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O'HAIRE INTERNATIONAL AIRPORT:
IMPERVIOUS TO PROPOSED STATE EFFORTS
TO LIMIT AIRPORT NOISE

MICHAEL J. PAVLICEK*

I. INTRODUCTION

THE FEDERAL AVIATION ADMINISTRATION (FAA) estimated in 1976 that six million United States citizens resided on ninety-thousand acres of land exposed to airport noise of annoying levels. In the Chicago area alone, over one hundred thousand households are subjected to excessive airport noise. Despite public knowledge of the magnitude of the problem, very little has been done in past years to bring perceptible relief to those who need it. The Illinois Pollution Control Board (IPCB), which conducted initial regulatory hearings for almost five years, has made the most ambitious attempt of any governmental body to discover what, if anything, can be done to reduce the present impact of airport noise upon the citizens of Illinois. Although the airport noise proposal has been the subject of more hearings than any other regulatory proceeding the IPCB has ever conducted, the IPCB's final decision may offer little or no aid to people ad-
versely affected by noise at O'Hare International Airport (O'Hare).  

The rulemaking hearings elicited more than seven thousand pages of testimony. The sole topic of discussion was a proposal submitted by the Illinois Attorney General. Because the IPCB may modify the attorney general's proposal without conducting hearings, or fail to adopt any rule, the purpose of this article is not to predict the ICPB's ultimate decision. The purpose is merely to demonstrate the complexity of formulating a legally valid, technologically feasible, and economically reasonable state regulation that effectively abates noise at the world's busiest airport. An analysis of the testimony presented at the rulemaking hearings reveals the practical impact of airport noise abatement options arguably within the state's scope of authority.

Noise associated with O'Hare and other airports has not been abated partially because of the federal government's exclusive control of navigable airspace. Despite having the authority to immediately reduce the impact of airport noise, the FAA has acted to implement a permanent solution over a period of several years. Those citizens who have cried for a respite from O'Hare's incessent and nerve-shattering din have

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1 Federal preemption may limit the IPCB's ability to abate airport noise. See infra notes 23-25 and accompanying text.
3 Id. § 1027(a).
accused the FAA of being unfairly deferential to the airline industry, which the FAA was statutorily authorized to promote. From the perspective of the airport noise "victims," the FAA has moved too slowly in producing a long-term remedy and has essentially ignored the prospects of limited, but immediate, relief. Organizations representing the airlines, airports, and airline pilots are satisfied with the FAA's response and view it as a safe, uniform approach. To begin to understand the complexity of the O'Hare noise problem, it is essential to first examine the origin, scope, and division of responsibility in the field of airport noise.

II. FEDERAL RESPONSIBILITY FOR AIRPORT NOISE

The principal aviation responsibilities assigned to the Federal Aviation Administrator, and since 1966 to the Secretary of Transportation, are the safety and promotion of air commerce. The Federal Aviation Act of 1958 (the Act) has basically three purposes: (1) that commerce be regulated in a manner which best promotes growth, safety, and national defense; (2) that civil and military uses of navigable airspace be regulated by the federal government in the interests of safety and efficiency; and (3) that a common system of air traffic control and navigation for military and civil aircraft be instituted. The Act explicitly grants "complete and exclusive national sovereignty in the airspace of the United States" to the federal government. Furthermore, the Secretary of Transportation has broad authority to regulate the use of the navigable airspace "in order to insure the safety of aircraft and the efficient utilization of such airspace . . . [and] for the pro-

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10 Airport Noise Hearings, supra note 3, at 181-82 (statement by Park Ridge Mayor Butler).
11 See, e.g., Id. at 145 (June 17, 1977) (statement by Captain Pryde of the Air Line Pilots Association); Id. at 3,060 (July 27, 1978) (statement by General von Kann of the Air Transport Association).
13 Id. § 1303.
14 Id. § 1508(a).
tection of persons and property on the ground."^{18} The grant of exclusive jurisdiction, however, concerns only the *airspace* of the United States. Consequently, the states arguably have some jurisdiction over the *ground* activities at airports.

Because the abatement of airport noise does not always require the manipulation of flight operations in the airspace, states have attempted to regulate airport noise primarily in a manner that does not directly affect flight.^{16} While this type of state action presumably does not infringe upon the federal government's exclusive jurisdiction, Congress did not want to leave the task of airport noise regulation in the hands of the states. As early as 1968 the FAA was given authority to promulgate regulations concerning the abatement of aircraft noise and sonic boom.^{17} Congress later enacted the Noise Control Act of 1972 to involve the United States Environmental Protection Agency (EPA) in the comprehensive scheme of federal control of aircraft noise.^{18} EPA was given the right to propose aircraft noise regulation and to require the FAA to make detailed findings, determining whether or not the proposed regulation should be adopted.^{19} Recently, Congress enacted the Aviation Safety and Noise Abatement Act of 1979,^{20} requiring proprietors to submit a noise compatibility program to the Secretary of Transportation^{21} and attempting to shield proprietors from liability for noise damages to property owners with actual or constructive knowledge of a submitted noise exposure map.^{22}

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^{16} Id. § 1348(a), (c).


^{17} 49 U.S.C. § 1431(b) (1976).


^{19} Id. § 1431(b), (c).


^{21} Id. § 2104.

^{22} Id. § 2107.
III. Federal Preemption and the Role of the Airport Proprietor

The scope of both the airport proprietor's and the municipality's powers was addressed, but not necessarily clarified, in *City of Burbank v. Lockheed Air Terminal, Inc.* In *Burbank*, the United States Supreme Court, in striking down a curfew imposed by the City of Burbank upon a privately owned airport, stated that "the pervasive nature of the scheme of federal regulation of aircraft noise . . . leads us to conclude that there is pre-emption." In footnote fourteen, however, Justice Douglas, writing for the majority, added that "[w]e do not consider here what limits, if any, apply to a municipality as a proprietor." In the same footnote Douglas declared that "[a]irport owners acting as proprietors can presently deny the use of their airports to aircraft on the basis of noise considerations so long as such exclusion is nondiscriminatory." Footnote fourteen, therefore, can be interpreted as limiting the decision to the peculiar facts of the case: a municipality attempting to regulate noise at a major, but private, airport.

With the scope of *Burbank* undetermined, courts applying the case have arrived at diverse conclusions. *National Aviation v. City of Hayward* upheld the power of a municipality, which was the proprietor of an airport, to impose a curfew on aircraft that emitted more than seventy-five decibels on take-off or landing. The seventy-five decibel limitation, determined by experts to be the maximum permissible noise level that would not disturb sleep, was validated because the effect on interstate commerce was "incidental at best and clearly not excessive when weighed against the legitimate and concededly laudable goal of controlling the noise levels at the Hayward

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24 Id. at 633.
25 Id. at 635-36 n.14.
26 Id.
28 Id. at 429.
Air Terminal during late evening and early morning hours.\textsuperscript{29} The ordinance, therefore, was a rational means to a "legitimate" and "laudable" end that did not interfere with federal control over interstate commerce.

The Hayward analysis was later followed in British Airways \textit{v. Port Authority of New York and New Jersey}.\textsuperscript{30} The Second Circuit, in reversing a summary judgment order in favor of the defendant Concorde operators, held that the Port Authority could set noise standards for supersonic transport (SST) flights into and out of Kennedy International (JFK), provided they were reasonable and non-discriminatory.\textsuperscript{31} The court noted that the \textit{amicus} brief filed by the United States urged that the Secretary of Transportation never intended to deprive the Port Authority of the right to condition utilization of JFK on the SST’s compliance with reasonable noise regulations.\textsuperscript{32} The court also cited Secretary Coleman's statement before a House Committee which declared that an airport proprietor’s imposition of a “non-discriminatory” ban on SSTs would not be preempted by FAA action, so long as it did not constitute an “unreasonable burden on interstate and foreign commerce.”\textsuperscript{33} The cause was remanded to the district court with instructions to determine whether the temporary ban on SST flights into and out of JFK, that met the Port Authority’s existing noise standards, was reasonable.\textsuperscript{34} On remand the district court enjoined the enforcement of the Port Authority’s ban.\textsuperscript{35} The order was appealed to the Second Circuit where it was affirmed, with the modification that the Port Authority was free to promulgate new, reasonable noise regulations.\textsuperscript{36}

\textit{British Airways} was by no means a blow against state or

\textsuperscript{29} Id. at 427.
\textsuperscript{30} 558 F.2d. 75 (2d Cir. 1977).
\textsuperscript{31} Id. at 78.
\textsuperscript{32} Id. at 81.
\textsuperscript{33} Id. at 82.
\textsuperscript{34} Id. at 86.
\textsuperscript{35} 564 F.2d at 1012-13.
local noise regulation. It permitted a proprietor with rulemaking authority, a hybrid combination, to impose noise standards on particular types of aircraft. An outright ban on certain aircraft, however, seems unlikely, due to the reasonableness standard utilized by the court. The British Airways case, nonetheless, emphasizes that the delay in adopting reasonable regulations, rather than the mere attempt to regulate airport noise, necessitated the lifting of the ban.

IV. ILLINOIS POLLUTION CONTROL BOARD JURISDICTION OVER THE AIRPORT NOISE PROPOSAL

Although Hayward and British Airways dealt with municipal and regional airport proprietors' noise control authority, they serve to support non-preemption of state airport noise regulation. The two cases outline a few measures which are not per se federally preempted, that a proprietor may consider in abating airport noise. By defining the scope of permissible proprietary airport noise control, these cases also define the scope of state noise control at airports operated by its political subordinates.

Air Transport Association of America v. Crotti was the first case to advance the theory that an airport proprietor, which is a political subdivision of the state, is subject to the airport noise regulations of a state agency over areas not preempted by federal law. In Crotti, the court stated: "it is now firmly established that the airport proprietor is responsible for consequences which attend his operation of a public airport; his right to control the use of the airport is a necessary concomitant whether it be directed by the state police power or his own initiative." The court, in a footnote, declared that "[t]he power of the State to generally regulate its political subordinates, including local airport authorities, is well established as a matter of law."

In Crotti, two types of regulation were examined. The Com-

38 Id. at 64.
39 Id. at 63-64.
40 Id. at 64 n.2.
Community Noise Equivalent Level (CNEL), which was upheld by the court, focused on prescribed maximum noise level and on land use limitations. The court held that, because this regulation did not affect "a field of aircraft operation engaged in direct flight," it was not preempted. The Single Event Noise Exposure Levels (SENEL) were preempted, however, because they measured noise of aircraft while in direct flight, and, therefore, infringed upon the exclusive domain of federal regulation. Crotti, consequently, provides support for the Illinois airport noise proposal.

The Crotti opinion was criticized in San Diego Unified Port District v. Gianturco. The court for the Southern District of California invalidated a curfew imposed upon the San Diego Unified Port District's Lindbergh Field by the California Department of Transportation (CDOT). The court held that the CDOT, as a non-proprietor, was preempted from regulating airport noise. The Crotti "control theory" was rejected because the California Legislature specifically had created San Diego Unified Port District and had given it proprietary powers.

Because of the specificity of the legislation, the court viewed CDOT as not having any authority over the proprietary responsibilities of San Diego Unified Port District. In the case of O'Hare Airport, however, Illinois law simply allows municipalities of five-hundred thousand persons or more to operate their own airports. No special statute governs the operation of O'Hare. Gianturco, therefore, does not address a situation like that of O'Hare, and has little precedential value as a statement against state regulation of O'Hare airport noise.

The district court also based its preemption finding on the following "telling observation" by the Supreme Court in Burbank: "We are not at liberty to diffuse the powers given by

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1 Id at 65.
2 Id.
4 Id.
5 Id. at 294.
6 Id. at 293.
Congress to the FAA and EPA by letting the State or municipalities in on the planning. If the change is to be made, Congress alone must do it." The district court, however, subverted its own argument by admitting the proprietor-developed airport noise abatement programs are endorsed by the FAA, and that the Supreme Court has declined to hold that federal preemption of airport noise excludes proprietors from regulating noise at their own airports. Gianturco, furthermore, like Burbank, does not address the powers of a municipality as a proprietor.

Chicago and other municipalities that operate airports, under the Crotti view, can have their proprietary prerogatives influenced by the state of which they are political subdivisions. Under Gianturco, special authorities established by specific statutes are not political subordinates that can be controlled by other state agencies. Gianturco does not suggest that a municipality operating an airport, under a generic grant of authority by the state, cannot be subjected to the noise control regulations of a state agency. A strong rationale supports the proposition that the airport noise proposal before the IPCB, at least as it pertains to O'Hare, is not preempted on the grounds that the IPCB is not an airport proprietor.

V. THE AIRPORT NOISE PROPOSAL BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

A. Definitions and Enforcement

The proposal before the IPCB submitted by the Illinois attorney general seeks to set maximum permissible levels for noise emitted to noise sensitive property by publicly owned

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50 The record indicates that the IPCB was made aware of both the Burbank and Crotti decisions at the first hearing on the airport noise proposal. Airport Noise Hearings, supra note 3, at 42, 58 (June 17, 1977) (statements by Professor Plager).
airports. Levels are to be measured in $L_{dn}$, a day/night average sound level, and airports are to gradually reduce their noise emissions over noise sensitive land to comply with a standard that will become more stringent in the future. This

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2 Rules 101(u) and 101(v) of the AG Noise Proposal filed June 12, 1978, supra note 51, provides:

(u) Equivalent Sound Level ($L_{eq}$): [is defined as]

The constant sound level that, in a given situation and time period, conveys the same sound energy as the actual time-varying A-weighted sound, measured in decibels. The mathematical definition of $L_{eq}$ for an interval defined as occupying the period between two points in time $t_i$ and $t_f$ is:

$$L_{eq} = 10 \log \left[ \frac{1}{t_f - t_i} \int_{t_i}^{t_f} \frac{P(t)^s}{P_o^s} \, dt \right]$$

Where $P(t)$ is the time varying sound pressure and $P_o$ is a reference pressure taken at 20 micropascals.

(v) Equivalent Day - Night Sound Level ($L_{dn}$): [is defined]

The equivalent A-weighted sound level during a 24 hour period with a 10 decibel weighting applied to the equivalent sound level during the night-time hours of 10:00 p.m. to 7:00 a.m. The mathematical definition of $L_{dn}$ is:

$$L_{dn} = 10 \log \left[ \frac{1}{24} \left( 15 \frac{L_d}{10} + 9 \frac{L_n + 10}{10} \right) \right]$$

$L_d = L_{eq}$ for the daytime (7:00 a.m. - 10:00 p.m.)

$L_n = L_{eq}$ for the nighttime (10:00 p.m. - 7:00 a.m.).

Amended Rules 503(1) - 503(3) (B) of the AG Noise Proposal filed Nov. 14, 1979 are alternative proposals concerning compliance deadlines. The proposals, in pertinent parts, are set forth below:

Alternative #1

Rule 503 (1):

After the dates specified in Table 6, no municipality or other subdivision of the State which is the proprietor of any airport shall cause or allow aircraft operations at such airport to create an equivalent day-night sound level on any receiving Class A land in excess of the limits specified in Table 6:

<table>
<thead>
<tr>
<th>Date</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>effective date of part 5</td>
<td>80 Ldn</td>
</tr>
<tr>
<td>December 31, 1980</td>
<td>75 Ldn</td>
</tr>
<tr>
<td>December 31, 1985</td>
<td>65 Ldn</td>
</tr>
</tbody>
</table>
approach corresponds with the IPCB’s authority to control noise emitted beyond property boundaries.\(^{54}\)

Although the proposal simply requires compliance with the L\(_{dn}\) standard for the applicable year,\(^{55}\) enforcement would be difficult. The proposed regulation is to be enforced against airports that violate an annual average and is not intended to punish the airport experiencing an occasional noisy day caused by weather conditions or other factors.\(^{56}\) The proponents of the regulation, however, did not feel that twenty-four hour monitoring for a three-hundred sixty-five day period would be necessary to prove a violation of the standard.\(^{57}\) The

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Alternative #2
Rule 503(2):
After the dates specified in Table 7, no municipality or other subdivision of the State which is the proprietor of any airport shall cause or allow aircraft operations at such airport to create an equivalent day-night sound level on any receiving Class A land in excess of the limits specified in Table 7.

**TABLE 7**

<table>
<thead>
<tr>
<th>Date</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>effective date of Part 5</td>
<td>80 Ldn</td>
</tr>
<tr>
<td>December 31, 1985</td>
<td>65 Ldn</td>
</tr>
<tr>
<td>December 31, 1991</td>
<td>55 Ldn</td>
</tr>
</tbody>
</table>

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Alternative #4
Rule 503(4):
(B) After the dates specified in Table 9, no municipality or other subdivision of the State which is the proprietor of any airport with a total one-thousand [sic] or more aircraft takeoffs and landings per day shall cause or allow aircraft operations at such airport to create an equivalent day-night sound level on any receiving Class A land in excess of the limits specified in Table 9.

**TABLE 9**

<table>
<thead>
<tr>
<th>Date</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>effective day of Part 5</td>
<td>95 Ldn</td>
</tr>
<tr>
<td>December 31, 1983</td>
<td>90 Ldn</td>
</tr>
<tr>
<td>December 31, 1985</td>
<td>80 Ldn</td>
</tr>
</tbody>
</table>


\(^{56}\) The equation is an average, therefore, the proprietor would not be penalized if a high number of operations occurred on one runway because of wind conditions. Airport Noise Hearings, *supra* note 3, at 2,438 (April 10, 1978) (statement by Mr. Studholme).

\(^{57}\) A violation could be determined with a high degree of accuracy from twenty-four
debate between the attorney general's witnesses and the attorneys for the various groups that opposed the regulation resulted in the modification of the proposal by the Illinois attorney general, under which the IPCB would be given the task of determining if the monitoring data sufficiently proves a violation. An earlier provision granted a rebuttable presumption of validity to the enforcement agency's conclusion that monitoring data indicated a violation of the annual standard was eliminated.

The Illinois attorney general, at the same time, added a provision requiring airports to do continuous noise monitoring and reporting to aid enforcement. The major objection to

hours of monitoring if one sample of each type and weight of aircraft were made. Id. If average weather conditions were within a stipulated limit, then there would be certainty as to accuracy. Id. at 2,441.

Rule 508 of the AG Noise Proposal filed June 12, 1978, supra note 51, states: Measurements and/or calculations conducted in accordance with procedures adopted by the Agency pursuant to Rule 103(e) of Chapter 8, shall be acceptable as evidence of violations of this Part 5 [Airport Noise]. The weight to be accorded such evidence shall be determined by the Pollution Control Board in each enforcement action in which such evidence shall be admitted.

Rule 304 of the AG Noise Proposal filed Feb. 16, 1977, supra note 51, states: Any calculation of $L_{dn}$ using any of the three methods listed in this Rule 304, which indicates a violation of any of the standards of this Part 3 [Airport Noise], shall raise a rebuttable presumption that there is in fact a violation of such standard:


(3) "Calculation of Day-Night Levels ($L_{dn}$) Resulting from Civil Aircraft Operations,” EPA 550/9-77-450.

Rule 504 of the AG Noise Proposal filed June 12, 1978 supra note 51, states: A. Each airport proprietor subject to this regulation shall maintain records containing the following data for each runway at the airport:

(1) The number of each of the following types of aircraft arriving during the day (7:00 a.m. - 10:00 p.m.), and the number arriving during the night (10:00 p.m. - 7:00 a.m.): 747, DC-10, L-1011, DC-8, 707, 727-100, 727-200, 727 advanced, DC-9, 737, business jets (by type), military jets (by type), helicopters.

(2) For each of the aircraft types listed in subsection (1), the number of departures by day (7:00 a.m. - 10:00 p.m.) and the
this provision was cost of implementation. However, the expense to O'Hare for such monitoring was characterized as affordable, when compared to the proportional costs that smaller airports would have to bear. Another hotly disputed issue was the proposal's ban on any airport expansion that would produce impermissible noise levels on Class A receiving land. The proposal originally defined expansion as any modification that potentially could increase airport noise, but the proposal was later amended to define expansion as a modification that increases noise impact. This change could be considered an attempt to balance the "investment backed ex-

number of departures by night (10:00 p.m. - 7:00 a.m.) for each of the following stage lengths: 0-500 miles, 500-1,000 miles, 1,000 - 1,500 miles, 1,500 - 2,500 miles, 2,500 - 3,500 miles, 3,500 - 4,500 miles, over 4,500 miles.

B. The records maintained pursuant to subsection A shall be submitted to the [Illinois] Environmental Protection Agency within fifteen days of the last day of each calendar month.

61 The Assistant Attorney General was informed on examination that a California airport recently installed a noise monitoring system at a cost of $152,000 and that the maintenance and operation cost is estimated at $100,000 per year. Airport Noise Hearings, supra note 3, at 2,793 (May 5, 1978).

62 See Id. at 2,408 (April 10, 1978) (statement of E. Studholme). The Assistant Attorney General did not think that $100,000 per year in noise monitoring expenses would be excessive for O'Hare. See Id. at 2,795 (May 5, 1978) (statement of Assistant Attorney General Blackwood).

63 Rule 502 of the AG Noise Proposal filed June 12, 1978, supra note 51, states:

After the effective date of this Part 5, no municipality or other subdivision of the State which is the proprietor of any airport shall cause or allow any airport expansion at such airport, if such airport expansion would create an equivalent day-night sound level in excess of 65 $L_{dn}$ on any receiving Class A land which was not previously subject to an equivalent day-night sound level in excess of 65 $L_{dn}$.

64 Rule 101 (y) of the AG Noise Proposal filed February 16, 1977, supra note 51, states:

Airport Expansion

Any construction of new runways, lengthening or modification of existing runways, increase in the number of aircraft operations, change in schedules of aircraft operations, or change in the type of aircraft operating at an airport, which could potentially increase the noise impact of the airport.

65 Rule 101 (x) of the AG Noise Proposal filed June 12, 1978, supra note 51, states:

Airport Expansion:

Any change or modification to airport property or airport operations, including but not limited to type and number of aircraft and aircraft operating procedures, that increases the noise impact of the airport.
pectations" of the airport proprietor and O'Hare area residents.66

The attorney general’s change of heart could be interpreted as an acknowledgement that individuals who live by airports have limited expectations concerning their future noise environment; however, the amendment probably was added because there was little, if any, evidence of property depreciation among homeowners near O'Hare that would support protection from potential harm.67 Furthermore, noise conscious citizens would develop expectations of noise reduction if they became aware of the future requirements for aircraft operation and certification.68 Any optimism that the O'Hare area homeowners may have had, on the other hand, may already have been eradicated by the indifference that the City of Chicago has exhibited in the past.69 The IPCB, nevertheless, received testimony from homeowners concerning the date that they purchased their homes, their knowledge of the airport noise at the time of purchase, the amount of jet traffic at O'Hare at the time of purchase, and modification and expansion of O'Hare in recent years.70 Because the noise standards

66 See generally Penn Central Transp. v. New York City, 438 U.S. 104 (1978) (the extent to which regulation interferes with the distinct investment backed expectation of the property owner is a relevant consideration in “taking” cases); Kaiser Aetna v. United States, 444 U.S. 164 (1979) (the government must condemn and pay for sufficient important expectancies embodied in the concept of property before it takes over the management of the landowner’s property). These cases support the notion that the government, prior to adopting regulations, should consider the reasonable expectations that owners have for the property affected.

67 For example, one witness testified that she moved because of airport noise but was able to sell her home in three weeks without taking a price cut. Airport Noise Hearings, supra note 3, at 219, 223 (June 17, 1977) (statements by Ellen Paulson).

68 See Noise Limits, supra note 7.

69 See Airport Noise Hearings, supra note 3, at 184, 235-36 (June 17, 1977) (statements by Park Ridge Mayor Butler and Glenview Village President Smith that their municipalities were not informed of the contents of the O'Hare master plan despite requests, nor were they notified of runway changes).

70 Id. at 124-25 (statements by Ms. Lebda); Id. at 234 (statements by Glenview Village President Smith); Id. at 315-25 (statements by Mr. Richardson, Director of Des Plaines Planning and Zoning); Id. at 326-27 (statements by Ms. Jacobsen); Id. at 348 (statements by Ms. Bates); Id. at 353 (statements by Ms. Murphy); Id. at 372-73 (statements by Ms. Mushow); Id. at 399-400 (statements by Ms. India); Id. at 430 (statements by Mr. Bronas).
were based upon annoyance levels, and annoyance entails frustration of expectation, the IPCB allowed the testimony in order to aid the assessment of the standards' reasonableness.

B. Variance Considerations

The most controversial provision of the proposal is the variance procedure which mandates that the airport proprietor consider certain noise abatement methods which are under the authority of an agency, commission, or administration other than the airport. The procedure requires that the proprietor make a good faith effort to elicit the cooperation of the FAA, zoning boards, and municipal governments in reducing noise at the airport. The provision also requires that the petitioner for the variance submit noise, zoning, and demographic information to the IPCB to aid the determination of good faith.

Due to the Board's refusal to postpone hearings to consider constitutional and statutory issues, the airline and pilot associations intended to demonstrate that the proposal's suggested abatement options, which must be addressed in a variance petition, alone could not bring O'Hare into compliance

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71 See Airport Noise Hearings, supra note 3, at 842-45, 888, 895, September 28, 1977 (statements by Dr. von Gierke, Director of Biodynamic and Bioenergy Division of the Aerospace Medical Research Laboratory of the United States Air Force).

72 Rules 505 B(3) and 505 B(4) of the AG Noise Proposal filed June 12, 1978, supra note 51, states that such plan must show:

(3) That the proprietor of the airport has made good faith efforts to induce the Federal Aviation Administration to implement each of the noise abatement options designated (k) through (n) above which would reduce the noise impact of the airport.

(4) That the proprietor of the airport has made good faith efforts to induce the appropriate land use control authorities to implement the noise abatement options designated (o) and (p) above which would reduce the noise impact of the airport.

73 Rule 505 B(1) of the AG Noise Proposal filed June 12, 1978, supra note 51, states:

The consideration of each of these options must include estimates of the reduction in land area and population presently impacted by airport noise in excess of the limits of this Part 5 (or, in the case of Option (o), potentially impacted in the future) which it could achieve, and its costs or effects on the service provided by the airport.

with proposed standards and deadlines. Such a demonstration was intended to prove the proposal ineffective and unrealistic as it applies to O'Hare — the state's largest source of airport noise. Seemingly this would undermine one of the primary considerations of the proposal.

The best manner, however, in which to analyze the prospects of noise abatement at O'Hare in the future is to review each variance consideration separately. The variance considerations fall into two general categories and will be analyzed accordingly.

1. Noise Abatement Actions That Can Be Directly Implemented By The Proprietor

   a. Limitations on the Types and Number of Aircraft, Based Upon Noise Emission Characteristics, Which May Use The Airport

Limitations based upon noise emission characteristics of aircraft require that the proprietor deny use of the airport to planes which are noisy. The attorney general presumed that airlines that are dependent upon O'Hare will quiet their fleets through retrofitting or replacement. The economics of such a transition, however, suggest that restructuring the fleets before the Part 36 deadline is unlikely. The implementa-
tion of the consideration at O'Hare would then place the proprietor in the position of potentially interfering with interstate commerce.81

Interference with interstate commerce presents the most compelling ground upon which to challenge an O'Hare aircraft noise limitation. Because O'Hare is a central link in American air commerce,82 any regulation that bans certain commercial aircraft, for even a short time, from using the airport would probably have a substantial effect on interstate commerce.83 The provision would reduce operations during the replacement period, and replacement of aircraft rather than retrofitting would be the only practical way to quiet the fleet.84

Courts would presumably view a one or two year cutback of flights at O'Hare as an undue burden on interstate commerce. British Airways85 resulted in a finding that a thirteen month ban on SST's pending promulgation of special standards for supersonic aircraft was discriminatory, excessive, and an undue burden on interstate commerce. In the case of O'Hare, standards would be in existence; consequently, the discrimination present in the British Airways controversy would be absent from the O'Hare scenario. The slowdown in operations at O'Hare, however, still would be unduly burdensome on inter-

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81 The health and safety considerations of the state (including its political subdivisions) are balanced against the national interest in economical and efficient transportation in determining whether the state has violated the Commerce Clause, U.S. CONST. art. I, § 8, cl. 3. See Raymond Motor Transp., Inc. v. Rice, 434 U.S. 429 (1978); Bibb v. Navajo Freight Lines, Inc., 359 U.S. 520 (1959); Southern Pacific Co. v. Arizona, 325 U.S. 761 (1945).


84 Airport Noise Hearings, supra note 3, at 1,108 (November 29, 1977) (statement by Mr. Tyler, witness for proponent); Id. at 948 (Sept. 28, 1977) (statement by Dr. von Gierke).

b. **Limitations on the Time of Day During which Aircraft that Do Not Meet the Certification Noise Limits of Part 36 of the Federal Aviation Regulations May Use the Airport, and Limitations on Airport Operating Hours.**

Limitations on times when noisy aircraft may use the airport and limitations on airport operating hours are designed to promote a ban on some or all nighttime operations. Although a ban would affect air passenger operations, it would have its greatest impact upon air cargo operations.

The majority of all-cargo operations, as opposed to flights combining passengers and freight, occur during evening hours. A substantial number of the aircraft utilized in the all-cargo night operations at O'Hare are not in compliance with Part 36. A significant percentage of the mail is also de-

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86 The cost of operations cutbacks at O'Hare far outweigh their benefit. To achieve compliance with the proposed standards, O'Hare would have to reduce its operations by forty-five percent. As a result, employment in the Chicago area would be reduced by 49,000 jobs and would cause a negative economic impact of approximately $2,000,000,000 to the regional economy. **ILLINOIS INSTITUTE OF NATURAL RESOURCES, OPINION OF THE ECONOMIC TECHNICAL ADVISORY COMMITTEE (Nov. 15, 1981), included in ECONOMIC IMPACT STUDY supra note 2, at v [hereinafter cited as IINR, Opinion of ETAC].**

87 Rules 505(B)(1)(a) and 505(B)(1)(h) of the AG Noise Proposal filed June 12, 1978, supra note 51.

88 Airport Noise Hearings, supra note 3, Exhibit 136 (comparative report of cargo and passenger operations at O'Hare, Jan. through Dec., 1977).

89 All commercial air operations during the hours of 10:00 P.M. through 7:00 A.M. in February of 1980 carried freight. Fifty-five percent of these night flights carried passengers and cargo while the remaining forty-five percent carried only cargo. About seventy-four percent of the all-cargo flights for the month occurred between 10:00 P.M. an 7:00 A.M. **See ECONOMIC IMPACT STUDY, supra note 2 at 50, 56, and 61.**

90 In 1980, 88 of the 119 daily all-cargo operations at O'Hare occurred between the hours of 10:00 P.M. and 7:00 A.M. **Id. at 67.**

91 Flying Tigers, the world's largest all-cargo airline, accounted for seventy percent of the scheduled all-cargo operations at O'Hare in 1979. These flights represented about one percent of the total operations at O'Hare. Flying Tigers' fleet consisted of twenty-one "stretch" DC-8 airpplanes and nine 747 freighters in 1980. Airport Noise Hearings, supra note 3, at 4,711-12 (April 8, 1980) (statement by Peter E. Hubbard, Vice President of the Midwest Region for Flying Tigers). The imposition of a ban on non-Part 36 aircraft operations would greatly interfere with Flying Tigers' DC-8 operations. **See Noise Limits for Subsonic Transport Category Large Airplanes and Sub-
livered on night flights. A limitation on the hours of airport operation would most logically occur as a curfew banning operations during the night when the fewest operations are scheduled and the probability of sleep disturbance is highest. To ban operations during evening hours would seriously interrupt the overnight repair of industrial machinery, and therefore, cause expensive delays in production. The overnight delivery of documents, medicines, and other items in immediate demand would also be jeopardized.

The thought of delaying operations until morning at O'Hare is untenable. O'Hare's operational schedule is so full that at least thirty-three percent of its night operations could not be inserted into the following day's timetable. Rescheduling night flights to daytime could result in a safety loss from increased air traffic that might outweigh the benefits of noise reduction. The overall effect of an O'Hare curfew on inter-

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**Notes:**

92 Estimates indicate that nine to thirty-four percent of the mail at O'Hare would be delayed by a night curfew. See **Economic Impact Study**, supra note 2, at 75.
93 About 10 percent of the commercial air carrier operations occur during the hours of 10:00 P.M. through 7:00 A.M. Id. at 50.
94 **Airport Noise Hearings**, supra note 3, at 4,027 (Dec. 5, 1979) (statement by Ian Bamber, Flight Planner for United Airlines). The demand for airplane flights is not elastic. Each scheduled flight is the response to a particular need to fly at a particular time. Id.
95 A curfew at O'Hare would affect scheduling throughout the country. The difference in time zones when coupled with a night curfew at O'Hare would mean that no flight to O'Hare from the west coast could depart later than 4:30 p.m. Pacific time. Id. at 4,034.
96 There is some evidence that O'Hare is not currently at its full air traffic control capacity. Id. at 3,180. To achieve capacity, delays would have to be minimized. Delays, however, cannot be minimized if runways are utilized in a manner that best reduces noise. **Airport Noise Hearings**, supra note 3, at 3,180 (July 27, 1981) (statement by General von Kahn).
97 There is some evidence that O'Hare is not currently at its full air traffic control capacity. Id. at 2,927. A curfew added to attempts to minimize daytime delays, therefore, would increase noise during the day, would eliminate those operations which could not be inserted into the daytime schedule, and would increase daytime operations so that the airport would be operating at its lowest acceptable safety level (air traffic control capacity). A curfew joined with daytime
state commerce would be devastating.\textsuperscript{97}

Evidence of noise reduction from a nighttime ban is unimpressive. The curfew would reduce noise through operation cutbacks. A fifty percent reduction in operations, with retention of the same percentage aircraft mix, however, would only result in approximately a three decibel reduction in total \textit{Ldn}.'\textsuperscript{98} If the fifty percent reduction was of the noisiest flights, then a reduction slightly greater than three decibels would result,\textsuperscript{99} but an operation cutback of this magnitude would certainly interfere substantially with interstate commerce. Reducing nighttime operations, therefore, is an impractical and ineffective method of reducing O'Hare's noise impact.

c. \textit{Changes in Location or Operation of Ground Run-up Areas}\textsuperscript{100}

In order to test the working order of an airplane engine, it must be started and accelerated while on the ground. This process, commonly called "run-up," produces engine noise which further adds to the airport noise problem. Testimony at the IPCB hearings neither identified run-ups at O'Hare as a problem nor disclosed to what degree run-up noise is being controlled.\textsuperscript{101} Run-ups ideally should be done with the fewest number of engines and noise should be directed at the least populated area or into a sound absorbent structure.

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\textsuperscript{97} A curfew at O'Hare would affect 65,400 aircraft operations at O'Hare between 10:00 p.m. and 7:00 a.m. annually and would eliminate 3,685,000 night coach fares. See IIINR, opinion of ETAC, \textit{supra} note 86, at iv.

\textsuperscript{98} Airport Noise Hearings, \textit{supra} note 3, at 2,188 (March 9, 1978) (statement by Robert Hellweg, Division of Noise Pollution Control, Technical Operations Section of the Illinois Environmental Protection Agency).

\textsuperscript{99} A reduction of approximately 3.2 decibels at O'Hare to comply with the initial 80 \textit{Ldn} limit can be achieved through a forty-five percent decrease in operations. IIINR, Opinion of ETAC, \textit{supra} note 86, at 3. \textit{See also} L. Dupre, Annual Day-Night Sound Levels Near Illinois Commercial Airports, IEPA Technical Report No. N 78-1, A 1 (March, 1978).

\textsuperscript{100} Rule 505B(1)(g) of the AG Noise Proposal filed June 12, 1978, \textit{supra} note 51, at v.

\textsuperscript{101} Airport Noise Hearings, \textit{supra} note 3, at 3,374 (July 28, 1978) (statement by H. Benninghoff, Vice President of Flying for American Airlines, that run up location at O'Hare has been studied).
The amount of abatement is determined by the fleet composition. Unless an engine is equipped with an auxiliary power unit, all engines must be started inboard. Only a few types of planes can run-up with fewer than all engines operating simultaneously.

From a practical viewpoint, changing run-up areas can be accomplished easily, since FAA consent is not needed and interstate commerce is unaffected. Banning nighttime run-ups, however, would delay maintenance and affect flight schedules. The small number of citizen complaints concerning run-ups and the indication that O'Hare has already studied the problem suggest that run-up changes can reduce noise a very small amount, if at all.

d. Limitations on the Total Number of Aircraft Operations To Be Permitted at the Airport During Nighttime Hours

Limiting the number of operations during nighttime is a modified curfew that would not necessarily discriminate according to aircraft type or reduce airport operating hours. The attorney general, in proposing this option, reasoned that flights could be reduced without sacrificing service if planes with more seats than those currently in operation during the evening were substituted. This abatement option could be implemented with a minimal reduction in service, provided that O'Hare has two or more arrivals to or departures from the same airport during the evening. If services to or from a city during a particular time of day, however, were eliminated at O'Hare by the limitation, an adverse effect on interstate commerce would result.

Because the number of flights at O'Hare indicates that some cities handle more than one flight per evening to or from

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102 Id. at 3,458-59 (Sept. 25, 1978) (testimony of H. Benninghoff).
103 Id.
104 Id. at 3,374 (July 28, 1978).
O'Hare, the night limit could potentially abate noise at the airport. The amount of noise reduction would depend upon the number of flights eliminated and the noise characteristics of the replacement aircraft. These factors in turn would be dependent upon scheduling, the composition of the fleet of the affected airlines, and the ability of the paired airport to handle larger planes. Noise reduction would not come solely from the reduction of flights, but also from substituting larger, quieter, wide-bodied aircraft for the narrow-bodied planes. Because this option integrates two noise abatement techniques and, potentially could be implemented with a relatively small effect on interstate commerce, it is theoretically a legally and technologically feasible noise abatement alternative for O'Hare. It is dependent, however, on the existence of multiple nighttime operations between O'Hare and a particular city. Only a few operations could be reduced without significantly affecting service. This procedure alone, furthermore, would probably not perceptibly reduce the noise problem at O'Hare.¹⁰⁷

e. A Program for Gradually Increasing the Proportion of Operations by Aircraft Which Meet the Certification Noise Limits of Part 36 of the Federal Aviation Regulations.¹⁰⁸

An increase in the percentage of aircraft that comply with Part 36 (Part 36 aircraft) at O'Hare differs from the procedure of limiting the number of certain types of aircraft based on noise emission characteristics, because it does not necessarily require a reduction in operations during the period in which the airlines are acquiring fleets quieter than their present ones. The use of percentage limits, rather than numerical limits, would give the airlines flexibility in their negotiations and decisionmaking. Airlines would not be forced to acquire immediately Part 36 aircraft to preserve the volume of their operations at O'Hare, and thus impair their ability to meet

¹⁰⁷ See supra note 98 and accompanying text.
long range certification requirements. The airlines could adjust aircraft assignments, if feasible, to comply with the O'Hare percentage limitation.

If other airports imposed similar aircraft mix requirements, or if the O'Hare percentage limitation became too cumbersome, compliance from a practical standpoint would be difficult to achieve. From a legal point of view, the O'Hare percentage requirement would be subject to attack on preemption grounds. To be non-discriminatory in their noise abatement efforts, as mandated by Burbank\textsuperscript{109} and the FAA,\textsuperscript{110} the airports would probably require each airline to meet the limitation. The practical result would be that airports would enact regulations identical in purpose to the Part 91 Federal Aviation Regulations.\textsuperscript{111} If the O'Hare fleet mix percentage were stricter than the federal limits, which were products of extensive economic consideration,\textsuperscript{112} the O'Hare limitation would be subject to preemption on commerce clause grounds.\textsuperscript{113}


a. Designation of Runways to Be Used by Aircraft Which Do Not Meet the Certification Noise Limits of Part 36 of the Federal Aviation Requirements\textsuperscript{114}

Implementation of runway designation for noisy aircraft would require FAA control tower approval,\textsuperscript{115} and theoretically would limit the noisiest planes to the runways from which the noise impacts the fewest people. The effectiveness of this method depends upon the number of operations,\textsuperscript{116} the

\textsuperscript{110} Aircraft Noise Policy Hearings, supra note 33, (testimony of Secretary of Transportation William T. Coleman, Jr.).
\textsuperscript{111} 14 C.F.R. §§ 91.301-91.308 (1981).
\textsuperscript{113} See supra notes 23-36.
\textsuperscript{114} Rule 505B(1)(d) of the AG Noise Proposal, filed June 12, 1978 supra note 51.
\textsuperscript{115} See Aviation Noise Abatement Policy, supra note 1.
\textsuperscript{116} If the airport is operating near its air traffic control capacity, few operations could be diverted to "quiet" runways without causing delays.
aircraft operation mix, nature of residential encroachment, prevailing atmospheric conditions, the effect on scheduling, and the effect on safety. With all these contingencies, the prospects of appreciable noise reduction through this technique are slim.

If the number of non-Part 36 aircraft were manageable, then the abatement option could be used without causing delays at O'Hare. The exact number of non-Part 36 aircraft using O'Hare, however, varies. Furthermore, this option presupposes that the O'Hare tower is not already designating runways based on noise considerations. The effect on interstate commerce need not be analyzed because the proprietor has no direct control over runway designation; the proprietor can only make suggestions to the FAA.

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117 The percentage of operations involving non-Part 36 aircraft would have to be small or else delays would be incurred trying to channel these flights to a quiet runway.

118 The effectiveness of a noise abatement procedure is measured by the reduction in number of people affected by noise and by the degree of noise reduction. The efficacy of runway utilization change, therefore, depends upon the surrounding residential development.

119 Noisy airplanes cannot be diverted to preferential runways if wind or weather conditions would affect the safety of operations. See Airport Noise Hearings, supra note 3, at 1,134 (Nov. 29, 1977) (testimony of J. Tyler).

120 If the noise abatement procedure increases delays, the tower might not be able to handle the same number of operations that it could normally control. Any reduction in operations would affect scheduling throughout the country. See Id. at 3,999 (Dec. 5, 1979) (testimony of Ian Bamber).

121 If planes are stacked in the air awaiting the use of a particular runway, air traffic control is made more difficult. Excessive stacking can become a safety hazard.

122 The United States domestic aircraft fleet was estimated to be about 48.4% in compliance with Part 36 standards as of January 1, 1981. 46 Fed. Reg. 40,126-27 (1981). Although seventy to ninety percent of the operations at the twenty-five major U.S. airports involve 727's, 737's and DC 9's, these airplanes have only a slightly lower compliance rate than the fleet as a whole. See H.R. REP. No. 836, 95th Cong., 1st Sess. 7 (1977).

123 O'Hare to a large degree is using a preferential runway system. See Airport Noise Hearings, supra note 3, at 1,131 (Nov. 29, 1977) (statement by J. Tyler). Id. at 3460-71 (Sept. 6, 1978) (statement by H. Benninghoff).

124 See AVIATION NOISE ABATEMENT POLICY, supra note 1 for an explanation of the division of duties and responsibilities of interested parties in reducing noise from aircraft. Because the FAA has accepted legal responsibility for runway designation and because the FAA-operated control tower exclusively determines the runway upon which an aircraft will land, the proprietor of the airport does not have a role in the designation of runways capable of significantly affecting interstate commerce.
b. **Noise Abatement Preferential Runway Systems For All Aircraft**

Implementation of preferential runway systems for all aircraft is essentially identical to the procedure of diverting non-Part 36 aircraft to the runway that yields the lowest noise impact. O'Hare is so busy that it might be impossible to divert all non-Part 36 aircraft to a preferred runway, except at night. The O'Hare tower, however, currently designates preferred runways during the night. Even if a preferential runway system were utilized to its fullest potential, the decrease in noise would be moderate. The increase in delay, however, would be substantial. Consequently this option should not be relied upon to contribute to noise abatement in the future because the costs outweigh the benefits, thereby creating severe commerce clause problems.

c. **Shifting Aircraft Operations to Neighboring Airports.**

Shifting O'Hare operations to neighboring airports totally lacks viability as a noise abatement procedure. To bring O'Hare within the proposed noise limitations would require a drastic reduction in operations at the airport. By the proponent's own admission, shifting flights from O'Hare to Midway or Rockford might not reduce the overall noise impact in the state. Timing, kind of aircraft, and number of people affected must be considered before determining if Mid-

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127 If the number of flights were constant and the O'Hare operations were spread from four to six runways, the annual Ldn would be lowered approximately 1.75 decibels. Id. at 2,215 (Mar. 9, 1978) (statement by L. Dupre, Illinois Environmental Protection Agency).
130 See IIINR, Opinion of ETAC, supra note 86.
132 Id.
133 Id. at 2,669.
way or Rockford could receive shifted operations without exceeding the proposed noise limit. Furthermore, because noise levels are logarithmic calculations, rather than arithmetic calculations, a large percentage of flights must be eliminated or shifted to abate airport noise a comparatively small amount. Consequently, flight shifting at O'Hare is an ineffective noise abatement procedure.

d. Takeoff Noise Abatement Procedures

Any procedure that affects the operation of an aircraft in the navigable airspace of the United States can only be implemented with FAA approval. Takeoff and landing are the two critical points of aircraft flight. It is during these two maneuvers that safety becomes paramount. Because the FAA has the responsibility to control aircraft safety, it must approve all landing and takeoff procedures before they can be used. The variance petition requirement that the proprietor consider takeoff noise abatement procedures, mandates only that the proprietor pursue the matter with the FAA in a good faith manner. Because the FAA would have to approve of any O'Hare takeoff noise abatement procedure, its legal feasibility is not at issue. Technical feasibility, therefore, is the main concern.

134 Id.
135 Id. at § 1303.
137 Rule 505B(1)(k) of the AG Noise Proposal filed June 12, 1978, supra note 51.
139 Id. at § 1303.
Several takeoff models were discussed in detail during the IPCB hearings from the perspective of noise abatement and safety. The noise abatement takeoffs generally called for thrust reduction after reaching a safe altitude, in an effort to reduce engine noise. In order to safely reduce thrust, an aircraft must first climb longer than usual at a comparatively high and noisy takeoff thrust. For a conventional takeoff, however, the average thrust during the climb over the area within ten miles of the airport is greater than it would be during a noise abatement takeoff. The effectiveness of the noise abatement takeoff, therefore, depends upon the population distribution in the areas surrounding the airport.

At the IPCB hearings, a quiet thrust takeoff favored by the FAA was compared to the conventional takeoff suggested by the Air Transport Association (ATA). The record reveals that the quiet thrust takeoff of a 727, depending upon its takeoff weight, emits 0.3 to 3.4 decibels more noise to the area within 0 to 3.5 miles of the takeoff roll than does an ATA takeoff. At the 4.5 mile mark, however, the quiet thrust procedure is 8.5 to 10.0 decibels quieter than the ATA procedure. From six to twelve miles from the takeoff roll, the quiet thrust procedure is 5.6 to 7.6 decibels quieter than the ATA procedure.

At O'Hare the largest noise contours in descending order are sixty-five, seventy-five, and eighty Ldn. The eighty Ldn contour is within 3.5 miles of the airport. Some of the sev-

141 The three basic takeoffs discussed were the Northwest takeoff, the ATA takeoff, and the FAA quiet thrust takeoff. See Airport Noise Hearings, supra note 3, at 1,116-23 (Nov. 29, 1977) (statements by J. Tyler); Id. at 3,495-3,509 (statement by H. Benninghoff).

142 See Id. at 3,501.
143 Id. at 3,495-3,509.
144 Id. at 3,502.
145 Id. at 3,503-04.
146 Id. at 3,500.
147 A noise contour is an outline on a map plotting noise levels in an area surrounding a noise source. The contour is developed by connecting points which are exposed to the same noise level.
149 Id. at 3,428.
enty-five $L_{dn}$ contour is beyond 3.5 miles, but it is totally within 4.5 miles of the airport. The sixty-five $L_{dn}$ contour primarily extends from 4.5 to 10.0 miles from the airport. The issue presented to the FAA at O'Hare, therefore, is whether it should institute a quiet thrust procedure for 727's at O'Hare that would slightly increase noise levels in the areas most impacted by airport noise, in order to achieve a reduction of a large magnitude over an area greater in size but slightly less affected by noise. The ability of 737's and DC9's to fly the quiet thrust takeoff at a safe altitude had yet to be determined at the time of the IPCB hearings. Implementation of the reduced thrust takeoff procedure, however, would still be the best noise abatement method available to O'Hare.

e. Changes in Takeoff Flight Paths

Any change in the flight paths at O'Hare would be subject to approval by the FAA. From a technical standpoint, there are few, if any, practical changes in flight paths at O'Hare, designed to avoid noise sensitive areas, that could measurably reduce noise emissions. The hearings before the IPCB indicated that many of the changes that the attorney general believed could be instituted at O'Hare already had been implemented. The proponent's own witness acknowledged that making flight path changes solely on the basis of noise abatement could seriously add to delays, and that flight path changes are not a logical means to reducing noise emissions to

\[\text{References}\]

150 Id.
151 Id. at 3,497-98.
152 Id. at 3507-08.
153 "By comparing the various noise abatement strategies, the modified take-off [sic] and night-time [sic] procedures at O'Hare are shown to be cost beneficial by a wide margin. The modified take-off [sic] procedure would remove 54,000 housing units from within the 65 $L_{dn}$ contour, while housing units remaining within the contour would enjoy a noise reduction." IIHR, Opinion of ETAC, supra note 86, at v.
154 Rule 505B(1)(m) of the AG Noise Proposal filed June 12, 1978, supra note 51.
156 Airport Noise Hearings, supra note 3, at 2,886-87 (May 23, 1978) (statement by E. Studholme); Id. at 3,287-89 (July 28, 1978) (statements by H. Benninghoff).
the most seriously impacted areas.\textsuperscript{157}

\textbf{f. Landing Noise Abatement Procedures}\textsuperscript{158}

The attorney general, in including landing noise abatement procedures as a variance consideration, contemplated airlines using a two segment approach.\textsuperscript{159} This approach calls for an initial descent slope of six degrees, with a change to a final slope of three degrees, rather than a conventional one segment, three degree approach.\textsuperscript{160} There are two advantages of the two-segment landing over the conventional approach: (1) the thrust level is less because the initial six degree descent increases speed through gravitational pull rather than engine thrust; and (2) the airplane is higher in the air for a longer period when over noise sensitive areas.

The benefits from noise reduction, however, appear to be small, if the two-segment approach is to be flown safely. First, not all airplanes can fly a six degree upper segment because of weight, flap drag, and energy considerations;\textsuperscript{161} consequently, the noise reduction benefits would be small if less than all the airplanes followed the procedure. Second, most airplanes would have to apply full flaps, thus increasing noise from aerodynamic drag, to keep the descent rate and engine speed within the prescribed limits required to battle wind sheer, to negotiate a sudden ascent in the case of runway blockage, and to maintain engine spool speed needed for symmetrical reversing or braking.\textsuperscript{162} Third, instrument landings at O'Hare require that the aircraft follow a straight, stable descent for the last five or six miles to allow for a straight roll down, to assure approach control, and to facilitate aircraft spacing in the air.\textsuperscript{163}

The ATA, consequently, favors its own 1972 approach pro-

\begin{itemize}
  \item \textsuperscript{157} Id. at 2,907 (May 23, 1978) (statement by E. Studholme).
  \item \textsuperscript{158} Rule 505B(1)(1) of the AG Noise Proposal filed June 12, 1978, \emph{supra} note 51.
  \item \textsuperscript{159} Airport Noise Hearings, \emph{supra} note 3, at 545 (Nov. 27, 1977) (statements by J. Tyler).
  \item \textsuperscript{160} Id.
  \item \textsuperscript{161} Id. at 3,250 (Sept. 24 1978) (statement by H. Benninghoff).
  \item \textsuperscript{162} Id. at 3,252.
  \item \textsuperscript{163} Id. at 3,261.
\end{itemize}
procedure which calls for the minimum flap configuration that still preserves engine speed needed for maneuverability.164 Flaps are left at the aircraft's certified minimum setting and are not changed after the plane descends to 500 feet.165 O'Hare has followed this procedure since 1972 and it is unlikely that any change will be forthcoming.166

**g. Changes in Approach Paths**167

The testimony at the IPCB hearings did not precisely reveal the effects of approach path turns designed to avoid noise sensitive areas. General statements, however, indicate that these turns would not reduce noise levels within five miles of O'Hare.168 The O'Hare instrument landing system (ILS) tracks planes within five miles of the runway.169 This assures that the plane will be stable and perfectly aligned with the centerline of the runway. An incidental, but important, noise benefit of an ILS landing is that thrust needed to accomplish a turn is not reapplied close to the airport at a low altitude.

A heavy, wide-bodied plane cannot safely turn within three miles of landing except under favorable weather conditions.170 The IPCB record, however, does not indicate that applying thrust and completing a turn in an area three to five miles from O'Hare would result in any noise reduction. It is conceivable that the benefit to residents in the area from approximately 4.5 to 10.0 miles from the airport might exceed the added noise detriment imposed on those residents within 4.5 miles of the airport if approach paths were changed.171 Consequently, changing approach paths is a variance consideration which has some merit.

164 *Id.* at 3,253.
165 *Id.*
166 *Id.* at 3,256.
169 *Id.* at 3,261.
170 *Id.* at 3,483-84.
171 See *Id.* at 3,495-3,509.
3. Noise Abatement Actions That Are Controlled by Local Zoning Authorities

The attorney general's proposal also requires that the petitioner for a variance undertake the following three actions: (1) present the IPCB with a cost-benefit analysis of potential land use changes that could improve compliance with the noise standard;\(^{173}\) (2) demonstrate that a good faith effort has been made to induce land use authorities to restrict non-Class A land to land use designations other than Class A, if such land presently receives, or will in the future receive, noise in excess of the airport noise limitation;\(^{173}\) and (3) demonstrate that a good faith effort has been made to induce land use authorities to rezone Class A land that receives noise emissions in excess of the airport noise limitation.\(^{174}\) The most glaring legal deficiency presented by this consideration is that "good faith" is undefined. Failure by the IPCB to provide criteria for good faith would jeopardize the affirmation of its variance denials on appeal. This impediment is by no means fatal and should be adequately resolved without excessive controversy.

From a practical standpoint, however, there are other problems with the proposal's approach which are not easily remedied. Both the probability that O'Hare could influence land use changes and that it could take a significant step toward compliance through its efforts are small. Testimony from the IPCB hearings indicates that O'Hare, in the past, has failed to cooperate with communities in their planning efforts.\(^{175}\) The foremost reason appears to be that O'Hare has hesitated in revealing its master plan to surrounding communities because it wishes to maintain operational flexibility.\(^{176}\)

By showing the master plan to communities, O'Hare would be limiting its ability to make planning changes. If communities were zoned according to the master plan, O'Hare could not depart from the plan without incurring either public scorn

\(^{173}\) Rule 501(B)(1) of the A. G. Noise Proposal, supra note 51.
\(^{174}\) Id. at Rule 501(B)(4).
\(^{175}\) Id. at Rules 505 B (3) and 505 B (4).
\(^{176}\) See supra note 69 and accompanying text.
\(^{176}\) Id. at 1,139-40 (November 29, 1977) (statement by J. Tyler).
or liability. A resident might assert, in a nuisance or inverse condemnation action, that O'Hare made representations which it knew the zoning authority would reasonably rely upon, that O'Hare received the benefit of being surrounded by compatible land without incurring costs for easement acquisition, and that by departing from the master plan, O'Hare (1) unreasonably disturbed the urban plan, thereby creating a nuisance and (2) took property without just compensation by knowingly disturbing the residents' reasonable, investment-backed expectations. Although these actions might not be successful, O'Hare would still incur substantial legal fees. Accordingly, O'Hare has rarely exhibited its master plan publicly.

The public pressure caused by the attorney general's proposal has caused O'Hare to be less protective of its expansion plans. Testimony by O'Hare area residents indicates that O'Hare's formerly defensive posture has caused numerous homeowners, who consciously attempted to locate away from flight paths, or who were homeowners before O'Hare's expansion, to suffer torment that they could not have reasonably anticipated.177 Zoning suggestions by O'Hare, therefore, are bound to be looked upon with distrust.

On the other hand, there is a natural tendency for municipalities to ignore any proposal to restrict land near an airport from Class A designation. O'Hare is located on low-lying, flat ground. As a major airport, it is served by sewers, highways,

177 Airport Noise Hearings, supra note 3, at 166 (June 17, 1977) (statement by Principal Rittmueller that his school, which was built in 1904, is significantly affected by O'Hare noise); Id. at 212 (statement by E. Poulson that she moved because of O'Hare noise after eighteen years in River Forest); Id. at 287 (July 8, 1977) (statement by School Superintendent Coad of Bensenville that seven of its schools that were built before or concurrently with O'Hare are seriously affected by noise); Id. at 307-10 (statement by the Director of Engineering of a home for the elderly, established at its location in 1893, that the O'Hare noise nearly jeopardized HUD financing for expansion); Id. at 325-26 (statement by homeowner that her house is now under a flight path but it wasn't when she bought the home eight years ago); Id. at 334-36 (statement by Leyden Township School Superintendent Byrne that a school built in 1960, when O'Hare air traffic was light, is now severely affected and that other schools had to be soundproofed at great expense); Id. at 348 (statement by resident of thirty years that she only began experiencing annoyance when a new runway was opened); Id. at 353 (statement by homeowner that a runway that opened a year and one half after she moved in turned the neighborhood from peaceful to noise-plagued).
and utilities. These conditions are ideally suited for residential development and motivate developers to lobby for land use designations that are most profitable to them.\textsuperscript{178} Zoning authorities, furthermore, recognize the potential for increased property tax revenue that would result from a Class A designation. The demand for new residences in areas served by the transportation corridor that extends from the Chicago Loop to O'Hare helps reduce noise to an unimportant issue during the development stage.\textsuperscript{179} Noise impact does not achieve significance until the residents' expectations become frustrated. Several factors, therefore, oppose O'Hare's success in influencing authorities to restrict land use to non-Class A use. The municipalities participating in the IPCB hearings, however, indicated that they desired meaningful relief and would listen to O'Hare if the airport were willing to commit itself to a plan. Land use control, however, may affect as little as seven percent of the land that encroaches upon O'Hare.\textsuperscript{180} Cooperation, nevertheless, would help prevent the noise problem from intensifying.

The likelihood that O'Hare can induce downzoning of Class A land, however, is quite remote. A municipality that attempts to enforce downzoning subjects itself to actions for inverse condemnation if it does not compensate individuals holding construction permits for the land affected.\textsuperscript{181} The immediate loss of tax revenue that often results from downzoning, also increases the likelihood that O'Hare will not be able to influence zoning authorities to reclassify Class A land.

h. Exemptions

The proposal exempts a proprietor from being found in vio-

\textsuperscript{178} See Airport Noise Hearings, \textit{supra} note 3, at 2094 (March 9, 1978) (statement by D. Schein, a research geographer, that subdivision development around O'Hare is due to economic opportunities created by the commercial access that developed with the airport's growth).

\textsuperscript{179} Id. at 2,084-87.

\textsuperscript{180} See \textsc{Northeastern Illinois Planning Commission, Metropolitan Noise Abatement Policy Study, O'Hare International Airport 21} (Report No. HUD/DOT INAP - 71-1, July, 1971) [1975 forecast].

\textsuperscript{181} See Agins v. City of Tiburon, 447 U.S. 255, 260 (1980).
lation of the airport noise rules for land which meets all three of the following requirements: (1) land that was designated Class A at the time an airport noise abatement plan was (a) filed with the IPCB as a variance requirement or (b) presented to the authority with zoning jurisdiction over the land; 182 (2) land that was described in the noise abatement plan as receiving noise in excess of the prescribed limits; 183 and (3) land that was included in the efforts of the airport authorities to prevent a change to Class A use. 184 This exemption protects the proprietor who has a publicly available noise abatement plan from liability for land which, despite the proprietor's efforts, is designated Class A, provided that the proprietor properly identified the land as receiving noise in excess of the Class A standard. This safeguards the proprietor's variance by relieving him from liability for the informed, but poor, judgment of local zoning authorities. It induces the proprietor to make full disclosure to obtain limited immunity from liability. This provision provides significant peace of mind for O'Hare because being able to influence all the numerous suburban communities surrounding the airport would be an impossible task. Under the proposed exemption, O'Hare, once it has fully disclosed its abatement plan, need not worry about incurring unexpected legal fees or penalties caused by a zoning authority's actions.

The proposal also includes a provision that exempts the proprietor from noise regulation liability if a navigational easement or an equivalent interest in the land has been purchased. 185 The purchase of easements would be a cost effective compliance, not noise abatement option, only if O'Hare had a few remaining Class A parcels that still received noise in excess of the standard. The exemption serves as an expeditious escape from the costs of the variance procedure or from a penalty stemming from enforcement. The exemption probably was designed to allow small Illinois airports to avoid the costs

183 Id. at Rule 506A(2).
184 Id. at Rule 506A(3).
185 Id at Rule 506B.
of preparing noise contours, zoning maps, and population information required in a variance petition.

VI. Conclusion

The noise problem at O'Hare will be solved when airlines operate a fleet composed of the newest generation of airplanes. Until the airlines achieve this time-consuming and extraordinarily expensive goal, attempts will be made to assure short-term relief. The proposal by the Illinois Attorney General to regulate noise from Illinois airports, submitted to the IPCB, is an ambitious attempt to coerce O'Hare and other Illinois airports to initiate noise abatement measures in the period prior to the full implementation of federal noise abatement regulations. Adoption of the proposal, however, would only provide symbolic relief to O'Hare residents who are harassed by the noise emanating from the world's busiest airport.

Even if the IPCB uses its power to revise the proposal, practically, it would provide only marginal, contingent noise relief and would subject the IPCB to litigation that might stay the enforcement of the regulation. The establishment of a reasonable airport noise standard and a mechanism that promotes cooperation between O'Hare and its surrounding communities, however, might overshadow the small numerical drop in decibel levels. Residents could be given a noise limitation that they could use in civil actions against the airport and could also obtain information for wisely planning their residential environment. These considerations are beyond the scope of the IPCB's duties. The General Assembly, however, might consider requiring the IPCB to determine such a standard.

Finally, the fate of the airport noise proposal is dictated by its cost-benefit analysis. The expenses, incurred by the airport, the airlines, and the citizens of Illinois, do not appear to

186 See supra note 80 and accompanying text.
be justifiable when compared to the minimal quantified benefits of a noise abatement policy structured around the attorney general's proposal.\textsuperscript{88}  

\textsuperscript{88} See supra note 86.