#65.40 5/29/69

Memorandum 69-69

Subject: Study 65.40 - Inverse Condemnation (Noise Damage From Operation of Aircraft)

Attached is the portion of Professor Van Alstyne's background research study dealing with noise damage from operation of aircraft. You should read the study with care prior to the meeting since we do not attempt to summarize it in this memorandum.

The consultant concludes that (although no express California holding has been found) it is reasonably probable that the California courts would recognize the constitutional compensability of aircraft noise damage, whether or not accompanied by overflights. He believes that the "substantial interference" approach would be followed by the California courts. The limitation of damages to overflights is rejected as poor public policy and bad constitutional law.

The consultant believes that it is reasonably clear that, absent a clear conflict with federal flight regulations, the states retain authority to define and adjust the competing property interests reflected in aircraft noise claims by establishing statutory guidelines to inverse compensation. He suggests the following combinations of substantative, procedural, and remedial provisions:

(1) The basic standards of proof in an inverse condemnation action for aircraft noise should require clear and convincing evidence that the aircraft noise, and accompanying vibrations, fumes, and lights were of such frequency and magnitude that (a) they materially interfered with use of the claimant's property (b) in such a substantial and physically disagreeable manner as to deprive plaintiff of the full enjoyment of his property and (c) thereby caused a significant diminution of the market value of the property for its highest and best use. See study at page 50.

(2) Any diminution of property value claimed to have resulted from aircraft operations shall be presumed not to have been caused thereby unless the claimant establishes to the satisfaction of the court that, during the six-month period of time immediately preceding trial, or such other period of time as may be fixed by the court in light of the circumstances of the case, (a) actual separate incidents of imposition of noise from aircraft operations averaged more than twenty per day, (b) the peak aircraft noise pressure level during such incidents averaged more than 90 PNdB, and during at least one-third of such instances exceeding 100 PNdB for a period of ten seconds or more, and (c) the mean distance between the actual flight paths flown by the offending aircraft, at their nearest point, and the location of maximum noise perception on the claimant's property, averaged less than 2,000 feet. See study at pages 50-51 and footnotes thereto (suggested standards merely illustrative and not firm recommendations of consultant). The presumption so established would be one that shifts the burden of proof.

(3) In the absence of proof meeting the requirements of the general standard of liability (see (1) above), compensation will not be awarded to the claimant even though his evidence establishes (a) repeated violations of one or more officially promulgated rules or regulations designed to reduce noise through control of aircraft operational and maneuvering procedures, (b) possible diminution of value due principally to mere personal annoyance, loss of pleasure, or unjustified fear and apprehension of physical injury from objects falling from the aircraft or from possible crash landings of aircraft, or (c) loss of value based principally on reduction or elimination of speculative future developmental prospects for use of the affected land. See discussion in study at pages 52-54.

(4) The presumption of noncompensability (see (2) above) is deemed inapplicable if the claimant establishes to the court's satisfaction that the value of his property for its highest and best use was adversely affected by the aircraft operations to a degree substantially in excess of the average loss of value sustained by like properties exposed to the same aircraft operations and situated within a radius of 500 feet from plaintiff's property. See study at pages 52-54.

(5) The cause of action for inverse condemnation should be declared by statute to be personal to the landowner, not running with the land, and non-assignable. One who buys land already subject to a servitude for aircraft noise, in effect, purchases the land subject to that servitude, defined by the extent of the noise impact as of the date of purchase. See study at 54-55.

(6) The public entity should be permitted to serve an informal written notice upon all potentially affected property owners when the governing body of the public entity concludes that an early settlement of potential noise damage liabilities created by its airport operations would be advisable. The notice would advise the recipients that if they intended to pursue a noise damage cause of action against the entity, a formal written claim for that purpose must be presented to the governing body not later than a date therein specified (a date which is at least one year after the time of service of the notice). The notice should be served by registered or certified mail and the date of service would be deemed the date on which the property owner's claim accrued. Failure to present a formal claim for compensation within the one-year period specified would bar recovery of compensation, past or future, for noise damage. An owner who does present a timely claim, after receipt of the entity's notice,

could recover not only for loss of property value based on past aircraft noise, but also for future losses but where there is a substantial increase in the future in the noise level or its frequency over that which existed at the time of the adjudication, the claimant would have a cause of action for the additional noise impact. See study at pages 55-57.

(7) Alternative remedies to monetary compensation should be available. In inverse noise litigation, the defendant public entity should be authorized to propose a "physical solution" to the problem such as a program of soundproofing the claimant's home or other building at the entity's expense, the amount of compensation to be awarded to be determined in light of the condition of the building in its "after" condition. A "short-term lease of the right to inflict noise damage in the future" might be allowed, damages to be computed at the end of the lease period for actual experience during the lease period. The court might give the public entity a reasonable period of time to enact zoning changes that would permit the use of the land for a purpose that would completely offset any detriments flowing from aircraft noise and reduce the fiscal impact of aircraft noise claims to negligible proportions. See study at 57-59.

Respectfully submitted,

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Executive Secretary

2. Noise Damage From Operation of Aircraft

The rising noise level of contemporary society, long recognized as an actionable feature of the law of nuisance,[123] has in recent years provided the setting for extensive litigation growing out of military and commercial aircraft operations.[124] Jet aircraft, in particular, have tended to impose noise, vibration and fumes upon occupants of land located in the vicinity of major airports to a degree, and with sufficient intensity, to become a problem of national proportions.[125] Technological studies indicate that while moderate reductions in jet engine noise may be possible to achieve, principally through modifications in engine and airframe design, a major "break-through" that would permit a substantial reduction in generated noise characteristics of present and future jet aircraft, at economically acceptable costs, is unlikely.[126] Developmental work on supersonic commercial aircraft, on the other hand, has suggested that sonic boom damage will probably constitute an unavoidable consequence of use of the SST and its military counterparts.[127] The widespread public importance of the air transport industry, coupled with the preempting effect of comprehensive federal regulations governing flight patterns, use of the airways, and landing and takeoff procedures, precludes any realistic possibility of either injunctive relief for adversely affected property owners[128] or valid local regulatory measures designed to prevent excessive aircraft noise.[129] Moreover, the possibility of a tort remedy, while theoretically available on proof of fault,[130]

does not offer the injured owner a realistic solution for even apart from difficulties of proof it would provide relief only on an isolated and sporadic basis. As a practical matter, aircraft noise damage is seldom, except perhaps in the case of sonic booms, the product of an isolated occurrence; its most prevalent feature consists of the cumulative physical and psychological impact of recurring jet aircraft flights at relatively low altitudes, during takeoff and landing operations, over an extended period of time. Moreover, it may fairly be assumed that very few, if any of these repeated invasions of the claimant's tranquillity are the product of negligence or other wrongful act or omission. To be sure, traditional concepts of nuisance liability seem applicable in theory to this pattern of persistent and repetitive injuries.[131] The interest-balancing technique that characterizes decisional processes in nuisance litigation, however, is unattractive to noise-damage claimants in most jurisdictions, for the public importance of commercial aviation constitutes a formidable barrier to recovery on this theory.[132] In any event, it is uncertain to what extent governmental nuisance liability is recognized by California law,[133] especially where, as here, the operation of both airport and aircraft are expressly authorized by statute.[134]

Inverse condemnation thus emerges as the principal remedial approach to the aircraft noise problem. Indeed, most of the significant decisions have been litigated in the context of inverse liability theory.[135] United States v. Causby,[136] clearly the leading case in point, has been a source of much confusion in the decisional law. The court's

opinion, which affirmed the constitutional duty of the government to pay just compensation, under the Fifth Amendment, for aircraft noise damage, contains a mixture of conceptualisms. After forthrightly rejecting the applicability of the common law doctrine that ownership of land extends vertically to the ends of the universe, the court emphasizes repeatedly that fact that the military aircraft in question flew directly over the plaintiff's land, and had thereby "taken" an easement for flight purposes in contravention of the owner's right to full enjoyment and use of the immediately superadjacent airspace.[137] This aspect of the opinion suggests a trespass theory, predicated upon recognition of a property interest of the landowner to "at least as much of the space above the ground as he can occupy or use in connection with the land."[138] Concurrently, however, the opinion identifies the source of injury to the landowner as the destruction of the usefulness of the land for commercial raising of chickens, the disruption of the owner's dominion and control of the surface, and the "direct and immediate interference with the enjoyment and use of the land."[139] This appears to be the language of nuisance, although intertwined (as is often true of nuisance decisions) with property terminology, and since it was the noise, glare, and vibrations from the aircraft that actually produced the interference referred to, rather than a preemption by the planes of airspace actually intended to be occupied by buildings or structures designed to promote surface use, Causby can be read as implying approval of a nuisance approach to inverse liability in the absence of actual overflights.[140]

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Griggs v. Allegheny County, decided in 1962, reaffirmed and followed Causby. The Supreme Court here ruled that just compensation must be paid for property losses sustained as a result of the extreme noise caused by regular commercial jet aircraft flights at low altitudes (between 30 and 300 feet) above plaintiff's home, making it wholly uninhabitable. Although a technical invasion of plaintiffs' superadjacent airspace was established, the compensable loss, as in Causby, was obviously attributable not to the trespass but to the accompanying noise and vibration. Had the aircraft in question flown slightly to one side, so as to avoid passing directly over plaintiff's land but at the same altitudes, substantially the same degree of interference with habitability of the premises would apparently have occurred. The exact issue not being presented, Griggs offered no intimations as to the compensability of such damage sustained in the absence of actual overflights. It did, however, supply another highly important dimension to the problem by holding that the airport operator (i.e., the defendant county, which had planned and built the airport with federal approval and financial assistance) was the responsible entity that had "taken" the avigational easement in the constitutional sense. Noting that appropriate approach and glide paths are indispensable to airport operation , the court concluded that the county, as owner and developer of the facility, was responsible for acquisition of the necessary easements as well as the necessary land on which the runways were built. To develop the airport, the county "had to acquire

some private property. Our conclusion," said the court, "is that by constitutional standards id did not acquire enough."[142]

The question left open in both Causby and Griggs -- whether direct overflights of a trespassory nature are prerequisite to inverse liability -- has produced diverse views in state and federal courts alike. The leading decision denying compensation in the absence of overflights is Batten v. United States, decided in 1962 by the Court of Appeals for the Tenth Circuit.[143] Although the trial court had found, on the basis of substantial evidence, that plaintiffs had suffered a substantial[144] interference with use and enjoyment of their residential property as the result of military jet operations from a nearby Air Force Base, and accompanying noise, vibration, and smoke, compensation was denied. Reading Causby as authorizing constitutional compensation only for direct invasions of the surface owner's vertical airspace, the majority opinion concluded that the injuries of which complaint was made were merely incidental damages, amounting to "no more than a consequence of the operation of the Base",[145] and did not amount to a "taking" of private property within the meaning of the Fifth Amendment. The holding to this effect, however, was a guarded one, for the court suggested that a showing of "total deprivation of use" of plaintiffs' properties might have supported a different result.[146] The record, however, did not suggest that any homes had been rendered uninhabitable or that any plaintiff had been forced to move because of the jet aircraft annoyance; on the contrary, it showed "nothing more than an interference with use and enjoyment."[147]

The position taken in Batten has attracted a substantial following. Noncompensability in the absence of direct overflights is firmly established as the prevailing rule in the federal courts.[148] It also has respectable, although limited, support in state court decisions.[149] The thrust of the recent state decisions, however, has been to reject the "overflight" requirement in favor of a more flexible approach to compensability in which the degree of interference with use and enjoyment of the ground is the main focus of judicial attention.[150] The dissenting opinion of Chief Judge Murrah in Batten has been influential in this regard. Pointing out that non-trespassory interferences with use and enjoyment of land have often been deemed "takings" in other factual settings,[151] Judge Murrah urged that the result should turn upon a careful balancing of the competing interests at stake rather than upon a circular distinction between "direct" and "consequential" damage.[152] On this analysis, he concluded that plaintiffs were entitled to just compensation for their losses, since "the interference shown here was sufficiently substantial, direct and peculiar to impose a servitude on the plaintiffs' homes, quite as effectively as the overflights in Causby and Griggs . . . ."[153]

Not only has the inherent logical appeal of the Batten dissent seemed more persuasive to state court judges, on the whole, than the position of the majority in that case,[154] but state constitutional provisions often provide textual support for a more liberal view by requiring just compensation for private property that is "damaged" as well as "taken" for

public use.[155] Indeed, the Batten majority opinion explicitly noted this broader scope of compensability under state law, observing that "the federal obligation has not been so enlarged either by statute or by constitutional amendment."[156] Conversely, the Supreme Court of Washington, in holding that laterally imposed noise from aircraft operations constituted a compensable "damaging" under the state constitution, observed "The specific purpose of the addition of language [i.e., the "damaging" clause] beyond that of the United States Constitution is to avoid the distinctions attached to the word "taking" appropriate to a bygone era. It is unnecessary to become embroiled in the technical differences between a taking and damaging in order to accord the broader conceptual scope intended by the additional language."[157]

Although no express holding has been found in any California appellate decision, it is reasonably probable that the California courts would recognize the constitutional compensability of aircraft noise damage whether or not accompanied by overflights. Denial of injunctive relief against aircraft noise caused by flights "immediately above or in close proximity to" residential property near Lindbergh Field (the San Diego municipal airport), for example, was affirmed in Loma Portal Civic Club v. American Airlines, Inc.,[158] but with a strong suggestion that a remedy in damages was open to the plaintiffs.[159] In analogous situations, vibration damage, without physical invasion, has been regarded as a basis for inverse liability, in analogous situations,[160] while noise and fumes, attributable

to freeway operations, are factors legally entitled to consideration in the determination of severance damages.[161] Moreover, the explicit premise of California decisions sustaining local zoning to exclude residential development in the vicinity of airports has been the assumption that nearby residential land use is particularly susceptible to compensable damage from noise created by normal aircraft operations.[162] Since the constitutional duty to pay just compensation in California extends to both a "taking" and "damaging" of private property,[163] the weight of the existing precedents also supports the view that the "substantial interference" approach, rather than the trespass view, would be followed by the Calivornia courts.

From a policy viewpoint, support for the overflight requirement of Batten and its progeny appears to be based solely on the ground that a broader position might impose intolerable fiscal burdens upon governmental airport operations.[164] Since the federal government has shown no disposition to provide financial assistance to the states in meeting the cost of acquiring the property interests necessary to avoid noise damage liability,[165] these burdens (apart from losses connected with military air bases) will fall principally upon the local entities that manage and control the major civilian airports.[166] The magnitude of these potential liabilities is difficult to estimate; but there are sound policy reasons for believing that they are manageable, and should be accepted in expanded form, including both proximity and lateral flight, as well as overflight, damages.

First, the overflight requirement makes no sense from a scientific standpoint, and postulates an arbitrary line between compensability and non-compensability that defies logical justification. Technical studies demonstrate that the "noise-affected" area in the vicinity of airports is not confined to the approach and departure paths as defined by prevailing flight regulations, but extends for a considerable distance to each side.[167] Variations in physical conditions (e.g., uneven surface topography, distribution of trees and vegetation, prevailing wind patterns, etc.) also exert a significant influence upon sound dispersion and impact.[168] Moreover, even relatively minor but consistent deviations from prescribed flight patterns may, under the overflight rule, arbitrarily enlarge or contract the group of property owners who may assert recoverable claims, despite substantially equivalent detrimental effects upon all.[169]

Second, to adopt the overflight rule in order to diminish the number of potential claims for just compensation would be inconsistent with the policy premises of recent decisions dealing with inverse liability.[170] California courts, especially, have sought to avoid a jurisprudence of classifications grounded in outmoded historical definitions of property rights, and to implement equitable loss distribution, through inverse condemnation, by a pragmatic assessment of conflicting social interests.[171] Prominent in the accepted approach has been judicial concern that individual property owners not be compelled in the absence of overriding justification, to bear a disproportionate share of the burdens of

public improvement programs.[172] Recognition of the compensability of aircraft noise damage inflicted by lateral flight, as well as by overhead flight, would thus be within the mainstream of California inverse condemnation law, and would tend to simplify settlement of claims by avoidance of an issue of fact that is likely to be conceptually troublesome, a source of instability in fact-finding, and productive of unnecessary litigation.

Third, anticipation of unacceptable fiscal burdens of noise damage losses seems to be both exaggerated and capable of mitigation through techniques more refined and discriminating than the overflight rule. The results in reported airport cases suggest that proof of actual loss of property values resulting from noise and vibration may be difficult to marshal.[173] Land in the vicinity of large commercial airports, where the use of jet aircraft is likely to produce the bulk of serious noise problems, often appears to be in significant demand for industrial and commercial uses compatible with high noise levels.[174] Substantial diminution of inverse condemnation claims thus appears to be capable of achievement through careful invocation of land use control devices.[175] In addition, careful development of statutory standards for evaluating noise damage claims, designed to supply specificity to the judicially developed rule limiting inverse compensation to "substantial" interference with property rights,[176] could mitigate the fiscal magnitude of such claims. Additional controls should also be considered, including the use of procedural techniques for limiting the volume of claims

asserted [177] as well as alternative methods for conferring the just compensation required by the constitution.[178]

Fourth, prevailing economic theory indicates that the "substantial interference" test for compensability would implement optimum utilization of community resources more effectively than the overflight rule.[179] The airport operator, having primary responsibility for airport planning and development, is strategically situated to deal with the "externalized" costs of airport operation consisting of noise burdens imposed on surrounding land users. These costs usually can be minimized and distributed by the airport management, in the manner least harmful to the general social welfare, either by improving airport operational characteristics,[180] eliminating external perception of airport-generated noise,[181] or compensating for the external losses and distributing the costs of so doing in equitable fashion among airport users who benefit therefrom. The effectiveness of the airport enterprise as a risk distributor may not be entirely clear, due to inadequate experience; but its ability to employ user-fees for this purpose places it in a clearly more effective position than surrounding property owners as a class.[182] Even a shift of part of the burden of internalizing the noise costs through payment of compensation out of general tax revenues, would, from an economic viewpoint, be preferable to non-compensation.[183]

If the implications of the overflight doctrine are rejected as both poor public policy and bad constitutional law, the general contours of an appropriate legislative

program can be blocked out in tentative form. The principal objective of such legislation, it may be assumed, is to provide guidelines which will assist in distinguishing those cases warranting compensation from the total mass of potential claims based on aircraft noise. In seeking to develop them, however, it should be kept in mind that barring some unforeseen technological "break-through", only relatively modest reductions in claims can be anticipated at best from current efforts to reduce noise emissions at their source in the jet engine.[184] Augmented federal concern over aircraft noise problems[185] suggests that, apart from the intractable sonic boom problem associated with supersonic transport planes,[186] the basic issue of inverse condemnation claims for damage to lands peripheral to major airports is unlikely to become significantly worse in a qualitative sense. It will, however, probably remain a quantitatively visible feature of the litigation dockets of cities and counties operating jet airports for the forseeable future. It seems reasonably clear however, that, absent a clear conflict with federal flight regulations,[187] the states retain authority to define and adjust the competing property interests reflected in aircraft noise claims by establishing statutory guidelines to inverse compensation.[188]

As in the case of intangible harms resulting from freeway construction,[189] it is suggested that appropriate statutory guidelines might assume a variety of forms, incorporating substantive standards as well as procedural and remedial provisions.

Substantive statutory standards. A possible approach to development of substantive guidelines for judicial application would recognize existing uncertainties inherent in seeking to attribute losses of property values of land in the vicinity of airports to aircraft noise. Many other variables are also at work, complicating the intellectual task of isolating and measuring the impact of the noise factor.[190] The importance to the public welfare of a sound and thriving commercial aviation industry suggests that unwarranted imposition of damages in inverse condemnation should be minimized so far as possible consistent with a fair allocation of the risk of erroneous fact-finding. The best that can be hoped for, in this context, perhaps, is a set of rules which would provide some assurance that truly deserving noise claims -- those of sufficient magnitude and intensity, and accompanied by demonstrable adverse collateral consequences of sufficient severity, to quell doubts as to the source of the harm -- will be compensated, while those which are tenuous, de minimis, or unfounded will be rejected. The actual content of a legislative regime of this sort could, for example, include the following provisions:

(1) The basic standards of proof in an inverse condemnation action for aircraft noise could require clear and convincing evidence that the aircraft noise and accompanying vibrations, fumes and lights, were of such frequency and magnitude that (a) they materially interfered with use of the claimant's property (b) in such a substantial and

physically disagreeable manner as to deprive plaintiff of the full enjoyment of his property and (c) thereby caused a significant diminution of the market value of the property for its highest and best use.

The standard here proposed emphasizes the qualitative impact of the aircraft noise in question, without regard for artificial property distinctions attendant upon use of the "overflight" doctrine.[191] It also rejects the view that mere diminution of value alone constitutes an adequate measure of noise impact,[192] and, in so doing, is believed to be consistent with the reasoning of the better considered judicial opinions.[193]

(2) Assistance in making the somewhat delicate determinations of fact subsumed in the foregoing statutory standard could be provided by a series of rebuttable presumptions designed to allocate the burden of proof as fairly as possible.[194] For example, a statute might provide that any diminution of property value claimed to have resulted from aircraft operations shall be presumed not to have been caused thereby unless the claimant establishes to the satisfaction of the court that during the six month period immediately preceding trial, or such other period of time as may be fixed by the court in light of the circumstances of the case, (a) actual separate incidents of imposition of noise from aircraft operations averaged more than twenty per day,[195] (b) the peak aircraft noise pressure level during such incidents averaged more than 90 PNdB, and during at least one-third of

such instances exceeded 100 PNdB for a period of ten seconds or more,[196] and (c) the mean distance between the actual flight paths flown by the offending aircraft, at their nearest point, and the location of maximum noise perception on the claimant's property, averaged less than 2,000 feet.[197]

The purpose of the suggested presumptions, of course, is to add an element of quantitative specificity to the process of proof. The figures here proposed, it is readily conceded, are to a degree arbitrary; but, as the cited references suggest, they do have some support in actual experience. Expert evidence presented to the appropriate body (e.g., the Law Revision Commission or legislative committee in charge of the bill) might, in all likelihood, result in assignment of different values from those selected by the author. It is believed, however, that specific evidentiary criteria such as these, formulated as a rebuttable preseumption rather than an absolute substantive norm, should assist materially in limiting inverse condemnation awards to demonstrably deserving cases. At the same time, it should be clear that compensability would not be automatically forthcoming merely because all of the prescribed factual criteria were established by the claimant. It would still be possible for the court to determine, in such event, that all of the elements of compensability prescribed in the general standard (see (1) above) have not been satisfied.

(3) The legislature could also prescribe a variety of rules setting substantive limits to the interests that will be deemed compensable in aircraft noise cases. A

statute, for example, might declare that, in the absence of proof meeting the requirements of the general standard of liability (see (1) above), compensation will not be awarded claimant even though his evidence establishes (a) repeated violations of one or more officially promulgated rules or regulations designed to reduce noise through control of aircraft operational and maneuvering procedures, (b) possible diminution of value due principally to mere personal annoyance, loss of pleasure, or unjustified fear and apprehension of physical injury from objects falling from said aircraft or from possible crash landings of said aircraft, or (c) loss of value based principally on reduction or elimination of speculative future developmental prospects for use of the affected land. Conversely, the statute might declare that the presumption of noncompensability, derived from a failure to overcome the statutory criteria with respect to frequency, intensity, and proximity of the aircraft noise (see paragraph (2) above), would be deemed inapplicable if the claimant established to the court's satisfaction that the value of his property for its highest and best use was adversely affected by the subject aircraft operations to a degree substantially in excess of the average loss of value sustained by like properties exposed to the same aircraft operations and situated within a radius of 500 feet from plaintiff's property.[198]

Underlying these suggestions are a variety of policies. In the interest of maintenance of the highest

possible safety standards, it is suggested that noise abatement rules[199] covering landing and takeoff procedures should not be deemed binding in the sense that inverse liability might be imposed for persistent violations. Aircraft pilots should be undeterred by fear of potential inverse liability from making deviations therefrom which are deemed necessary in the interest of safety of flight, notwithstanding a temporary sharp increase in noise consequences for nearby property owners. In addition, it is submitted that losses based upon personal susceptibility to annoyance or fear, and not widely shared in the community or well-founded in experience, should not be regarded as the kinds of "property" damage for which just compensation must be paid. This view is consistent with the position taken by the courts both in aircraft noise cases[200] and in analogous situations[201] that damages based on idiosyncratic elements of this sort are both too speculative and uncertain, and too unlikely to influence an average reasonably informed buyer, to be regarded as having a reliable influence on market value. Loss of prospective future developmental values, at least where they are not so imminent as to be reflected in market prices predicated on present "highest and best use", are likewise regarded as irrelevant to the issue of the owner's damage at the time that damage is inflicted.[202] Finally, it is assumed that one of the basic purposes of inverse condemnation policy is to prevent one citizen from shouldering an undue proportion of the burdens of public activities;[203] accordingly,

if a claimant's property is for some reason uniquely situated, and is peculiarly exposed to substantial noise damage from which like properties in the vicinity are free (due, for example, to unusual topographical or acoustical circumstances), the law should authorize ultimate disposition of the claim on its merits, free from the limiting effect of the statutory presumptions.

(4) The mobility of the American population, as well as the ever-changing pattern of air transportation routes and schedules, suggests a further statutory standard. Since the impact of aircraft noise is largely a subjective one to both land owners and informed buyers, and will normally be discounted in the bargaining for private sales of land exposed to such noise, the cause of action for inverse condemnation should be declared by statute to be personal to the land owner, not running with the land, and non-assignable.[204] One who buys land already subject to a servitude for aircraft noise, in effect, would be purchasing subject to that servitude, defined by the extent of noise impact as of the date of purchase. This rule would not preclude inverse liability of the airport operator for subsequent enlargement of the servitude, through introduction of new and noisier aircraft or extension of airport runways closer to the subject property,[205] but it might diminish the former owner's incentive to prosecute his noise claims.[206] It would also, presumably, promote marketability of land in the vicinity of airports by removing, as an impediment to agreement on price,

the need to bargain over the speculative value attributable to the seller's potential inverse liability cause of action.

(5) Administration of aircraft damage claims could be improved, it is submitted, by development of statutory procedures for clarifying the point of time at which the claim accrues to the property owner. Under California Tort Claims Act of 1963, the injured claimant is required to present a claim to the public entity within one year after the claim accrued, when (as here) he is seeking damages for injury to land.[207] The period of limitations for action on the claim runs from the date of its rejection by the entity.[208] These rules are fully applicable to inverse condemnation claims of all kinds.[209] Even when the facts are noticeably more clean-cut and precisely defined than in the aircraft noise situation, California courts have experienced difficulties in marking the point of time at which the inverse condemnation cause of action "accrued" for the purpose of the claim presentation statute,[210] particularly when the damages in question were incurred incrementally, from time to time, rather than in a single discrete event.[211] The prevailing view in such cases, that the claimant may recover for all damage that accrued during the one year (i.e., during the full length of the claim presentation period allowed by the claims statute) immediately preceding the presentation of his claim,[212] is not entirely satisfactory, for it leaves the matter of liability in suspense for an indefinite period of time. As the use of a busy airport by jet planes gradually increases, property owners may without loss of their cause

of action, withhold presentation of their claims for inverse condemnation.[213] The available alternative under present law, of an eminent domain action initiated by the public entity against all property owners who might have an enforceable noise damage claim, is equally unsatisfactory, for it imposes litigation on those property owners who, if left alone, might forego the psychological, as well as financial, hazards ob commencing an action for compensation, but who would possibly have an incentive, especially if a pooling of expense of litigation with other condemnees appears feasible, to litigate the issue fully when named as a defendant.

It is thus suggested that, by statutory authorization, the public entity be permitted to serve an informal written notice upon all potentially affected property owners, when the governing body of the public entity concludes that an early settlement of potential noise damage liabilities created by its airport operations would be advisable.[214] The notice would advise the recipients that if they intended to pursue a noise damage cause of action against the entity, a formal written claim for that purpose must be presented to the governing body not later than a date therein specified (presumably a date which is at least one year after the time of service of the notice). Service of this notice, which could be by registered or certified mail to provide a record of its date, would then be deemed the date on which the property owner's claim accrued. Failure to present a formal claim for compensation within the one-year period

specified would bar recovery of compensation, past or future, for noise damage.

This suggestion also contemplates a statutory rule authorizing the property owner who does present a timely claim, after receipt of the entity's notice, to recover not only for loss of property value based on past aircraft noise, but also for future losses. In effect, his recovery would be measured by the value of what the entity has "taken" through the imposition of the noise servitude. The valuation problem thus posed should not be insurmountable, for market valuation of the property, subject to the servitude, would presumably reflect the views of reasonably informed buyers and sellers as to the permanence of the noise burden and its deterrent effect upon various forms of land utilization. On the other hand, continuing technological evolution in air transportation suggests that changes in equipment, aircraft design, or power plant characteristics may bring about substantial changes in future noise impact patterns around airports.[215] The statutory scheme should include provisions which would permit such changes to be the subject of additional inverse claims when there has been a substantial increase in the noise level or its frequency over that which existed at the time of the earlier adjudication.

(6) Legislative treatment of the aircraft noise problem should also undertake to improve the flexibility with which alternative remedies may be invoked, other than mere payment of monetary compensation. For example, statutory

provisions might authorize the defendant public entity, in inverse noise litigation, to propose a "physical solution" to the problem, such as a program of soundproofing of the claimant's home or other building at the entity's expense, in lieu of immediate payment of damages.[216] The amount of compensation to be awarded, if any, would be determined in light of the condition of the building in its "after" condition. Conceivably, a relatively modest outlay for sound control or deadening techniques could reduce potential inverse liabilities in significant amounts, with a net saving in overall costs.[217] Another possibility, suggested by Charles Haar, would seek to cope with the transient and ever-changing nature of the airport noise problem, by empowering the court to award the public entity a short-term lease of the right to inflict noise damage in the future (perhaps for two or three years).[218] At the end of this period, the owner's value loss would be determined and awarded, as rental, in light of the actual conditions, including changes in noise levels, that occurred during the lease term. A third approach might be to authorize the court, in assessing compensation, to give the public entity a reasonable period of time within which to consider and enact a change of zoning forthe subject land, deferring the question of loss of value until after the zoning has been stabilized. The constitutional just compensation clause does not insist, ineluctably, that only monetary compensation will satisfy its demands.[219] A change of zoning might well confer benefits upon the property

that would completely offset any detriments flowing from aircraft noise. The value of single-family residentially zoned land may well be diminished by proximity to a noisy jet airport; the same land, however, may be greatly increased in value if rezoned for uses more compatible with airport operations (e.g., hotel, commercial or industrial purposes).[220] The compensation conferred in the form of zoning benefits of this kind could, in some cases, reduce the fiscal impact of airport noise claims to negligible proportions, while producing added tax revenues (from the more valuable rezoned land) that could be employed to satisfy inverse liabilities not capable of resolution by this approach.[221]

The suggestions here advanced are premised on the conviction, believed to be supported by the authorities discussed, that present legal arrangements for adjusting the private claims arising from highway improvement and airport development projects are demonstrably in need of substantial improvement. Accepted doctrinal and procedural techniques for allocating, with fairness and efficiency, the real costs of environmental changes resulting from these truly revolutionary advances in transportation technology, have proven lacking. Loss of amenities attendent upon property ownership, whether in the form of reduced accessability or increased annoyance from noise, frequently are translated into uncompensated financial losses measured, through market forces, in diminished property values. The fundamental question that must be faced, and which deserves a rationally developed legislative response, is not whether the costs in question will be paid, but who will pay them, and through what institutional arrangements.

123. Lloyd, Noise as a Nuisance, 82 U. Pa. L. Rev. 567 (1934). See also, Spater, Noise and the Law, 63 Mich. L. Rev. 1373 (1965).

124. Recent treatments of the general problem include Stoebuck, Condemnation by Nuisance: The Airport Cases in Retrospect and Prospect, 71 Dick. L. Rev. 207 (1967); Fleming, Aircraft Noise: A Taking of Private Property Without Just Compensation, 18 So. Car. L. Rev. 593 (1966); Hill, Liability for Aircraft Noise--The Aftermath of Causby and Griggs, 19 U. Miami L. Rev. 1 (1964). Both technical and legal aspects are reviewed in U. S. Office of Science & Technology, Alleviation of Jet Aircraft Noise Near Airports: A Report of the Jet Aircraft Noise Panel (1966) [herein cited as "Noise Panel Report"].

125. The national dimensions of the jet aircraft noise problem have recently been recognized in legislation authorizing promulgation of federal noise abatement regulations by the Federal Aviation Administration, enforceable through certification proceedings. Federal Aviation Act of 1958, § 611, 82 Stat. 395 (1968), 49

U.S.C. § 1431 (Supp. 1968), enacted by Pub. L. 90-411 (July 21, 1968). See also, S. Rep. No. 1353, 90th Cong., 2d Sess. 2 (1968), pointing out that the American air carrier fleet is now over 75% jet powered, and that nearly a thousand jet aircraft are in the general aviation fleet (mainly in the executive flying sector), and concluding that aircraft noise "is a burgeoning national problem, which can only become worse if action is not taken." To the same effect, see House Comm. on Interstate & Foreign Commerce, Special Subcommittee on Regulatory Agencies, Investigation and Study of Aircraft Noise Problems, H. R. Rep. No. 36, 88th Cong., 1st Sess. (1963).

126. Noise Panel Report 5-6. See also, S. Rep. No. 1353, 90th Cong., 2d Sess. 2-3 (1968).

127. See Baxter, The SST: From Watts to Harlem in Two Hours, 21 Stan. L. Rev. 1 (1968); Note, Sonic Booms--Breaking the Tort Barrier? 2 Ga. L. Rev. 83 (1967).

128. Loma Portal Civic Club v. American Airlines, Inc., 61 Cal. 2d 582, 39 Cal. Rptr. 708, 394 P.2d 548 (1964); Town of East Haven v. Eastern Airlines, Inc., 282 F. Supp. 507 (D. Conn. 1968); Bourland v. City of San Antonio, 347 S.W.2d 660 (Tex. Civ. App. 1961). See Tondel, Noise Litigation at Public Airports, in Noise Panel Report 117, 122-23.

129. American Airlines Inc. v. Town of Hempstead, 398 F.2d 369 (2d Cir. 1968), cert. denied, 89 S. Ct. 620 (1969); Allegheny Airlines v. Village of Cedarhurst, 238 F. 2d 812 (2d Cir. 1956).

130. Restatement (Second) Torts § 159 (1964) (trespass). See, e.g., Weisberg v. United States, 193 F. Supp. 815 (D. Md. 1961) (liability for low helicopter flights under Federal Tort Claims Act); City of Newark v. Eastern Airlines, 159 F. Supp. 750 (D. N.J. 1958) (trespass liability recognized) (dictum).

131. See, e.g., Chronister v. City of Atlanta, 99 Ga. App. 447, 108

S.E.2d 731 (1964); Tondel, supra note 128, at 125; Annot., 90 L. Ed. 1222-28 (1946).

132. See Louisville & Jefferson County Air Bd. v. Porter, 397 S.W.2d 146 (Ky. 1965). Cf. Thornburg v. Port of Portland, 244 Or. 69, 415 P.2d 750 (1966) (instructions to jury, framed on nuisance theory, in inverse condemnation suit, held erroneous); Dyer v. City of Atlanta, 219 Ga. 538, 134 S.E.2d 585 (1964) (nuisance actions dismissed on pleadings); Thompson v. City of Atlanta, 219 Ga. 190, 132 S.E.2d 188 (1963) (similar result). See comment, 39 Wash. L. Rev. 920, 934 (1965). It is settled that airport operations are not, per se, a nuisance. Yorkavitz v. Board of Township Trustees of Columbia Twp., 166 Ohio St. 349, 142 N.E.2d 655 (1957). See also, Loma Portal Civic Club v. American Airlines, Inc., supra note 128.

133. See note 104, supra, and A. Van Alstyne, California Government Tort Liability, § 5.10, p. 126 (1964).

134. Cal. Pub. Util. C. §§ 21401-03. In California, the rule is codified that nothing "done or maintained under the express authority of a statute" can be deemed a nuisance. Cal. Civ. C. § 3482. Mere general authority conferred by legislation to engage in a particular activity has usually been regarded as insufficient to "legalize" what would otherwise be an actionable nuisance. Hassell v. City & County of San Francisco, 11 Cal. 2d 168, 79 P.2d 1021 (1938); Bright v. East Side Mosquito Abatement Dist., 168 Cal. App. 2d 7, 335 P.2d 527 (1959). But see Nestle v. City of Santa Monica, 3 Av. L. Rep. (10 Av. Cas.) Paragraph 18,238 (L.A. Super. 1969) (theory of "legalized nuisance" applied to deny liability for aircraft noise) (alternative ground). Inverse condemnation has long been recognized in California as the theoretical basis for nuisance liability of public entities, notwithstanding the prevailing doctrine (prior to 1961) of sovereign immunity. See Van Alstyne, A Study Relating to Sovereign Immunity, 5 Cal. Law Revision Comm'n, Reports, Recommendations & Studies 1, 225-30 (1963). A similar

relationship has been observed in other jurisdictions. Stoebuck, supra note 124. Accordingly, for present purposes, distinctions between nuisance and inverse theories appear to be negligible so far as the scope of liability under the latter approach is concerned. Since inverse liability has a constitutional origin, statutory limitations upon nuisance liability cannot serve to mitigate the duty of a public entity to pay just compensation for a taking or damaging of private property. Richards v. Washington Terminal Co., 233 U.S. 546 (1914); Delta Air Corp. v. Kersey, 193 Ga. 862, 20 S.E.2d 245 (1942).

135. See Tondel, Noise Litigation at Public Airports, in Noise Panel Report 117, 125: " . . . 25 of the 27 cases in the last decade in which damages have been recovered were decided on the theory of constitutional taking--5 involving civil airports, and 20 military airports."

136. 328 U.S. 256 (1946).

137. The "taking" aspect of the decision is underscored by the disposition remanding Causby to the Court of Claims for the making of a finding containing "an accurate description of the property taken", which was deemed essential "since that interest vests in the United States". Id. at 267.

138. Id. at 264. The trespass analysis of Causby was incorporated into Restatement (Second), Torts § 159 (1965).

139. Id. at 266. The majority opinion further expresses agreement with the findings of the Court of Claims that "the frequent, low-level flights were the direct and immediate cause" of the plaintiff's damage, as indicated by "a diminution in value of the property." Id. at 267.

140. See, e.g., Martin v. Port of Seattle, 64 Wash. 2d 309, 391 P.2d 540 (1964), cert. denied, 379 U.S. 989 (1965); Note, Wrongs and Rights in Superterraneous Airspace: Causby and the Courts,

9 Wm. & Mary L. Rev. 460, 462-67 (1967); Note, Airplane Noise: Problem in Tort Law and Federalism, 74 Harv. L. Rev. 1581 (1961).

141. 369 U.S. 84 (1962).

142. Id. at 90. To the same effect, see Ackerman v. Port of Seattle, 55 Wash. 2d 400, 329 P.2d 210 (1958). Striking verification of the principle underlying the concept that insufficient land had been taken is supplied by the recent decision in Johnson v. City of Greenville, ____ Tenn. ____, 435 S.W.2d 476 (1968), where it appeared that the public airport authorities had acquired one-half mile long flight easements beyond the north end of the runway, but none off the south end of the same runway, where plaintiffs resided. Plaintiffs' complaint for noise damage was held to state a cause of action.

Griggs, it should be noted, also held that compensability of damage caused by aircraft noise was not affected by the fact that the flights in question took place within approach glide

paths and takeoff gradients prescribed by the appropriate federal regulatory authorities and defined by statute (enacted subsequent to Causby) as embraced within the "navigable airspace" comprising the public domain. See 72 Stat. 739 (1958), 49 U.S.C. § 1301(24) (1963).

143. 306 F.2d 580 (10th Cir. 1962), cert. denied, 371 U.S. 955 (1963).

144. Plaintiffs' homes had diminished in value, according to the evidence, in amounts ranging from $4700 to $8800, or, expressed in percentages of their value before the alleged damaging, from 40.8% to 55.3%. Id. at 583, n. 3.

145. Id. at 585.

146. Id. at 584-85, distinguishing United States v. General Motors Corp., 323 U.S. 373 (1945).

147. Id. at 585.

148. See, e.g., Avery v. United States, 330 F.2d 640 (Ct. Cl. 1964); Aaron v. United States, 311 F.2d 798 (Ct. Cl. 1963). The cases are collected in a Note, 18 So. Car. L. Rev. 320 (1966).

149. Ferguson v. City of Keene, ___ N.H. ___, 238 A.2d 1 (1968). See also, Bowling Green-Warren County Airport Bd. v. Long, 364 S.W.2d 167 (Ky. 1962) (by implication).

150. City of Jacksonville v. Schumann, 199 So. 2d 727 (Fla. App. 1967), cert. denied, 390 U.S. 981 (1968); Thornburg v. Port of Portland, 233 Or. 178, 376 P.2d 100 (1962); Martin v. Port of Seattle, 64 Wash. 2d 309, 391 P.2d 540 (1964), cert. denied, 379 U.S. 989 (1965). See also, City of Atlanta v. Donald, 111 Ga. App. 339, 141 S.E.2d 560 (1965), reversed for insufficiency of pleadings, 221 Ga. 135, 143 S.E.2d 737 (1965); Board of Education of Morristown v. Palmer, 88 N.J. Super. 378, 212 A.2d 564 (1965) (dictum), rev'd on other grounds, 46 N.J. 522, 218 A.2d 153 (1966). Cf. Town of East Haven v. Eastern Airlines, Inc., 282 F. Supp. 507 (D. Conn. 1968) (by implication).

151. Batten v. United States, supra note 143, at 586, citing, inter alia, Richards v. Washington Terminal Co., 233 U.S. 546 (1914) (smoke and fumes exhausted from tunnel by fans and directed upon plaintiff's property held a compensable taking).

152. Id. at 587: " . . . the constitutional test in each case is first, whether the asserted interest is one which the law will 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 imposed to be borne by the public and not by the individual alone."

153. Ibid.

154. See the analysis in Martin v. Port of Seattle, supra note 150, 64 Wash. 2d at , 391 P.2d at 545-56.

155. Approximately half the states have a state constitutional

requirement, like that of California, see Calif. Const. art. I, § 14, requiring payment of just compensation for property which is either "taken or damaged" for public use. 2 P. Nichols, Eminent Domain § 6.1[3], pp. 376-77 (rev. 3d ed. 1963).

156. Batten v. United States, supra note 143, at 583-84.

157. Martin v. Port of Seattle, supra note 150, 64 Wash. 2d at , 391 P.2d at 546.

158. 61 Cal. 2d 582, 39 Cal. Rptr. 708, 394 P.2d 548 (1964).

159. The question whether overflights are essential to inverse recovery for aircraft damage was raised in two recent actions in the Los Angeles Superior Court, but not decided since judgments for the defendants were entered on other grounds. Nestle v. City of Santa Monica, 3 Av. L. Rep. (10 Av. Cas.) Paragraph 18,238 (L. A. Super. Ct. 1969) (no evidence showing unreasonable

interference with plaintiffs' enjoyment of land, or substantial damage thereto); City of Los Angeles v. Mattson, 3 Av. L. Rep. (10 Av. Cas.) Paragraph 17,632 (L.A. Super. Ct. 1967) (no damage proved).

160. See cases collected in Van Alstyne, Inverse Condemnation: Unintended Physical Damage, 20 Hastings L. J. 431, 478-80 (1969).

161. See text accompanying, and cases cited in, notes 47-48, supra.

162. Morse v. County of San Luis Obispo, 247 Cal. App. 2d 600, 55 Cal. Rptr. 710 (1967); Smith v. County of Santa Barbara, 243 Cal. App. 2d 126, 52 Cal. Rptr. 292 (1966).

163. Cal. Const. art. I, § 14. For the historical background of this provision, indicating that it was designed to broaden the scope of compensable interferences with private property beyond the limited areas traditionally deemed within bare "taking" language,

see Van Alstyne, Statutory Modification of Inverse Condemnation: The Scope of Legislative Power, 19 Stan. L. Rev. 727, 771-76 (1967).

164. See, generally, Spater, Noise and the Law, 63 Mich. L. Rev. 1373 (1965); Harvey, Landowners' Rights in the Air Age: The Airport Dilemma, 56 Mich. L. Rev. 1313 (1958). For the view that this ground is unpersuasive on its merits, see Stoebuck, Condemnation By Nuisance: The Airport Cases in Retrospect and Prospect, 71 Dick. L. Rev. 207, 233-36 (1967). Cf. Tondel, Noise Litigation at Public Airports, in Noise Panel Report 117, 124 (actual experience indicates that aircraft damage "exposure appears far less than frequently thought.")

165. See Dygert, An Economic Approach to Airport Noise, 30 J. Air Law & Com. 207, 208-13 (1964), reviewing the history of federal airport development programs and concluding that Congressional interest has been primarily centered about safety and adequacy for transportation needs, leaving other aspects of airport

development (including noise considerations) to the local sponsor. Recently there have been signs of increased federal interest in noise abatement. See note 125, supra.

166. Griggs v. Allegheny County, 369 U.S. 84 (1962).

167. See Dygert, supra note 165, at 208; Galloway, Measurement and Description of Aircraft Noise Exposure Around an Airport, in Noise Panel Report 28, 34. Cf. Baxter, supra note 127, at 37-38.

168. Hearings Before Subcommittees of the House Committee on Interstate and Foreign Commerce, Aircraft Noise Problems, 86th and 87th Cong., 297 (1963). The attentuation of sound by intervening objects makes possible the use of sound barriers, deflectors, and suppressors for ground engine testing, id. at 528, while weather conditions tend to influence the development of preferential runway usage and special operational proeedures designed to reduce noise problems. See id., at 62-64, 387-92, 408-09.

169. Technical studies indicate that unacceptable noise levels (over 100 PNdb), from the operation of large commercial jet aircraft (e.g., a Boeing 707) on takeoff, extend over an area approximately one-half mile laterally from the runway centerline and about three miles in length beyond the end of the runway in the direction of travel. See Hearings, supra note 168, at 302-303. Actual overflights ordinarily will cover only a small proportion of the affected area. Cf. Batten v. United States, 306 F.2d 580 (10th Cir. 1962), cert. denied, 371 U.S. 955 (1963) (occasional overflights, but damage principally attributed to lateral impact of noise); Martin v. Port of Seattle, 64 Wash. 2d 309, 391 P.2d 540 (1964), cert. denied, 379 U.S. 989 (1965) (plaintiffs classified in three groups identified by subjection to persistent overflights, occasional overflights, and no overflights).

170. See, generally, Stoebuck, supra note 164.

171. Compare Colberg, Inc. v. State ex rel. State Dept. of Pub. Wks., 67 Cal. 2d ___, 62 Cal. Rptr. 401, 432 P.2d 3 (1967) with

Breidert v. Southern Pacific Co., 61 Cal. 2d 659, 39 Cal. Rptr. 903, 394 P.2d 719 (1964) and Albers v. County of Los Angeles, 62 Cal. 2d 250, 42 Cal. Rptr. 89, 398 P.2d 129 (1965).

172. See Albers v. County of Los Angeles, supra note 171, at 263-64, 398 P.2d at 137, 42 Cal. Rptr. at 97; Clement v. Reclamation Bd., 35 Cal. 2d 628, 642, 220 P.2d 897, 905 (1950) (public policy said to favor compensation if "the owner of the damaged property if uncompensated would contribute more than his proper share to the public undertaking.")

173. See Nestle v. City of Santa Monica and City of Los Angeles v. Mattson, both supra note 159; Tondel, loc. cit. supra note 164. On retrial of Thornburg v. Port of Portland, 233 Or. 178, 376 P.2d 100 (1962) (complaint held sufficient), the jury awarded judgment to defendant. See Thornburg v. Port of Portland, 244 Or. 69, 415 P.2d 750 (1966) (judgment reversed for error in instructions).

174. See Hearings, supra note 168, at 178-79, 683; Walther, Effect of Jet Airports on the Value of Vicinal Real Estate, Proceedings of the Fourth Annual Institute on Eminent Domain 149 (Southwestern Leg. Found. ed. 1962).

175. See, e.g., Seago, The Airport Noise Problem and Airport Zoning, 28 Md. L. Rev. 120 (1968); Strunck, An Analysis of the Advantages and Difficulties of Zoning Regulations, in Noise Panel Report 151; Comment, Airport Approach Zoning: Ad Coelum Rejuvenated, 12 U.C.L.A. L. Rev. 1451 (1965). Zoning of nearby land for low-density uses compatible with airport operations has been employed, with judicial approval, in California. Morse v. County of San Luis Obispo, 247 Cal. App. 2d 600, 55 Cal. Rptr. 710 (1967); Smith v. County of Santa Barbara, 243 Cal. App. 2d 126, 52 Cal. Rptr. 292 (1966).

176. The "substantial" deprivation of access test, judicially invoked in cul-de-sac cases arising from highway construction, provides

a useful analogy. See Valenta v. County of Los Angeles, 61 Cal. 2d 669, 39 Cal. Rptr. 909, 394 P.2d 725 (1964); Breidert v. Southern Pacific Co., 61 Cal. 2d 659, 39 Cal. Rptr. 903, 394 P.2d 719 (1964). See the suggested statutory measures, applicable to this problem, discussed in the text supra, accompaying notes 83-98.

177. California law presently requires the presentation of a claim, within one year after a real property injury claim has accrued, as a condition precedent to the maintenance of an inverse condemnation action. Cal. Govt. C. §§ 911.2, 945.4. The action must be filed within six months after the claim is rejected by the public entity, or within one year after the claim accrued, whichever date is the later. Cal. Govt. C. § 945.6. The public entity also may demand the posting of an undertaking for costs by the plaintiff. Cal. Govt. C. § 947. For suggested legislative improvements in connection with the claims procedure and computation of time limits, see the text, infra, accompanying notes 207-15.

178. See text, infra, accompanying notes 216-21.

179. See, generally, Dygert, An Economic Approach to Airport Noise, 30 J. Air.L. & Com. 207 (1964). See also, Dygert, A Public Enterprise Approach to Jet Aircraft Noise Around Airports, in Noise Panel Report 107; Haar, Airport Noise and the Urban Dweller: A Proposed Solution, 1968 Appraisal J. 551; (Baxter, The SST: From Watts to Harlem in Two Hours, 21 Stan. L. Rev. 1 (1968).

180. See Dygert, supra note 179, 30 J. Air L. & Comm. at 216-17. The extent to which noise abatement can be achieved by operational procedures, including use of preferential runways, installation of special landing aids, encouragement of use of special flight procedures, and development of flight patterns designed with noise abatement objectives in mind, are reviewed in Noise Panel Report 79-106. To a substantial degree, noise abatement practices of this kind can be implemented effectively only by joint and cooperative efforts between the public entity airport operator,

the Federal Aviation Administration, and the aircraft operators, working within the limitations of applicable federal flight regulations. See Cal. Pub. Util. C. §§ 21240, 21243, 21403 (state power to regulate aircraft operations recognized as subject to federal authority). Cf. Loma Portal Civic Club v. American Airlines, Inc., 61 Cal. 2d 582, 39 Cal. Rptr. 708, 394 P.2d 548 (1964) (dictum suggesting state regulatory power not completely preempted by federal government). Experience at major airports, however, has indicated that local governmental initiatives may produce significant results in airport noise abatement. See Hearings, supra note 168, at 50-67, 525-28 (Kennedy International Airport, New York City); Odell, Jet Noise at John F. Kennedy International Airport, in Noise Panel Report 162; Goldstein, A Problem in Federalism, Property Rights in Air Space and Technology, in Noise Panel Report 132, 135-37.

181. Cf. von Gierke, The Air Force Program on Aircraft Noise Control, in Noise Panel Report 48 (describes broadly conceived program for

community noise abatement at military airports, employing a variety of technical, land use planning, aircraft operational, and regulatory techniques). One way to reduce noise perception, of ourse, is for the governmental airport operator to acquire the necessary avigational easements for this purpose. See Griggs v. Allegheny County, 369 U.S. 84 (1962). Local public entities in California have express statutory authority to acquire airspace or air easements, by condemnation, for noise abatement purposes. Cal. Code Civ. Proc. § 1239.3. This use of eminent domain powers is for a constitutionally appropriate public purpose. Oklahoma City v. Shadid, 439 P.2d 190 (Okla. 1966), cert. denied, 386 U.S. 1034 (1967). The employment of zoning powers to ensure low-density land use in the vicinity of airports has received judicial approval in California. Morse v. County of San Luis Obispo, 247 Cal. App. 2d 600, 55 Cal. Rptr. 710 (1967); Smith v. County of Santa Barbara, 243 Cal. App. 2d 126, 52 Cal. Rptr. 292 (1966).

182. See Dygert, supra note 179, 30 J. Air L. & Com. at 216-19.

183. Ibid.

184. Noise Panel Report 5-6.

185. See note 125, supra.

186. See Baxter, supra note 179.

187. Cf. American Airlines Inc. v. Town of Hempstead, 398 F.2d 369 (2d Cir. 1968), cert. denied, 89 S. Ct. 620 (1969).

188. Compare Loma Portal Civic Club v. American Airlines, Inc., supra note 180, at , 39 Cal. Rptr. at 715-16, 394 P.2d at 555-56, with Jankovich v. Indiana Toll Road Commission, 379 U.S. 487 (1965). See also, Hughes v. State of Washington, 389 U.S. 290, 295 (1967) (state said to be "free to make changes, either legislative or judicial, in its general rules of real property law, including the rules governing the property rights of riparian owners.") (Stewart, J., concurring opinion).

189. See text accompanying notes 100-104, supra.

190. Cf. City of Los Angeles v. Mattson, 3 Av. L. Rep. (10 Av. Cas.) Paragraph 17,632 (L.A. Super. 1967). See, generally, Walther, Effect of Jet Airports on the Value of Vicinal Real Estate, in Proceedings of the Fourth Annual Institute on Eminent Domain 149 (Southwestern Leg. Found. ed. 1962), pointing out that the economic advantages of business and residential location near airports, especially for aviation-related occupations, often offsets any value diminution attributable to annoyance considerations based on noise or vibration. Variations in human response to noise are also a complicating factor. See Kryter, Evaluation of Psychological Reactions of People to Aircraft Noise, in Noise Panel Report 13.

191. This position is believed to be consistent with California law. See text accompanying notes 158-72, supra. Moreover, the legislature, by authorizing condemnation of noise easements designed to reduce interference with enjoyment of "property located adjacent

to or in the vicinity of an airport", Cal. Code Civ. Proc. § 1239.3, has seemingly rejected the overflight approach. In any event, so far as the overflight doctrine subsumes the need for a physical invasion or trespass, it fails to take into account the scientific reality that sound waves, as the physical manifestation of propogation of accoustical energy, do accomplish a physical invasion of the property exposed to them, whether located vertically beneath or laterally near the source. See House Committee on Interstate & Foreign Commerce, Special Subcommittee on Regulatory Agencies, Investigation and Study of Aircraft Noise Problems, H. R. Rep. No. 36, 88th Cong., 1st Sess. 6-7 (1963).

192. The view, which seems to have been advanced uniquely by the Washington Supreme Court in Martin v. Port of Seattle, 64 Wash. 2d 324, 391 P.2d 540 (1964), has been cogently criticized in Note, 39 Wash. L. Rev. 920, 933-39 (1965). For a more fundamental attack upon the "diminution of value" rationale for inverse compensability, in general, see Sax, Takings and the Police Power, 74 Yale L. J. 36, 50-60 (1964).

193. See, e.g., Johnson v. City of Greenville, 435 S.W.2d 476 (Tenn. 1968) (aircraft noise held compensable if shown to interfere unreasonably with property use, in sufficiently substantial degree to deprive owner of practical enjoyment of land, with resulting substantial loss of market value). Compare Thornburg v. Port of Portland, 233 Or. 178, , 376 P.2d 100, 103 (1962): "It is equally clear that a reasonable volume of noise . . . must be endured as the price of living in a modern industrial society." Cf. Breidert v. Southern Pacific Co., 61 Cal. 2d 659, 39 Cal. Rptr. 903, 394 P.2d 719 (1964) (creation of cul-de-sac held compensable only if "substantial" interference with access results).

194. See Cal. Evid. C. §§ 601(b), 605; note 100, supra. State ex rel. Royal v. City of Columbus, 3 Ohio St. 2d 154, 209 N.E.2d 405 (1965), cert. denied, 383 U.S. 925 (1966) (accord).

195. Frequency of disturbance from flights is a recognized element in identification of a constitutional taking or damaging. See Griggs

v. Allegheny County, 369 U.S. 84, 87 (1962) (regular and almost continuous daily flights). Compare City of Los Angeles v. Matteson, 3 Av. L. Rep. (10 Av. Cas.) Paragraph 17,632 (L.A. Super. 1967) (inverse compensation denied, in part on ground that "flights over the subject properties, or in close proximity thereto, did not occur frequently or regularly." The suggested figure of 20 incidents per day is arbitrarily selected as illustrative only. In Nestle v. City of Santa Monica, 3 Av. L. Rep. (10 Av. Cas.) Paragraph 18,238 (L.A. Super. 1969), jet takeoffs and landings at Santa Monica Municipal Airport, averaging from none to five per day, were held not sufficiently regular or frequent to meet the constitutional test for compensability.

196. The Jet Aircraft Noise Panel concluded, on the basis of evidence studied by it, that in areas peripheral to airports "with perceived noise levels below 90 PNdB [a widely accepted unit for measuring noise quantitatively, but weighted to reflect subjective reactions of listeners] there are almost no complaints; in those

with values between 90 and 105 PNdB, there are some but not many complaints; and in those above 105 PNdB the volume of complaints increases rapidly with increasing PNdB level." Noise Panel Report at 5. See also, Kryter, Evaluation of Psychological Reactions of People to Aircraft Noise, in Noise Panel Report 13, 22: "a noise fairly often repeated during each day having a peak level of 100 PNdB . . . would probably be an unacceptable noise environment for a residential community." The duration of the sound is also a relevant factor in measurement of unacceptable noise. See id. at 18 (indicating that over the range from 2 to 12 seconds, increasing the duration of a constant sound will increase its perceived noise level at a rate such that doubling the duration raises the noise level by about 4.5 PNdB). The figures used in the text are merely illustrative of the way in which PNdB and duration factors could be interrelated in a statutory standard.

197. A recent survey of aircraft noise litigation disclosed that in almost every case in which compensation has been awarded, the

flight pattern in question carried the aircraft within about 200 feet of the claimant's land. Tondel, Noise Litigation at Public Airports, in Noise Panel Report 117, 127. On the other hand, the normal contours of the 100 PNdB noise level belt surrounding an airport during the takeoff of a large commercial jet plane usually extend outwards as much as 4000 feet laterally from the runway. See Noise Panel Report at 34. Again the figure used in the text is merely suggestive and not intended to represent a firm recommendation.

198. The 500 foot radius figure is admittedly arbitrary, and has little or no empirical support. Its function, as explained in the text, infra, is to provide a basis of comparison between apparently like properties by which the uniqueness of a particular claimant's damage may be assessed. Cf. City of Los Angeles v. Mattson, supra note 195 (evidence that certain properties depreciated in value as a result of aircraft noise held unpersuasive when same witness testified that other properties, not involved in suit and located

"just a few feet away" from subject properties, had not diminished in value although noise exposure was substantially identical).

199. Federally prescribed rules for noise abatement purposes are authorized by the Aircraft Noise Abatement Act, 82 Stat. 395 (1968), 49 U.S.C. § 611 (Supp. 1968). The possible range of content for such rules is suggested by Bakke, Air Traffic Control Flight Procedures, Noise Panel Report at 86; Frankum, Jet Aircraft Noise Abatement Flight Procedures, id. at 99; and Ruby, Operational Procedures, id. at 102.

200. See, e.g., Batten v. United States, 306 F.2d 580 (10th Cir. 1962), cert. denied, 371 U.S. 955 (1963); Moore v. United States, 185 F. Supp. 399 (N.D. Tex. 1960); Freeman v. United States, 167 F. Supp. 541 (W.D. Okla. 1958). It has been held, however, that fear is an admissible element bearing on damages if (a) grounded in danger supported by authentic observation, experience, or scientific investigation, (b) which circumscribes activity or limits freedom of use of the property exposed to that danger, and (c) results in reduction of market value of the land. Johnson

v. Airport Authority of Omaha, 173 Neb. 801, 115 N.W.2d 426 (1962). Under this test, jet aircraft noise would ordinarily not qualify as a source of fear, for experience indicates that such fears are not well grounded in fact. See Tondel, supra note 197, at 117 n. 3.

201. See, e.g., Eachus v. Los Angeles Consol. Elec. Ry. Co., 103 Cal. 614, 37 Pac. 750 (1894); 4 P. Nichols, Eminent Domain, § 14.24, pp. 560-62, § 14.241, pp. 569-73 (rev. 3d ed. 1962).

202. See, e.g., United States v. Buhler, 305 F.2d 319, 329-31 (5th Cir. 1962) (speculative value for residential subdivision purposes, absent showing of present adaptability or need, held not a compensable element in suit to condemn avigational easement). See also, Jensen v. United States, 305 F.2d 444 (Ct. Cl. 1962).

203. Albers v. County of Los Angeles, 62 Cal. 2d 250, 42 Cal. Rptr. 89, 398 P.2d 129 (1965).

204. Compare the Federal Assignment of Claims Act, 31 U.S.C. § 203 (1964), which has been construed to forbid assignment of just compensation and tort claims against the Government. United States v. Dow, 357 U.S. 17 (1958); United States v. Shannon, 342 U.S. 288 (1952); Potts v. United States, 126 F. Supp. 170 (Ct. Cl. 1954). See also, Herring v. United States, 162 F. Supp. 769 (Ct. Cl. 1958) (aircraft noise claims) (by implication).

205. A. J. Hodges Industries, Inc. v. United States, 355 F.2d 592 (Ct. Cl. 1966); Avery v. United States, 330 F.2d 640 (Ct. Cl. 1964); Bacon v. United States, 295 F.2d 936 (Ct. Cl. 1961). See also, City of Houston v. McFadden, 420 S.W.2d 811 (Tex. Civ. App. 1967). One who buys property already subject to a servitude for aircraft noise would, under this view, have no right of recovery since any diminution in value of the property would have been reflected in the purchase price. See Highland Park v. United States, 161 F. Supp. 597 (Ct. Cl. 1958) (dictum); Louisville & Jefferson County Air Board v. Porter, 397 S.W.2d 146 (Ky. 1965) (by implication).

206. But cf. Griggs v. Allegheny County, 369 U.S. 84 (1962) (former owner continued to litigate claim after sale of property).

207. Calif. Govt. C. §§ 911.2, 945.4. The claims procedures are applicable in inverse condemnation litigation. Cramer v. County of Los Angeles, 96 Cal. App. 2d 255, 215 P.2d 497 (1950).

208. Calif. Govt. C. § 945.6 provides that the action must be commenced within six months after the claim is rejected, or within one year after the cause of action accrued, whichever date is the later. The time for suit, however, may in certain cases be tolled by the plaintiff's disability. See Williams v. Los Angeles Metropolitan Transit Authority, 68 Cal. 2d ___, 68 Cal. Rptr. 297, 440 P.2d 497 (1968). The California Law Revision Commission, however, has proposed enactment of legislation to modify the tolling rule as applied in Williams. See 9 Cal. Law Rev. Comm'n, Reports, Recommendations & Studies 49-61 (1968).

209. See A. Van Alstyne, California Government Tort Liability §§ 8.9, 8.25, 9.5 (1964). Cf. Pierpont Inn, Inc. v. State of California, 70 Cal. 2d ___, 74 Cal. Rptr. 521, 449 P.2d 737 (1969) (by implication).

210. See Pierpont Inn, Inc. v. State of California, supra note 209 (claim for inverse damages based on freeway project held timely when presented before final completion of project, although after end of statutory period measured from time project was commenced).

211. Compare Bellman v. County of Contra Costa, 54 Cal. 2d 363, 5 Cal. Rptr. 692, 353 P.2d 300 (1960) (repeated earth subsidences resulting from removal of lateral support) with Natural Soda Products Co. v. City of Los Angeles, 23 Cal. 2d 193, 143 P.2d 12 (1943) (flooding of land over period of seven months). Cf. United States v. Dickinson, 331 U.S. 745, 747-49 (1947).

212. Bellman v. County of Contra Costa, supra note 211, discussed with seeming approval in Pierpont Inn Inc. v. State of California, 70 Cal. 2d ___, ___, 74 Cal. Rptr. 521, 527, 449 P.2d 737, 743 (1969). See, to the same effect, Trippe v. Port of New York Authority, 14 N.Y. 2d 119, 249 N.Y.S. 2d 409, 198 N.E. 2d 585 (1964) (recovery, in aircraft noise case, limited to damages incurred during one year limitation period prior to suit).

213. Cf. Hillsborough County Aviation Authority v. Benitez, 200 So. 2d 194, 199 (Fla. App. 1967): " . . . there is no single test for discovering in all cases when an avigational easement is first taken by overflights. Some annoyance must be borne without compensation. The point when that stage is passed depends on a particularized judgment evaluating such factors as the frequency and level of the flights, the type of planes, the accompanying effects such as noise or falling objects, the uses of the property, the effect on values, the reasonable reactions of the humans below, and the impact upon animals and vegetable life."

To the same effect: Aaron v. United States, 311 F.2d 798 (Ct. Cl. 1963); Jensen v. United States, 305 F.2d 444 (Ct. Cl. 1962).

214. The proposal here made contemplates notice by registered or certified mail to ensure full conformity with constitutional due process requirements. See Walker v. City of Hutchinson, 352 U.S. 112 (1956). Cf. Schroeder v. City of New York, 371 U.S. 208 (1962).

215. See, generally, Rummel, Aircraft Noise Operational and Economic Considerations, in Noise Panel Report 82. Compare Baxter, The SST: From Watts to Harlem in Two Hours, 21 Stan. L. Rev. 1 (1968).

216. The City of Los Angeles Department of Airports have reportedly experimented with home soundproofing, at city expense, as part of a noise abatement program at Los Angeles International Airport. A similar British experiment contemplates payment, by the

government, of one-half the cost of soundproofing of three rooms in residential housing near a London airport. See Fleming, Aircraft Noise: A Taking of Private Property Without Just Compensation, 18 So. Cal. L. Rev. 593, 594 (1966).

217. "Costs", as here employed, would include both actual outlays for compensation and administration of compensation claims, but also losses of community satisfaction and good will. Cf. Michelman, Property, Utility, and Fairness: Comments on the Ethical Foundations of "Just Compensation" Law, 80 Harv. L. Rev. 1165 (1967).

218. See Harr, Airport Noise and the Urban Dweller, 1968 Appraisal J. 551.

219. See, e.g., Bauman v. Ross, 167 U.S. 548 (1897), holding benefits from improvement project to be a form of compensation, hence a valid offset against the owner's loss. The concept of "reciprocity

of advantage" has long been relied on to support the noncompensability of police regulations which might otherwise be deemed a taking or damaging of private property. See, e.g., Pennsylvania Coal Co. v. Mahon, 260 U.S. 393 (1922). Compare text accompanying notes 117-122, supra.

220. Although zoning for more restrictive use, when motivated by a desire to minimize the cost of acquisition of particular property the taking of which is contemplated, is constitutionally vulnerable (see Kissinger v. City of Los Angeles, 161 Cal. App. 2d 454, 327 P.2d 10 (1958)), a liberalization of zoning restrictions with attendent increase in property value appears to pose no insurmountable problems, provided adequate statutory authority exists and is complied with. The probability of rezoning for less restricted uses has long been regarded as an appropriate basis for assigning value to land in eminent domain proceedings, where the probability is sufficiently likely to affect present market value. See, e.g., People v. Donovan, 57 Cal. 2d 374, 19 Cal. Rptr. 473

369 P.2d 1 (1962); 4 P. Nichols, Eminent Domain, § 12.322 [1], pp. 238-50 (3d rev. ed. 1962). The most valuable uses of land near airports frequently are non-residential, and more compatible with jet aircraft operations. See Randall, Possibilities of Achieving A Quiet Society, in Noise Panel Report 143, 147; Walther, Effect of Jet Airports on the Value of Vicinal Real Estate, in Proceedings of the Fourth Annual Institute on Eminent Domain 149 (Southwestern Legal Found. ed. 1962). Moreover, non-cumulative (sometimes called "exclusive") zoning, which would exclude uses incompatible with airport operations, such as residential uses, while authorizing less restrictive activities, appears to create no substantial constitutional difficulties. See Plum v. City of Healdsburg, 237 Cal. App. 2d 308, 46 Cal. Rptr. 827 (1965); 4 R. Anderson, American Law of Zoning, § 8.15, pp. 595-600 (1968).

221. Consideration should be given, also, to enactment of statutory authority for public entities engaged in airport operation to

acquire nearby real property, either by condemnation or negotiated purchase, at current market value, for the purpose of subsequent resale or long-term lease for private development or use on terms and conditions prescribed by the public entity as compatible with airport use. Compare the text accompanying notes 114-16, supra, suggesting a similar approach in connection with highway development. Authority to acquire land for resale or lease purposes, analogous to techniques employed in urban renewal and community redevelopment programs, would be a helpful alternative in the event that zoning for more compatible land use proves to be politically impracticable. Cf. Strunck, An Analysis of the Advantages and Difficulties of Zoning Regulations for Chicago O'Hare International Airport, in Noise Panel Report 151. It would also be consistent with the views of experienced airport managers that, in the longer view, the aircraft noise problem will be solved only by changes in vicinal land use patterns toward greater compatibility. See, e.g., Fox, Consideration of the Problems Arising from the Effects of Jet Engine Sounds and Recommended Solutions,

in Noise Panel Report '57, 159 (view of general manager, Los Angeles Department of Airports, that "Every means of economically converting land [exposed to frequent jet aircraft noise] to 'compatible' uses should be adopted.")