DEDICATED TO HELPING BUSINESS ACHIEVE ITS HIGHEST GOALS.

NBAA

AIRPORTS HANDBOOK

NBAA Guidance for Supporting Your Local Airport

INTRODUCTION

AIRPORTS ARE ESSENTIAL

Rapid, virtually instantaneous, electronic communication has become a fundamental aspect of life in the 21st century. Mobile, wireless, high-speed Internet access not only is indispensable to doing business; it is an important part of enriching our personal lives. Without the capability to access and move vast amounts of data seamlessly around the world, the pace of global commerce would slow to a crawl, productivity would plummet and our ability to connect to friends and business partners would be stymied.

Just as life without high-speed communication would be hard to imagine, it would be equally difficult to envision modern life without air transportation.

Since flying began making the world a smaller place a century ago, the ability to traverse long distances quickly has become progressively faster, easier, safer and more efficient, thanks to dramatic advances in aviation technology.

For the majority of travelers, the commercial air transportation options available at the approximately 550 airports served by airlines in the United States are adequate to meet their needs. Like dial-up access to the Internet, these commercial service airfields allow people to utilize the fastest mode of transportation, albeit in the congested slow lane.

General aviation (GA), however, has been on the leading edge of the high-speed transportation revolution. GA provides rapid, on-demand transportation by utilizing a network of more than 5,000 smaller, public-use U.S. general aviation airports – the air transport equivalent to the fast lane of the Information Superhighway. These portals – closer to travelers' final destinations and easier to access than the congested U.S. major hubs through which most airline passengers pass – have minimized the time needed to travel between two points.

Without this vital network of U.S. general aviation gateways (and thousands more like them across the globe), the four corners of the world would again be distant, hard-to-reach places. Especially for business people who rely upon on-demand air transportation to maximize their travel efficiency, these general aviation airports are indispensable infrastructure.

AIRPORTS ARE VALUABLE TO EVERYONE

Airports are not only important to air travelers; they provide significant economic and quality-of-life benefits to the communities in which they are located. Airports create jobs for local residents – either directly through the aviation companies based on an airfield, or through the associated businesses that spring up nearby to support the activities of these transportation centers. In turn, these employers generate important tax revenues for cities, counties and states.

Furthermore, airports help keep existing employers in a community and attract new ones to a region because companies are eager to capitalize on the transportation and competitive business advantages offered by airports – most importantly, easy access to world markets. Business developers and venture capitalists look for ready access to air transportation when they make decisions on where to locate new businesses and facilities. In fact, without an extensive network of airports, the "just-in-time" model of inventory management would be impossible. The ability to move people and goods quickly through airports has tangible benefits for everyone, not just air travelers. The fresh fruits and vegetables available in your local grocery store, exotic plants and flowers that can be purchased at the florist year-round, and the overnight packages that you receive daily all would not be possible without an airport nearby.

Indeed, airports improve and enhance our daily lives in many ways:

- Emergency medical services and air ambulance operators provide critically injured people timely access to specialized medical treatment through airlift operations and air transport of human organs for transplants.
- Agricultural aircraft operators sow seeds and protect crops.

- Federal, state and local law-enforcement agencies use hundreds of airplanes and helicopters to apprehend and transport criminals.
- Airports even play an important role in recreation by providing easy access to vacation destinations, helping generate tourism income and enabling hundreds of thousands of Americans to fly their own airplanes for business and pleasure.

In short, airports are economic engines that facilitate the flow of commerce, create business opportunities and enhance the quality of life, especially in the communities in which they are located.

EVERY AIRPORT PART OF THE NETWORK

Basically, the U.S. network of more than 5,500 public-use airports consists of commercial and noncommercial (general aviation) airfields.

Commercial service airports – those fields that primarily offer airline flights – come in various sizes – small, medium and large, depending on how many passengers or flights they handle. Typically, these facilities have large passenger terminals and multiple, longer runways designed to accommodate the biggest airliners. The largest commercial airports, such as Chicago's O'Hare International Airport, serve as hubs in the hub-and-spoke systems of connecting airline service. Together, the 29 large hub airports account for two-thirds of all U.S. commercial passenger traffic and have little general aviation activity. These large airports are more prone to delays than smaller, less-congested GA airports.

By contrast, the more numerous general-aviation airports have shorter runways and smaller facilities that are designed for private flyers, from student pilots to corporate aircraft and charter flights. Most of these smaller noncommercial airports do not have airline service. In some rural areas, GA airports are the only air transportation link to the rest of the country. In major metropolitan areas, smaller airports that cater to general aviation are called "relievers" because they offer light aircraft a less-expensive and more convenient alternative to operating from congested commercial airports.

Just as the Internet would be much less useful if there were fewer computer networks linked to the system, the national and international network of airports is weakened each time an airfield is closed or when artificial constraints on usage – curfews, noise limits or other operating restrictions – are imposed. Such limits can cut a local community's transportation and economic lifeline to the rest of the world. That is why we must do all we can to preserve and protect these vital assets, which are essential elements of our national way of life and economic health.

ECONOMIC IMPACT

AIRPORTS ARE ECONOMIC ENGINES

Obviously, airports are vital transportation centers, but they also are economic engines that bring tangible monetary benefits – commerce, jobs, products and services and tax revenues – to the local communities in which they are located, to their surrounding regions and to the nation as a whole. A 1998 study commissioned by the FAA found that U.S. civil airports contribute $850 billion to the American economy each year, with $30 billion of that being generated by general aviation activities alone.

The economic impact of an airport goes well beyond the airfield's perimeter fence. In fact, the true financial value of an airport is the sum of the direct, indirect and induced economic activity that occurs because of the airfield. The number of jobs attributed to an industry is always greater than simply those in the industry itself, due to the re-spending of money, commonly called the "multiplier effect." As the people who work in and around an airport spend part of their incomes locally, this triggers successive rounds of economic activity throughout the local and regional economy.

Given the breadth and depth of activities that occur at any airport 24/7, it is no surprise that aviation enterprises contribute significantly to economic vitality. Passenger airlines, cargo carriers, on-demand charter operators, fixed based operators, flight departments, flight schools and

aircraft maintenance operations all provide a variety of well-paying aviation jobs.

In addition, the many travel-related services offered by companies based on or adjacent to airports also generate significant economic activity. Consider all the hotels, restaurants, car rental companies and taxi, limousine and parking services that serve each airfield. And there are dozens of other travel support companies typically located on or near airports, from caterers and currency exchange services to florists and other retail shops. Especially at larger airfields, the diversity of products and services that are offered makes the airport a virtual city.

All of the people who utilize airports – especially business and leisure passengers who arrive by airliner and business people who travel on business aircraft – spend money in the local economy. In addition to purchasing food and lodging, leisure travelers patronize area recreational facilities such as golf courses and resorts. Naturally, airports located near vacation destinations often enjoy the substantial benefits of such discretionary spending.

However, it is business people who travel to and from local airports across the country that have perhaps the largest economic impact. Everyone knows that tens of thousands of business people pass through commercial airports each day. But often unseen are the thousands of marketing, professional and technical support staffers who arrive daily via business aircraft at the more than 5,000 public-use general aviation airports across the United States.

Perhaps most important, these business aircraft carry many of America's top corporate leaders into and out of GA fields on a regular basis. Because these busy executives value the mobility and travel efficiency that business aircraft offer, they often choose to locate corporate facilities near general aviation airports, which gives them rapid access to their customers and world markets. For these key decision-makers, such quick, convenient access is invaluable, but for the nearby communities that are the economic beneficiaries of the multimillion-dollar deals these executives make, the reward is measured in hundreds, if not thousands, of jobs and millions in tax revenues.

CALCULATING THE VALUE OF YOUR AIRPORT

An airport, like any other government-financed infrastructure, must compete for funds with other government activities. Thus, the local political process often determines an airport's fate. It is important that local business, civic and government leaders understand and appreciate the economic value of your airport if they are to make informed decisions about its future.

Airports produce economic benefits that offset the tax dollars spent on operating and maintaining those aviation facilities. Calculating the actual value of those benefits will enable airport supporters to prove the value of their airport and make a strong case for its continued existence within the community.

Your airport organization can perform an elementary economic impact study to document that the airport attracts outside dollars and contributes economic benefits such as jobs, services and taxes. Here are some simple steps to take to produce a basic economic-impact study for your general aviation airport:

- Contact your local or regional planning commission, chambers of commerce and tourist authorities so you can obtain a commonly accepted economic "multiplier" for your region.
- Determine indirect impacts for your airport by contacting the airport manager or local FAA Airports District Office to obtain the annual traffic count for transient general aviation operations.
- Divide this number by two to arrive at the number of arrivals and multiply it by assumed aircraft occupancy of 2.5 for each arrival.
- Multiply that figure by the average dollars spent in the local economy by transient passengers. Local chambers of commerce or tourism officials can provide the average dollars spent by each visitor. A safe assumption is $100 per person per day.
- Induced impacts are the multiplier effects of the direct and indirect impacts. These are the increases in the employment and income over and above the combined direct and indirect impacts, created by successive rounds of spending.

An economic impact study that documents the value of the airport – especially in terms of jobs created and tax revenue generated – serves as an effective public-relations tool in defending or promoting an airfield. Your brief study can be used to justify an in-depth follow-up cost/benefit analysis. Performing such a detailed study may prove time-consuming, but it may prove pivotal in convincing local officials that the airport should be supported and nurtured. Alternately, airport consultants and the American Association of Airport Executives can produce an airport economic analysis for a fee.

Last but not least, the final report on the economic impact of your airport should note that everyone – whether they actually fly or not – benefits from having a local airfield. As the New York State Department of Transportation noted in a recent report titled *The Benefits of Aviation in New York*, "Everyone in the state benefits from aviation, whether or not he or she has ever flown in an aircraft or shipped cargo. The reason is that aviation supports the entire economy. Economic benefits are not just located at the airports; the benefits of aviation accrue statewide to every county and every community."

ECONOMIC CASE STUDY 1

New Jersey's Teterboro: The Quintessential Reliever Airport

Teterboro Airport (TEB), which is located in northern New Jersey just a short drive from New York City, has been designated a "reliever" airport for the Big Apple by the FAA. Because Teterboro only handles general aviation aircraft, it plays a critical role in relieving congestion in the New York metropolitan area.

Teterboro Airport's two runways are long enough to handle most jet aircraft; however, the public-use facility does not permit scheduled carrier flights due to its role as a reliever. Approximately, 200,000 takeoffs and landings occur at TEB annually, placing it in the top 10 busiest general aviation airports in the country. If Teterboro were not there to accommodate GA traffic, most aircraft activities would most likely shift to Newark, greatly increasing delays there for all air travelers.

Although Teterboro is open 24 hours a day, the airport has a voluntary nighttime curfew from midnight to 6:00 a.m., which helps minimize the impact of aircraft noise on the surrounding communities. TEB also has demonstrated it is a "good neighbor" by providing scholarships to local students and sponsoring charity events, such as blood drives. Also, many mercy mission flights are flown from the airport each year.

Bergen County and its residents glean "enormous economic benefits" from Teterboro Airport, according to a 2005 economic impact study that was published by the Port Authority of New York & New Jersey. Nearly 1,700 people work at TEB, but the airport actually is responsible for more than 15,000 jobs and $1.8 billion in annual sales in the region.

Activity at Teterboro supports a variety of jobs, particularly in the financial sector. The Federal Reserve Bank, which employs nearly 1,500 people in Bergen County alone, clears in excess of three million checks valued at more than $3 billion every day through TEB.

The hotel industry in northern New Jersey also has prospered because of Teterboro. Of the 400,000 available hotel nights in the region, professional flightcrews that fly into and out of TEB use nearly one third of them. Reportedly, local municipalities earn $250,000 to $500,000 in annual revenue from occupancy taxes at those hotels.

Many other businesses are located near Teterboro because they depend upon the fast, convenient delivery of people and goods, which the airport facilitates. According to the Port Authority, representatives of Quest Diagnostics, a leading national medical testing company that employs more than 2,800 employees near TEB, have said that they probably would not be in the area if the airport were not there.

ECONOMIC CASE STUDY 2

Why New York Loves Airports

The New York State Department of Transport (DOT) recently published a study that concluded that $97 million per day is generated by aviation in the Empire State. That translates into $35 billion in economic activity each year. *The Benefits of Aviation in New York* also noted that 216,000 people are employed at airports in New York state and that another 131,500 jobs are indirectly supported by aviation. In addition, more than $2.8 billion in state and local taxes are generated from aviation-related activity in New York, funds that are used "for all types of community projects not necessarily related to aviation. Thus, this tax revenue benefits all New York citizens, not just those in aviation."

New York's DOT considers airports integral to the state economy. "In today's economy, the importance of air transportation is growing: just-in-time deliveries keep factories running. Customer services and sales forces must compete in a global economy and must respond to opportunities instantly. Corporate management must reach branch offices and outlets quickly. Air transportation is a critical business link for New York."

While it is easy to see how major New York airports such as LaGuardia and Kennedy facilitate commerce in the New York City metropolitan area, the state's 140 non-airline, public-use airports and heliports are responsible for 12,400 jobs and $762 million in annual economic activity. For example, it was estimated that Westchester County Airport (HPN), an important center for business aircraft, supported more than 6,800 jobs and created $562 million in economic activity in 2002–2003.

"General aviation has become increasingly important, as air charter flights continue to increase," stated the NY DOT report. "These charter flights have become a preferred choice for many businesses to move executives, clients, vendors and individuals point-to-point in an unconstrained and timely fashion…these non-airline airports provide a critical transportation link for local businesses."

ECONOMIC CASE STUDY 3

Centennial Airport: A Rocky Mountain High

All across the country, the story is the same – general aviation airports have a significant economic impact on their local communities. A perfect example is Denver's Centennial Airport (APA). A 2002 study performed by the Colorado Division of Aeronautics indicated that Centennial has an $815 million impact on the local and Colorado economies. The study also found that Centennial, one of the top 10 busiest GA airports in the United States, is second only to Denver International in creating airport jobs in the state.

Centennial Airport does not have scheduled commercial air service, but instead serves as a reliever to Denver International, handling more than 340,000 general aviation flight operations in 2005, with roughly half being corporate flights and half training flights. Centennial is home to a number of Colorado's largest companies, and the airport reportedly is used by 32 of the top 100 Fortune companies.

According to local officials, Centennial is responsible for creating nearly 8,600 jobs and $331 million in wages. The total economic impact of APA includes on and off airport businesses, visitor spending and the spin-off effects of those impacts.

- The "on airport" impact of Centennial is responsible for 1,870 jobs, $95 million in payroll and $240 million in economic activity.
- Businesses that depend on the airport for just-in-time deliveries and other time-sensitive services account for 1,237 jobs, $46 million in payroll and $113 economic activity.
- Lodging, food, entertainment and other firms that cater to visitors account for 2,281 jobs, $51 million in payroll and $120 million economic activity.
- The multiplier effect of the aforementioned categories of activity adds another 4,443 jobs, $184 million in payroll and $456 million to the Colorado economy.

NBAA Business Aircraft Airport Guidelines*

	OPTIMUM		ACCEPTABLE	
RUNWAYS**	Dimensions (ft.)	Weight Capacity (lbs.)	Dimensions (feet)	Weight Capacity (lbs.)
Heavy Jet (above 50,000 lbs.)	7,500 by 150	120,000	5,500 by 100	75,000
Medium Jet (up to 50,000 lbs.)	5,500 by 100	75,000	5,000 by 100	50,000
Light Jet (up to 25,000 lbs.)	4,500 by 100	50,000	4,000 by 75	20,000
Very Light Jet/Turboprop (up to 12,500 lbs.)	4,000 by 75	25,000	3,000 by 60	15,000
	Taxiways for all runways Stabilized overruns on longest runway 200 by 300 ft. ramp area minimum		Adequate ramp area for maneuvering/parking	
ATC TOWER	24 hours		None	
LIGHTING	Full approach light system High intensity runway lights Visual glide scope indicator – all runways		REIL or ODALS Medium intensity runway lights Visual glide scope on instrument runway Pilot controlled lights	
INSTRUMENT PROCEDURES	RNAV SIDs/STARs***		RNAV SIDs/STARs	
WEATHER REPORTING	ASOS		AWOS	
SERVICES	Full-service FBO**** Transient hangar space FAR Part 107 type security De-icing (where applicable)		Enclosed passenger waiting area Fuel/tie downs Elementary security Telephone	
MAINTENANCE	FAA Part 145 repair station		Minimal maintenance (tire/battery service, etc.)	
AMENITIES	Nearby hotel/motel Nearby restaurant		Distant hotel/motel Vending machines	

* These NBAA guidelines are not intended to replace actual FAA design standards.
** Sea level requirements.
*** RNP/SAAAR where operationally advantageous.
**** Staffed 24/7, fuel, passenger and crew lounge, rental cars, shuttle/crew car, vending machines.

Note: When an airport takes federal financial assistance from the FAA for airport expansion and development, then the airport must develop to specific FAA standards, including runway length, width, weight-bearing capacity, eligibility for partial or full taxiways, and other requirements. The above table is not intended to replace or override airport requirements under federal AIP funding regulation.

The above NBAA Business Aircraft Airport Guidelines provide readers with guidance about specific aspects of airports used by business aviation operators. This table also can be used as a reference in discussion with community decision makers – such as members of a city council, county commission or airport authority – about the preservation and possible expansion of our airport infrastructure.

The FAA is charged with the regulation of air commerce in such a manner as to best promote its development and safety, and to meet the requirements of airport users. As key stakeholders in our national system of airports, business aviation operators need to be able to express their operational needs to airport owners/operators and local decision makers. Both the "Optimum" and "Acceptable" business aircraft airport guidelines are intended to assist business aviation operators in communicating their expectations for the airports they use. In principle, adoption of these guidelines will help ensure the development and maintenance of a national system of safe and cost-effective airports that will serve key community assets.

ACCESS ISSUES

ACCESS IS EVERYTHING TO AIRCRAFT OPERATORS

Airports are critical transportation centers that collectively form a network that makes flying the fastest, most efficient way to travel. Airports facilitate face-to-face business communications and help aircraft move goods to and from communities by providing access to the global air transportation system.

For general aviation, the proximity of an airport close to a traveler's departure point and final destination is what makes flying aboard a private aircraft so efficient. In fact, the ability to use 10 times the number of airports served by the airlines is the key advantage of general aviation.

Artificial constraints on airport usage – curfews, noise limits or other access restrictions – diminish the utility of GA aircraft and threaten to cut a local community's transportation and economic lifeline to the rest of the world. Simply put, the network of GA airports is essential to providers of on-demand air transportation. Each time a GA airport is closed or flights are constrained, it not only reduces the transportation options of the community in which it is located and those who want to travel there, it weakens the entire nationwide system of airports.

Many airports in the United States are publicly owned and, therefore, can be regarded as public utilities designed to serve the surrounding communities. Airports are economic gateways to interstate and international commerce, so fair and equal access to airfields on a first-come, first-served basis is needed to ensure that U.S. businesses are able to compete in today's fast-paced, competitive global marketplace.

Because U.S. airports play a vital economic role in national and international commerce, the federal government – primarily the Federal Aviation Administration (FAA) – regulates most aspects of their operation, although local and state governments also play a role. Unfortunately, the FAA's jurisdiction over noise, land use and operating rights (when federal funds have been granted) frequently is challenged by local or regional authorities determined to close a general aviation airport so the land on which it is located can be used for other purposes. Those who believe that closing GA airports and using the land for alternative purposes will increase tax revenues often underestimate the economic impact of these airfields and the effect that losing such a transportation resource will have on the wider regional economy.

Even when an airport does not face imminent closure, finding the money to support ongoing operations and necessary capital investments of an airfield can be problematic. Virtually all airports are short of funds to either operate or improve their facilities, so users need to make the case to local civic and government officials that adequate financial support of their airport is necessary to ensure continued safe operations, support efficiency improvements that will facilitate noise mitigation, and better equip the airfield to serve as the economic magnet it is.

Recognizing the critical importance of airports to communities across the country in generating economic opportunity, the federal government provides funding through the Airport Improvement Program (AIP) for airport planning and development projects that enhance capacity, safety and security and help mitigate noise impacts. Unfortunately, less than a quarter of the nearly 3,000 eligible GA airports receive AIP funding.

THE VARIETY OF ACCESS RESTRICTIONS

Even when a community recognizes the importance of keeping an airport open, municipalities often decide to restrict flights as a way of addressing community concerns about aircraft congestion, noise or safety. So despite the efforts of federal authorities to provide equitable access to the nation's airports for all types of aircraft, local or regional authorities sometimes impose airport restrictions that have an adverse impact on business and general aviation. The most common ones are:

Top 20 U.S. Airports in 2008 Ranked by Itinerant Air Carrier Operations

RANK	AIRPORT	STATE
1	Atlanta Hartsfield Int'l. (ATL)	GA
2	Chicago O'Hare Int'l. (ORD)	IL
3	Dallas-Fort Worth Int'l. (DFW)	TX
4	Denver Int'l. (DEN)	CO
5	Los Angeles Int'l. (LAX)	CA
6	Phoenix Sky Harbor Int'l. (PHX)	AZ
7	Las Vegas McCarran Int'l. (LAS)	NV
8	John F. Kennedy Int'l. (JFK)	NY
9	Charlotte-Douglas Int'l. (CLT)	NC
10	Seattle-Tacoma Int'l. (SEA)	WA
11	Miami Int'l. (MIA)	FL
12	Orlando Int'l. (MCO)	FL
13	Newark Liberty Int'l. (EWR)	NJ
14	Minneapolis-St. Paul Int'l. (MSP)	MN
15	San Francisco Int'l. (SFO)	CA
16	Philadelphia Int'l. (PHL)	PA
17	Bush Houston Intercontinental (IAH)	TX
18	Detroit Metro Wayne County (DTW)	MI
19	Memphis Int'l. (MEM)	TN
20	Baltimore/Washington Int'l (BWI)	MD

Top 20 U.S. Airports in 2008 Ranked by Itinerant GA Operations

RANK	AIRPORT	STATE
1	Van Nuys (VNY)	CA
2	Daytona Beach Int'l. (DAB)	FL
3	Kendall-Tamiami Executive (TMB)	FL
4	Fort Lauderdale Executive (FXE)	FL
5	Richard Lloyd Jones Jr. (RVS)	OK
6	Falcon Field (FFZ)	AZ
7	Long Beach Daugherty Field (LGB)	CA
8	Phoenix Deer Valley (DVT)	AZ
9	Centennial (APA)	CO
10	Boeing Field/King County Int'l. (BFI)	WA
11	Montgomery Field (MYF)	CA
12	DeKalb Peachtree (PDK)	GA
13	McClellan-Palomar (CRQ)	CA
14	John Wayne Orange County (SNA)	CA
15	Teterboro (TEB)	NJ
16	Scottsdale (SDL)	AZ
17	Gillespie Field (SEE)	CA
18	Addison (ADS)	TX
19	Orlando Sanford Int'l. (SFB)	FL
20	Westchester County (HPN)	NY

Source: FAA Air Traffic Activity Data System

- Night curfews – Total bans on flying, typically between midnight and 6:00 a.m.
- Bans on specific types of aircraft – Operating restrictions based on aircraft weight or type of flying.
- Limits on numbers of operations – Caps on the number of aircraft movements allowed at an airport or the minimum number of passengers each airplane must carry in order to utilize an airfield. The latter restriction would discriminate against business aircraft, which tend to carry fewer passengers than commercial airplanes.
- Restrictions based on noise levels – Use of the aircraft certification noise levels established under Federal Aviation Regulation (FAR) Part 36 to prevent noisier aircraft from flying into an airport.
- Noise-based landing fees – Charges levied based on the noise output of each type of aircraft ("dollars per decibel").
- Preferential runway systems – Designation of a runway as the preferred landing and takeoff strip for a class of aircraft.
- Various other operational restrictions – Arrival and departure routes and climb-out procedures are specified, or takeoff, thrust reduction, reverse-thrust, weight or thrust limits are imposed in order to limit or exclude operations of certain aircraft.
- Shifting operations to another airport owned by the same airport authority – An attempt to force general aviation not to use an air carrier airport by requiring them to use a nearby reliever airport.
- Restrictions incorporated into planning documents – Incorporating aircraft operating limits in airport master plans, environmental impact statements, FAR Part 150 noise-compatibility studies or other documents in the hope that FAA approval of those plans will trigger those restrictions.
- Restrictions preceded by noise monitoring – When noise-monitoring programs go into effect, they often are a precursor to imposition of operating restrictions at an airport.

Because the federal government has long had broad jurisdiction over aviation and interstate commerce, and additional federal laws have been established to further define and regulate aircraft noise and operational limits (see the Glossary for descriptions of the Airport Noise and Capacity Act of 1990 and relevant federal air regulations), it would seem logical to assume that most locally imposed airport restrictions are patently illegal. However, numerous factors serve to make airport regulation and administration complicated:

- The federal regulations governing aircraft and airport operations are complex and open to interpretation. When disputes end up in court, judges have not always confirmed the FAA's role as the final arbiter on airport access

issues. (For information about important issues at key business aviation airports such as Bob Hope Airport (BUR) in California; Naples Municipal (APF) in Florida; Santa Monica (SMO) in California; Van Nuys Airport (VNY) in California; and Westchester County (HPN) in White Plains, NY, review NBAA's "Airports in Focus" reports online at www.nbaa.org/ops/airports).

- There is overlapping (and sometimes conflicting) authority between federal and state, county and local governments regarding issues that indirectly affect airport operations (i.e., compatible use of land adjacent to airports).
- Because of geography, the local operating environment at an airport may be unique, and these physical factors affect the way airports handle traffic and deal with access issues.
- Most importantly, many airport operators are under political pressure from their surrounding communities to reduce noise by restricting access.

NOISE PERCEPTION IS EVERYTHING TO AIRPORT NEIGHBORS

While some airport opponents seek to close airports or limit flying at them because of safety or other concerns, noise is the primary reason why people who live near airfields seek restrictions on aircraft operations.

While it is possible to measure noise in numerous ways (see the Glossary for the various sound-measuring standards), it is important to acknowledge that human perception is the most important noise metric. An individual's perception of unwanted sound depends on a number of factors, including cause, time of day, length of exposure, variability and predictability. Although the negative reaction of a person who is exposed to what they deem is excessive aircraft noise may be subjective, it often has a powerful effect on how they perceive their local airport. Ever since jet-powered commercial and business aircraft were introduced in the late 1950s, community concerns about aircraft noise have grown. In recent years, many anti-airport groups have become highly organized and have successfully employed increasingly sophisticated tactics to pressure government and airport officials to close or limit operations at numerous airfields around the country.

The aviation industry has responded to noise concerns in numerous ways:

- Each successive generation of jet aircraft has been equipped with quieter engines.
- Airport officials and regulators have designed approach and departure paths that are designed to minimize the impact of aircraft noise while ensuring that airplanes can continue to be operated in a safe manner.
- Aircraft manufacturers and organizations such as NBAA have developed "quiet flying" procedures that enable aircraft operators to minimize their "noise footprint" (the area on the ground below that is exposed to higher-than-normal levels of noise).
- Airport and government officials have worked to ensure that the land adjacent to airfields only is developed in ways that are compatible with the airport.
- Governments have provided money to fund the soundproofing of buildings located near airports.
- Perhaps most importantly, many aircraft operators have adopted their own quiet-flying techniques to minimize the impact of aircraft noise near airports.

THE FIRST STEP IN ADDRESSING NOISE CONCERNS

As older aircraft have been retired, quieter airplanes have been introduced and other noise-mitigation efforts have taken hold. The result is that fewer people living near airports are being exposed to aircraft noise that is considered incompatible with residential living. Despite the success of the aviation industry's many noise-reduction efforts, airfield opponents continue to seek closure or substantial curtailment of operations at many general aviation airports across the county. Therefore, it is important that aircraft operators do everything possible to "fly neighborly," by operating in ways that minimize the noise impact on the communities near airports.

In fact, aircraft operators should make noise-abatement procedures part of their routine when flying into and out of all airports. Operators also should take the initiative to obtain all pertinent information on the local noise-abatement policies of any airport they use or expect to use. In addition, operators should be aware that unnecessary use of reverse thrust when landing can be a source of excessive noise. Therefore, only the use of minimum reverse thrust necessary for safety is recommended, consistent with available runway length and runway conditions.

NBAA has been doing its part to mitigate aircraft noise since 1967. The Association has developed and recommended the use of safe, simple noise-reduction flying techniques as

standard operating procedure for all aircraft whose manufacturers have not recommended specific procedures.

The NBAA procedures – published online at www.nbaa.org/ops/environment/quiet-flying/ – are designed to supplement and complement the established noise-abatement programs of aircraft manufacturers and local airport authorities. When professional opinion indicates that the procedures recommended for specific aircraft and local airports are less effective than the NBAA procedures, pilots should contact the manufacturers and airport authorities with specific recommendations for change.

WORKING WITH AIRPORTS TO MAKE THEM QUIETER PLACES

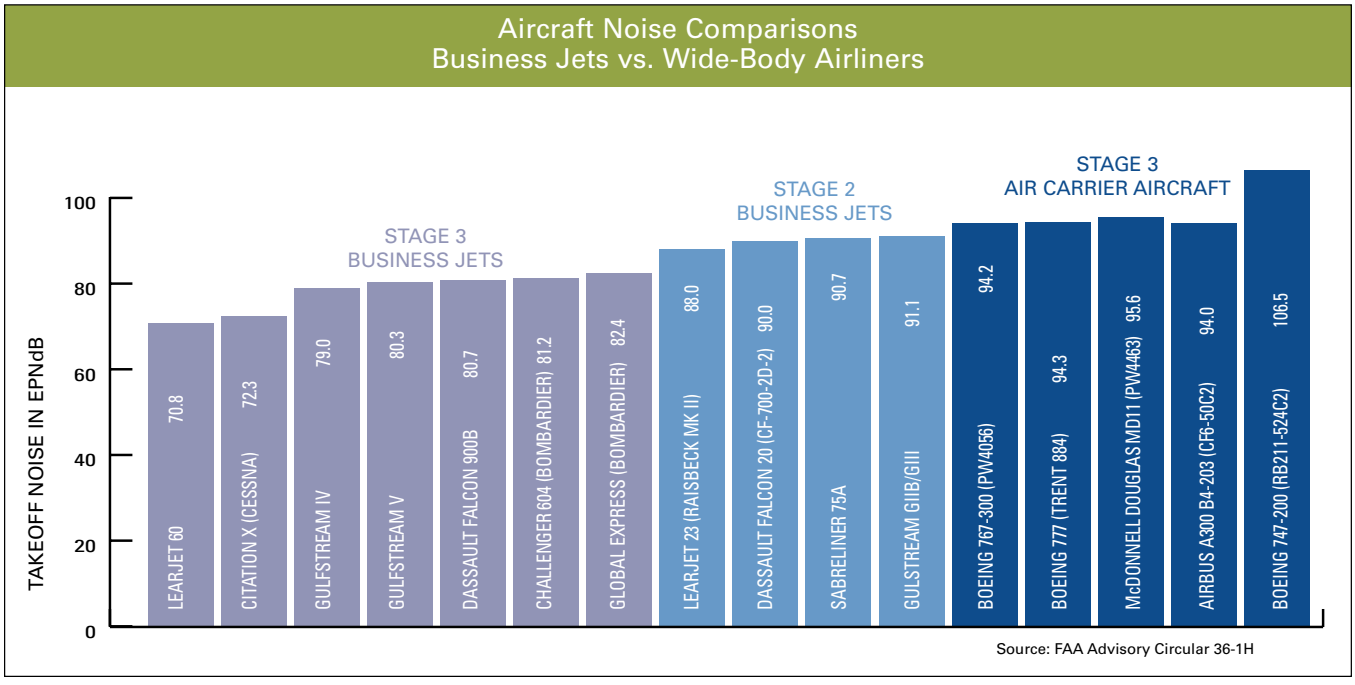
To be effective, noise-abatement policies must be cooperatively developed and understood by aircraft and airport operators, engine and aircraft manufacturers and local communities. By flying quietly every day, aircraft operators can demonstrate to the general public that they are serious about reducing aircraft noise.

Besides flying quietly, NBAA Member Companies should work with their local airports and air traffic control officials to develop optimum noise-abatement procedures. Efforts should be made to tailor procedures to the unique operating environment of each airport in order to provide the maximum noise-reduction possible, consistent with safe operating practices and without unduly restricting the flow of air traffic.

Operators also should work with airport and ATC officials to support:

- Educational and training efforts to inform based and transient pilots of local noise-abatement procedures. Signs should be posted in FBOs and along taxiways and runways to remind pilots that they are operating in a noise-sensitive area that calls for use of noise-abatement procedures.
- Improvement of approach aids and runway facilities that increase the possibility that aircraft can use specific runways and approach patterns to fly over the least-noise-sensitive areas.
- Designating jet aircraft run-up areas on the airport but limiting their use to normal daylight workweek hours to avoid disturbing local residents.
- Installation of blast fences and other noise-mitigation structures as needed.
- Separation of low- and high-performance aircraft to avoid more noise being generated through such operations as excessive go-arounds and extended flight over noise-sensitive areas by jet aircraft during approaches.
- Designation of airport approach and takeoff paths on all official zoning maps so that people who buy properties near an airport understand that they may be exposed to aircraft noise.
- Specifying in zoning regulations and building codes that property near airports should only be designated for uses that are compatible with the airport.

If residents of surrounding communities perceive that aircraft and airport operators are doing as much as is humanly possible to mitigate noise, they are more likely to consider their local airport an asset instead of an adversary.



SAFETY AND SECURITY

PRACTICE WHAT YOU PREACH

Safety is the top priority in aviation, and those who live near airports should know that based aircraft operators are doing everything possible to make their community's airport as safe and secure as possible. By following industry best practices, aircraft operators not only can minimize potential hazards, they can help ensure that their local airport is a good neighbor.

As noted earlier, being a good neighbor naturally means being sensitive to the noise concerns of the surrounding community. Therefore, aircraft operators should always follow recommended noise-abatement procedures. However, operating safely and securely also is important to the local community.

The main ground-safety hazards at an airport can occur when an aircraft is taxiing or being towed around the airfield. Ground vehicles driving around the airport or wildlife encroaching upon runways or taxiways also can pose dangers. Adequate awareness, use of proper procedures and regular training will lower the risks associated with these hazards.

AVOIDING RUNWAY INCURSIONS

The most serious aircraft ground hazard is a runway incursion. Although these collisions between aircraft on the ground or aircraft and vehicles, people or objects occur infrequently and approximately 80 percent are deemed minor, they can be potentially fatal.

To minimize the chances of being involved in a runway incursion, aircraft operators should:

- Have pilots fully prepare for a departure, especially at busy airports with complex layouts or at airfields where they have never operated before. Make sure that flightcrews have studied the airport layout diagram and are aware of any NOTAMs.
- Develop surface operations standard operating procedures for flightcrews with an emphasis on ensuring that pilots maintain situational awareness at all times and devote their attention only to essential tasks while the airplane is in motion.
- Maximize pilot positional awareness, visual scanning and radio communications while on the ground.
- Require that flightcrews use standard communications phraseology when talking with air traffic controllers. This will help ensure that pilots understand taxiing instructions and controllers understand where the aircraft is located and headed. Flight crewmembers should write down all instructions and read them back verbatim to the controllers, making certain to eliminate any possible misunderstandings or confusion before moving the aircraft. Pilots should request progressive taxi instructions when they are unsure of the taxi route.
- Use aircraft lights to increase visibility.
- When landing, clear the active runway as quickly as possible and then wait for taxi instructions before moving the aircraft again.

AIRCRAFT GROUND-DAMAGE PREVENTION

Any time an aircraft is moving – even if it is not on a taxiway or runway – there is some risk of aircraft damage or personal injury. By using the following basic procedures, aircraft operators can minimize the potential for a ground-damage incident.

First, be careful when moving an aircraft into or around the hangar and observe the following rules:

- Install perimeter floor markings that delineate the limits of aircraft placement.
- Use hangar-stacking diagrams as visual aids.
- Use two wing walkers along with a tug operator and complete an area risk-assessment before moving the airplane.
- Use a tail observer when pushing an aircraft near hangar walls and corners.
- Provide adequate illumination for moving aircraft at night.
- Secure hangar doors to prevent inadvertent closure due to jet blast or high winds.
- Make sure aircraft wings do not overlap.
- Do not move aircraft through propeller arcs.
- Periodically inspect overhead door systems.
- Ensure that written procedures for aircraft movements are included in both the flight and maintenance operations manuals and conduct formal training on aircraft moving procedures.

During towing operations, observing the following best practices:

- Verify that aircraft brakes are off before the tow or push is initiated.
- For large or heavy aircraft, require a person to act as a brake monitor in the cockpit during an aircraft move.
- Ensure that tow bars are marked as to aircraft type.
- Ensure that tugs are marked with rated maximum loads.
- Ensure that aircraft are towed at a safe walking speed.
- Immediately stop when the tow operator loses sight of a wing walker.
- Immediately stop if there are any doubts as to the space or clearance available.
- Conduct a post-towing inspection of aircraft.
- Train employees who move aircraft on proper procedures.

When taxiing on a ramp, pilots should remember to scan the area for possible hazards, such as drain grates or narrow rows of parked aircraft. Follow the lead-in vehicle or the instructions of the ground personnel who are directing the aircraft to a parking spot. Ground personnel should use standard signals when guiding aircraft.

After an aircraft is parked, warning cones should be placed at the wingtips and tail, and chocks should be placed behind the main and nose wheels. Remember to remove ground airstair mats before starting aircraft engines.

To avoid accidents involving ground support equipment, operators should:

- Ensure that all mobile equipment is positioned to face away from aircraft.
- Chock fuel trucks when servicing aircraft.
- Ensure that ground power units are chocked and are not positioned under aircraft tails.

- Make sure that tugs and other types of service equipment, such as golf carts, are shut off when unattended.

Ground vehicles that are driving on taxiways, runways, loading ramps and parking areas also can pose a risk to aircraft and people. Many different types of vehicles move around these areas to service aircraft as well as maintain the airfield and navigational aids. Drivers need to observe the following safety procedures to minimize the safety risks:

- Know the vehicle-operating procedures at your airport and never deviate from them.
- Always know your exact location on the airport and be aware of activity around you.
- Be patient, observant and drive slowly, always adhering to posted speed limits.
- Remember that aircraft *always* have the right-of-way. Watch for flashing beacons on an airplane, which can indicate that the engine is running or is about to start. Never drive behind an aircraft that is being pushed back or is powering back. Maintain a safe distance from parked or taxiing aircraft, never driving under any part of an aircraft or allowing a wing to pass over your vehicle. Pilots have a limited field of vision from the cockpit, so don't assume they can see ground vehicles.
- Never drive a vehicle on or across runways.
- Always yield to emergency vehicles.
- Make sure your ground vehicle is properly equipped (with a radio, beacons, reflective markings, lighting, etc.) for the area in which you operate, and display proper identification and security access permits.
- Use extreme caution when driving at night or in poor weather conditions.
- Be alert to any foreign objects or debris and either pick it up or notify someone who can.
- Use vehicle lanes where marked.
- Do not drive through fuel spills because they can ignite, and do not block fire lanes.
- Beware of the danger of jet blast and prop wash.
- Do not enter a movement area unless you have authorization from airport management *and* permission from air traffic control. Monitor your aviation two-way radio at all times. After receiving permission from ATC to drive in a certain area, proceed only after you have looked in all directions, including up.
- Report any accident immediately, no matter how minor.

AIRPORT OPERATORS PLAY AN IMPORTANT ROLE IN AIRPORT SECURITY

Especially since 9/11, there has been a greater emphasis on aviation security, and business aircraft operators must do their part to ensure the integrity of their operations. NBAA has developed a list of best practices for business aviation security, which should be used as the basis for a unique security program tailored to each flight department's operation.

First, aircraft operators should make sure that the ground facilities they use are secure by doing the following:

- Use fencing, gates, lighting and security patrols (if appropriate) to establish perimeter security.
- Require positive access control for all external gates and doors, which should be locked at all times. Also, secure all key storage areas and use an access-control management system for keys and passes.

- Confirm the identity and authority of each passenger, vendor and visitor prior to giving them access to facilities and aircraft. Require a picture ID of any unfamiliar visitor or vendor, and accompany them once inside your facility.
- Post emergency numbers prominently around the facility, and ensure easy access to phones or panic buttons throughout the facility.
- Confirm the security of destination facilities (FBOs) by showing preference for those facilities that meet or exceed your security guidelines or those of the National Air Transportation Association.

Operators should also take the following steps to make sure their aircraft are secure:

- Check lavatories, baggage compartments and all cavities for unauthorized people or objects prior to every departure.
- Make sure a crewmember is present whenever the aircraft is being serviced.
- Use the aircraft's security system (locks and alarms) whenever it is unattended.

Finally, operators should utilize the following procedures to ensure flight security:

- Establish a "security champion" within the flight department.
- Develop a security plan specific to your location and operation, consulting with your company's security department, local law enforcement or aviation security experts as needed. The security plan should include planned responses to hijackings, bomb threats, executive abductions, terrorist activities and extortion demands. Establish an emergency communication system with a telephone list of key personnel.
- Develop, maintain and exercise an emergency response plan.
- Insist that all flight department employees wear photo identification cards at all times.
- Audit security at hangar facilities and in operational areas.
- Require an accurate and accessible passenger manifest for all trips, and ensure that only company personnel and authorized guests, identified in advance, are allowed to board a company aircraft.
- Positively identify all luggage and match luggage to specific passengers and maintain positive control of luggage at all times.
- Maintain security awareness by monitoring media and government (State Department) reports and frequently checking with your company's security department.

To reduce your profile, consider removing company identification, logos and the American flag insignia from company aircraft and ground facilities. Also, do not publicize your travel itinerary.

Be careful to hire only reputable contractors, especially away from home base.

For additional information, visit www.nbaa.org/security.

Aircraft Accident Rates, 1998–2008 (per 100,000 flight hours)

YEAR	GENERAL AVIATION* TOTAL/FATAL	AIR TAXI** TOTAL/FATAL	COMMUTER AIR CARRIERS*** TOTAL/FATAL	AIRLINES**** TOTAL/FATAL	CORPORATE/ EXECUTIVE† TOTAL/FATAL	BUSINESS†† TOTAL/FATAL
1998	7.44 / 1.41	2.03 / 0.45	2.262 / 0.000	0.297 / 0.006	0.091 / 0.000	1.14 / 0.30
1999	6.50 / 1.16	2.28 / 0.37	3.793 / 1.145	0.291 / 0.011	0.230 / 0.130	1.40 / 0.40
2000	6.57 / 1.21	2.04 / 0.56	3.247 / 0.271	0.306 / 0.016	0.125 / 0.060	1.28 / 0.37
2001	6.78 / 1.27	2.40 / 0.60	2.330 / 0.666	0.236 / 0.011	0.108 / 0.031	1.06 / 0.23
2002	6.69 / 1.33	2.06 / 0.62	2.559 / 0.000	0.237 / 0.000	0.116 / 0.029	1.08 / 0.36
2003	6.77 / 1.37	2.56 / 0.61	0.627 / 0.313	0.310 / 0.011	0.028 / 0.014	0.95 / 0.26
2004	6.41 / 1.25	2.10 / 0.74	1.515 / 0.000	0.159 / 0.011	0.093 / 0.013	0.91 / 0.23
2005	6.78 / 1.32	2.02 / 0.34	2.000 / 0.000	0.200 / 0.015	0.075 / 0.013	0.73 / 0.14
2006	6.64 / 1.32	1.50 / 0.28	1.071 / 0.357	0.158 / 0.010	0.141 / 0.011	0.76 / 0.27
2007	6.84 / 1.19	1.69 / 0.38	0.993 / 0.000	0.135 / 0.005	0.103 / 0.034	0.72 / 0.16
2008	7.11 / 1.25	1.52 / 0.52	2.410 / 0.000	0.145 / 0.013	0.075 / 0.000†††	1.27 / 0.16

*All U.S.-registered civil aircraft not operating under FAR Part 121 or 135
**FAR Part 135 non-scheduled air carriers
***FAR Part 135 scheduled air carriers
****FAR Part 121 scheduled and non-scheduled air carriers
†Aircraft owned or leased and operated by a corporation or business firm for the transportation of personnel or cargo in the furtherance of the corporation's or firm's business and which are flown by professional pilots receiving a direct salary or compensation for piloting.

††The use of aircraft by pilots (those not receiving direct salary or compensation for piloting) in conjunction with their occupation or in the furtherance of a business.

†††NTSB accident data for the corporate/executive fleet in 2008 does not agree with Robert E. Breiling Associates data. Several accidents are missing from NTSB data in comparison to Breiling data.

Compiled by Robert E. Breiling Associates, Inc., 2009, based on NTSB and FAA data.

ADVOCACY

SPREAD THE GOOD NEWS

General aviation airports are economic generators for the communities in which they are located, bringing jobs, products and services to the region. Business aircraft operators, which fly some of the quietest jets, also are among the safest aircraft operators. And airports and business aviation organizations often are involved in charitable and civic activities. So despite the natural inclination of public companies to avoid talking about their flight departments, business aviation has a good story to tell about the benefits they and the local airport bring to their community.

Making sure that the general public understands the value of your airport will serve you well in case a controversy should occur, so you need to be proactive in championing the airport's cause. Too often, airport users become aware of threats to the airfield in the eleventh hour of a crisis and scramble to catch up and become vocal advocates. Often, these last-minute stands are ineffective because of the force of hardened public opinion and pent-up political pressure. Therefore, establishing good relationships with government officials, community leaders and the media before a problem arises could be crucial in preventing your airport from being closed or have operating restrictions or other constraints imposed upon it.

HOW TO GET INVOLVED

Of course, individual flight departments can get directly involved in local airport issues, such as serving on airport committees. However, many companies, at least initially, may feel more comfortable joining an airport support group.

Forming or joining an airport support organization is desirable because a large, diverse group of aircraft operators and airport officials will be better equipped to deal with a range of emerging issues, including educating the community regarding the benefits of the airport and helping address public misconceptions about aviation. A robust and active airport support group also will have more clout with government and civic leaders and is more likely to be able to convince politicians to provide adequate resources for airport improvement and upkeep.

Even though airport support groups are, by definition, local, they should seek information and advice from other nearby airport organizations, pro-business groups (such as the chamber of commerce or state and regional economic development agencies), regional business aviation groups and NBAA regional representatives.

BUILDING A CASE FOR THE AIRPORT

In order to be an effective advocate for your airport, you need to have a firm grasp of the basic facts about the airfield, as well as the benefits it offers the local community. Ask the airport administrator for the operational statistics regarding your airport, and review various government documents, such as the airport master plan and state airport system plan, to see how your airfield fits into the regional transportation network. Also, contact economic development agencies for the data and methodology needed to perform at least a rudimentary economic impact statement for your airport (see the Economic Impact section for how to calculate the value of your airport).

Once armed with these essential facts and figures, you are prepared to promote the value of your airport to the community. This can be done by meeting with business, civic or school organizations and groups of concerned citizens, or by offering positive stories to local media outlets. Regardless of the venue or forum, your presentation should:

- Explain how the airport is of value to them and provide handouts that summarize the key positive points about the airport.
- Address perceived problems regarding the airfield and explain how you are trying to solve those problems.
- Specify the type of help you need from their organization.
- Allow time to answer questions from the audience.
- If time allows, show either the eight-minute or 14-minute version of NBAA's video titled *Your Community Airport*, which provides an overview of airport issues.

NBAA CAN HELP YOUR GROUP

NBAA has a number of regional representatives strategically located throughout the country to assist Association Mem-

Getting Organized

In case you need to start an airport user group from scratch, remember these pointers:

- Identify issues that may serve as rallying points for a group. These may include addressing airport safety or environmental issues, countering the efforts of anti-airport groups, seeking funding for airport infrastructure repair or expansion, promoting pro-airport educational activities such as career days for local students, etc.
- Test the idea of an airport support group with a few airport users to determine their interest level.
- Identify all airport user groups and individuals and obtain their names, addresses telephone numbers and e-mail addresses so they can be invited to participate.
- Create an agenda for the first meeting based upon the responses of your test group.
- Find a place to meet that is on or close to the airport.
- At the inaugural group meeting, ask attendees to introduce themselves and give their reasons for having a support group. Identify several issues to work on and assign action items for volunteers to tackle before the next meeting.
- Set a date and place for the next meeting.
- Draft minutes of the first meeting and distribute them to everyone who attended.

Working With the Media

An effective airport advocacy campaign eventually will involve media exposure. Such publicity can be beneficial, but if you seek media attention, you must be fully prepared to answer potentially difficult and controversial questions. Here are some tips on how to deal with the media:

DO:

- Get to know local news people, preferably before an aircraft accident or other negative event occurs at your airport.
- Learn what media people consider news and what information you might be able to provide.
- Invite reporters to meet you at the airport and offer to give them a tour. Seeing first-hand how the airfield operates can create a lasting positive impression.
- Call the press when you have information that may be of interest, and return calls when you say you will.
- Answer reporters' questions honestly, fully, courteously and as briefly as possible. If they want more information, they will ask for it.
- Say, "I don't know" when you honestly can't answer a question. However, offer to seek an answer and then get back in touch with a reporter, making every effort to provide the information quickly.
- Keep a reporter's confidence, just as you would expect him or her to keep yours.

DON'T:

- Guess at answers or make off-the-cuff comments to reporters. Your answers must be correct.
- Go "off the record." There really is no such thing.
- Say you have "no comment." That isn't a constructive answer. Write down the question and pass it along, if necessary, to someone who might be able to provide the information. If questions concern a subject of national scope, call NBAA for help.
- Refer regional or local queries to NBAA. Take the query yourself, and call NBAA if you need help. This protects your position as the local source.
- Promise to call back with an answer and then neglect to do so.
- Demand or expect corrections or retractions of insignificant errors.
- Guess or speculate as to the cause of an aircraft accident. Point out to the reporter that initial guesses offered before a comprehensive investigation is concluded often turn out to be wrong.

In conclusion, it is important to continuously work with local officials and community groups to maintain a dialogue regarding your airport. Listen to their concerns, especially regarding noise and safety, and explain what concrete steps you are taking to address those fears. Keeping clear communications channels open enhances the chances that your airport and the local community can coexist peacefully.

bers with local issues. These individuals are instrumental in addressing the issues and concerns of both NBAA Member Companies and communities adjacent to local airports.

To achieve their goals, NBAA's regional representatives often work in conjunction with autonomous regional business aviation groups. Often, members of these regional groups reside in the same community as an airport and therefore are able to informally discuss the airport's benefits with neighbors. By being active users of local airports, regional group members possess first-hand knowledge of the needs of both the airport and the community. With the help of NBAA regional representatives, these groups sometimes host meetings at which community members and airport users can share their concerns.

In addition to its dedicated regional staff, NBAA also offers several regional resources for individuals who want to network locally, get involved with local business aviation issues or join regional business aviation groups. For instance, NBAA maintains an online Regional Business Aviation Groups Directory, which puts users in touch with regional business aviation organizations based nationwide. Individuals may use this directory to find an existing group within their local communities. To access it, visit www.nbaa.org/about/contact/regional-groups.

NBAA's *Guidelines for Regional Business Aviation Organizations* is an NBAA publication designed to guide the creation of new regional business aviation organizations and to help existing groups improve procedures and grow.

Other NBAA regional resources for Member Companies and the business aviation community include:

- Several Business Aviation Regional Forums per year, held in cities nationwide.
- An Air Mail e-mail discussion list to facilitate communication among members of regional business aviation groups.
- An online Contact Congress resource that promotes grassroots participation in the legislative process.
- The Regional News section of *NBAA Update*, the Association's weekly e-mail newsletter, available free to subscribers.

To learn more about NBAA's regional resources or to contact a regional representative near you, visit www.nbaa.org/regional.

REACH OUT TO YOUNG PEOPLE

An effective way to win over a community is to appeal to young people, who often are attracted to aviation.

Consider sponsoring an aviation career day or open house at your local airport. Have various aviation professionals – pilots, maintenance technicians, flight attendants, schedulers and dispatchers, line service people and airport administrators – explain and show attendees what they do at the airport. If possible, arrange to have several aircraft available for inspection by the public.

Also consider offering scholarships to benefit young people pursuing careers in aviation. With the help of sponsors or other donors, regional groups can establish scholarship funds to ensure that awards are given annually to high school and/or college students.

Finally, consider offering flight department internships that introduce students to the workings of the airport and to the "real world" of business aviation.

GLOSSARY

Advisory Circular (AC) 36 – A series of FAA documents that provides noise level data for various aircraft. The key documents are: AC 36-1, which provides noise level data for all U.S. aircraft certificated under FAR Part 36, as well as noise level data for foreign airplanes certificated to ICAO Annex 16 standards, and AC 36-3, which provides a listing of estimated airplane noise levels in units of A-weighted sound level in decibels (dBA).

Airport Improvement Program (AIP) – A program that provides grants for the planning and development of public-use airports that are included in the National Plan of Integrated Airport Systems (NPIAS) (see separate definition). AIP grants are given for planning, development or noise compatibility projects at individual public-use airports. Eligible projects include improvements related to enhancing airport safety, capacity, security, and environmental concerns. For small primary, reliever and general aviation airports, the grant covers 95 percent of eligible project costs.

Airport master plan – A document that details the phased development of the infrastructure of a specific airport. It includes the research and logic from which the plan evolved, as well as diagrams of the airport's current and future layouts.

Airport Noise and Capacity Act of 1990 (ANCA) – The law that helped codify U.S. aviation noise policy and prevent a patchwork of local, noise-based aircraft operating restrictions. The statute banned by the end of 1999 operation in the U.S. of Stage 2 aircraft weighing more than 75,000 pounds, but allowed Stage 2 aircraft weighing less than 75,000 pounds (many older business jets) to continue to fly. The law also reasserted the federal role in aircraft noise regulation by mandating that FAR Part 161 process (see separate definition) be used before any proposed airport noise and access restrictions can be imposed on the use of Stage 2 and Stage 3 aircraft.

Airport noise monitoring system – An electronic system that collects acoustic data on and around an airport. The information is used to monitor and record noise levels generated by aircraft that use the airport, as well as ambient noise generated by other nearby sources. The data are used to establish a baseline of noise levels and detect changes in noise patterns. Analyses of the data provide airport authorities with the ability to implement operational procedures that reduce the impact of aircraft noise on surrounding communities. The analyses also play a crucial role in the development of the noise-compatibility programs included in FAR Part 150 (see separate definition) studies.

Aviation Safety and Noise Abatement Act of 1979 (ASNA) – The law that required the FAA to promulgate regulations that prohibited operation of large, Stage 1 (see separate definition) airplanes after January 1,1985.

Commercial service airports – Public airfields that have scheduled passenger service and enplane 2,500 or more passengers per year. There are approximately 550 commercial service airports in the U.S.

Compatible land use – Ways to utilize property around an airport that are not in conflict with activities at the airfield. Examples of compatible land use are location of industrial or commercial enterprises near an airport.

Day-night average sound level (DNL) – A noise measurement standard that takes into account the greater impact that noise events have at nighttime because background sound levels are normally lower then. Thus, a 10-decibel "penalty" may be added to a noise that occurs during night hours to reflect the greater annoyance caused by a sound event that occurs between 10:00 p.m. and 7:00 a.m. The 24-hour average sound level, including this 10-dB penalty, is known as the day-night average sound level (DNL).

Decibels (dB or dBA) – Sound levels are plotted in units of A-weighted decibels (abbreviated dB, or sometimes dBA), a logarithmic measure of the magnitude of a sound as the average person hears it. The "A-weighting" accounts for the fact that humans do not hear low or high frequencies as well as they hear middle frequencies, and it corrects for the relative efficiency of the human ear at the different frequencies.

Economic multiplier effect – The cumulative financial affect of a business activity. For airports, this is the sum of the direct, indirect and induced economic activity that occurs because of the airfield. When the people who are employed in and around an airport spend part of their incomes locally, this triggers successive rounds of economic activity throughout the local and regional economy.

Environmental impact statement (EIS) – Documents that are required of federal agencies for major projects or legislative proposals that may significantly affect the environment. These statements describe the positive and negative effects of the proposed undertaking and cite possible alternative actions. The Environmental Protection Agency (EPA) reviews and responds to filed impact statements and makes available a national EIS filing system as well as publishing a weekly notice of EIS documents available for review.

Equivalent sound level – A noise measurement criteria that takes into account the maximum sound levels generated as well as how often they occur to produce a time-average of the total sound energy generated over a specified period.

FAR Part 36 – The Federal Aviation Regulation (FAR) that incorporates the set of noise standards that aircraft must meet to obtain type and airworthiness certificates from the FAA for operation in the United States. Noise ratings for individual aircraft types are provided in companion advisory circulars (see separate definition of Advisory Circular 36).

FAR Part 139 – The Federal Aviation Regulation (FAR) that prescribes rules governing the certification and operation of U.S. airports that handle scheduled passenger-carrying operations of an air carrier operating aircraft designed for more than nine passenger seats or unscheduled passenger-carrying operations of an air carrier operating aircraft designed for at least 31 passenger seats.

FAR Part 150 – The Federal Aviation Regulation (FAR) that promotes comprehensive noise evaluation and mitigation and outlines the program under which the FAA supports local airport-noise-compatibility planning and projects. Part 150 is a voluntary program that allows airport operators to prepare noise-exposure maps and to recommend measures in a noise-compatibility program to reduce noise and incompatible land uses. Airport operators may submit airport-noise-compatibility programs to the FAA for approval, and the agency is authorized to provide Airport Improvement Program (AIP) money (see separate definition) funding for airport-noise-compatibility planning and noise reduction and mitigation projects.

FAR Part 161 – The Federal Aviation Regulation (FAR) that establishes a program for reviewing proposed airport noise and access restrictions on the use of Stage 2 and Stage 3 aircraft (see separate definitions). The FAR requires that airport proprietors examine the impacts of a proposed noise or access restriction within an "airport noise study area." That area must include all property that lies within the 65 dB contours (the areas that experience aircraft noise of 65 dB or greater). Furthermore, in determining whether land use around an airport is compatible with airport noise, an airport proprietor must use the land-use compatibility guidelines set forth in FAR Part 150 (see separate definition).

General aviation airports – An airfield designed specifically to serve smaller, private aircraft instead of large commercial and military transports. These airports tend to have shorter runways and fewer airport services than commercial airports.

Hub airports – The largest and busiest commercial service airports. These airports cater primarily to airlines, which often use them as the transfer point or hub in their hub-and-spoke network of connecting flights to outlying airports. Collectively, the 29 large hub airports in the U.S. account for two-thirds of all passenger enplanements by commercial airlines. Because of the congestion, frequent traffic delays and expense of operating from hubs, general aviation aircraft usually avoid hubs and prefer to operate at reliever airports (see separate definition).

Land-use planning – Efforts by airport authorities and local governments to ensure that development of property near airports is compatible with the activities at the airfield. For example, establishing industrial and commercial enterprises on the property surrounding airports is considered a compatible use of the land, while situating residences, schools and churches near airports is considered an incompatible use of the land. Also, erecting radio towers and tall buildings near an airport is considered an incompatible use.

Maximum sound level – The loudest noise event that occurs in a given environment during a certain period.

National Plan of Integrated Airport Systems (NPIAS) – The FAA planning document that identifies more than 3,300 airports that are significant to national air transportation and thus eligible to receive federal grants under the Airport Improvement Program (AIP). It also includes estimates of the amount of AIP money needed to fund infrastructure development projects that will bring these airports up to current design standards and add capacity to congested airports. The FAA is required to provide Congress with a five-year estimate of AIP eligible development every two years. The NPIAS comprises all commercial service airports, all reliever airports and selected general aviation airports.

NBAA Noise Abatement Program – A set of objectives and operating procedures used to reduce noise exposure for people on the ground. The procedures, established in 1967, are recommended as a standard for all aircraft whose manufacturers have not recommended specific noise-abatement procedures. Learn more on the NBAA web site at www.nbaa.org/quietflying.

Off-airport land-use plan – An airport master plan component that is designed to achieve land uses compatible with the long-range development of the airport and the surrounding area. It takes into account the social, economic and environmental consequences that can be directly attributed to the activities at the airport, including aircraft noise patterns, aircraft obstructions or the airport access system.

Reliever airport – High-capacity general aviation airports located within major metropolitan areas. These airfields are designed to provide GA pilots with attractive alternatives to using congested hub airports.

Runway incursion – An incident on a runway in which an aircraft, vehicle, person or object on the ground creates a collision hazard or results in a loss of required separation with an aircraft that is taking off or landing.

Sound exposure level (SEL) – The total sound energy of a single noise event, which takes into account both its intensity and duration.

Stage 1/Chapter 1 – The lowest of the three aircraft noise classes created in 1977, when the FAA amended FAR Part 36 (see separate definition) to provide for three levels of aircraft noise certification standards.

Stage 2/Chapter 2 – The noise limit for newly designed large aircraft imposed in 1973 following the establishment of the FAA's first noise regulation – FAR Part 36 (see separate definition). The international (ICAO) equivalent noise standard is known as ICAO Chapter 2.

Stage 3/Chapter 3 – A more stringent aircraft noise limit that applied to aircraft for which new type certificates were applied for on or after November 5, 1975. This category of noise certification was created in 1977, when the FAA amended FAR Part 36 to provide for three stages of aircraft noise levels. The international (ICAO) equivalent noise standard is known as ICAO Chapter 3.

Stage 4/Chapter 4 – The most recent and most stringent aircraft noise certification limit that applies to aircraft for which new type certificates are applied for on or after January 1, 2006. The international equivalent noise standard is known as ICAO Chapter 4.

State airport system plan – A document that lists the aviation facilities required to meet the immediate and future air transportation needs of a state. It recommends the general location and characteristics of new airports and details the proposed expansion of existing airfields, including the timing and estimated cost of infrastructure development and relates airport system planning to the economic development and environmental goals of the state.

OTHER NBAA RESOURCES

NBAA is dedicated to supporting regional business aviation communities and the airports that serve them. As part of that effort, included with the printed version of the *NBAA Airports Handbook* is a DVD titled *Your Community Airport*, which provides a look at U.S. airports and their importance to neighboring communities and the nation's air transportation system.

Your Community Airport depicts local businesses to underscore the positive economic impact of airports on their surrounding communities. The video addresses those who are skeptical about the intent of airport owners and users, and combats false perceptions about airports. Available in long (14-minute) and short (eight-minute) versions, it encourages communication between airport management, airport users and the public through the creation of regional groups or roundtables, in order to address problems and resolve conflict as proactively, efficiently and amicably as possible.

To accompany this *Airports Handbook,* NBAA also offers a downloadable PowerPoint presentation with speaker notes, which is available online at www.nbaa.org/ops/airports/handbook.

NBAA's *Airports Handbook*, DVD and PowerPoint presentation are recommended viewing not only for flight operations and company management, but also for members of business aviation regional groups, airport user groups, chambers of commerce, local government and the media. NBAA encourages you to use them at community events in order to demonstrate the value of your local airport.