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AIRCRAFT OWNERS AND PILOTS ASSOCIATION



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# **AOPA'S GUIDE TO AIRPORT NOISE AND COMPATIBLE LAND USE**



**AIRPORT  
SUPPORT  
NETWORK**

## AIRPORTS: CRITICAL ASSETS FOR TODAY AND TOMORROW

Whenever we at AOPA ask our members what concerns them most about the future of general aviation, they name “loss of airports” as one of their chief worries. And the numbers show they’re right to be concerned. Currently airports are closing at a rate of 1.4 each month—a figure that should worry every general aviation pilot.

Why are airports closed? There are almost as many excuses for closing airports as there are airports themselves. Residential encroachment on airports leaves neighbors complaining about noise, pollution, and other hazards. Poor planning leaves airports surrounded by houses, churches, and schools. Communities in need of a quick infusion of cash look for property to sell or budgets to cut. Airports occupy prime real estate enticing to developers and local officials who don’t understand the value of their community airport and are looking to expand their tax base.

What many people don’t understand is the true value of airports to our communities. Here are some of the most important:

- General Aviation supports nearly 1.3 million jobs across the United States.
- It provides almost \$150 billion of total economic activity annually.
- Airports, including many smaller community airports, serve as vital bases for services like medical airlifts, firefighting, survey work, airborne traffic reporting, weather reporting, and overnight package delivery.
- Each year 166 million passengers, including many from your community, fly on General Aviation aircraft. That makes the 231,600 aircraft of the GA fleet the nation’s largest “airline,” flying more passengers than American Airlines, United Airlines, and Northwest Airlines combined.

None of this is possible without the more than 19,000 airports located in communities across the United States, including some 5,200 public-use airports.

To keep airports open, we must find ways for airports to be good neighbors within their local communities. The responsibility for being a good neighbor rests with everyone, starting with local governments and airport users.



In this book, you will find tools and information that can help you understand how airports and other members of the community can be better neighbors. You will also learn how communities can plan so that incompatible land use and encroachment never compromise their local airports.

“Part I: Airport Noise” focuses on the policies the Federal Aviation Administration has adopted to facilitate airport noise programs across the country and methods that we as pilots, flight instructors, fixed-base operators, and airport managers can adopt to become better neighbors. This section provides detail on the definition, measurement, and mitigation for airport-related noise.

“Part II: Airport Compatible Land Use,” beginning on page 8, illustrates the various ways in which communities can effectively plan and prevent incompatible land use encroachment around their airports. Some of the most effective methods include creating detailed zoning ordinances, housing

and building codes, real estate disclosure documents, and land/air rights acquisition plans. Examples of these land use control methods, along with a detailed summary of the FAA's policy on noise mitigation measures, have been provided in the appendices.

## **PART 1: AIRPORT NOISE**

Many of the problems at airports today are the direct result of poor or nonexistent planning for compatible land use. By the same token, almost every concern about airport noise and safety can be eliminated through responsible, long-term land use planning.

- When trying to determine the best ways to resolve noise complaints at your airport, there are a few key issues to keep in mind.
- A sound you love, like the drone of a piston airplane, may be an irritant to others.
- Complaints about noise may really be masking fears about the safety of having an airport nearby.
- It does not matter if the airport “was here first.” Now that it has neighbors, their concerns must be taken seriously.
- Providing community members with a forum to express their concerns is important.
- Taking voluntary action, demonstrating goodwill, and encouraging community involvement with your airport can go a long way to creating positive relationships and reducing complaints.

## **SOUND OR NOISE: A MATTER OF PERCEPTION**

“How could anyone dislike the sound of a light airplane droning across the sky on a summer day? It’s music to my ears.” If that is how you feel, you might take a moment to realize that the teenager whose car sound system pumps enough bass to rattle your windows and your teeth feels the same way about his “music.”

After all, whether a sound is pleasant or a nuisance depends on the listener’s associations with that sound. For many pilots, the sound of a General Aviation aircraft circling overhead conjures fond memories of past flights and excitement about future ones. For nonpilots living close to an airport, that sound may be just another irritating disturbance, putting it into the same category as squawking car alarms, blaring sirens, and yes, that teenager and his stereo. The sound is the same; the way the listener perceives it is very different.

That difference in perception extends to the nature of the problem itself. It is easy to complain about noise—it’s tangible and measurable. It can be much harder for rational adults to admit fear. Fear is hard to identify and measure. Often we don’t know exactly what we’re afraid of or how to quantify the danger.

Many people who have no experience with General Aviation are afraid of light aircraft. They wonder if an airplane will crash into their home or their child’s school. Often these people have no way to put their concerns into context. They don’t know about the hundreds of thousands of safe flights made each and every year by General Aviation pilots, but they do know that they occasionally see television or newspaper accounts of emergency landings and accidents, some of them quite spectacular.

Addressing these concerns at the same time you address noise issues can go a long way to creating better relations with airport neighbors.

And, of course, when faced with noise complaints, it's all too easy to say, "The airport was here first." That may be true, but it's also completely irrelevant to the people who live adjacent to the airport now. Some of those people may have known about the airport when they moved in but underestimated the sounds associated with living nearby. Others may have purchased their homes without ever knowing there was a community airport half a mile away. Still others may have had no choice, especially in areas where there is a shortage of affordable housing.

Regardless of who was there first, airport noise complaints are a problem for airports and residents alike. They must be taken seriously. People who find aircraft noise offensive have mounted remarkably effective campaigns to restrict airport usage, leading to restrictions on aircraft operations and flight training, as well as night closings and curfews.

Finding ways to work with neighbors and address their concerns before they turn to drastic legal measures can be the difference between keeping an airport open and losing it forever.

## **UNDERSTANDING AND DEFINING NOISE**

To understand how noise standards are created and applied, it's important to understand what makes a sound noisy.

Noise can be described as an unwanted or undesirable sound that interferes with speech or hearing. When it comes to airport noise, the following factors can play a role in determining the severity of the disturbance:

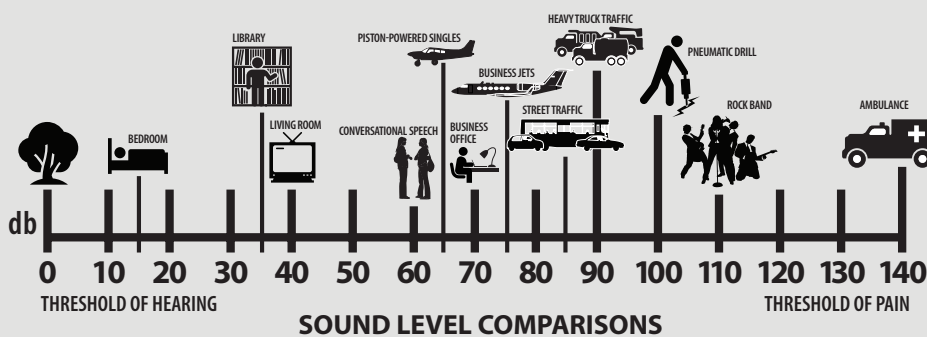
- Nature and intensity of sound;
- Time of day and duration of each sound event;
- Number and type of aircraft using the airport;
- Distribution of operations among runways;
- Arrival and departure patterns;
- Adjacent land uses - industrial vs. residential, for example;
- Background or ambient noise levels in adjacent communities, including noise produced by sources other than the airport, such as highway traffic.

While these factors affect the perception of noise, noise levels can also be quantified by any of about 25 different methods. However, the aviation industry uses five basic methodologies to measure and describe aircraft noise. They are dBA, EPNdB, SEL, Lmax, and Ldn/DNL1.

- dBA, also called A-weighted decibels, is a weighted sound level that uses a decibel base to measure the intensity of a sound compared to the lowest volume detectable to the human ear.
- EPNdB uses decibels to measure the "effective perceived noise level," in other words, a subjective assessment of the human perception of noisiness.
- SEL stands for "single event level," and measures the precise dBA of one noise event, such as an aircraft overflight, takeoff, or landing. This scale also takes into account the duration and frequency of the noise.
- Lmax, or "maximum noise level," is the greatest sound level, expressed in dBA, that occurs during a single noise event.

- Ldn/DNL1 is the day-night average sound level. It defines the average sound level during a 24-hour period. Sounds made at night, typically between 10 p.m. and 7 a.m., receive a 10-dBA penalty. This method measures all noise in an area, not just aircraft noise. Some states, including California, also use a measurement called CNEL or “community noise level” for environmental assessments. CNEL imposes the same 10-decibel penalty as DNL for nighttime noise and adds a 5-decibel penalty for noise occurring between 7 p.m. and 10 p.m.

To give you an idea how aircraft noise compares to other sounds, the illustration below lists a variety of common noises on a scale of 0, the threshold of human hearing, to 140, the threshold of pain. As you can see, a typical piston-powered single-engine airplane in flight generates about 65 decibels of sound compared to 85 for average street traffic and 140 for an electronic siren, such as an ambulance.



## FAA NOISE ESTIMATES

### AC-36H: ESTIMATED AIRPLANE NOISE LEVELS

The FAA has compiled aircraft noise levels for a variety of aircraft makes and models in both takeoff and approach configurations. These are listed in A-weighted decibels (dBA) in FAA Advisory Circular 36-3H. (The complete advisory circular is available on the FAA's website at: [www.faa.gov/regulations\\_policies/advisory\\_circulars/index.cfm/go/document.information/documentID/22945](http://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.information/documentID/22945).) Information ranges from the noise generated by a Boeing 747-100 taking off (100.5 dBA) through light general aviation aircraft such as a Cessna 152 (59 dBA).

This advisory circular also dictates specific placement criteria for noise monitors used during the aircraft noise data collection process.

The noise levels presented in the circular are associated with the aircraft certification process and are not intended to be used by airport operators to restrict airport access to certain types of aircraft and are presented here as a point of information only.

### 14 CFR PART 150: AIRPORT NOISE STUDIES

Individual site-specific studies of airport noise are performed under the authority of Title 14 Code of Federal Regulations (CFR) Part 150 and are most often federally funded. As part of these studies, participants develop Noise Exposure Maps (NEMs) that illustrate the areas surrounding the airport that suffer the greatest impact from noise. A more detailed description of the Part 150 process is provided in the FAA's Final Policy on Part 150 Approval of Noise Mitigation Measures: Effect on the Use of Federal Grants for Noise Mitigation Projects. The FAA's Part 150 website ([www.faa.gov/airports/environmental/airport\\_noise/](http://www.faa.gov/airports/environmental/airport_noise/)) provides another valuable resource and includes this policy guidance.

Appendix A of 14 CFR Part 150 includes a table of land use compatibility with various sound levels. For example, residential land use is considered only compatible with noise levels less than 65 Ldn. Commercial land uses, such as bus transfer stations and retail spaces, can be compatible with higher noise levels between 70-75 Ldn. The loudest noise areas at 85 Ldn and above are only compatible with land uses such as mining and forestry.

Since most airports will not undergo a federally funded noise compatibility study, they must rely on land use planning tools and the cooperation of airport users to minimize the impact of noise on surrounding communities.

## HOW WE CAN MAKE A DIFFERENCE

Reducing airport noise complaints and improving relationships with airport neighbors requires pilots and all airport users to do their part. By voluntarily taking steps to “fly friendly”, we may be able to avoid onerous local legislation and even airport closure. AOPA has produced a valuable DVD, called Flying Friendly, to illustrate many of the key concepts.

Many noise control strategies are easy to implement and painless to use. They may include establishing designated group runup areas away from the perimeter of the airport; establishing preferred runways under certain conditions, such as using the runway farther from residential development at night and whenever weather conditions permit; creating and displaying maps of noise sensitive areas to educate pilots; implementing pattern procedures and altitudes that minimize noise impact on the ground; and asking pilots to use the maximum safe climb rate during takeoff.

Creating such voluntary noise abatement procedures starts with a decision to take action. Early in the process, it's a good idea to establish a working team comprising airport management, airport users, and community representatives, who can help identify the noise problem, obtain funding for the effort, develop a noise control plan, and implement it. Individual action cannot substitute for a collective effort involving airport users and neighbors. But, there are steps we, as individuals, can take to be good neighbors.

### Pilots

- Be aware of noise-sensitive areas, especially residential communities, near airports.
- Avoid flying low, especially at high power settings, over these areas.
- Avoid high rpm settings in the pattern.
- Follow any voluntary noise abatement procedures for arrivals and departures
- On takeoff, reduce to climb power as soon as it is safe and practical to do so.
- On takeoff, climb at best angle of climb until you cross the airport threshold, and then switch to best-rate climb.
- Depart from the runway end, rather than intersections, to give you the greatest altitude when leaving the airport threshold and flying over surrounding communities.
- Make a straight-ahead climb to 1,000 feet before making any turns (unless that path crosses a noise-sensitive area). Turning reduces the altitude gained in a climb.

- Avoid prolonged runups and, if possible, do them inside the airport, rather than at its perimeter.
- Use low power approaches when possible, and always avoid the low, dragged-in approach.
- If you want to practice night landings, stay away from residential airports. Practice at major fields where a smaller airplane's sound is less obtrusive.

#### Flight Instructors

- Teach noise abatement procedures to all students, including pilots you take up for a flight review or aircraft checkout.
- Know noise-sensitive areas, and point them out as you come and go with students.
- Make sure that your students fly at or above the recommended pattern altitude. Practice maneuvers over unpopulated areas and vary your practice areas so that the same locale is not constantly subjected to aircraft operations.
- During practice of ground-reference maneuvers, be particularly aware of houses, schools, or any other noise-sensitive areas in your flight path.
- Stress that high-rpm prop settings are reserved for takeoff and for short final but not for flying the pattern.
- If your field is noise sensitive, endorse your students' logbooks for landing at a more remote field, if available with a 25-nm range, to reduce touch-and-go activity at your airport.

#### Fixed-Base Operators

- Identify noise-sensitive areas near your airport and work with your instructors and customers to create voluntary noise abatement procedures.
- Post any noise abatement procedures prominently on the airport's website and remind pilots of the importance of adhering to them.
- Mail copies of noise abatement procedures with monthly hangar and tie down bills. Make copies available on counter space for transient pilots.
- Ensure your instructors are teaching safe noise abatement techniques.
- Call for use of the least noise-sensitive runways whenever wind conditions permit. Try to minimize night touch-and-go training at your airport if it is in a residential area. Encourage the use of nonresidential airports for this type of training.
- Initiate pilot education programs to teach and explain the rationale for noise abatement procedures and the value of positive community relations.

#### Airport Managers

- Send a copy of the noise abatement procedure established for your airport, along with a brief explanation of its purpose, to the local newspaper. Let the public know pilots are concerned.
- Ensure the pattern, approach, and departure paths are designated on official zoning and planning maps so real estate activity is conducted in full awareness of such areas.
- Lobby for land use zoning and building codes that are compatible with airport activity and will protect neighboring residents.
- Publicize and communicate the value of the airport to the community and how its operation adds to the safety, economy, and overall worth of the area.

- Sponsor “airport days” to involve nonfliers with the business and fun of aviation and possibly attract potential new pilots.
- Encourage beautification projects at the airport. Trees and bushes around runup and departure areas have proven effective in absorbing ground noise from airplanes.

## FAA NOISE POLICIES

Since 1968, the FAA has been authorized to develop both noise regulations and standards. Under the legislation, the FAA had to respond to Congress and industry in three basic areas:

1. Control of aircraft noise
2. Control of air traffic into and out of airports.
3. Technical and financial assistance to airport sponsors for airport noise and compatible land use planning.

The success of any airport noise program is contingent upon a cooperative working relationship among the airport sponsor, local government, airport users, and airport neighbors. To this end, the FAA has developed guidelines and regulations to foster cooperation while establishing a systematic policy addressing the issue of controlling noise. A few of the major FAA regulations and advisory circulars include the following documents.

- Title 14 CFR Part 150, “Airport Noise Compatibility Planning.” Established in 1983, this regulation implements Title I of the Airport Safety and Noise Abatement Act (ASNA) of 1979 by establishing regulations for airport operators who elect to develop an airport noise compatibility plan. It is available online at <http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=426f883d6c42eb933785ff80a3ced26c&rgn=div5&view=text&node=14:3.0.1.3.21&idno=14>
- 14 CFR Part 161 implemented provisions of the Airport Noise and Capacity Act of 1990 (ANCA) by establishing a national program for reviewing airport noise and access restrictions on Stage 2 and Stage 3 aircraft operations. Part 161 also advises airport operators on how ANCA and Part 161 apply to the airport noise compatibility planning process conducted under FAR part 150. This information is available at [www.faa.gov/airports/environmental/airport\\_noise/](http://www.faa.gov/airports/environmental/airport_noise/)
- Advisory Circular 150/5020-1, “Noise Control and Compatibility Planning for Airports” (1983). Available online at [www.faa.gov/documentLibrary/media/advisory\\_circular/150-5020-1/150\\_5020\\_1.pdf](http://www.faa.gov/documentLibrary/media/advisory_circular/150-5020-1/150_5020_1.pdf)
- Advisory Circular 36-1H, “Noise Levels for U.S. Certification and Foreign Aircraft” (2001). Available online at [www.faa.gov/regulations\\_policies/advisory\\_circulars/index.cfm/go/document.information/documentID/22942](http://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.information/documentID/22942)
- Advisory Circular 36-3H, “Estimated Airplane Noise Levels in A-Weighted Decibels” (2002). Available online at [www.faa.gov/regulations\\_policies/advisory\\_circulars/index.cfm/go/document.information/documentID/22945](http://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.information/documentID/22945)
- Advisory Circular 36-4C, “Noise certification Handbook” (2003). Available on at [www.faa.gov/regulations\\_policies/advisory\\_circulars/index.cfm/go/document.information/documentID/22947](http://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.information/documentID/22947)



- Advisory Circular 91-36D, “Visual Flight Rules (VFR) Near Noise-Sensitive Areas.” (2004). Available online at [www.faa.gov/regulations\\_policies/advisory\\_circulars/index.cfm/go/document.information/documentID/23156](http://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.information/documentID/23156)
- 14 CFR Part 36 specifies maximum noise levels for turbojet aircraft during approach, takeoff, and along the runway sideline. Available online at [www.access.gpo.gov/nara/cfr/waisidx\\_11/14cfr36\\_11.html](http://www.access.gpo.gov/nara/cfr/waisidx_11/14cfr36_11.html)
- FAA Part 150 web site at [www.faa.gov/airports/environmental/airport\\_noise/](http://www.faa.gov/airports/environmental/airport_noise/)

## **PART II: AIRPORT COMPATIBLE LAND USE**

The object of airport compatible land use planning is to ensure that the airport and surrounding community co exist in peace. Failure to plan, and the resulting encroachment of incompatible development, such as homes and schools, too close to the airport is at the heart of most airport closures today. Effective planning can eliminate this conflict and ensure that airports remain open with the support of the communities they serve.

### **RESIDENTIAL ENCROACHMENT**

Residential development too close to an airport is the single greatest encroachment threat community airports face today. It’s almost always true that “the airport was here first.” Most community airports are built far from other development precisely because airport sponsors know that they make unpopular neighbors. But the pressures of expanding populations and urban sprawl mean that an airport that was once “out in the boonies” may soon find itself in the center of town and at the heart of controversy over the best use of the land.

Depending on the requirements of individual states and localities, residents may or may not know that their homes are close to an airport when they purchase the property. Regardless of whether the residents knew about the airport or are surprised when they hear aircraft overhead, the result is the same – dozens, hundreds, or thousands of individual complaints about noise, safety, and other concerns.

Sometimes these concerns are based on misconceptions about small airplanes “falling out of the sky.” At other times, there are relatively simple solutions, such as “flying friendly.” But politicians may find it more expedient to bow to these complaints from their constituents than to evaluate the true value of the airport to the community and initiate necessary corrective action. The pressure of complaints combined with the lure of easy tax revenue from new development can be almost impossible for an airport to overcome.

The ideal solution, of course, is to avoid the problem in the first place through proper land use planning. For many communities, however, it is much too late. When their airports were built no one imagined the surrounding communities would grow as they have, closing in on the airport. In cases like these, the problem already exists and airport advocates must find ways to mitigate the concerns of neighbors and act to prevent new problems from arising in the future.

### **ZONING ON AND AROUND AIRPORTS**

Both state and local governments can weigh in on airport zoning, and creating land use and development plans that meet state and local requirements can be the best way to protect your airport.

The goal of zoning laws affecting airports is to ensure that land use is compatible with airport operations. Such laws can benefit general taxpayers as well as airports, by protecting and preserving the airport and the public investment in that airport, and by preventing noise and safety concerns for surrounding communities.

Specifically, zoning laws should be crafted to prevent:

- Residential and other noise-sensitive land use. (e.g. churches, homes, schools)
- Large congregations of people in the approach and departure areas. (e.g. stadiums)
- Man-made or natural obstacles that can interfere with flight. (e.g. brightly lit sports facilities)
- Land uses that interfere with areas of airport needed for aviation activities. (e.g. allowing joggers to use taxiways or drag racing on runways)
- Land uses that attract wildlife. (e.g. landfills, certain agricultural uses)

Airports that accept Airport Improvement Program grants are required to accept a series of conditions, called grant assurances, that set out general standards for zoning, including protecting airspace, especially along approach and departure paths, and mitigating and preventing hazards. Specifically Assurance 20 and Assurance 21 set out the following conditions:

**Assurance 20, Hazard Removal and Mitigation:** [The airport owner] will take appropriate action to assure that such terminal airspace as is required to protect instrument and visual operations to the airport (including establishing minimum flight altitudes) will be adequately cleared and protected by removing, lowering, relocating, marking, or lighting, or otherwise mitigating existing airport hazards and by preventing the establishment or creating of future airport hazards.

**Assurance 21, Compatible Land Use:** [The airport owner] will take appropriate action, including the adoption of zoning laws, to the extent reasonable, to restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations, including landing and takeoff of aircraft. In addition, if the project is for noise compatibility program implementation, it will not cause or permit any change in land use within its jurisdiction that will reduce with compatibility, with respect to the airport, of the noise compatibility measures upon which federal funds have been expended.

Under these grant assurances, it is up to the airport owner to make a written request to the local zoning authority, which may include the state, county, or city, asking that authority to establish adequate zoning restrictions to protect the airport.

If the zoning authority refuses to enact appropriate zoning to protect the airport, the airport authority must be prepared to acquire control of the necessary land, especially around approach areas. Clearly buying the land is more expensive than developing appropriate zoning and may involve expensive legal fees.

While these obligations only apply to airports that have received federal airport funding, some states, including California and Wisconsin, have their own aviation-related zoning requirements, many of which reiterate the principles of AIP requirements, including protecting airspace along approach paths.

## **ELEMENTS OF AIRPORT ZONING**

The first step in airport zoning is to create an Airport Layout Plan (ALP) for your airport. The airport depicts land that the airport should own as well as any easements that may be needed. The ALP should include airspace drawings showing obstructions to navigation and indicate areas that may need to be regulated to prevent or remove those obstructions. Height limitations on development both on and around the airport may be needed to protect airport operations, especially along approach and departure paths. To assist with this process, the FAA has developed an advisory circular titled “A Modern Zoning Ordinance to Limit the Height of Objects Around Airports” (AC 150/5190-4A), available online at [www.faa.gov/documentLibrary/media/advisory\\_circular/150-5190-4A/150\\_5190\\_4A.PDF](http://www.faa.gov/documentLibrary/media/advisory_circular/150-5190-4A/150_5190_4A.PDF)

The ALP may be adopted by reference and use to limit the height of objects that would interfere with airport operations. Close coordination with city and county planning departments is essential for successful adoption and implementation of airport zoning.

While zoning to limit the height of objects around airports is vital, it isn't enough to prevent other forms of encroachment, including residential development. This requires exclusionary zoning. To help you determine what types of development may be incompatible with your airport, the FAA has developed the “Noise Control and Compatibility Planning for Airports” advisory circular (AC 150/5020-1), available online at [www.faa.gov/documentLibrary/media/advisory\\_circular/150-5020-1/150\\_5020\\_1.pdf](http://www.faa.gov/documentLibrary/media/advisory_circular/150-5020-1/150_5020_1.pdf)

Several states have also produced useful documents that may help you understand the zoning issues your airport might face. The Oregon Department of Transportation’s “Airport Compatibility Guidelines” include an overview of most common zoning issues. Copies are available from the Oregon Aeronautics Division, 3040 25th St., S.E. Salem, OR 97310 or online at [www.oregon.gov/Aviation/landuseguidebook.shtml](http://www.oregon.gov/Aviation/landuseguidebook.shtml). The Florida Department of Transportation’s “Airport Compatible Land Use Guidance for Florida” is another valuable reference. It is available from the Aviation Office, 605 Suwanee St., MS 46, Tallahassee, FL 32399 or online at [www.dot.state.fl.us/aviation/compland.shtm](http://www.dot.state.fl.us/aviation/compland.shtm).

Remember that any zoning requests must comply with state statutes, and you may require a legal determination of the zoning authority for your airport. Consult your attorney for assistance in determining the appropriate zoning jurisdiction.

## **LAND USE CONTROLS**

Once incompatible development is in place near an airport, there's no easy way to resolve the inevitable conflicts. But there are a number of common land use controls that may help. These include creating a comprehensive land use plan, zoning, housing, and building codes, real estate disclosures, and land and land/air rights acquisition.

## **COMPREHENSIVE PLANS**

A community's Comprehensive Plan, sometimes called a “master plan” or “general plan”, is a policy guide to help shape decisions affecting the development of land within the local jurisdiction. As a rule, a master plan should include land use planning, transportation planning, and facilities planning. All three of these elements of the master plan should mention the airport and its needs.

## **ZONING**

The only federal regulation mandating compatible land use and height limits around airports comes with the AIP assurance requirements (see Zoning On and Around Airports, p. 9) And although the FAA has issued standards in Part 77 of the Federal Aviation Regulations and in Advisory Circular

150/510-4A, “A Model Zoning Ordinance to Limit Height of Objects Around Airports,” these standards are not regulatory and therefore not enforceable. Rather, they are intended to demonstrate good practices that can be incorporated in local zoning regulations.

Instead, it is up to the states to grant local governments – often counties and cities – the power to create zoning requirements. Therefore, it is the states and local governments that have the responsibility to enact and enforce compatible land use legislation for airports.

A good example of state legislation comes from the State of Florida Statutes, Chapter 333.02 “Airport Zoning,” which recognizes airport hazards and incompatible land uses.

- (1)** It is hereby found that an airport hazard endangers the lives and property of users of the airport and occupants of land in its vicinity and also, if of the obstruction type, in effect reduces the size of the area available for the taking off, maneuvering, or landing of aircraft, thus tending to destroy or impair the utility of the airport and the public investment therein. It is further found that certain activities and uses of land in the immediate vicinity of airports as enumerated in s. 333.03(2) are not compatible with normal airport operations, and may, if not regulated, also endanger the lives of the participants, adversely affect their health, or otherwise limit the accomplishment of normal activities. Accordingly, it is hereby declared:
- a. That the creation or establishment of an airport hazard and the incompatible use of land in airport vicinities are public nuisances and injure the community served by the airport in question;
  - b. That it is necessary in the interest of the public health, public safety, and general welfare that the creation or establishment of airport hazards and incompatible land uses be prevented; and
  - c. That this should be accomplished, to the extent legally possible, by the exercise of the police power, without compensation.
  - d. It is further declared that the limitation of land uses incompatible with normal airport operations, the prevention of the creation or establishment of airport hazards, and the elimination, removal, alteration, mitigation, or marking and lighting of existing airport hazards are public purposes for which political subdivisions may raise and expend public funds and acquire land or property interests therein, or air rights there over.

Zoning regulations can only be effective if a community has implemented a Comprehensive Plan that takes into account the needs of the airport sponsor and its zoning authority, airport users, and the surrounding communities. With such a plan in place, zoning laws can legally dictate what uses are permitted for each parcel of land within the control of the local government body. Most cities and larger towns have zoning authority; many counties have limited or no zoning authority.

This can also be seen in Florida Statutes, Chapter 333, section 333.05, which specifies procedures for adoption of zoning regulations:

**(1) Notice And Hearing.** No airport zoning regulations shall be adopted, amended, or changed under this chapter except by action of the legislative body of the political subdivision in question, or the joint board provided in s. 333.03(1) (b) by the bodies therein provided and set forth, after a public hearing in relation thereto, at which parties in interest and citizens shall have an opportunity to be heard. Notice of the hearing shall be published at least once a week for 2 consecutive weeks in an official paper, or a paper of general circulation, in the political subdivision or subdivisions in which are located the airport areas to be zoned.

**(2) Airport Zoning Commission.** Prior to the initial zoning of any airport area under this chapter the political subdivision or joint airport zoning board which is to adopt the regulations shall appoint a commission, to be known as the airport zoning commission, to recommend the boundaries of the various zones to be established and the regulations to be adopted therefore. Such commission shall make a preliminary report and hold public hearings thereon before submitting its final report, and the legislative body of the political subdivision or the joint airport zoning board shall not hold its public hearings or take any action until it has received the final report of such commission, and at least 15 days shall elapse between the receipt of the final report of the commission and the hearing to be held by the latter board. Where a city plan commission or comprehensive zoning commission already exists, it may be appointed as the airport zoning commission.

Zoning is not a perfect solution, in part because it's not necessarily permanent. Also, most zoning laws allow for appeals that may result in the issuance of variances from zoning requirements. By far the biggest problem with zoning is inconsistency among different governing authorities. For example, in the 1960s and early 1970s, the City of San Francisco was suing the airport for more than \$3 million at the same time the zoning authority was allowing new residential areas to be built near the airport.

#### **HOUSING AND BUILDING CODES**

Housing and building codes set minimum standards for construction, including setting interior noise limits for new and existing construction near airports. But because these are local laws, these codes can vary from city to city.

The FAA also has a program to reduce noise exposure and complaints by insulating homes near airports provided that the airport has completed at least a 14 CFR Part 150 noise study which demonstrated that noise exceeds acceptable federal levels..

#### **REAL ESTATE DISCLOSURE**

An increasingly number of states require real estate agents and developers to tell potential home buyers about the location and traffic pattern of any nearby airport.

Since each state sets its own disclosure requirements, they vary widely. In Michigan and Indiana, airport location is an actual item on the disclosure form. In Maryland, real estate disclosure documents include a section listing all landing facilities in the state. In Hawaii, it is up to the seller to disclose noise-exposure areas. Many other states use more generic language, requiring disclosure of potential disturbances that could include noise, crime, and routine inconveniences not disclosed elsewhere.

#### **LAND AND LAND/AIR RIGHTS ACQUISITION**

The airport sponsor can also control the surrounding land by purchasing it or by buying specific air or land rights. This method can be extremely costly for local residents and the airport, especially when applied as an afterthought to fix existing incompatible land uses.

In addition to purchasing property outright, the airport sponsor can attempt to purchase avigation easements or development rights to property around the airport. Buying development rights gives the airport sponsor the right to ensure that future development of the land is compatible with the airport, while leaving the property owner all other rights of ownership.

An aviation easement conveys specific property rights, restricting the property owner's use of the surface of the property and assuring the owner of the easement the right of a specific use identified in the easement. Aviation easements may include the right-of-flight of aircraft; the right to cause noise or dust; the right to remove all objects protruding into the airspace; the right to enter the property to exercise the other rights contained in the easement. While there are many variations on an aviation easement, the right-of-flight is the essence of this approach.

It is important to understand that other types of easements do not include the right-of-flight. For example, clearance easements provide protection from obscuration but do not include the right-of-flight. For more information on aviation easements, consult FAA Order 5100.37A, "Land Acquisition and Relocation Assistance for Airport Projects."

#### **ADDITIONAL INFORMATION ABOUT LAND USE CONTROLS**

All of these and other land use control methods, such as land banking, aviation easements, tax incentives, and development rights, are discussed in the FAA's "Land Use Compatibility and Airports" guidebook available online at: [www.faa.gov/about/office\\_org/headquarters\\_offices/apl/noise\\_emissions/planning\\_toolkit/media/III.B.pdf](http://www.faa.gov/about/office_org/headquarters_offices/apl/noise_emissions/planning_toolkit/media/III.B.pdf) and the ACRP Report "Enhancing Airport Land Use Compatibility" at [www.trb.org/Publications/Blurbs/163344.aspx](http://www.trb.org/Publications/Blurbs/163344.aspx).

#### **YOUR ROLE AS AN AIRPORT USER**

Airport users cannot afford to ignore noise problems. Each year the FAA spends millions of dollars of Airport Improvement Program funds to acquire land, soundproof homes, and pay for noise studies at airports with noise problems. More than 30% of the discretionary AIP funds are reserved for noise compatibility planning and implementing noise compatibility programs.

As an airport advocate, you should know what zoning and land use planning measures have been taken at your airport. Get a copy of the local zoning map, which will show how parcels of land near the airport are zoned. This can give you a good idea of where problems are likely to arise.

Work with airport officials and local authorities to develop a strategy to seek needed zoning changes before undeveloped areas become a problem.

You or other members of your airport support group should also attend planning commission meetings and be alert for requests for variances from existing zoning laws. It's a good idea to have your name added to the list of people who receive meeting agendas in advance. Be prepared to speak up at these meetings. Come armed with factual data that will persuade decision makers to protect the airport and surrounding areas.

Remember that preventing incompatible land uses is far easier than resolving the problems that result from failure to plan.

## REFERENCES & RESOURCES

### **AOPA web page**

[www.aopa.org](http://www.aopa.org)

### **FAA Airports Noise web page**

[www.faa.gov/airports/environmental/airport\\_noise/](http://www.faa.gov/airports/environmental/airport_noise/)

### **ACRP Reports - Community Response to Airport Noise, Compatible Land Use Planning**

[www.trb.org/Publications/Public/PubsACRPPProjectReportsAll.aspx](http://www.trb.org/Publications/Public/PubsACRPPProjectReportsAll.aspx)

### **California Land Use Planning Handbook**

[www.dot.ca.gov/hq/planning/aeronaut/landuse.html](http://www.dot.ca.gov/hq/planning/aeronaut/landuse.html)

### **Florida Land Use Planning Guide**

[www.dot.state.fl.us/aviation/compland.shtm](http://www.dot.state.fl.us/aviation/compland.shtm)

### **Iowa Land Use Planning Handbook**

[www.iowadot.gov/aviation/studiesreports/compatibleland.html](http://www.iowadot.gov/aviation/studiesreports/compatibleland.html)

### **Oregon Land Use Planning Handbook**

[www.oregon.gov/Aviation/landuseguidebook.shtml](http://www.oregon.gov/Aviation/landuseguidebook.shtml)

### **Utah Land Use Planning**

[www.udot.utah.gov/main/uconowner.gf?n=200411180926131](http://www.udot.utah.gov/main/uconowner.gf?n=200411180926131)

### **Texas Land Use Planning Guide**

[ftp.dot.state.tx.us/pub/txdot-info/avn/avninfo/Airport\\_Compatibility\\_Guidelines.pdf](ftp://dot.state.tx.us/pub/txdot-info/avn/avninfo/Airport_Compatibility_Guidelines.pdf)

### **Washington Land Use Planning Handbook**

[www.wsdot.wa.gov/aviation/Planning/default.htm](http://www.wsdot.wa.gov/aviation/Planning/default.htm)

Disclaimer: The information contained in this document is intended as a guide to help you understand the issues, rules, procedures, and policies that apply to airport noise and compatible land use planning. It is not intended to replace the necessary research and review of applicable law that may be required in a particular case, nor is it intended to give legal advice or take the place of an attorney who can advise with respect to a particular situation. While every care has been exercised in the preparation of this booklet, AOPA does not accept responsibility for an individual's reliance on its contents.