Airports & Communities in Conflict

by L. Alex Fitch, Jr.

Alex Fitch is a member of IRWA Chapter 39, San Antonio, Texas. He developed the following article from a thesis proposal he prepared while working toward his master's degree.

Relocation is a burgeoning aspect of the right-of-way profession. This ramification of land acquisition activity is guided in the United States by the Fifth (" ... nor shall private property be taken for public use without just compensation ... ") and Fourteenth (" ... not deprive any person of ... property without due process of law ... ") Amendments to the Constitution, and codified by Public Law 91-646, the Uniform Relocation Assistance and Real Property Acquisition Act of 1970.

Relocation activities are increasingly in evidence around airports, as both air traffic and urban congestion manifold. The objectives of this type of project are usually oriented toward providing noise and safety buffer areas around an existing airport. The process of relocation requires specialized training and education for right-of-way professionals.

Conflict

While indispensable to modern metropolitan areas, major airports often conflict with the interests of some citizens through noise, occupation of vast land areas, and related inconveniences such as approach- and departure-path building height restrictions and perceived safety aspects of proximate space development.

Zoning legislation, balanced by action through local and higher courts, attempts to provide acceptable measures of fairness and utility to those on both sides of the airport fence.

The purpose of this overview is to try to provide a historical perspective on what balance the system has achieved, orienting prospective relocation agents and managers, as well as municipal decision-makers, to the basic problem.

A large, well-developed urban area in a modern industrial country such as the United States must be served by at least one heavy-aircraft-capable airport within a reasonable distance of the central business district. Simultaneously, however, the incompatibility of such an airport with the frame, much less the core, of the central business district pits safe and efficient air transportation operations against the many interests of the very community the airport serves.

Nuisance aspects of concern to those residing and working near airports such as noise, close overflights and, as interpreted more recently by the courts, trespass, were addressed initially by a combination of local municipality zoning and Civil Aeronautics Board (now Federal Aviation Administration) regulations. In an attempt to keep the inevitable pain and bother to a reasonable minimum, the regulatory entities coordinated to the most effective extent attainable by local civic boards, keeping in mind that federal regulations were overriding and non-amendable by local action.

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In a hypothetical extreme, it might appear that nuisances caused by aviation operations to the surrounding community could be eliminated almost completely through proscriptive or severely limiting legislation, but this approach merits little contemplation in light of solid jurisprudence as manifested by *Bieneman v. City of Chicago*, in which a U.S. District Court (1987) stipulated that " ... federal law preempts state negligence and nuisance actions against airport proprietors and airlines that are operating consistently with federal laws and regulations," and by *Baker v. Burb*ank, in which the California Supreme Court (1985) ruled that " ... commercial flights in compliance with federal law may not be enjoined ... ." The obvious inference is that, lacking federal prohibition of subordinate meddling, the eventual effect of community-slanted restrictions on air transport operations in and around the affected geopolitical jurisdiction would be negative in the extreme; either insufficient or unsafe air operations would result, or flights would be kept out of the area altogether. Moreover, consistency would be lacking throughout the federal airways system regulations.

Some peripheral local legislation has occurred, but as might be expected when treading on thin judicial ice, some of it has been declared invalid by the United States Supreme Court, as in *United States v. County of Westchester*, in which a curfew on nighttime operations without regard to accompanying emitted noise was held to be an unlawful exercise of local police power.

Mere compliance with Federal Aviation Administration (FAA) regulations, however, is a function of the air transportation industry which in and of itself has not in the past taken into account the rights of owners and tenants of property adjacent to airports. The hypothetical

extreme at the opposite end of the continuum from the above-mentioned "proscriptive legislation" concept of complete nuisance (i.e., air operations) elimination would be to allow any and all operations in compliance with FAA regulations without regard whatsoever for the adverse effects of these operations on residents and workers in the immediate area. This is obviously equally untenable. As the technological advances of the 1950s onward dramatically increased the size, speed and power of air transport aircraft through the use of the jet engine, living and working near an airport (most of which have been in existence since the 1930s or 1940s) became commensurately less pleasant. Runways lengthened, the suburbs grew, and the two have now met.

Very few, if any, large airports were constructed in densely populated areas, but most are surrounded by suburbia now.

The friction that has ensued has kept lawyers busy. To keep the public's rights intact and at the same time ensure the continuation of the essential air transportation industry, rather in the middle of the continuum above discussed, requires compromise locally on a case by case basis.

An example of evolutionary compromise is the aviation easement, also known as overflight easement, conveyed or acquired as a novel aspect of the bundle of rights inherent in allodial freehold land ownership. Consideration is paid for use by aircraft of the questionable area below the public domain the U.S. Supreme Court has declared federal airspace to be.

In his work entitled *Land Use Regulation*, Garrett states " ... inconsistency can be resolved through a jurisprudence system that likes piecemeal changes that are justified through a tradition in American political thinking that legitimizes local decision-making by reference to the smallness of local communities, in contradistinction to the largeness of the extended public (the nation). It is through this complementarity of economic theory and judicial theory that optimal land use must include a combination of regulation with free market."

Initially, airports and their respective communities were good, if distant, neighbors, and rarely in conflict. As previously mentioned, early public airports were constructed in sparsely populated areas away from the center of town. The mushrooming of suburbia after World War II, assisted by the widespread use of the automobile, caused vacant land around airports to be residentially developed. Soon the advent of the jet engine into civilian air transportation operations exacerbated the growing conflict.

A dictionary definition of noise is "unwanted, unpleasant sound." Noise is an inescapable byproduct of technological advance. In about 50 B.C., Julius Caesar banned all chariot traffic in Rome at night because of the clatter of iron-bound wheels over the cobblestone streets. Courts have been used to settle noise disputes as far back as the nineteenth century, reflecting the impact upon society of the Industrial Revolution. In 1835 an English court first held that noise alone could be "sufficient cause for issuing an injunction." *Airport*, by Arthur Halley, publicized the problems caused by jet noise. The subsequent movie version of the book furthered public interest in the problem.

In 1952, the village of Cedarhurst, New York passed probably the earliest anti-noise ordinance directed solely at aircraft, barring flights over the village at altitudes of less than 1,000 feet AGL (above ground level). Prompted by low overflights of piston-engined aircraft taking off and landing at nearby Newark, New Jersey Airport, a $100 fine was imposed for any violation, and the pilot of the offending aircraft was subject to a disorderly conduct charge.

This legislation was disconcerting as well as innovative, since parts of Cedarhurst are less than one mile from the airport. Compliance would have required a 5:1 climb angle ratio, an impossible level of performance for anything short of an F-15. Airline use of the airport would have been halted had not the New York Port Authority, the Airline Pilots Association, 10 scheduled airlines, the Civil Aviation Agency, and the Civil Aeronautics Board sued to halt the ordinance's enforcement on three grounds (*All American Airways v. Cedarhurst*, New York, 1952).

It was argued that the ordinance: 1) illegally invaded a legislative area which the United States had already "preempted," 2) conflicted with federal regulations authorizing portions of flights to be conducted under 1,000 feet AGL and, 3) unconstitutionally burdened interstate and foreign commerce by legislating in an area requiring uniform federal control. Compromise was achieved via amended Civil Aviation Agency regulations establishing a minimum altitude of 1,000 feet AGL over populated areas " ... except when necessary for takeoff or landing."

In 1958, Newark, New Jersey, sued in federal court to prevent all overflights below 1,200 feet AGL (*City of Newark v. Eastern Airlines*, New Jersey, 1958). This suit was dismissed on the same grounds success-

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fully argued by the plaintiff in *All American Airways v. Cedarhurst*. These early municipal defeats were precursors to the fact that to date, no court has ever enjoined the operation of a public airport " ... operating consistently with federal laws and regulations."

Noise

The primary cause for action in these early suits was noise, and the great majority of complaints in the airport-community relationship are still prompted by noise. Noise was defined as unwanted, unpleasant sound. While "wanted" and "pleasant" can be somewhat subjective terms, volume, or loudness, is less so. Sound is commonly measured in decibels, or dB, which reflect intensity or pressure. The decibel is a logarithmic, not linear, unit. A sound which measures 10 dB produces an energy level 10 times greater than 1 dB, but a sound measuring 20 dB produces an energy level 10 times greater than 10 dB.

Several scales are in use, but the one which most closely approximates the impact of noise on the human ear is the "A" scale, labeled dB(A).

The table below uses the dB(A) scale to give a frame of reference to various sound sources in connection with respective human responses to the same.

As can be readily seen, noise is recognized as more than a mere nuisance or distraction. Prolonged exposure to noise at 90 dB(A) induces permanent loss of hearing; lower levels produce impairment. In addition, constant exposure to modern noise has been linked to a gradual increase in tension, hypertension, and coronary disease.

The table rates jet takeoff as heard from a half-mile distance as only slightly more pleasant than a riveting machine, or an auto horn at three feet.

A more tangible effect of airport noise is the substantial decrease in appraised residential property values which have been documented around Kennedy Airport and Toronto International Airport in a *New York Times* diatribe dated 7 April 1962. In 1961, *Aviation Week And Space Technology* (12 June 1961) cited county property assessments as having been reduced about 20 percent around Los Angeles International Airport due directly to jet noise.

Occasionally, such properties may recoup their losses through zoning changes allowing industrial use, but even if such were to happen, it would only take place at a painfully slow, evolutionary pace.

Angry residents, nerve-jangled and insomniac, are not evolutionary in their thinking. A Cedarhurst resident was arrested in 1964 after he advised the FAA that he was going to start shooting down planes flying directly over his house. Three hundred South Brooklyn residents invaded and occupied Kennedy Airport's main lobby for an hour and a half in 1965, shouting and displaying anti-jet noise signs. The Port Authority prosecuted an irate housewife who threatened to blow up the Kennedy control tower in 1966.

These examples of homeowners driven to distraction are typical, understandable reactions to a 24-hour intrusion into their daily and nightly lives. These and other actions are almost invariably directed at airport operators. Yet the operators (airport management) are only one facet of the air transportation industry. The fusilier from Cedarhurst, while

Weighted Sound Levels and Human Response

Decibel level (dB(A) scale)	Representative sources of sound	Human response to sound level
150		
140	Jet flights from aircraft carrier deck	Painfully loud
130	Limit of amplfied speech	
120	Jet takeoff at 200 feet	
	Discotheque	
	Auto horn at 13 feet	
110	Riveting machine	
	Jet takeoff at 2000 feet	
100	Shout at 1.5 feet	Very annoying
90	New York subway station	
90	Heavy truck at 50 feet	Hearing damage (8 hrs)
	Pneumatic drill at 50 feet	
80		Annoying
	Freight train at 50 feet	
70	Freeway traffic at 50 feet	Telephone use difficult
60	Air-conditioning unit at 20 feet	Intrusive
	Light auto traffic at 50 feet	
50		Quiet
	Living room	
40	Bedroom	
	Library	
30	Soft whisper	Very quiet
20	Broadcasting studio	
10		Just audible
0		Threshold of hearing

Source: Council on Environmental Quality, Department of Transportation, 1970

threatening aircraft, actually contacted an official of the FAA. The South Brooklyn marchers didn't molest any particular airline office in 1965; the control tower was the target at Kennedy in 1966. Pilots, airline offices, and aircraft manufacturers all come under occasional attack, but the airport is usually the first place an irritated individual will call or initiate action against, because that is where airplanes come from.

Understandable in the cases of residents whose occupation and use of the area predates the airport's existence, but these are in the minority.

The set of individuals over whom the government has least control is that comprised of real estate developers and builders. As suburbia crept toward the airports, occasional voices were heard concerning the impending conflict. The Airline Pilots Association (ALPA) helped develop flight procedures to reduce noise exposure, using runways pointing away from residential areas when possible, and turning away from residential areas shortly after takeoff. The ALPA advocated these procedures in the 1950s, concurrently arguing for preclusion and removal of residential developments in approach and departure zones.

This last, if implemented when proposed some 35 years ago, would have had such a profound effect that the problem would merit little discussion today.

But the ALPA, the airline industry, and the FAA have little influence with local zoning boards. Bulletins, circulars and other advisories put out by the industry and the FAA are seldom promulgated at the consumer level by realtors and developers. An FAA official was quoted in the Congressional Record, 18 January, 1967:

"In most cases the developers were warned by this office that their tenants would be disturbed by noise. I visited one group of homeowners who had organized because of the noise problem, and I asked them if they weren't aware of the problem when they bought. They said that the real estate dealer had told them that as soon as the area was developed, the airport would close down this runway."

The goal of early legal action on the part of communities and landowners was to eliminate nearby air operations entirely, or at least minimize the effect of nearby operations by mandating excessive distance or altitude requirements. The defeats of the plaintiffs in *Cedarhurst, Bieneman*, and *Baker* established jurisprudence to the effect that the federal airways system was not to be altered or picked apart arbitrarily, and that FAA regulations were not subject to modification by subordinate local jurisdictions.

Recognizing the futility of attempting to directly confront federal police power, the legal community turned its efforts toward what has evolved as probably the ultimate facet of legal remedy: nuisance and trespass law.

A landmark case in this new direction was heard by the U.S. Supreme Court in 1946. In *The United States v. Causby*, the Court held that there had been a compensable "taking" of property under the Fifth Amendment. The plaintiff, a chicken rancher named Causby, owned property located directly below the takeoff and landing glide path of a military airfield. Heavy multiengine aircraft, in the course of normal operations, passed as low as 67 feet above his house, causing him "much anxiety and discomfort." Aircraft climbing at full throttle passed only 18 feet above his highest tree, at altitudes of only 83 feet above the chicken farm property. The flights destroyed the use of the property as a chicken farm, causing the chickens to become frightened and kill themselves by flying into the walls of their coops.

Elements of trespass law were expressed in the argument that although a direct touching of the property had not occurred, an invasion or occupation of that airspace above the ground which the landowner can reasonably occupy or use in connection with the land would be a taking.

The Court stated, "It is ancient doctrine that at common law ownership of the land extended to the periphery of the universe. But that doctrine has no place in the modern world. The air is a public highway, as Congress has declared. Were that not true, every transcontinental flight would subject the operator to countless trespass suits. Common sense revolts at the idea. To recognize such private claims to the airspace would clog these highways, seriously interfere with their control and development in the public interest, and transfer into private ownership that to which only the public has a just claim."

The Court went on, however, to state that a "taking" had indeed occurred where the "super adjacent airspace ... is so close to the land that continuous invasions of it affect the use of the surface of the land itself," qualifying its decision: "Flights over private land are not a taking unless they are so low and so frequent as to be a direct and immediate interference with the enjoyment and use of the land."

In 1962, the U.S. Supreme Court again decided that a taking had occurred, this time under the Fourteenth Amendment. In *Griggs v. Allegheny County*, plaintiff alleged inverse condemnation by the County by virtue of the extension of a runway of the Greater Pittsburgh Airport, which caused the lower limit of the instrument landing system glide slope to be moved closer to Griggs' home.

An airplane could legally fly within 11 feet of the rooftop (the instrument landing system is designed for use in poor visibility conditions!). Although Griggs originally filed suit

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in 1953, it wasn't until nine years later that he was able to prove that direct overflights were "regular and continuous" at altitudes of between 30 and 200 feet above his house, and that he and his family were forced to abandon their home because it was "undesirable and unbearable for residential use."

The Griggs case went a step further than the Causby case did, in that the defendant was defined (the airport operator, Allegheny County). In *Causby* the military was both airport operator and aircraft operator, and the federal government was held generally liable. The County argued in *Griggs* that if a "taking" had occurred, then the federal government was similarly liable because of the granting by Congress to the public of the right of free transit through airspace.

This argument was rejected, the Court reasoning that an airport operator must acquire an "easement of flight," analogous to a bridge builder having to obtain approach rights leading to his bridge. The County was deemed lacking in that it had simply not acquired enough space.

This precedent made airport operators nervous because they were singled out as being pecuniarily responsible for future successful actions on the part of airport neighbors. Possibly encouraging future litigation was the fact that the Court did not define the cutoff point between "inconvenience" and "taking."

Also in 1962, in *Batten v. The United States*, a precedent was set which remains the current federal standard: flights must be directly over the plaintiff's property in order for him to be compensated for a "taking."

In *Batten*, homeowners living a half-mile from Forbes AFT in Topeka, Kansas, filed suit after a runway was extended toward their property, as in the Griggs case. The statistics were somewhat heavier in *Batten*, however. One hundred six-engined jet bombers conducted 90 daily operations out of the base and, in connection with maintenance, engines were run up to full power on the ground for long periods of time, on the new end of the runway.

Testimony included allegations subsequently proven that airborne vibrations caused dishes and windows to rattle constantly, interrupted sleep, and made conversation or television watching occasionally impossible. In the event of an easterly wind, jet exhaust residue left deposits of carbon particles on laundry and painted surfaces.

The trial court denied reparation to the 10 plaintiffs on the grounds that, as they had not been forced to leave their homes, a complete "taking" had not occurred, and that in fact since there was "no deprivation of 'all or most' of the plaintiffs interests," it was decided that there was "nothing more than an interference with use and enjoyment," which trifle precluded recovery. The court cited the Supreme Court (*United States v. Willow River Power Company*, 1945) as holding that "damage alone gives courts no power to require compensation." With this interesting statement as guidance, the court denied Mr. Batten a compensation because of the distinction between "damages" and "taking."

The ruling was not unanimous, and Chief Judge Murrah in his dissent wondered when "interference graduated to the dignity of a taking." The Chief Judge included in his reasoning the fact that "a constitutional taking does not necessarily depend on whether the government actually invaded the property damaged ... (and) may surely accomplish by indirect interference the equivalent of an

outright physical invasion." This appears to be a reasonable interpretation of the concept of inverse condemnation, but because the federal rule requires direct overflight (*Batten*) in keeping with trespass law, recovery was nonetheless denied.

State courts, however, may tend to interpret the *Causby* and *Griggs* decisions differently. The Oregon Supreme Court, while aware of the "direct overflight" requirement in federal law, tended in holding for a plaintiff whose property was rendered untenable by low flights proximate but not directly overhead, toward "nuisance" theory in stating, "If we accept, as we must upon established principles of the law of servitudes, the validity of the propositions that a noise can be a nuisance, that a nuisance can give rise to an easement, and that a noise coming straight down from above one's land can ripen into a taking if it is persistent and aggravated enough, then logically the same kind of and degree of interference with the use and enjoyment of one's land can also be a taking even though the noise vector may come from some direction other than the perpendicular (*Thornburg v. Port of Portland*, 1962)."

In tending toward nuisance law in the above aspect of the *Thornburg* case, the court had to consider the fact that the normal constitutional test in a nuisance case is "first whether the asserted interest is one which the law would protect; if so, whether the interference is sufficiently direct, sufficiently peculiar, and of sufficient magnitude to cause us to conclude that fairness and justice, as between the State and the citizen, requires the burden to be borne by the public and not the individual alone."

The significance of this test is that it does not require the jury to balance the utility of the airport against the rights of the individual, as would normally be done under the nuisance theory. This balancing would almost always accrue to the benefit of the airport, and to the detriment of the landowner.

The Oregon Supreme Court held in *Thornburg* that the jury should not be asked to balance the property owner's rights against the public good deriving from the airport. All that was required was to determine whether the property owner's right to use and enjoy his property had been diminished to the extent that a market value loss resulted. If so, then a taking had occurred, and compensation was due.

The Minnesota Supreme Court manifested logic similar to that of Oregon in *Alevisos v. Metropolitan Airports Commission of Minneapolis & St. Paul*. An airfield established in the 1920s as Wold-Chamberlain Field, a sod strip located in a rural area (as most major airports began) grew into Minneapolis-St. Paul International Airport. As the airport grew, so did the community it served, until, predictably, the two met.

One hundred residents of South Minneapolis filed suit petitioning for a writ of mandamus to compel the airport operator, the Metropolitan Airports Commission of Minneapolis & St. Paul (MAC), to institute condemnation proceedings against their properties and those of others in their class.

The trial court, Hennepin District Court, heard arguments describing low overflights, noise pollution, homeowners' sufferings of vibrations, oily exhaust residue on their houses, interruption of sleep, and deprivation of free and unmolested use, possession and enjoyment of their property. It was alleged that MAC was perpetrating a continuing trespass and maintaining a continuing nuisance to an unreasonable degree.

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Further, it was argued that defendant had caused depreciation and diminution of the market value of such property, and had caused a taking or damaging of the property for its use without just compensation having been paid.

The trial court dismissed the action, concluding that inverse condemnation by aircraft overflight was inapplicable under the circumstances as no physical trespass had occurred, citing the case of *Batten v. United States* as jurisprudence.

The decision was appealed and heard by the Minnesota Supreme Court. The Minnesota Constitution requires compensation in cases where private property is "taken, destroyed, or damaged."

The plaintiffs did not allege (unlike Griggs and Causby) that they had been dispossessed by MAC operations. The objective in this case was to force institution of condemnation proceedings in light of diminution of value, or partial inverse taking. The results of condemnation proceedings will be essentially the same, whether initiated by landowner or government.

The Minnesota Supreme Court found in favor of "any property owner who can show a direct and substantial invasion of his property rights of such a magnitude that he is deprived of the practical enjoyment of the property and that such invasion results in a definite and measurable diminution of the market value of his property. To justify an award of damages, it must be proved that these invasions of property rights are not of an occasional nature, but are repeated and aggravated, and that there is a reasonable probability that they will be continued in the future."

In the defense, MAC asserted that an equitable balancing of the individual property owners' rights to compensation against the financial impact such payment would have on its future development was required as a part of the mandamus action.

The Court recognized this "balance" concept as normal under nuisance theory. It stated, however, that since no individual sought reparation for personal injury, suffering or inconvenience, nuisance law did not apply. The plaintiffs' objective was compensation for a reduction in market value, which amounted to a taking of property.

This paralleled the Oregon court's rationale, and tended along with other similar decisions at local and state level to refute the logic of the U.S. Supreme Court in *Batten v. United States*.

These representative cases, some found for the air transport activity (military or civil), and some found for landowners in conflict with same, serve to point out that while court action has attempted to achieve a balance of fairness and utility between the two entities, very little can be done to cure the problems of conflict at existing major airports surrounded by suburbia.

The problem of airports in conflict with the communities they serve is in place. It will be difficult to resolve more than the occasional protracted dispute. Adding to the problem is the fact that cooperation and coordination are hard to achieve when the airport operator is not governed by the same body having authority to zone proximate land areas.

Even in the case of effective coordination, zoning is not retroactive. It won't move back the clock to the point in time 35 years ago when the Airline Pilots Association called loudly for preclusion and removal of residential developments in critical zones of then lightly developed areas.

In 1973, the Oregon Court of Appeals averred that "The destruction of substantial businesses or structures developed or built prior to the adoption of a zoning ordinance is not deemed to be balanced or justified by the advantage to the public, in terms of more complete and effective zoning, accruing from the cessation of such uses," in disallowing the use of a small airport under "non-conforming use" in Clackamas County (*Clackamas County v. Portland City Temple*, 1973).

Most importantly, zoning doesn't reduce noise. It may, in the very expensive event of rezoning, result in the purchase and clearance of residential units to make way for other uses such as airport-related activities, industrial parks, or sports stadiums.

But this relocation is painful, controversial, and all in a remedial vein. The only solid answer is a preventive one.

Resolution

In 1969, the firm of Welton Becket & Associates conducted a study preparatory to planning a hypothetical major regional airport, anticipating 100 million passengers annually. This airport would employ 300,000 people, and occupy a 60 square mile site within "reasonable distance from an existing regional central city." From their study, the firm concluded that such an air center, to be efficient for both the urban and global systems it would serve, must from the outset be located away from existing urban centers.

Additionally, land should be acquired or restrictions on residential construction be imposed in the initial stages in such a manner as to establish a buffer zone between any new airport and surrounding development, according to Haar in *Land Use Planning*. He justifies radical departure from convention: "Time, technology, and the changing needs and aspirations of human beings produce stresses upon legal institutions and doctrines."

Rather than conduct massive relocation operations around Montreal's old airport, a new one was constructed away from the city's center, where an area of 360 square kilometers was acquired in total, although only 82 square kilometers were utilized for the airport itself.

In 1968, a decision was made not to promote the large scale expansion

of Malton, Toronto's existing international airport. Noise was already a problem at Malton, where extensive residential development had approached to the airport fence. Instead of relocating hundreds of households, the commission selected a site for a new Toronto airport about 12 miles northeast of the city. Nineteen thousand acres of rural land was expropriated and designated as a "land use freeze zone."

Clearly, in the case of existing situations, there is no wholesale solution via zoning or legislation to the problem of airport-community conflict.

The best course of action, in view of the impending next generation of supersonic transport aircraft, and the one which will at best hold problems to close to their present levels and distribution of intensity, is to follow the Canadian examples and locate new airports so far from urban centers that encroaching development will never be a problem and that acquisition costs of suitably large buffer zones won't be prohibitively high.

Fee acquisition of core areas of the airport proper can be easily accomplished by teams of right-of-way personnel. Buffer zones may be effected through zoning by municipal action, along the lines of the "land use freeze zone" concept employed outside of Toronto. Alternatively, a like area surrounding the runway environs might be subjected to "aviation easements" worded similarly to terrestrial types: " ... free and unencumbered traverse over the following described ... ."

No matter the form of implementation, the key to future peace between airports and communities will be intelligent collection of data and flexible long-range planning on the part of municipal decision makers, in line with lessons learned relative to the foregoing. IRWA

Bibliography

Aviation Week and Space Technology (New York), 12 June 1961.

Blankenship, Edward G., *The Airport: Architecture, Urban Integration, Ecological Problems*, New York: Praeger Publishers, 1974.

Blum, S., "Noise, How Much Can We Take?", *McCalls* (January, 1967), Reprinted in *Congressional Record* (18 January, 1967), vol. 113, 793.

Bragdon, Clifford R., *Noise Pollution: The Unquiet Crisis*, University of Philadelphia Press, 1970, Quoted in Truman A. Hartshorn, *Interpreting the City*, 174, New York: John Wiley & Sons, 1980.

Garrett, Martin A., Jr., Land Use Regulation, New York: Greenwood Press, 1987.

Haar, Charles, M., *Land Use Planning*, Boston: Little, Brown & Company, 1977.

Land Use Law & Zoning Digest, January, 1984; June, 1986; January, 1988.

Louisiana, *Acadiana Regional Airport Master Plan*, 1976-1995, 1976.

New York Times, 7 April 1962, Quoted in Gordon McKay Stevenson, Jr., *The Politics of Airport Noise*, 14, Belmont, California, 1972.

Organization for Economic Cooperation and Development, *Airports and the Environment*, Paris, 1975.

Rosen, S., "Hearing Loss and Coronary Heart Disease," Archives of Otolaryngology, 1965, Quoted in Gordon McKay Stevenson, Jr., *The Politics of Airport Noise*, 4, Belmont, California, 1972.

Stevenson, Gordon McKay, Jr., *The Politics of Airport Noise*, Belmont, California, 1972.

U.S. Department of Transportation, Federal Aviation Administration, *Advisory Circular 150/5190-4, A Model Zoning Ordinance to Limit Heights of Objects Around Airports*, (Washington, D.C.): U.S. Department of Transportation, Federal Aviation Administration, 1983.

U.S. Department of Transportation, Federal Aviation Administration, *Federal Aviation Regulations*, (Washington, D.C.): U.S. Department of Transportation, Federal Aviation Administration, 1978.

U.S. Department of Transportation, Federal Aviation Administration, *The Airport: Its Influence on the Community Economy*, (Washington, D.C.): U.S. Department of Transportation, Federal Aviation Administration, 1967.

Wolf, Alfred L., "Legally Speaking," *Pilot*. October, 1974 .