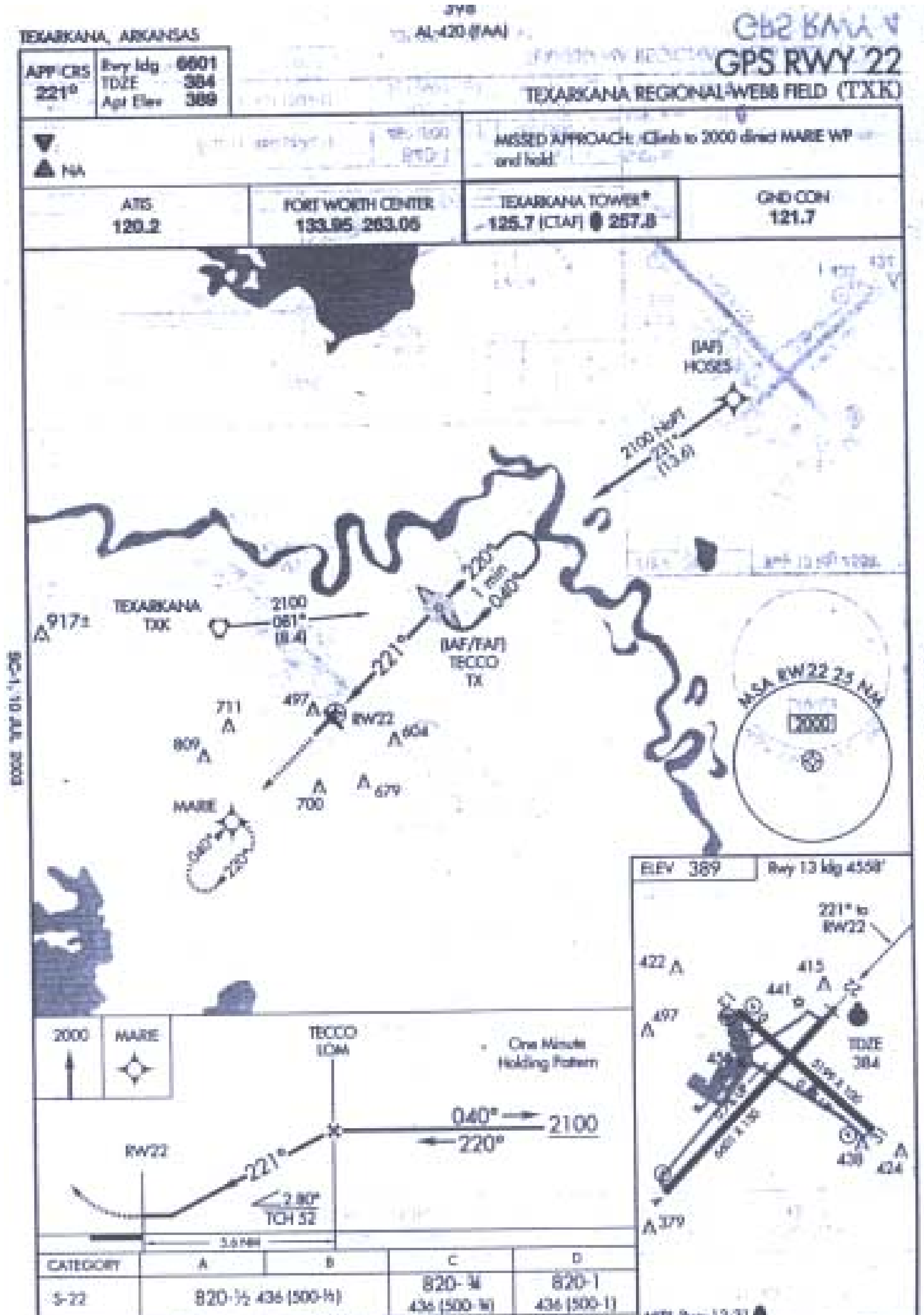


APPROACH PLATE NDB RWY 22

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

URS Greiner Woodward Clyde

B-2

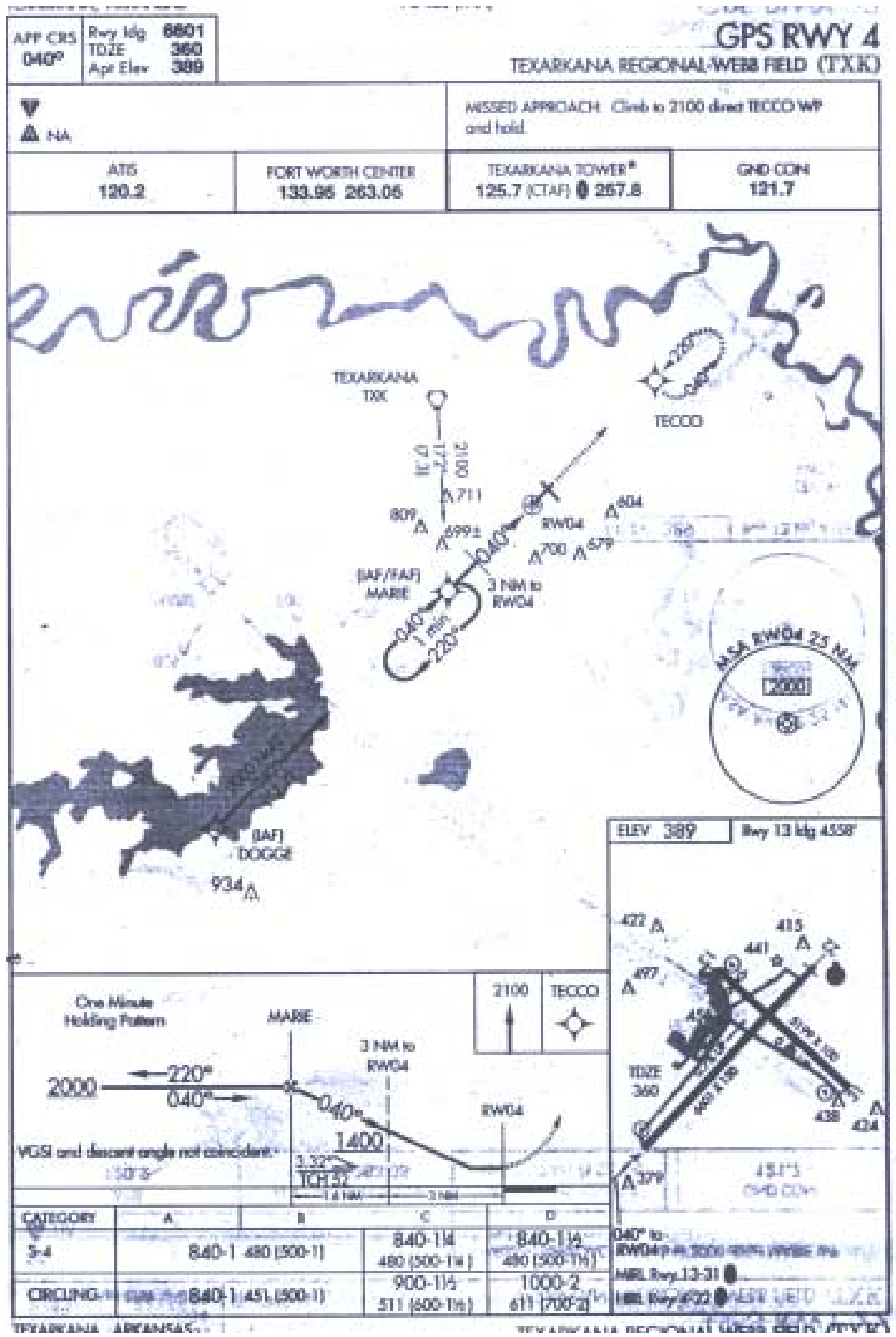


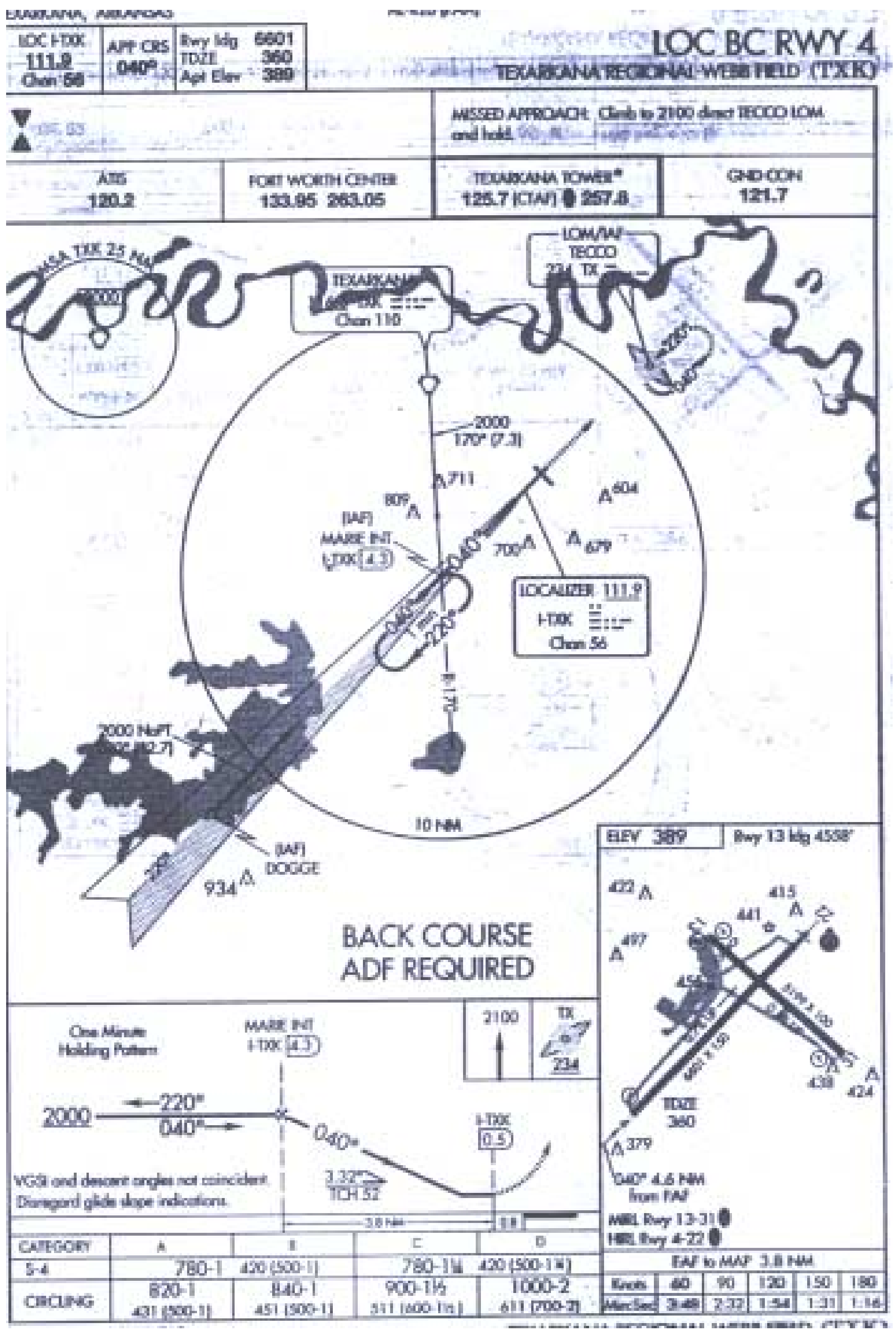
CATEGORY	A	B	C	D
S-22	820-½ 436 (500-½)		820-¾ 436 (500-¾)	820-1 436 (500-1)
CIRCLING	820-1 431 (500-1)	840-1 451 (500-1)	900-1½ 511 (600-1½)	1000-2 611 (700-2)

APPROACH PLATE GPS RWY 22

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

URS Greiner Woodward Clyde


APP CRS 040°
Rwy ldg 6601
TDZE 360
Apt Elev 389
GPS RWY 4
TEXARKANA REGIONAL-WEBB FIELD (TXK)
MISSED APPROACH: Climb to 2100 direct TECCO WP and hold.
ATIS 120.2
FORT WORTH CENTER 133.95 263.05
TEXARKANA TOWER* 125.7 (CTAF) 257.8
GND CON 121.7
TEXARKANA TXK
TECCO
(IAF/FAF) MARIE
3 NM to RWO4
RW04
(IAF) DOGGE
MSA RW04 25 NM
2000
ELEV 389
One Minute Holding Pattern
VGSI and descent angle not coincident
CATEGORY
S-4
CIRCLING
TEXARKANA, ARKANSAS



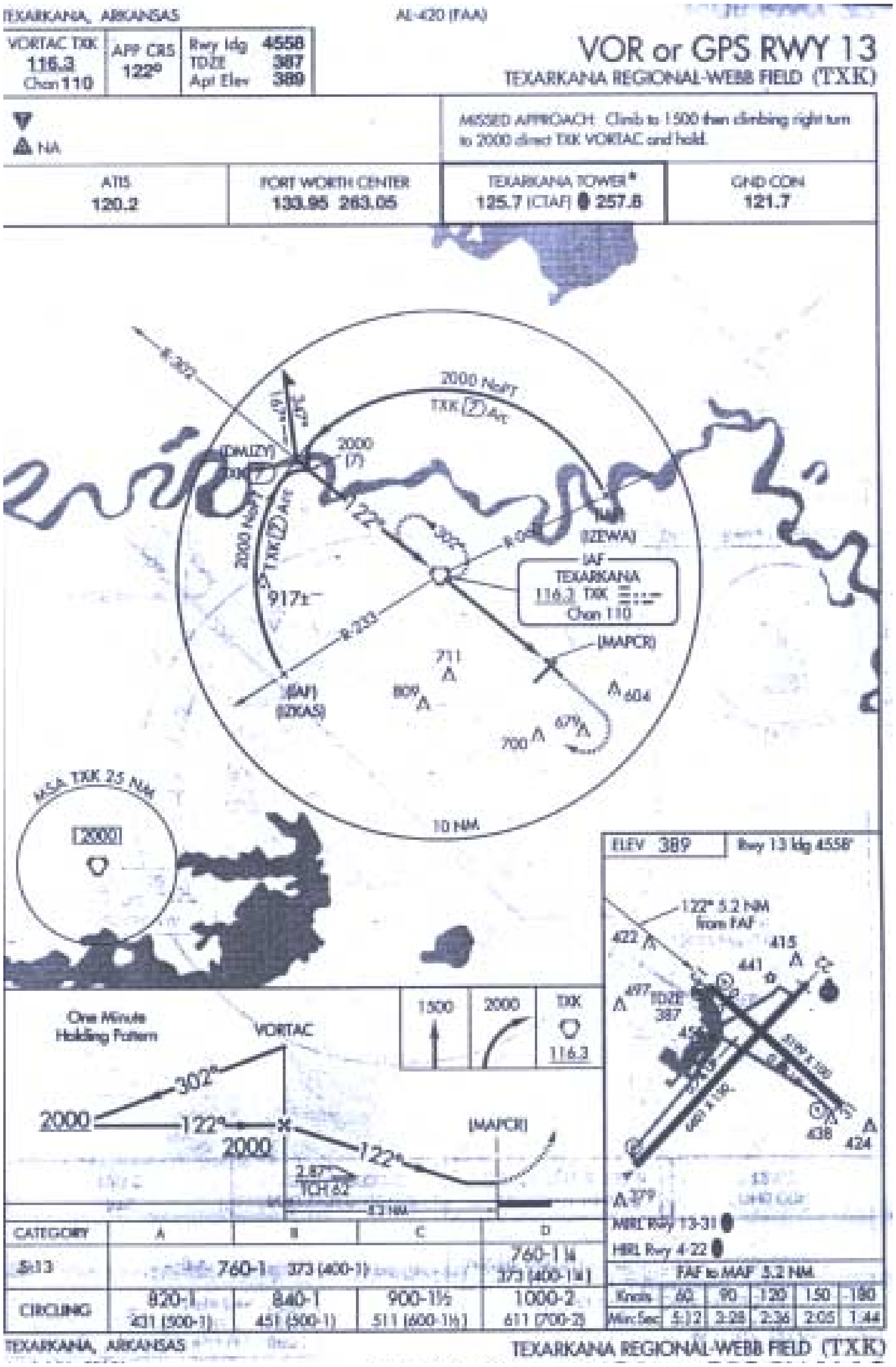
CATEGORY	A	B	C	D
S-4	780-1	420 (500-1)	780-1¼	420 (500-1¼)
CIRCLING	820-1 431 (500-1)	840-1 451 (500-1)	900-1½ 511 (600-1½)	1000-2 611 (700-2)

Knots	60	90	120	150	180
Min:Sec	3:48	2:32	1:54	1:31	1:16

APPROACH PLATE
LOC BC RWY 4

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

URS Greiner Woodward Clyde

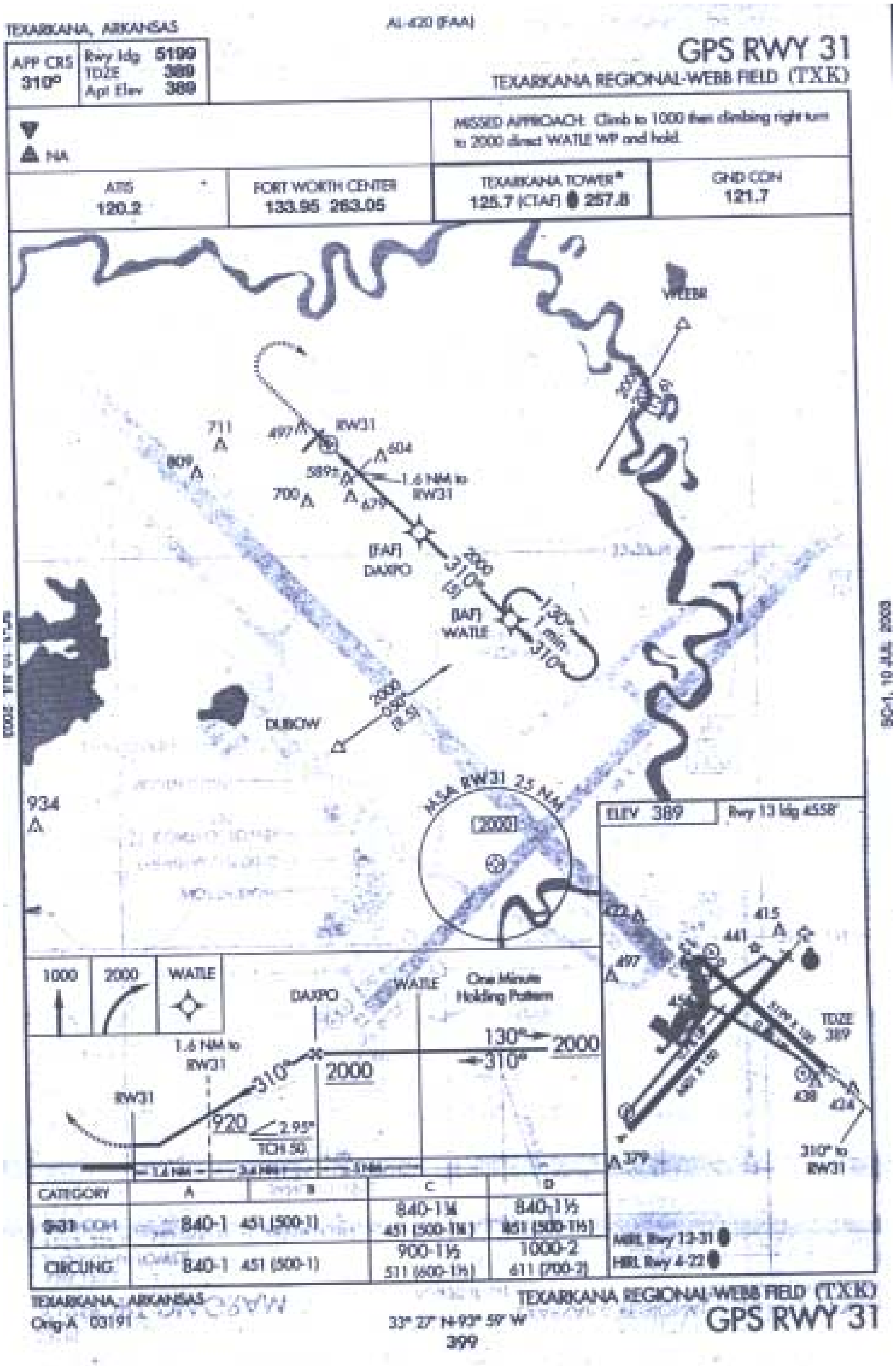


APPROACH PLATE
VOR or GPS RWY 13

TXK TEXARKANA REGIONAL AIRPORT

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

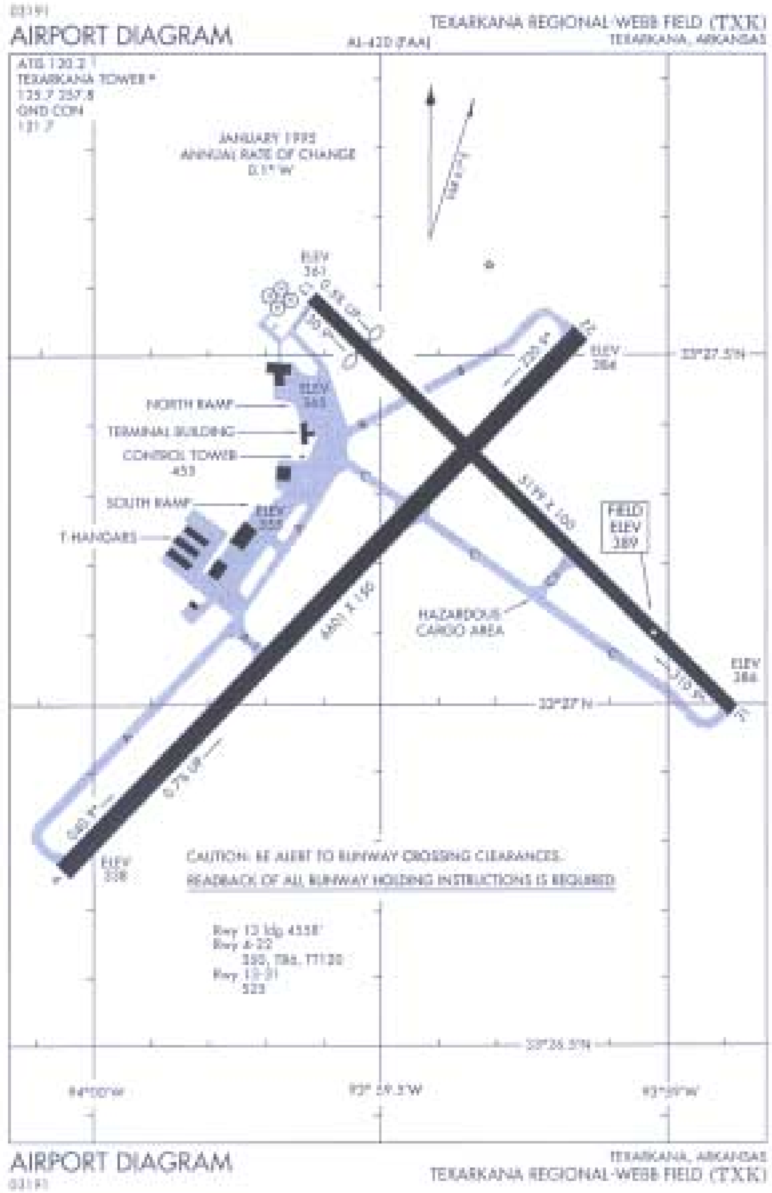
URS Greiner Woodward Clyde



APPROACH PLATE GPS RWY 31

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

URS Greiner Woodward Clyde



APPROACH PLATE
AIRPORT DIAGRAM

Texarkana Regional Airport
Airport Master Plan Study
Texarkana, Arkansas

URS Greiner Woodward Clyde

APPENDIX C

BASED AIRCRAFT

APPENDIX C: BASED AIRCRAFT

Tail Number	Aircraft Type
407LN	Bell 807
169TA	Challenger
269RA	Baron
469TA	King Air 200
969RR	Cessna 172
269TA	Cessna Citation V
169JP	Piper Arrow
8132Q	Cessna 414 Chancellor
3PR	Cessna 210
1658Q	Cessna 152
46JX	Beech King Air F-90
628RJ	Cessna 421 Golden Eagle
125D	Beech King Air 100
81TF	King Air 200
48RA	Cheyenne III
39540	Lancair
68JY	Piper Arrow
9410Q	Beech Bonanza
8221R	
6196N	Cessna 210
414MF	Cessna 414 Chancellor
86MJ	Beech Baron 58
200CP	
282RH	
77HN	
6566A	H500 (Helicopter)
32282	
55253	Piper Arrow
98698	J3
219DF	Beech Starship
628BC	Bell 206 (Helicopter)
177CN	
58BH	
9574R	Beech Bonanza
92RW	Beech Bonanza
555KK	Trans
310TP	
877Z	
7641N	Piper Arrow
5112N	
800P	Cessna 182
830T	Beech Bonanza V35B
42SM	Beech Barron 58

Tail Number	Aircraft Type
9540W	Piper Cherokee 140
86CH	Bell 407 (Helicopter)
9026M	Cessna 210
112CM	
6808G	
5481E	
9974F	
4316W	
9465N	Piper Arrow
369TA	King Air 200
3777	
4EW	
146MS	Malibu
969MS	H500 (Helicopter)
908K	Cessna Citation
25GT	King Air
4972J	Cessna 210
21142	Cessna 172
49367	Piper Archer
4934J	Piper Arrow
3238W	Cherokee Six
369RA	Cessna 172
3272Q	Beech Bonanza
722PD	Cessna 210
870KS	
Wings West	
ASA	
Phillips Cont. Fuel	
Government	
Georgia Pacific	
Cooper Tire	
QS	

APPENDIX D

SEPTEMBER 11TH 2001 IMPACTS ON AVIATION DEMAND

SEPTEMBER 11TH 2001 IMPACTS ON AVIATION DEMAND FORECASTS

Assumptions and factors used in the development of the unconstrained aviation forecast for TXK were defined in Section 3. Based on the analysis and trends observed during the 24 months following September 11th, 2001, the following assumptions are made concerning the forecasts of aviation demand at TXK:

- ✈ The long-term relationships inherent in the models used to predict aviation demand before September 11, 2001 essentially have not changed.
- ✈ Commercial aviation activity will return to profitability in 2003.
- ✈ A “U”-shaped recovery in the aviation industry will commence late in 2003, based on forecasts of a short recession in the economy.
- ✈ By the year 2006, aviation demand at the Airport will have stabilized and the aviation activity will reach and grow at levels forecast prior to September 11th 2001.