System Plan Classifications

One of the primary functions of airport system planning is the appropriate classification of OASP airports by time period. OASP airports are classified into four categories: airport service level, airport design standard, airport reference code and airport classification. The first three classifications are Federal Aviation Administration (FAA)-developed classifications used in the National Plan of Integrated Airport Systems (NPIAS). The fourth, the airport functional classification, was developed for the OASP to further clarify the function of each airport. The definitions for these classifications are provided in this section.

Service Level

The airport service level reflects the type of service provided by the airport to the community. There are four airport service levels: general aviation airport (GA), reliever airport (RL), non-primary commercial service (CM) and primary commercial service (PR). The following is a description of the service level categories used to classify airports.

General Aviation Airport (GA)

General aviation airports provide access to the population and economic activity centers of the state. An objective of the OASP is to provide access to population and mineral resource centers for business jet aircraft and to agricultural resource centers for piston-powered aircraft within a reasonable surface access time. Reasonable surface access time is defined as 30 minutes or less ground travel time (FAA Order 5090.3B, Field Formulation of the National Plan of Integrated Airport Systems, September 1985). For the OASP, a 25-statute mile radius is used to estimate an average ground travel time of 30 minutes.

Reliever Airport (RL)

Reliever airports reduce congestion at commercial service airports in Metropolitan Statistical Areas (MSAs), as defined by the U.S. Office of Management and Budget (OMB), by providing general aviation users with alternative airport facilities. Reliever airports provide capabilities similar to the commercial service airport being relieved. Relievers are all-weather, instrumented facilities that primarily serve itinerant general aviation aircraft. Relievers are located in such a manner, with respect to the city center or business or industrial activities served so that they provide user conveniences equivalent to those provided by the relieved airport.

The OASP includes three reliever airports. Wiley Post Airport in Oklahoma City and the University of Oklahoma Westheimer Airport in Norman are relievers to Will Rogers World Airport. Richard L. Jones, Jr. Airport in Tulsa is a reliever to Tulsa International Airport.

The FAA makes reliever airport designations. At one time, relievers competed for specifically designated Airport Improvement Plan (AIP) reliever funding on a national basis. This is no longer the case, there is no more reliever set-a-side funding. However, the designation has been retained to recognize the critical role that reliever airports play within metropolitan areas.

Non-Primary Commercial Service (CM)

A non-primary commercial service airport is an airport that receives scheduled passenger service and enplanes at least 2,500, but less than 10,000 passengers annually, as reported by the FAA. There are two non-primary commercial service airports in the OASP: Enid Woodring Regional in Enid and Ponca City Regional in Ponca City.

Primary Commercial Service (PR)

A primary commercial service airport is an airport that receives scheduled passenger service and enplanes 10,000 or more passengers annually, as reported by the FAA. There are three commercial service airports in the OASP: Lawton-Fort Sill Regional in Lawton, Will Rogers World in Oklahoma City and Tulsa International in Tulsa.

Although there is strong interest by some communities in attracting scheduled air passenger service, no assessment or evaluation of the feasibility or potential for additional scheduled passenger service has been done as a part of the airport system planning process.

Airport Role

The role of the airport influences its design and determines the type of aircraft the airport can accommodate. In the case of commercial service airports (PR and CM), the role also influences the nonstop routes and markets the airport serves. There are three airport roles associated with commercial service, reliever and general aviation airports. These roles are basic utility, general utility and transport.

Closely associated with the role of the airport is the design standard for the airport. The design standards associated with the basic utility role are Basic Utility I and Basic Utility II. The design standards associated with the general utility role are General Utility I and General Utility II. The design standard associated with the transport role is the Transport design standard. These definitions are clarified below.

- Basic Utility: Basic Utility airports are small airports designed primarily for single-engine and some light twin-engine aircraft. Precision approaches are not anticipated.

- General Utility: General Utility airports are designed for a broader spectrum of general aviation aircraft than are basic utility airports. The airports can accommodate air-taxi and scheduled commuter services. General Utility airports will accommodate most air-taxi and commuter aircraft with 20 seats or less and some business jet aircraft with low approach speeds. General Utility airports can serve as reliever airports when substantial use by jet or large corporate aircraft is not

anticipated. Precision instrument approaches may be anticipated at some General Utility airports.

- Transport: Transport airports are designed for use by aircraft that cannot be accommodated by a General Utility airport. Commercial service airports are designed as Transport airports. Transport airports also serve large corporate aircraft and business jet aircraft with higher approach speeds. Precision approaches are provided at Transport airports designated as commercial service level and at some Transport airports with a Reliever or General Aviation service level.

Design Standard

The airport roles of Basic Utility, General Utility and Transport are refined further into runway design standards. The design standards are defined as follows.

- Basic Utility Stage I. This type of runway serves 75 percent of the small (12,500 pounds or less) single-engine and twin-engine aircraft in Aircraft Approach Categories A and B used for personal and business purposes. Precision approach operations are not anticipated. This runway type is designed for aircraft in Airport Reference Code A-1.

- Basic Utility Stage II. This type of runway serves 95 percent of the small (12,500 pounds or less) single-engine and twin-engine aircraft in Approach Categories A and B. This includes all aircraft served by Basic Utility Stage I runways, plus some small business and air-taxi twin-engine aircraft. Precision approach operations are not anticipated. This type of runway is designed for aircraft in Airport Reference Code B-1.

- General Utility Stage I. This type of runway serves 100 percent of the small (12,500 pounds or less) single-engine and twin-engine aircraft in Aircraft Approach Categories A and B. Precision approach operations are not anticipated. This type of runway is designed for aircraft in Airport Reference Code B-II.

- General Utility Stage II. This type of runway serves all aircraft included in General Utility Stage I, plus most of the large aircraft (60,000 pounds or less) in Aircraft Approach Categories A and B. The runway may have the capability for precision-approach operations. This type of runway is normally designed for aircraft in Airport Reference Code B-II.

- Transport. This type of runway serves all the aircraft accommodated by Basic and General Utility runways, plus general aviation aircraft in Aircraft Approach Categories C and D. This type of runway is normally designed for aircraft in Airport Reference Code C-II.

Airport Reference Code (ARC)

The airport reference code is a coding system used to relate airport design criteria to the operational and physical characteristics of the aircraft intended to operate at the airport. The airport reference code has two components pertaining to the airport design aircraft. The first component, depicted by a letter, is the aircraft approach category and relates to the aircraft approach speed, an operational characteristic. The second component, depicted by a roman numeral, is the aircraft design group and relates to the aircraft wingspan, a physical characteristic.

Generally, runway standards are related to aircraft approach speed, aircraft wingspan and the approach visibility minimums. Taxiway and taxilane standards are related to aircraft design group.

As part of the system planning process, information on the types of aircraft using each system plan airport is collected, typically, during the regional planning meetings, but also from other sources. Information is also collected on any aircraft users desiring to use a particular airport, but who are unable to do so because of airport design limitations. This information is one of the criteria that the Commission staff use to develop the recommended airport reference code by time period for each system plan airport.

Most system plan airports with a general aviation service level have aircraft approach category designations of A, B or C and an aircraft design group designation of I or II (See following definitions). Airports with a commercial service service level may have aircraft approach category designations of D or E and aircraft design group designations of III, IV, V or VI.

Aircraft Approach Category. A grouping of aircraft based on 1.3 times their stall speed in their landing configurations at their maximum certificated landing weight. The categories are:

Category A: Speed less than 91 knots;
Category B: Speed 91 knots or more, but less than 121 knots;
Category C: Speed 121 knots or more, but less than 141 knots; and
Category D: Speed 141 knots or more, but less than 166 knots.

Aircraft Design Group. A grouping of aircraft 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; and
Group VI: 214 feet up to , but not including 262 feet.

Example Airport and Aircraft Classification

Example classifications of airports with their associated aircraft types are provided below.

Service Level — General Aviation; Role — Basic Utility; Design Standard — Basic Utility Stage I (BU-I); ARC — A-I; Small Aircraft (12,500 pounds or less):

Aerospatiale TB10 Tobago
Aerospatiale TB20 Trinidad
Aerospatiale TB360 Tangara
Bellanca Viking 17-30A
Cessna 150/152
Cessna 172 Skyhawk
Cessna 177 Cardinal
Cessna 180/185 Skywagon
Cessna 182 Skylane
Cessna 206 Stationair

Cessna 210 Centurion
Cessna 337 Skymaster
Gulfstream American Lynx
Gulfstream American Cheetah
Mooney Allegro
Mooney Bravo
Mooney Eagle
Mooney Encore
Mooney Ovation
North American Rockwell Commander 111, 112, 114
Piper PA-20 Pacer
Piper PA-22 Tri-Pacer
Piper PA-24 Comanche
Piper PA-28-161 Warrior 3
Piper PA-28-181 Archer 3
Piper PA-28R-201 Arrow
Piper PA-32R-301 Saratoga
Piper PA-34-220T Seneca 5
Piper PA-44-180 Seminole
Piper PA-46-350P Malibu Mirage
Raytheon Beech Bonanza A36
Raytheon Beach Bonanza B36TC
Raytheon Beach Bonanza F33A
Raytheon Beach Bonanza V35B
Raytheon Beach Baron B55/E55
Raytheon Beech Duchess 76

Service Level — General Aviation; Role — Basic Utility; Design Standard — Basic Utility Stage II (BU-II); ARC — B-I; Small Aircraft (12,500 pounds or less):

Cessna 402
Cessna 404 Titan
Cessna 414 Chancellor
Cessna 421 Golden Eagle
Embraer 121 Xingu
Gulfstream Cougar GA-7
Piper Cheyenne III-A
Piper 400LS Cheyenne
Piper 31-310 Navaho
Piper 60-602P Aerostar
Raytheon Beach Baron 58, 58P, 58TC
Raytheon Beech Duke B60

Service Level — General Aviation or Reliever; Role — General Utility; Design Standard — General Utility Stage I (GU-I); ARC — B-I or B-II; Small Aircraft with less than 10 passenger seats:

Cessna 441 Conquest
Cessna 206B Super Cargo Master
Cessna CitationJet
Commander 560
Fairchild Merlin III
Raytheon Beech E18S
Raytheon Beech King Air C90B
Raytheon Beech King Air B200

Typical Small Aircraft in Aircraft Approach Categories A and B, Design Groups I and II with 10 or more passenger seats:

Cessna 208 Caravan 675
Cessna 208B Grand Caravan
Cessna 421
De Havilland Twin Otter
Embraer 120
Fairchild Merlin IV
Fairchild Metro Executive
Mitsubishi MU-2
Raytheon Beech Airliner C99
Raytheon Beech King Air BE-200
Raytheon Beech King Air BE-300LW

Service Level — General Aviation or Reliever; Role — General Utility; Design Standard — General Utility Stage II; ARC — B-II; Large Aircraft (greater than 12,500 pounds and less than 30,000 pounds):

Bombardier Learjet 28
Bombardier Learjet 29
Bombardier Learjet 31A
British Aerospace Jetstream 31
Cessna Citation 7
Cessna Bravo
Cessna Excel
Cessna Ultra
Dassault Aviation Falcon 10
Embraer-110 Bandeirante
Fairchild Aerospace Merlin 4C
Israel Aircraft Industries Astra SP, SPX
Mitsubishi Diamond MU-300
Piaggio PD-808
Raytheon Beech 1900D Airliner
Raytheon Beech Jet BE 400 A
Raytheon Beech King Air 350
Raytheon Beech Starship BE 2000
Raytheon Aircraft Co. Hawker 800XP
Sabreliner Corp. Sabreliner 40, 60, 65
Shorts 330
Shorts 360

Service Level — General Aviation or Reliever; Role — General Utility; Design Standard — General Utility Stage II; ARC — B-II; Large Aircraft (greater than 30,000 pounds and less than 60,000 pounds):

Bombardier (de Havilland) Dash 8Q-200, Dash 8Q-300
Cessna Citation 10
Dassault Aviation Falcon 20, 50
Dassault Falcon 200
Dassault Aviation Falcon 900C, 900EX
Dassault Aviation Falcon 2000
Fokker F-27-500

Service Level — General Aviation or Reliever; Role — Transport; Design Standard — Transport; ARC — C-II; Large Aircraft (greater than 12,500 pounds and less than 60,000 pounds):

Bombardier Canadair SE
Bombardier Challenger 600W, 601-IA, 601-3A, 601-3R, 604
Bombardier Corporate Jetliner
Bombardier Learjet 35A, 45, 60
Dassault Aviation Falcon 50EX
Dassault Aviation Falcon 900B
Fairchild Aerospace Envoy 3
Fokker F-28-3000, F28-4000
Israel Aircraft Industries Galaxy
Raytheon Aircraft Co. Beechjet 400A
Raytheon Aircraft Co. Hawker Horizon
Sabreliner Corp. Sabreliner 80

Functional Classification

The OASP airports are further classified by the functional classifications of Regional Business Airport, District Airport and Community Airport. These functional classifications were developed to more accurately define the purpose of each airport within the system. The logic for these classifications is similar in concept to the classifications of rural principal arterial, rural minor arterial, rural collector and rural local road used to functionally classify the rural highway system.

The airport classifications previously described (service level, role, design standard and airport reference code) focus primarily on the types of aircraft the airport is designed to accommodate. These classifications are not sufficient to understand how individual airports function in a system or how they relate to each other. For example, the function of a rural interstate highway (functionally classified as a rural principal arterial) is to carry high volumes of all types of highway vehicles traveling long distances. The function of a regional business airport is to accommodate high volumes of all types of general aviation aircraft under all weather conditions. Interstate highways are spaced considerable distances apart, for example, there are 27 east-west and 32 north-south interstate highways crossing the U.S. Due to demand and cost, it is economically feasible to provide only a limited number of these high-order facilities. Similarly, due to demand and cost, it is economically feasible to provide only a limited number of Regional Business Airports.

The functional classification is important as it will affect the role and the design standard for participation by the state and federal government with regard to a particular airport. It affects the capital items that are eligible for programming in the Capital Improvement Program (CIP), and it also affects the priorities used to prepare the CIP.

Why A Functional Classification System?

There are a number of reasons for the functional classification system. Over the past two decades, the cost of personal flying has increased, and the amount of personal flying has declined. At the same time, the amount of business flying has increased. The number of new general aviation aircraft delivered and the total number of general aviation aircraft has declined since 1983. However, the value of the aircraft delivered has increased steadily through the entire time period. This implies that the aircraft being sold are the expensive aircraft, the $1 million plus aircraft and the several million dollar aircraft. These are the aircraft being used by businesses and corporations.

The cost of owning and operating aircraft has increased, while at the same time the cost of alternative transportation, particularly commercial passenger transportation, has decreased, primarily because of airline deregulation. The quality of surface transportation, the highway system, has shown dramatic improvement since 1983, as has the quality of personal use vehicles, automobiles, sports utility vehicles and pick-up trucks used for intercity transportation.

The overall structural condition of the airports included in the OASP has declined for a number of years. The functional integrity of these airports, the condition of the runway, taxiway, apron pavements and lighting systems was not as good in 1999 as it was in 1995 or 1990. This decline is a result of insufficient capital to maintain the amount of infrastructure that has been built. Neither the federal government nor the state government has proportionally been able to provide the funds that they were able to provide when these airports were built. Local governments have been unable to provide, from local funds, sufficient capital to make up for the decline in state and federal funding for general aviation airports. Many local governments have difficulty finding sufficient local revenue to properly maintain and operate their airport. More

recently, since implementation of the federal Non-Primary Entitlement (NPE) program in fiscal year 2001, the structural condition of these airports eligible for NPE funding has improved, and, as a result, the overall condition of the airports in the system has improved.

One purpose of the system planning process is to help focus capital resources on those airports where the investment in improvements will provide the most benefit for the system as a whole. The functional classification system will help achieve this purpose.

Without question, a single airport can effectively serve multiple communities, and this is a key part of the Regional Business Airport concept. In terms of the sponsorship of airports it does not work this way. In almost all cases, an airport is financially supported by one sponsor. That one airport sponsor is bearing the cost burden for maintaining and operating a facility that serves a geographic area much larger than the corporate limits of the airport sponsor and, in most cases, an area larger than the county where the airport is located.

Characteristics of a Regional Business Airport

A key characteristic of a Regional Business Airport is that it serves multiple communities. Typically, it will serve a community of at least 5,000 persons, generally larger. It will serve a county population of 10,000 or more persons. It is located near the center of a local sustaining economy. Local sustaining economies are geographical regions that function with some degree of independence from the rest of the state. The Oklahoma Department of Commerce (ODOC) has identified 47 of these regions. The airports functionally classified as Regional Business Airports closely match the local sustaining economies identified by the ODOC. Regional Business Airports serve major employers that are defined as businesses with 50 or more employees. Major employers are typically the types of companies that use corporate aircraft or whose customers or suppliers use corporate aircraft.

It is critical that the sponsor of a Regional Business Airport demonstrate the financial capability to continue to develop, maintain and operate their airport and demonstrate continuing interest in their airport. In some cases, communities have the financial capability, but not the interest. In other cases, communities have the interest, but not sufficient financial capability. To make the Regional Business Airport concept work, the airport sponsors must be financially capable and have a strong community interest.

Typically, a Regional Business Airport will have 20 or more based aircraft and provide services to general aviation piston-powered aircraft, turboprop and jet aircraft. The airport is attended and has an on-site manager. The airport has jet fuel and aviation gasoline available. Typically, there will be a fixed based operator providing airframe and engine repair services, flight instruction and aircraft rental. The airport also has a modern public terminal building.

A Regional Business Airport is already, or can be developed into, a General Utility Stage Two (GU-II) or Transport (T) airport design standard. A Regional Business Airport also has a non-precision instrument approach. In the future, with the improving global positioning system (GPS) technology, many of the Regional Business Airports will have the capability of approach minimums as low as three-quarters of a mile visibility and 300 feet ceiling height, and many will have vertical approach guidance. Terminal weather reporting is essential for achieving an all-weather capability at a Regional Business Airport. Many of the Regional Business Airports now have weather observation equipment on the airport, and additional systems are being installed. These systems allow pilots to obtain, prior to takeoff and during flight, the weather conditions at the destination airport.

Characteristics of a District Airport

The District Airport is the second functional classification. Typically, these airports are providing access to a part of the state that is not well served by a Regional Business Airport. They are also airports whose sponsor has demonstrated a financial capability and continuing interest in the airport. Normally, there will be about five or more based aircraft at these airports or an equivalent number of annual itinerant operations. The airports are attended, aviation gasoline is available and there is a public terminal building.

Characteristics of a Community Airport

The Community Airport is the third functional classification. These are entry-level airports. These airports routinely serve small communities. In almost all cases, the city population is less than 5,000, and for many, the population is less than 2,000. Usually, they are not attended, many have no services available, and the sponsor has limited financial capability to fund capital improvement work on the airport.