Chapter 2 Existing Conditions

INTRODUCTION

This chapter describes the existing facilities and conditions at ABIA relevant to the study. It forms the basis for determining the ability of existing facilities and services to support the traffic to be accommodated at ABIA through the year 2020. Subjects in this chapter include a description of the airside, landside and ground access facilities, passenger terminal building and site utilities. The existing airside facilities as well as other major operating elements of the Airport are shown in Figure 2-1.

Additional detail concerning existing conditions at ABIA can be found in Technical Report No. 1, Data Collection and Existing Conditions. That Technical Report contains detailed information on such subjects as study area characteristics, published instrument procedures, existing terminal area space, traffic survey, and a preliminary assessment of parking needs.

AIRSIDE FACILITIES

The term "airside" as used in this report relates principally to the airfield facilities, or landing area, and includes the runway and taxiway system, the runway approach areas and associated equipment such as airfield lighting and navigation aids. Aircraft parking aprons are considered a "landside" element rather than an airside component, because apron planning considerations are more closely associated with the passenger terminal and other landside facilities. Airspace and air traffic control, and meteorological considerations are also addressed in this section.

Runway/Taxiway System

ABIA encompasses a total of approximately 4,242 acres and contains two parallel runways oriented in a north-south direction. The established airport elevation, defined as the highest point along any of the Airport's runways, is 541 feet above Mean Sea Level (MSL) and is located at the Runway 17R threshold.

Runways

The runways at ABIA are designated as 17L-35R and 17R-35L, commonly referred to as the East and West Runways, respectively. Runway 17L-35R is 9,000 feet long and 150 feet wide, and Runway 17R-35L is 12,250 feet long and 150 feet wide.

The centerlines of the runways are separated by 6,700 feet. This separation between the runways allows simultaneous (independent) operations to occur during poor weather and allows for two arrival streams of traffic. FAA standards allow dual simultaneous precision instrument approaches to parallel runways separated by 4,300 feet, without the use of Precision Radar Monitor (PRM) equipment.

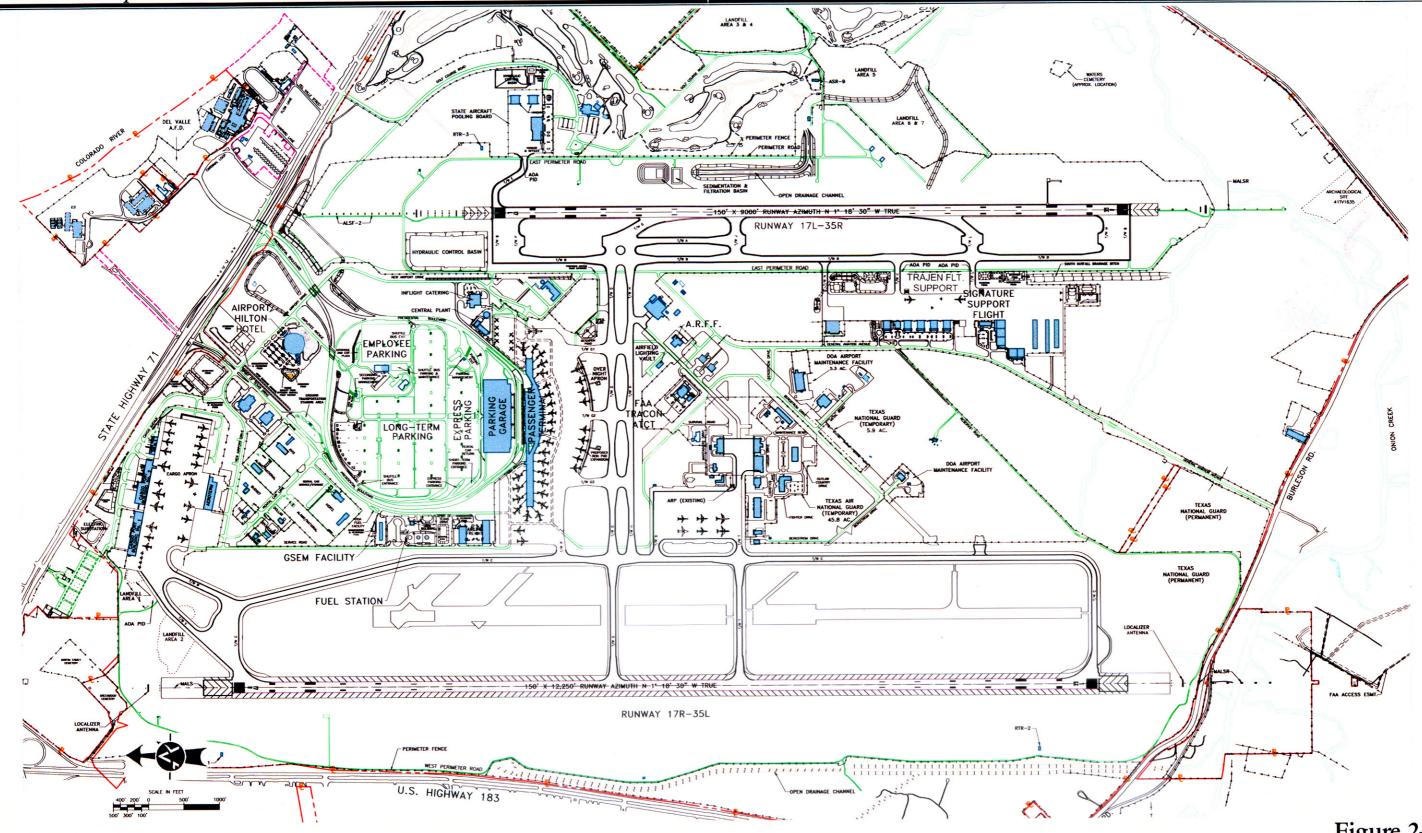


Figure 2-1 Existing Airport

Pavement Condition and Strength

Paved areas at ABIA consist of either new or rehabilitated surfaces. The paved surfaces that comprise both runways are constructed from Portland Cement Concrete (PCC) and have a life expectancy of 20 years. The new concrete runway (17L-35R) is 16 inches thick while the rehabilitated concrete runway (17R-35L) is 23 inches thick. Runway 17L-35R has 12.5-foot asphalt shoulders while Runway 17R-35L has 75-foot concrete shoulders. Both runways are grooved in order to prevent ponding that obscures markings or impairs the safe operation of aircraft.

The published weight bearing capacities for each of the runways are listed in Table 2-1. The ability of airfield pavements to withstand operations by certain aircraft types is dependent on the frequency of aircraft operations (repetitions or cycles). Studies indicate that the runway pavements are adequately stressed to accommodate aircraft using the airport now and expected to operate there in the future.

Table 2-1
RUNWAY WEIGHT BEARING CAPACITIES

Runway	Single Wheel Landing Gears	Dual Wheel Landing Gears	Dual Tandem Landing Gears
17L-35R	75,000 lbs	210,000 lbs	618,000 lbs
17R-35L	75,000 lbs	210,000 lbs	618,000 lbs

Source: ABIA Airport Layout Plan.

Runway Gradients

The effective runway gradient is defined as the difference in elevation between the highest and lowest points of the runway profile divided by the length of the runway. The effective gradients of ABIA runways are as follows: Runway 17L-35R - 0.20 percent and Runway 17R-35L - 0.44 percent. These gradients meet FAA standards.

Taxiways

The existing taxiway system at ABIA, shown in Figure 2-1, is comprised of a number of exit, parallel, and connecting taxiways that facilitate the movement of aircraft while on the ground. All taxiways are constructed from Portland Concrete Cement (PCC) and can accommodate a single wheel load of 75,000 pounds. The taxiways are equipped with a High Intensity Taxiway Lighting (HITL) system, and Taxiways B, F, G, H, L and M are equipped with centerline lights. Principal taxiways are:

Runway 17L-35R is equipped with two high-speed exit taxiways, Taxiways L and G, and six other
exit taxiways. A new exit taxiway (K) is under construction. The two high-speed taxiways are 150
feet wide, while all other taxiways are 75 feet wide. Runway 17R-35L is served by four exit taxiways.

Taxiway (fillet) enhancements were recently completed for Taxiways G and T which will provide improved runway exit capability.

- Both runways are served by parallel taxiways. Runway 17L-35R is served by Taxiway B on the west side of the runway. A portion of a dual parallel taxiway system exists for the east runway. Taxiway A is located between Taxiway B and the runway and was recently extended. Runway 17R-35L is served by Taxiway C on the east-side of the runway.
- The two runways are connected by a Midfield Cross Taxiway system running east-west and consisting of parallel taxiways. Taxiways G and H serve as connectors to each side of the airfield.
- Taxiways G1, G2 and G3 connect Taxiway G with the passenger terminal apron. Taxiway R connects the passenger terminal apron with Taxiway C. Taxiways S and T connect Taxiway C to the maintenance apron.

Navigational Aids (Navaids)

The principal navigational aids at ABIA are described below. These navigational aids provide pilots with electronic guidance to and from the Airport.

- Airport Surveillance Radar (ASR-9). The ASR-9 is used by air traffic controllers in the Terminal Radar Approach Control Fracility (TRACON) located at the Airport to sequence, separate, and provide navigational guidance to aircraft in the terminal area environment which is within approximately 30 nautical miles of the Airport. The radar at ABIA is an ASR-9 and is located off the east runway and adjacent to landfill areas 5, 6 and 7.
- Very High Frequency Omnidirectional Range Tactical Air Navigation (VORTAC). The CENTEX (CWK) VORTAC is located 13.2 nautical miles northeast of the Airport. The coordinates of the VORTAC are N30° 22.71′ and W97° 31.79′. It is categorized as a high altitude service volume and is usable for a distance of 40 nautical miles between altitudes of 1,000 to 14,500 feet MSL, and a distance 130 nautical miles at altitudes between 14,500 feet and 45,000 feet MSL. Along with other VOR facilities in the national airspace system, the CENTEX VORTAC provides enroute navigational guidance to pilots.
- **Distance Measuring Equipment (DME).** Distance measuring equipment (DME) is used to measure the slant range distance, in nautical miles, of an aircraft from the DME navigational aid. The DME operates in the UHF spectrum of frequencies on a line-of-sight principle. The Airport is equipped with DME and the antenna is located approximately 700 feet south of the Runway 35R threshold and 400 feet west of the extended runway centerline.
- Instrument Landing System (ILS). Runways 17R-35L and Runway 35R are equipped with ILS Category I approaches. Category I (CAT I) ILS systems provides approaches to a decision height down to 200 feet and a horizontal visibility down to 1,800 feet. Runway 17L is equipped with a Category IIIB approach that permits landings with horizontal visibility as low as 600 feet and 0

decision height, but requires special air crew and aircraft certification for use. An ILS consists of various components including a localizer transmitter, which provide pilots with electronic horizontal guidance, and a glide slope transmitter which provide pilots with electronic vertical guidance to the runway.

Airfield Lighting

Both runways are equipped with High Intensity Runway Edge Lights (HIRL). Runway 17L-35R has centerline lighting and Touchdown Zone Lighting (TDZ). Both runways are marked with standard precision instrument markings. These include centerline, designator (runway number), threshold and aiming point marking, touchdown zone markings, and edge markings. The lighting systems facilitate safe operations during daytime, nighttime, and unfavorable weather conditions.

Airspace And Air Traffic Control

Flight Rules

Federal Aviation Regulations (FAR) Part 91 states the general operating and flight rules that must be followed. There are two kinds of flight rules, visual flight rules (VFR) and instrument flight rules (IFR). Under VFR, a pilot must maintain visual separation from other aircraft and is not normally under the control of FAA or military air traffic control (ATC). Under IFR, a pilot is under the control of ATC which provides separation from other aircraft. The required separation is 1,000 feet vertically or three miles horizontally.

Weather influences which kind of flight rules can be followed. Section 91.155 of Part 91 states the basic weather minimums for visual flight rules. VFR requires a ceiling of 1,000 feet or greater and visibility of three miles or greater. If these weather minimums do not exist, an aircraft must fly under Instrument Fight Rules (IFR).

General aviation and military aircraft fly both VFR and IFR. However, commercial aircraft are required to fly IFR. Consequently, at large commercial airports such as ABIA, the primary focus is on the IFR environment, including capacity, flight paths, and interface with VFR traffic.

Airspace Structure

Controlled airspace is a generic term that covers the different classifications of airspace specified in FAR Part 71, within which air traffic control service is provided to IFR flights and to VFR flights in accordance with airspace classification. Class C Airspace is the airspace classification that is relevant in the description of the ABIA airspace environment. Class C Airspace is generally that airspace from the surface to 4,000 feet above the airport elevation surrounding those airports that have an operational control tower, are serviced by a radar approach control, and that have a certain number of IFR operations or passenger enplanements. This airspace surrounds smaller commercial airports. The purpose of this airspace is to better identify VFR aircraft. A VFR aircraft must receive radio permission

from air traffic control (ATC) in order to enter Class C Airspace. A Class C Airspace area is designated for Austin-Bergstrom International Airport.

Air Traffic Control Services

Air traffic control (ATC) services are provided by various types of facilities which have different functions and control different geographic areas. The primary ATC units are:

- Air Route Traffic Control Center (ARTCC). An ARTCC is a facility established to provide ATC service to aircraft operating on IFR flight plans within controlled airspace and principally during the enroute phase of flight. Air traffic within the Continental U.S. is controlled by 20 ARTCC. The ARTCC for Austin is located at Houston, and controls airspace from the Mexican border to its northern boundary that is located at approximately 31° degrees north latitude (approximately as far north as Killeen). It extends from Mobile, Alabama on the east, to approximately Midland, Texas on the west. It controls enroute IFR traffic between and above terminal radar approach control areas.
- Terminal Radar Approach Control (TRACON). A TRACON is a terminal ATC facility that uses radar to provide approach control services. The TRACON has responsibility for all IFR arrivals, departures and overflights within its area with the function of sequencing arriving traffic transitioning from the enroute phase of flight (controlled by the ARTCC) to the airport, and vice versa. The TRACON controls primarily IFR traffic from the surface to 13,000 feet, and TRACONs are found in metropolitan areas with heavier traffic volumes. The TRACON for Austin-Bergstrom International Airport is located in the control tower at the Airport.
- Airport Traffic Control Tower (ATCT). An ATCT provides ATC services to aircraft operating in the vicinity of an airport or on the movement area (runways, taxiways, etc.). The ATCT authorizes aircraft to land or takeoff at the airport controlled by the tower or to transit the airport (Class D) airspace regardless of the flight plan or weather conditions (IFR or VFR). ABIA is equipped with an ATCT, but no other airport within 25 nautical miles of ABIA has a control tower. These include airports such as San Marcos, Georgetown, and Taylor, which are classified as uncontrolled airports.

Austin Airspace Configuration

The ABIA terminal area airspace is shown in Figure 2-2. This airspace has been delegated through a Letter of Agreement to the Austin Air Traffic Control Tower and associated approach control facility (TRACON) by the Houston Air Route Traffic Control Center (ARTCC or Center). The Center provides Air Traffic Control (ATC) services to aircraft between terminal areas. The Austin TRACON provides approach/departure control services within its delegated airspace. Several low altitude airways traverse the area and serve those aircraft flying below 18,000 feet MSL.

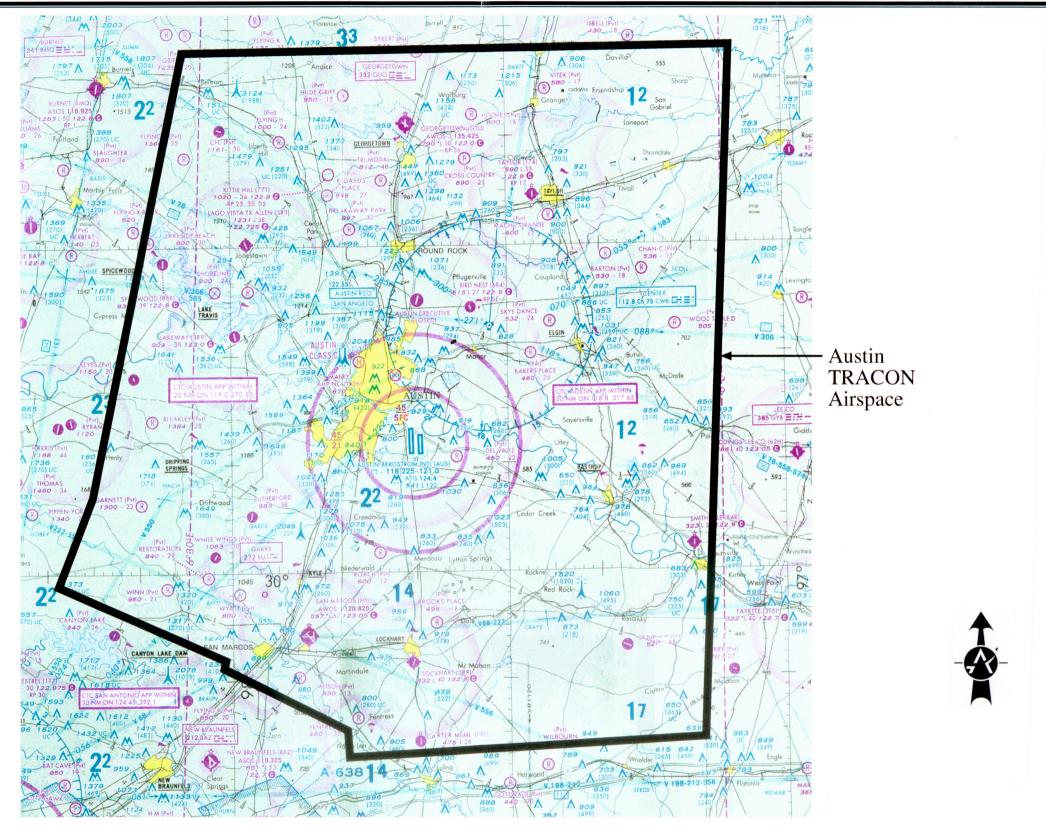


Figure 2-2 ABIA Terminal Area Airspace

The Center and TRACON provide control primarily to aircraft operating under instrument flight rules (IFR). In addition, TRACON provides control or service to aircraft operating under visual flight rules (VFR) within the Austin Class C Airspace.

Published Instrument Procedures

Austin-Bergstrom International Airport has 10 published instrument approach procedures - with six being classified as precision instrument approaches and the others classified as non-precision instrument approaches. An instrument approach procedure is a series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a point where a landing may be made visually. The procedure provides protection from obstacles that could jeopardize safety of aircraft operations by providing a specific clearance over obstacles. A precision approach procedure is one in which an electronic glide slope is provided that gives the pilot glide path, or specific descent profile. A non-precision approach is a procedure in which no electronic glide slope is provided. In this case the pilot is provided directional, or azimuth, guidance only.

Three Standard Terminal Arrival (STAR) procedures are also published for the Airport. These are arrival procedures published for IFR aircraft to provide transition from the en-route phase of flight to an outer fix, or instrument approach fix in the terminal area.

Obstructions

There are no permanent objects within the airport vicinity that have been identified as obstructions affecting navigable airspace as per FAR Part 77 requirements. All known penetrations to FAR Part 77 surfaces such as the FAA ATCT, buildings, communication towers or navigation equipment have been properly marked and lighted.

Meteorological Considerations

Meteorological considerations in this Master Plan Update are based on a 10-year weather summary (1981-1991) for the Airport published by the National Climatic Data Center. Wind conditions mainly determine the directions of arrival and departure flows. For ABIA, operations are predominantly to the south, i.e., wind from the south, which occurs 84 percent of the time under VFR conditions, and approximately 77 percent of the time under IFR conditions.

Since the capacity of an airport will vary depending on, among other factors, the weather conditions, the frequency of certain weather conditions is important. The categories of weather conditions (ceiling and visibility) at ABIA are given below.

• VFR1 – Ceiling (the height of clouds, smog, etc. above ground) is at least 2,500 feet, and visibility at least 5 miles. These conditions prevail 79.84 percent of the time. During VFR1

visual approaches are possible. In weather conditions below VFR1, ATC will enforce full radar separation between aircraft.

- VFR2 Ceiling is less than 2,500 feet but at least 1,000 feet and visibility less than 5 miles but at least 3 miles. These are basic VFR conditions. These conditions occur 12.26 percent of the time.
- IFR1 Ceiling is less than 1,000 feet but at least 500 feet and visibility less than 3 miles but at least 1 mile. These conditions occur 4.99 percent of the time.
- IFR2 Ceiling less than 500 feet or visibility less than one mile. These conditions occur 2.91 percent of the time.

Table 2-2 summarizes the wind coverage provided by existing runways for different crosswind and weather conditions. This exceeds the FAA standards for crosswind coverage.

Table 2-2 WIND COVERAGE

Crosswind	All-Weather	IFR
10.5 knots	99.24%	99.59%
13 knots	99.72%	99.80%
16 knots	99.95%	99.93%
20 knots	100%	99.99%

Source: ABIA Airport Layout Plan.

PASSENGER TERMINAL BUILDING

The ABIA terminal is laid out in a modified linear, or "crescent" shaped configuration to offer minimal walking distances from the front curb and airline ticket counters, to the passenger hold rooms. "People mover" or "moving sidewalk" devices were not incorporated into the building design. Passengers utilizing the parking facilities can walk to the terminal building via pedestrian cross-walks located on the departure and arrival levels. At present there are 25 gates at ABIA with 24 being served by passenger loading bridges. Each gate is capable of accommodating a B757 aircraft. One gate is usable for international arrivals, with full Federal Inspection Services (FIS) available. There is an apron hold room below the concourse level airline hold rooms to accommodate commuter airline operations.

Three passenger-screening points allow expedited processing of passengers and other persons entering the "sterile" areas of the building. Two screening points are located in the center of the building, adjacent to the east and west "wings," near the airline ticket counter areas. The third screening area is

immediately west of the ticket counter lobby, and facilitates screening for passengers destined for the hold rooms at the far end of the west concourse.

Food and beverage concessions, as well as news and gift shops, and other concessions are located in proximity to the passenger hold rooms. Once through "screening," and checked in at the gate, passengers have immediate access to retail facilities without further security requirements.

The terminal building is fully compliant with Americans with Disabilities Act (ADA) requirements, and features eleven elevators and six escalators to facilitate movement throughout the building. Arriving passengers can claim their baggage on any of five baggage claim devices that are used for domestic arrivals. A sixth conveyor is screened off and is usable for international arrivals.

Nine rental car counters are located on the baggage claim level of the building, in the east and west "wings" similar to the airline ticket counters on the second level. Rental car customers have a choice of several different routes to the rental car ready and return lot located on the third floor of the parking garage, immediately in front of the terminal building. The use of elevators and/or escalators is required from the concourse level to baggage claim and to reach the ready/return lot from the baggage claim area. The terminal roadway system has been configured with a "return loop" that enables rental car customers to exit the rental car lot, and proceed to the curb on the baggage claim level to pick up baggage and/or passengers.

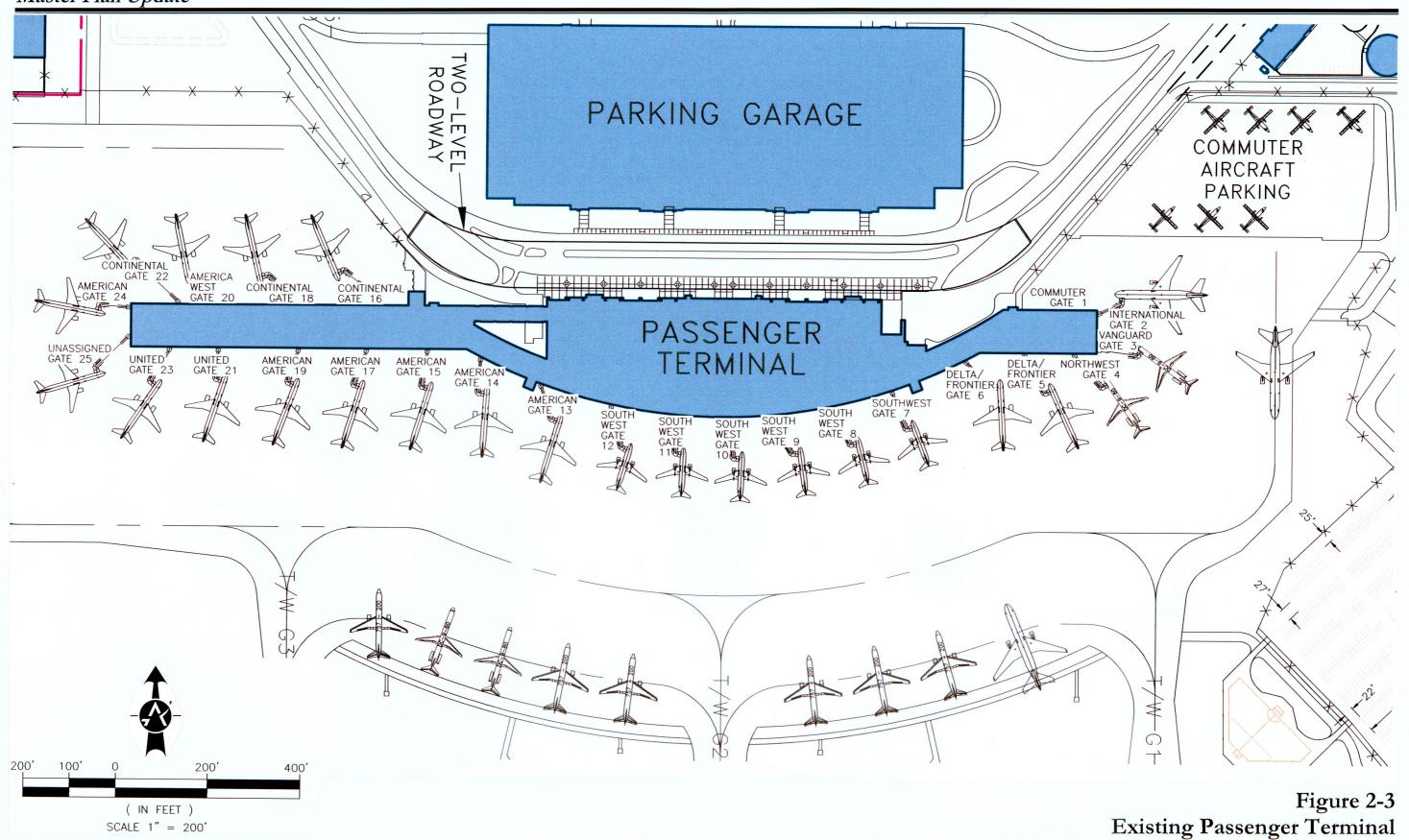
Figure 2-3 presents a schematic layout of the terminal building and gate locations. All 25 aircraft gates (parking positions) are designed to accommodate a Boeing 757, with 24 served by passenger loading bridges. There are also seven parking positions for commuter aircraft that are ground loaded and remote from the terminal. The commuter aircraft parking is on the east end of the terminal.

Description of Passenger Terminal Levels

The terminal building consists of four primary levels as described below. There are two more levels in the center section of the building described as a "penthouse level" and a "roof level"; however, these levels contain only mechanical rooms, catwalk, and roof structure and are not open to the public.

Level 1

Level 1 is the baggage claim level of approximately 129,000 square feet. Public areas on this level include the baggage claim devices, baggage claim area/lobby, airline baggage services offices, baggage storage areas, rest rooms, rental car counters and queuing area, elevators and escalators, and the Public Safety lobby, including lost and found and first aid station. Non-public areas on this level consist of a 20-foot wide service corridor along the south edge of the building. This service corridor is connected to the east end loading dock, concession storage areas, freight elevators, and various mechanical, electrical, and plumbing rooms. Public Safety Division offices are located on the west end of this level. The east end of this level also contains the Federal Inspection Services (FIS) area, with a baggage claim device, and office/work areas for FIS personnel. The FIS area is connected to the "international gate" (Gate 2) on both the concourse and apron levels via a secure corridor.



Level 2

Level 2 is the apron level of approximately 194,000 square feet. With the exception of the commuter airline holdroom, the apron level is a non-public area, and is not visible to, or accessible by, the general public. Commuter airline facilities are located on the east end of the apron level, and consist of offices, holdroom, holdroom corridors, rest rooms, and baggage make-up area. Also on the apron level are airline ramp offices; work shops; inbound and outbound baggage handling equipment and facilities; FIS work areas; roadways and circulation areas; mechanical, electrical, and plumbing rooms; stairs and elevators; and presently unassigned spaces.

Level 3

Level 3 is the concourse level consisting of approximately 282,000 square feet. Located on this level are the airline ticket offices and counters with lobby and queuing area, public circulation areas, rest rooms, airside and landside concessions, passenger screening facilities, airline hold rooms, ticket lift stations, loading bridges, elevators, escalators, miscellaneous storage facilities, small offices and work rooms, and mechanical electrical and plumbing facilities. A large central atrium opens to the baggage claim level.

Level 4

Level 4 is the mezzanine level consisting of approximately 11,000 square feet. This level houses airport administration, tenant lease space, and mechanical rooms.

Floor areas for each floor of the main terminal are summarized in Table 2-3. The breakdown of terminal area by general functional category is presented in Table 2-4.

Table 2-3
SUMMARY OF PASSENGER TERMINAL FLOOR AREAS

Building Level	Floor	Area (sf)
Baggage	1	128,939
Apron	2	194,473
Concourse	3	281,672
Mezzanine	4	58,442
Penthouse	5	10,910
Total Passenger Terminal		674,436

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Table 2-4
BREAKDOWN OF PASSENGER TERMINAL BY FUNCTIONAL AREA

Category	Area (sf)	
Public Areas	172,630	
Airline Ticketing	64,002	
Passenger Lounge and Holdrooms	77,705	
Baggage (Inbound and Outbound)	92,658	
Rental Car	7,062	
General Airlines Area	51,756	
Concessions	29,652	
Department of Aviation	131,662	
FIS	24,678	
Net Total Functional Area	651,805	
Gross Total Terminal Area	674,436	

Terminal Apron

The terminal apron consists of approximately 2.5 million square feet (56 acres) of concrete paving for maneuvering and parking of aircraft. The terminal apron is connected to the east and west runway facilities by the midfield cross taxiway. In addition to the 25 gate positions, the terminal apron has been sized to accommodate an additional 12 "Remain Over Night" (RON) off-gate parking positions. These RON positions are located at the south end of the passenger terminal apron and along the parallel taxi lane adjacent to the west concourse. The apron is constructed of reinforced concrete, and is capable of handling all wide body jet transport aircraft.

GROUND ACCESS FACILITIES

This section describes the existing ground access facilities at ABIA. These facilities include the regional, local and on-airport roadway systems, transit and ground transportation services, airport parking, rental car facilities and pedestrian facilities.

Regional Roadway System

Regional access roadways in the vicinity of ABIA include Interstate 35, State Highway 71, US Highway 183, FM 973 and Burleson Road, as shown in Figure 2-4.

• Interstate Highway 35. Interstate Highway 35 (I-35) is the major north-south intercity route connecting downtown Austin to San Antonio approximately 75 miles south, and to the Dallas-Fort Worth area approximately 180 miles north. It is generally an eight-lane divided highway with frontage roads. It connects to State Highway 71 (SH 71) approximately four miles south of downtown Austin, and to US 183 approximately four miles north of downtown Austin to provide access to ABIA. ABIA is located approximately six miles east of the I-35/SH 71 junction.

Chapter 2 2-13 Existing Conditions

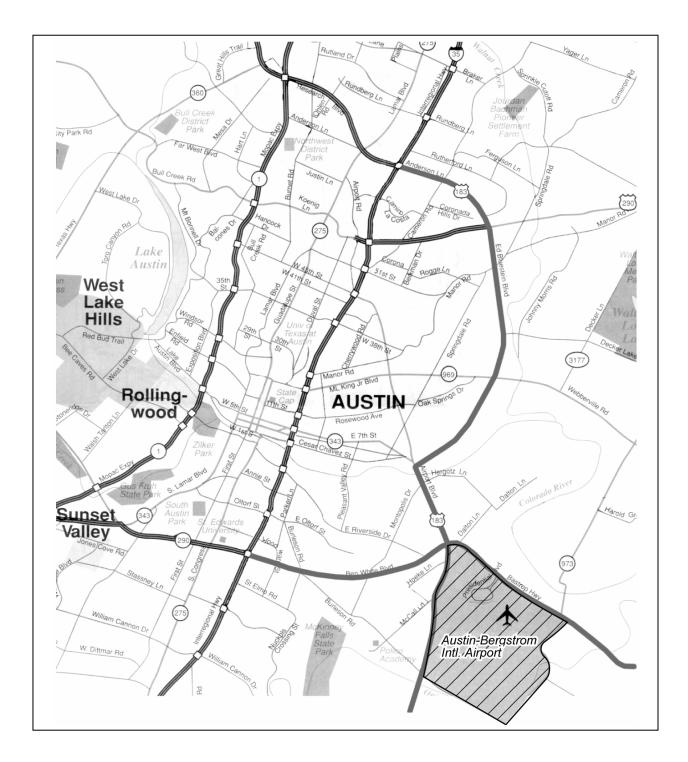


Figure 2-4 Regional Access

- State Highway 71. State Highway 71 (SH 71) is a partially access-controlled east-west highway located along the northern boundary of the Airport. It is generally a six-lane divided highway with auxiliary lanes. It has a posted speed limit of 60 mph. The eastbound section of SH 71 between US 183 and the Airport has four lanes to accommodate inbound airport traffic. The SH 71 interchange at Presidential Boulevard serves as the primary access to the terminal area. The SH 71 interchange at Spirit of Texas Drive serves as the primary access to the air cargo area, the Ground Transportation Staging Area, the rental car service/storage areas and airline support facilities northwest of the terminal, and the temporary employee parking lot and inflight catering facilities east of the terminal.
- US Highway 183. US Highway 183 (US 183) is a north-south highway located along the
 western boundary of the Airport. It is generally a four-lane divided highway with a posted speed
 limit of 55 mph in the vicinity of the Airport. US 183 has a cloverleaf interchange with SH 71 on
 the northwest corner of the airport property. US 183 connects to Burleson Road at the
 southwest corner of the airport property, which provides access to general aviation and all other
 facilities located on the south part of the Airport.
- **FM 973.** FM 973 is a north-south rural highway along the eastern boundary of the Airport. It is a two-lane undivided highway with a posted speed limit of 45 mph. FM 973 has a signalized intersection with SH 71 on the northeast corner of the Airport property. It has an unsignalized intersection with Burleson Road at the southeast corner of the Airport property.
- **Burleson Road.** Burleson Road is an east-west highway providing access to the general aviation area of the Airport. It is a four-lane undivided highway with a posted speed limit of 50 mph.

Planned improvements to the regional roadway system include the following.

- A two-lane flyover is planned by TxDOT to be constructed at the interchange of Presidential Boulevard and SH 71 to accommodate outbound airport traffic heading westbound on SH 71. The flyover is expected to be operational by 2005.
- State Highway 71 is planned to be upgraded to full expressway standards with frontage roads on both sides. A preliminary schematic drawing prepared by TxDOT shows an eight-lane freeway (including two HOV lanes) and three-lane frontage roads (including a bike-friendly lane on each side) to be constructed within a proposed 400-foot right-of-way. The proposed right-of-way would intrude into the north side of existing airport property.
- A new highway, State Highway 130, is proposed to be constructed along a north-south alignment
 east of the Airport. The proposed alignment would diverge from US 183 south of the Airport,
 traverse the eastern side of FM 973, interchange with SH 71 approximately 0.8 mile east of FM
 973, and proceed northward beyond SH 71.
- The Capital Metropolitan Transportation Authority (Capital Metro), which operates public bus transit services in Austin, has proposed constructing a light rail transit (LRT) system with ABIA

serving as the final leg of the proposed network. Future plans for the Airport will provide right-of-way for a future LRT system to be constructed when funding becomes available.

On-Airport Roadway System and Circulation

Major on-airport roadways at ABIA include:

- Presidential Boulevard. Presidential Boulevard serves as the primary access to the terminal area. It is roughly divided into three roadway sections with different functions and characteristics. The first section is a six-lane two-way divided roadway stretching for approximately 2,000 feet between SH 71 and the terminal loop road. This section is on a rolling grade as it crosses over New Airport Drive on bridge structures. The second section forms a roughly circular one-way loop around the parking lots. The third section is the two-level terminal roadway system (described in more detail in Passenger Terminal Curbside).
- Spirit of Texas Drive. Spirit of Texas Drive is a north-south roadway traversing from SH 71 to its southern terminus in the vicinity of the airline freight area. It is a four-lane divided roadway between SH 71 and New Airport Drive. South of New Airport Drive to the airline freight area, it is a two-lane undivided roadway with a posted speed limit of 30 mph. Spirit of Texas Drive provides access to the air cargo area (via New Airport Drive and Cargo Avenue), the Ground Transportation Staging Area (GTSA), the rental car service/storage areas (via Rental Car Lane), airline freight, and other ancillary uses west of the terminal. It also serves as the main access point for airport employee parking, inflight catering and other airport functional areas east of the terminal via New Airport Drive.
- New Airport Drive. New Airport Drive is a two-lane undivided roadway with a posted speed limit of 30 mph. From its western terminus at the Service Road west of the terminal, it traverses across Spirit of Texas Drive and Presidential Boulevard and terminates at the East Perimeter Road east of the temporary employee parking lot. It provides access to the south air cargo area, the Austin Hilton Hotel, the Service Road east of the parking lots, the temporary employee parking lot, and other ancillary uses east of the terminal.
- Cargo Avenue. Cargo Avenue is a two-lane two-way undivided road providing access to the north air cargo areas. It traverses an approximately east-west alignment from New Airport Drive to its western terminus. It has a posted speed limit of 30 mph.
- Employee Avenue. Employee Avenue is a two-lane two-way undivided road that provides access to employee parking in Lot G. It traverses a north-south alignment from New Airport Drive to the Long Term Exit Plaza. Employee Avenue serves as the primary egress road from the Long Term Exit Plaza and also provides access to the DOA Landside Operations and the Information Services buildings.

- Rental Car Lane. Rental Car Lane is a two-lane two-way undivided road traversing an east-west alignment from New Airport Drive to Spirit of Texas Drive. It provides access to the rental car service and storage areas east of the parking lots.
- Service Avenue. Service Avenue is a two-lane two-way undivided road with a posted speed limit of 30 mph. It generally traverses a north-south alignment from New Airport Drive to its southern terminus at the terminal loading dock area. It provides access to the in-flight catering building, the central plant, and the loading dock area east of the terminal building.
- General Aviation Avenue. General Aviation Avenue is a two-lane two-way undivided road providing access to the general aviation area, the airport traffic control tower, the Texas National Guard, and other ancillary facilities south of the terminal building. It traverses a north-south alignment from its southern terminus at Burleson Road to its northern terminus at East Perimeter Road for a distance of approximately 1.5 miles. It has a posted speed limit of 45 mph from Burleson Road to the general aviation area, and 30 mph in the vicinity of the traffic control tower.
- **Bergstrom Drive.** Bergstrom Drive is a two-lane, two-way road that provides access to the Texas National Guard area.
- **Aircraft Lane.** Aircraft Lane is a two-lane, two-way road that provides access to the airport traffic control tower and other airfield support facilities south of the terminal building
- **Golf Course Road.** Golf Course Road is a two-lane two-way road traversing a generally north-south alignment from its northern terminus at SH 71. It provides access to the golf course area and other ancillary facilities east of Runway 17L-35R. It has a posted speed limit of 30 mph.

Airport Trip Generation

Seven-day traffic counts conducted in November, 2000 for this study showed that ABIA generated an average daily traffic (ADT) volume of approximately 35,600 vehicles per day (vpd). Friday was observed to be the peak day for airport traffic activity, with approximately 43,400 vpd. Approximately 70 percent of the total airport traffic accessed the Airport via Presidential Boulevard, while the remaining 30 percent accessed the airport via Spirit of Texas Drive. An additional 2,200 vpd was counted during a subsequent one-day count on General Aviation Avenue, and 550 vpd on Golf Course Road. The total average daily airport-related trip generation is estimated to be approximately 38,350 vpd.

Passenger Terminal Curbside

The terminal curbside roadway is a two-level roadway consisting of the Arrivals Roadway on the lower/baggage claim level and the Departures Roadway on the upper/ticketing/concourse level. Each level provides approximately 1,600 feet of usable curb space for a total of 3,200 feet of terminal curb frontage. Each level has a center island that provides half of the curb space, or 800 feet. The

center island is generally allocated to commercial for-hire and courtesy vehicles. The pedestrian walkways divide the terminal roadways into different sections, which are allocated to specific ground transportation vehicles.

The Arrivals Roadway is on the same level as the terminal baggage claim area and the first level of the parking garage. It is divided across its width into two sections. The section adjacent to the terminal building is a four-lane roadway with two through lanes and two curb lanes. This section is used by private vehicles and charter buses. The section adjacent to the parking garage is a three-lane roadway with two through lanes and one curb lane. This section is generally used by taxis and other commercial vehicles.

The Departures Roadway is on the same level as the terminal concourse level and the third level (rental car ready/return area) of the parking garage. The Departures Roadway, like the Arrivals Roadway, is also divided across its width into two sections. The section adjacent to the terminal building is a four-lane roadway with two through lanes and two curb lanes. The curb lanes are used for passenger drop-off by private vehicles, charter/tour buses, taxis, and off-site shuttles. The section adjacent to the parking garage is a two-lane roadway with one through lane and one curb lane. This section is used by limousines, employee shuttles, and Capital Metro.

Airport Parking

ABIA currently provides approximately 10,320 total public parking spaces, located in a three-story short term parking garage (2,450 spaces), an express (close-in) parking lot (Lot A) (1,820 spaces), and several long term parking lots (Lots B to F) (6,050 spaces). The first and second levels of the parking garage are used for short term parking, while the third level is used for rental car ready/return and storage and by DOA Management and Airline Station Managers. The first floor of the garage is on the same level as the Arrivals Roadway and baggage claim area of the terminal, while the third floor is on the same level as the Departures Roadway and concourse level. Pedestrian crosswalks connect the garage and the terminal building on both the Arrivals and Departures Roadways.

There are also off-airport parking facilities on SH 71 and in the vicinity of the SH 71/Riverside Drive intersection. The off-airport parking facilities are Parking Express (1,500 spaces), Airport Fast Park (2,500 spaces), ABI Park and Ride (380 spaces), and ACE Valet Parking (75 spaces).

Employee Parking

Employee parking was previously provided in a temporary employee parking lot located southeast of the terminal building and has since been relocated to Lot G in the long-term parking area, with approximately 1,100 spaces. In addition, there are approximately 60 reserved spaces for DOA employees and airline station managers on the third floor of the parking garage. Employee parking spaces are also provided in various airport ancillary areas (e.g., air cargo, inflight catering, airline freight, etc.).

Transit Services

ABIA is currently served by one public transit bus operator, six taxicab operators, as well as various limousine, livery, shared-ride shuttles and charter bus operators. In addition, courtesy (free) shuttles are provided by hotels and off-airport rental car companies. AMPCO operates courtesy (free) airport parking shuttles between the surface parking lots and the terminal. The Ground Transportation Staging Area (GTSA) provides staging spaces for commercial vehicles prior to dispatching to the terminal passenger pickup area. Access to the GTSA is provided by Spirit of Texas Drive north of Rental Car Lane. The island provides driver amenities such as rest areas, vending machines, rest rooms, and phone booths. Most commercial vehicles (except Capital Metro buses, parking shuttles and Super Shuttles) are required to go through the GTSA before they pick up passengers at the terminal.

Rental Car Operations

Nine rental car companies currently operate at ABIA. Rental car counters are located in the east and west wings of the baggage claim area. The rental car ready/return (R/R) area is located on the third floor of the parking garage, providing approximately 1,120 R/R spaces. Access to the R/R area is provided by ramps that connect directly to the Terminal Loop Road. There is no connection between the R/R area and the lower levels of the parking garage.

Rental car service and storage areas are located in individual leasehold lots along Rental Car Lane located northeast of the long term parking lots. The service and storage areas occupy a total land area of approximately 39.1 acres. The total area used for rental car operations (including R/R, storage and service areas) is approximately 48.2 acres.

OTHER AIRPORT FACILITIES

Air Cargo Facilities

Air cargo facilities occupy approximately 61 acres adjacent to SH71, on the northern boundary of the Airport. The cargo facility features landside roadways and parking for customers, trucks, and service vehicles; buildings and paved areas for the handling/processing of air freight; landside loading docks for delivery/receipt of cargo from trucks; office areas for management, administration and cargo sales activities; and aircraft taxiway and parking ramps. The cargo facility is fully occupied by major air cargo carriers, and smaller tenants.

Approximately 80 percent of all inbound and outbound cargo and mail is carried on all-cargo flights with the remainder being transported on passenger flights (belly freight).

Chapter 2 2-19 Existing Conditions

Air Cargo Buildings

The air cargo facilities occupy four buildings with a total area of approximately 226,908 square feet on 27.0 acres of land (see Table 2-5). These facilities are managed by Lynxs Group CargoPort and Aeroterm.

Table 2-5
EXISTING AIR CARGO FACILITIES

		Truck Docks		
Facility	Land (ac)	Building (sf)	(Landside)	Auto Parking
Lynxs Building One	7.3	75,000	28	127
Lynxs Building Two	7.1	80,580	30*	181
Lynxs Building Three	2.2	20,160	13	44
Aeroterm Building One	10.4	51,168	34	88

^{*}Note: Five truck docks at Lynxs Building Two are 24 feet wide.

Air Cargo Aircraft Apron

A total of 1,500,000 square feet of aircraft parking apron and taxiway for all-cargo aircraft exists on the Airport. The number of aircraft accommodated will depend on the mix of aircraft. The air cargo buildings have approximately 2,030 linear feet of apron frontage. The cargo apron is served by a central taxi-lane that has been laid out to accommodate Design Group IV aircraft on the north side and Design Group V aircraft on the south side (although it is not striped for Group V now). The single taxi-lane for the cargo apron is subject to congestion during busy periods.

Belly Freight Facilities

Belly freight facilities are located at 3400 Spirit of Texas Drive, between Spirit of Texas Drive and the West Service Road, immediately north of the Terminal Apron. The belly freight facilities consist of two buildings and occupy 4.94 acres. The total building area is 57,652 square feet, with 33,352 square feet in Building One and 24,300 square feet in Building Two. The facility has 90 vehicle parking spaces. Overall management of these facilities is provided by Aviation Facilities Company, Inc. and Signature Flight Support.

Airport Maintenance Complex

The Airport Maintenance Complex facilities are located in two distinct areas along Bergstrom Drive, and one distinct area located along New Airport Drive. The main maintenance building is located at 3601 Bergstrom Drive and houses three DOA Divisions – Field Maintenance, Building Maintenance and Facility Services, and provides approximately 34,000 square feet of office space and 30,000 square feet of fenced outside storage. The Motor Pool facility is located at 3819 Bergstrom Drive and provides 12,000 square feet (sufficient for 180 vehicles).

The Maintenance Division has a maintenance facility located immediately east of the passenger terminal off New Airport Drive that provides 30,000 square feet of storage, and open shop areas. Expansion of the east concourse of the passenger terminal will impact this facility. Within the passenger terminal there is a need for additional janitorial space as the existing allocation (2,500 square feet) is not adequate to accommodate janitorial needs.

Flight Kitchens

Sky Chefs operates an on-airport facility to provide cabin meal services to commercial airlines. This facility is located on the southwest corner of the intersection of New Airport Drive and Service Avenue, adjacent to the Central Plant. Sky Chefs occupies a 25,500 square foot building on a leasehold of approximately three acres. The facility includes 63 parking spaces, three landside loading docks, and six airside loading docks. Plans currently allow for an approximate 3,290 square foot expansion. The caterer estimates the kitchen operates at 60 percent of its capacity of 4,000 meals per day.

Aircraft Rescue and Fire Fighting (ARFF) Facilities

In addition to aircraft incidents, ARFF is also responsible for structural fires on the Airport. The ARFF facilities at ABIA currently occupy a 2.6-acre site, with 2.1 acres available for future expansion. It is located approximately 2,000 feet due South of the Terminal and approximately 1,835 feet west of Runway 17L-35R. Access to the ARFF station is on General Aviation Avenue approximately 1½ miles from Burleson Road. ARFF is housed in a 10,840 square foot building which is fully equipped with kitchen, sleeping quarters, training room, exercise area, and offices for Administrative personnel. Attached to the ARFF Station are 3 drive-through two-vehicle-deep bays (5,530 square feet) housing the FAA required equipment.

FAR Part 139.319 states the response time requirements in the event of an emergency at the airport. It states that within three minutes from the time of the alarm, at least one required ARFF vehicle must reach the midpoint of the farthest runway and begin application of required extinguishing agents. It also states that within four minutes of the alarm, all other required vehicles must reach this point. The Airport currently complies with these requirements.

Ground Service Equipment (GSE) Facilities

Delta, Southwest, Continental, American Airlines, and Signature Flight Support have GSE maintenance facilities located 2,500 feet north of the Terminal Apron, east of the West Runway System off Spirit of Texas Drive. This leasehold occupies 2.1 acres and includes a 10,228 square foot building with a 668 square foot auxiliary material storage building. Overall management of this facility is provided by Aviation Facilities Company, Inc. and Signature Flight Support. The facility is operating at capacity and lacks storage space.

General Aviation Facilities

General aviation operations include corporate, industrial, agricultural, public and emergency services, business, charter, personal and sport flying. General aviation activity at the Airport accounted for approximately 42 percent of aircraft operations in 2000.

Fixed Base Operators (FBOs) at ABIA are Trajen Flight Support and Signature Flight Support. Both facilities are located adjacent to, and west of, the east runway complex at 4309 and 4321 General Aviation Avenue, respectively. Both full-service FBOs feature newly constructed terminal buildings, hangar facilities, and associated products and services. Fuel storage facilities are located at each FBO. Currently, ABIA has approximately 126 based general aviation aircraft.

The Trajen Flight Support facility occupies a lease area of 46.68 acres, with an option to lease an additional 19.22 acres. Trajen Flight Support has five 100-foot by 120-foot hangars with 2,000 square feet of office space, a 14,000 square foot terminal building, and parking for 237 cars. The Trajen Flight Support apron is 414,000 square feet. Trajen Flight Support recently constructed an additional 282,000 square feet of apron area immediately north and contiguous with its current facilities. The facility includes one 144-foot by 160-foot hangar (with plans for an additional 144-foot by 160-foot hangar) and one 144-foot by 100-foot hangar. The expanded apron and the 144-foot by 160-foot hangar, along with a taxiway connecting the expansion to the East Runway system, was completed in 2002.

The Signature Flight Support facility occupies a lease area of 45.72 acres with a 20 acre option. Signature Flight Support has five 120-foot by 120-foot hangars, a 9,350 square foot terminal building, and parking for 138 cars. The Signature Flight Support apron is 382,000 square feet. The City of Austin recently constructed an additional 292,500 square feet of Group II apron area immediately south and contiguous with Signature Flight Support's current facilities. The facility includes three T-hangar buildings occupying approximately 20 acres as follows: a 60-foot by 410-foot building with 16 units, a 50-foot by 460-foot building with 21 units, and a 60-foot by 400-foot building with 17 units.

Military Facilities

The Texas Army National Guard-Austin Army Aviation Support Facility (AAASF) temporarily occupies two midfield sites for a total of 51.7 acres. Within these sites are 12 administrative and maintenance buildings and 3 aircraft hangars, with total areas of 170,500 square feet and 71,800 square feet, respectively. All of these structures remain from Bergstrom Air Force Base, and many of the building and hangars have potential for civilian reuse, particularly airport and aircraft maintenance. The hangars are served by Taxiway T, which also provides access to an existing concrete apron also known as the "Maintenance Apron", which is approximately 911,000 square feet in area. In the next three to five years the Texas Army National Guard AAASF will move from their current location to a 60 acre tract of land that will be leased from the City. This area starts at the intersection of Burleson Road and Aviation Drive near the south end of Runway 17R-35L.

Federal Aviation Administration Facilities

The Federal Aviation Administration (FAA) has constructed a new Air Traffic Control Tower (ATCT), and Terminal Radar Approach Control (TRACON) facility at ABIA. These facilities operate at ATC Level 9 and are accompanied by new weather observing/reporting facilities, and Navigational Aids. The ATCT/TRACON is the most prominent FAA facility on the Airport. Standing 227 feet tall (20 stories), it provides a commanding view of the entire ABIA runway and taxiway system. Centrally located on ABIA, this facility occupies 13 acres of land. The control tower is served by two independent power feeds and redundant data/telecommunication systems.

The FAA also has three remote transmitter/receiver (RTR) locations and an airport surveillance radar (ASR-9) location. The RTRs are located at the northwest corner of Runway 17R, the southwest corner of Runway 35L, and the northeast corner of Runway 17L. The ASR-9 is located approximately 1,800 feet east of the midpoint of Runway 17L-35R.

State Aircraft Pooling Board Facilities

The State Aircraft Pooling Board facility, located off Golf Course Road, occupies a lease area of 13.12 acres. The State Aircraft Pooling Board has four 160-foot by 120-foot hangars, one 12,800 square foot terminal building, 173 vehicle parking spaces, 5 handicapped accessible spaces, and four fuel tanks. The State Aircraft Pooling Board Apron is 314,000 square feet with 14 designated aircraft parking positions and a 10,350 square foot area for transient parking. Access to the East Runway system is by Taxiway E.

Fuel Facility

The aircraft fuel storage facility, located off Spirit of Texas Drive, occupies a lease area of 6.9-acres north of the main terminal apron, at the west end of the terminal building complex. The facility contains two above ground storage tanks, one with a capacity of 481,000 gallons and the other with a capacity of 691,700 gallons. Management of this facility is provided by Aircraft Service International Group.

Non-Aviation Facilities

Non-aviation facilities at ABIA include a Hilton Hotel, The City of Austin Learning Resource Center, The DOA Engineering and Operations, Landside Operations, Information Services buildings, the Cedars Golf Course, the Del Valle school site (presently vacant), and two cemeteries.

EXISTING SITE UTILITIES

The utility systems, like the airport itself, have undergone extensive improvements and expansion through the conversion from Bergstrom Air Force Base. Primary utility systems within the ABIA site are located within utility corridors, which have been established by a Memorandum of Understanding between the City of Austin Water and Wastewater Utility (W/WW) and the Department of Aviation. The corridors are owned by the Airport, but the utilities are owned and operated by the W/WW. All water and wastewater mains, as well as most electric, natural gas, and telecommunication lines are located

within these corridors. Storm water drainage lines and service lines for utilities are not located within utility corridors.

The utility systems serving ABIA are generally adequate and functional. Most systems were greatly expanded or entirely replaced during the conversion from Bergstrom Air Force Base.

Storm Water Drainage Facilities

An airside drainage system collects runoff from the Aircraft Operating Areas (AOA), which include taxiways, runways, aprons, and all undeveloped land between these areas. Surface water runoff sheet flows across open unpaved areas until it enters a grated inlet drainage structure. Underground pipes convey the discharge to either open channels or to natural drainage ways. Most of the airside does not generate contaminants such as those associated with vehicle parking areas; therefore, runoff from these areas does not typically require water quality treatment. However, runoff from the air cargo apron and passenger terminal apron requires treatment because activities such as aircraft fueling, deicing, and the operation of ground support vehicles can generate contaminants.

A landside drainage system collects runoff from all building roofs, vehicle parking areas, roads, and landscaped areas between these features. Surface water runoff sheet flows across open areas (typically paved) and then gravity flows into a surface drain that conveys the runoff through underground pipes to a system of Water Quality Ponds (WQPs). Landside impervious surfaces such as vehicle parking lots can generate contaminants that require treatment.

Runoff in the northeast portion of the site is discharged to an unnamed tributary, which flows north to the Colorado River located approximately 1,300 feet north of the Airport. Runoff in the northwest portion of the site is discharged to unnamed tributaries of Carson Creek, which also flows into the Colorado River. The majority of the runoff from the western portion of the Airport is directed south and discharges into Onion Creek. A small amount of the western runoff is discharged off-site from an outfall located along U.S. Highway 183. Runoff from the central and southwestern portions of the Airport is directed via a series of drainage channels into Onion Creek. Onion Creek, in the southwestern portion of the site, runs both on and off the Airport property, and flows into the Colorado River approximately four miles east-northeast of the Airport. Runoff in the southeastern portion of the site is directed by a series of drainage channels and natural drainage ways into Onion Creek.¹

Domestic Water and Fire Supply Facilities

ABIA is entirely within the City of Austin water service area and receives water service from the City's Water and Wastewater Utility. The City serves the site by a 24-inch transmission main on State Highway 71 and a 36-inch transmission main on Burleson Road. Water pressure in these transmission mains is established by the City's Pilot Knob Reservoir. The internal water system is connected to the City system at several points. The primary service connections to the City's mains are at State Highway 71 near Spirit of Texas Drive and Burleson Road near General Aviation Avenue. A 16-inch pipe is

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¹ Storm Water Pollution Prevention Plan – Austin-Bergstrom International Airport, March 1999.

connected to the City's mains at these two locations and runs through the Airport within utility corridors that sweep around to the east of the parking and terminal areas and to the immediate east of General Aviation Avenue. Several loops and branches up to 12 inches in size are connected to the 16-inch pipe and provide domestic water service and fire protection throughout the Airport.

The 12-inch water main along Spirit of Texas Drive that serves the Engineering and Operations Building, Learning Resource Center and the rental car facilities existed at Bergstrom Air Force Base. This pipe is undersized and has had numerous breaks since the beginning of ABIA operations. The main serving the Texas National Guard facilities was an existing Bergstrom Air Force Base main. Although this main meets the airports current needs, future development south of the guard facilities will require main replacement.

Electrical Power Distribution Facilities

ABIA is entirely within the City of Austin electric service area and receives electric service from Austin Energy. The site receives service at two locations: one at the north end of the Airport at State Highway 71 and one at the south end at Burleson Road near General Aviation Avenue. The north system is completely underground and serves all facilities north of the General Aviation area, including the Terminal. The south system is overhead and serves all facilities along General Aviation Avenue to a point near the north end of the Trajen Flight Support lease option area.

Wastewater Utility Facilities

ABIA is entirely within the City of Austin wastewater service area and disposes of wastewater to the collection system owned and operated by the City's Water and Wastewater Utility. This system discharges to the City of Austin's South Austin Regional wastewater treatment plant facility which is located northeast of SH 71.

Natural Gas Facilities

ABIA receives natural gas service from Southern Union Gas through a main located in the right of way of State Highway 71. The gas service enters the site through a 6-inch line near Spirit of Texas Drive and provides service to most on-site facilities through a 6-inch loop that roughly follows Presidential Boulevard. A 6-inch branch provides service to the General Aviation facilities as far as the Signature Flight Support facility. ABIA owns all gas mains and lines on the Airport, but Southern Union Gas operates them.

Communications Facilities

All telecommunication services at ABIA for both the Department of Aviation and all tenants enter the airport at the telecommunications building. This building is located within the "footprint" of the surface parking facility, and is immediately adjacent to the shuttle bus parking area. The building is approximately 6,800 square feet, with office and training areas, as well as parts storage and work areas. It is the location of the primary servers for all data and telecom services on the Airport. There is also a

news media communications room, restroom accommodations, and HVAC systems that are sufficient to safeguard sensitive electronic equipment. This building was used as the central communications facility for Bergstrom Air Force Base and is constructed with heightened security in mind.

Telecommunication services enter the telecommunications building from a location at State Highway 71 and Spirit of Texas Drive. The system is then distributed throughout the ABIA site via a cable system, consisting of copper and fiber conductors, contained in underground conduits. Many conduits at the Airport remain empty for future use, including many of the eight 4-inch conduits that run along the east side of Taxiway C.

Central Utility Plant

Hot and cold water is provided to the terminal building from a heating and cooling plant located east of the terminal building, and north of the terminal ramp. The Central Plant is an 11,023 square foot facility located on a 1.76-acre site, and includes the building, heating and cooling machinery, a thermal storage system, and associated mechanical and electrical equipment. Supporting the Central Plant facility is a 3,443 square foot cooling tower pad with three cooling tower cells. Plant capacity is sufficient for the existing terminal building.

Waste Disposal and Recycling

The Department of Aviation, as well as each tenant at ABIA, contracts independently with waste disposal and recycling service providers. The Department of Aviation contracts with BFI for waste disposal and recycling services, but each tenant is free to change providers according to their own needs. The DOA participates in a recycling program. The total volume of recycled material reported for 2000 was approximately 2,770 cubic yards of paper, aluminum, plastic, and cardboard.