The Role of Land-Use Controls in Combating Air Pollution Under the Clean Air Act of 1970†

Daniel R. Mandelker* and Susan B. Rothschild**

Growing public concern and awareness of air pollution dangers has led to increasingly comprehensive state and federal legislation directed at the air quality problem. While legislative attention to air pollution has largely been confined to the direct regulation of pollution sources, studies of air quality control long have recognized that land-use planning and control are necessary to achieve and maintain clean air. Since 1970 the federal Clean Air Act has authorized both

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* Professor of Law, Washington University (St. Louis). B.A. 1947, LL.B. 1949, University of Wisconsin; J.S.D. 1956, Yale University.
** J.D. 1973, Columbia University.
† This article was first prepared under Contract No. 68-02-0278 between the United States Environmental Protection Agency and Rutgers University, entitled Contribution of Urban Planning to Air Quality. However, the views expressed in this article are entirely those of the authors and do not in any way represent the policies and opinions of either Rutgers University or the Environmental Protection Agency.
2. See A. VOORHEES & ASSOCIATES, A GUIDE FOR REDUCING AIR POLLUTION THROUGH URBAN PLANNING (1971) (NTIS No. PB 207 510); Kurtzweg, Urban Planning and Air Pollution Control: A Review of Selected Recent Research, 39 J. Am. Inst. Planners 82 (1973) [hereinafter cited as Kurtzweg]. A recent study of land-use controls and the Clean Air Act by the Bay Area Pollution Control District stated: Historically, land use regulation as an air pollution control technique might be considered to be the logical culmination of pollution control effort. Technological source control as applied almost exclusively in the past has inherent limitations for reasons of economics and technological feasibility . . . . Clearly, the density and geographical distribution of courses, as well as the individual sources themselves, must be subject to control if the Federally mandated air quality standards are to be achieved, and once achieved, maintained.
land-use and transportation controls as part of the state plans for implementing federal air quality standards. 3

This article reviews the role that land-use controls can play in achieving the air quality levels mandated by the federal statute, and considers the extent to which land-use controls have been and are likely to be used for this purpose. It will first discuss the regulatory system introduced by the 1970 federal legislation, with special attention directed to the role of land-use controls prescribed in that act. The article then analyzes ways in which land-use controls at the state and local level might be used as an air pollution control strategy, discussing implementation of the federal land-use controls provision by the Environmental Protection Agency. The present role of land-use controls in a federal air pollution strategy is contrasted with other enacted and pending federal statutes which require national land-use policy implementation at state and local levels. Finally, the article suggests a role for land-use controls in regulating air pollution.

I

THE CLEAN AIR ACT OF 1970 AND THE LAND-USE CONTROLS PROVISION

The 1970 Clean Air Amendments 4 provide a combined federal-state attack on the problem of air pollution. Both authority to set pollution standards and enforcement responsibility had been delegated to the states under earlier federal legislation. 5 Difficulties of administration and enforcement under the prior statute led to extensive amendments in 1970 that broadened the scope of the law and the regulatory authority of the federal government. As a first step in the pollution abatement procedure contemplated by the 1970 amendments, the Environmental Protection Agency (EPA), the national agency presently administering the federal air pollution law, 6 established primary and secondary national ambient air quality standards for various air pol-


6. The Secretary of HEW was previously charged with the administration of federal air and water pollution control legislation. This responsibility was then shifted to the Secretary of the Interior, and finally to the Administrator of EPA. See Reorg. Plan No. 2 of 1966, 3 C.F.R., 1966-70 Comp., at 1021 (eff. May 10, 1966); Reorg. Plan No. 3 of 1970, § 2(a)(1), 3 C.F.R. 1966-70 Comp., at 1072.
These standards establish air pollutant levels which must not be exceeded for longer than a specified period of time. The statute authorizes two sets of complementary standards. Primary standards are to reflect "an adequate margin of safety... requisite to protect the public health." Secondary standards are less specific and are designed to "protect the public welfare from any known or anticipated adverse effects associated with the presence of such air pollutant in the ambient air." The states are required to prepare plans for the implementation of national primary and secondary air quality standards. These implementation plans must in turn be approved or disapproved and modified as required by EPA. The statute requires that air pollution be attacked within each state on a regional basis, so state plans must direct each local air quality region to implement and enforce national primary and secondary standards. State plans must provide for the achievement of national primary standards as soon as practicable, but in any event within three years after EPA approval of such plans, while national secondary standards must be achieved within a reasonable time.

In addition to national ambient air standards, the Act provides for emission standards for designated pollutants emitted by new sources. While national ambient air standards set limits on the allowable average pollutant concentration in the atmosphere, new source performance standards limit the amount of pollutant which any individual new source (such as a power plant or new factory) may emit. Ambient air quality is monitored by stations spaced throughout a


8. The standards are based on criteria developed by EPA for each pollutant which "reflect the latest scientific knowledge useful in indicating the kind and extent of all identifiable effects on public health or welfare which may be expected from the presence of such pollutant in the ambient air, in varying quantities." 42 U.S.C. § 1857c-3(a)(2) (1970).

9. Id. §§ 1857c-4(b)(1), (2).
10. Id. §§ 1857c-5(a)(2), (b), (c).
11. Id. § 1857c-5(a)(1). State plans also must provide for intergovernmental cooperation where required—as, for example, where an air quality control region is divided among two or more states. Id. § 1857c-5(a)(2)(E).
region, while new-source standards are monitored at the site of each
new source. Each national ambient air standard thus measures the cum-
ulative effect of all sources of a given pollutant. Pollutants emitted both
by stationary sources such as factories and by mobile sources such as
automobiles will contribute to a violation of ambient air standards.
New-source standards, on the other hand, apply only to new station-
ary sources.

This review of the standard-setting and implementation provisions
of the Clean Air Act of 1970 provides in outline form the statutory
context within which the land-use controls provisions of the statute
must be analyzed. The 1970 amendments authorize land-use con-
trols at several points. First, the statute contains an explicit reference
to land use. It requires state implementation plans to include:

emission limitations, schedules, and timetables for compliance with
such limitations, and such other measures as may be necessary to
insure attainment and maintenance of such primary or secondary
standard, including, but not limited to, land-use and transportation
controls.

This statutory provision contains a mandate to utilize, without further
specification, any form of land-use control which "may be necessary"
to achieve and maintain air quality standards.

The provision in the Clean Air Act for regulation of stationary
pollution sources can also be construed as a land-use control measure.
The Act calls for supervision of new stationary sources of pollution
as one of the techniques to assist in achieving ambient air quality
standards. State implementation plans must include a

procedure . . . for review, prior to construction or modification,
of the location of new sources . . . [of air pollution which] shall
provide for adequate authority to prevent the construction or modifi-
cation of any new source to which a [federal] standard of performance
[for pollutant emissions] will apply at any location which the state
determines will prevent the attainment or maintenance . . . of a
national ambient air quality primary or secondary standard . . . .

14. In addition, the statute requires EPA to establish national emission standards
for hazardous air pollutants, and for all nonstationary ("moving") sources, 42 U.S.C
changes see Note, Clean Air Act Amendments of 1970: A Congressional Cosmetic, 61

article, transportation controls authorized for inclusion in state implementation plans
also have a bearing on land-use and other related measures in the abatement of air
pollution. For example, EPA regulations list "Measures to reduce motor vehicle traffic"
and "Expansion or promotion of the use of mass transportation facilities" as transpor-


17. Id. § 1857c-5(a)(4).
To the extent that this provision authorizes state review of the location of stationary pollution sources, it sanctions land-use regulation.

Thus, the Clean Air Amendments include land-use control measures at several points. The statute contains a specific mandate to the states to use land-use control measures "where necessary" to achieve and maintain air quality standards, and also requires states to grant some state-wide, regional or local agency authority to prevent construction or modification of any new source which will interfere with attainment or maintenance of air quality standards.

The legislative history of the Act reveals that Congress approved land-use controls as a general method for achieving air quality standards. The scope of potential regulation grew as the bill developed in Congress. The House version made no provision for land-use controls. The Senate added a provision allowing control over the location of stationary pollution sources, but it was merely permissive and designed only to prevent interference with the attainment and maintenance of air quality standards. As discussed above, the final version of the Act directed states to review the location of new sources. In addition, the statute as enacted contained a specific provision which went beyond preventing interference and authorized land-use and control measures "where necessary" to implement and maintain national standards. This progression suggests a much wider application of land-use control provisions than was originally intended. Although this interpretation is not supported by any explicit legislative history, it has been adopted by congressional spokesmen who were close to the drafting of the Act, and by EPA itself in its administration of the statute.

18. It is not clear from the statute whether or not states may delegate authority to control stationary sources to local governments. But cf. 40 C.F.R. § 51.11(f), authorizing delegation to local governments of power to carry out state implementation plans. See note 48 infra.
20. The purpose of the original text authorizing land-use controls is echoed in the Senate committee report on the bill, which paraphrases the original statutory language:

In addition to direct emission controls, other potential parts of an implementation plan include land use and air and surface transportation controls. These should insure that any existing or future stationary source of air pollution will be located, designed, constructed, equipped and operated . . . so as not to interfere with the implementation, maintenance, and enforcement of any applicable air quality standard or goal.

S. REP. No. 91-1196, 91st Cong., 2d Sess. 12 (1970) [hereinafter cited as S. REP.] (emphasis supplied). The statutory language as it appeared in the Senate version of the bill is reprinted in id. at 87. For a similar statement of Senate intent see also id. at 2.
21. See text accompanying notes 17-18 supra.
22. Letter to the authors from Leon G. Billings, Senior Staff Member, Subcomm. on Air and Water Pollution of the Senate Comm. on Public Works, Jan. 5, 1973, on file with the authors.
23. See text accompanying notes 63-69 infra.
While Congress apparently has approved land-use controls, there is little in the hearings on the 1970 amendments to the Clean Air Act, in the debate reported in the Congressional Record, or in later congressional hearings on the implementation of the amendments to indicate how EPA and the states are to administer them. Additional language in the Senate Committee Report does disclose that "[l]and-use policies must be developed to prevent location of facilities which are not compatible with implementation of national standards." This language, however, appears to reflect the earlier and narrower "interference" version of the land-use controls provision.

Other statements in congressional debate were rhetorical or inconclusive. Senator Spong, a member of the conference committee which reported the final bill, stated that "implementation plans to meet the primary national air quality standards must include provision for land-use and transportation controls." Senator Muskie, Chairman of the Senate Subcommittee on Air and Water Pollution, which was responsible for the Senate version of the Clean Air Act, believed that "implicit in the concept of [state] implementation plans" is the requirement that "urban areas do something about . . . the modification and change of housing patterns, employment patterns and transportation patterns generally." The legislative history thus gives scant guidance to the states in selecting specific land-use control measures to implement their air quality programs.

II

THE ROLE OF LAND-USE CONTROLS IN STATE IMPLEMENTATION PLANS

The inconclusive legislative history coupled with the cursory treatment of land use in the language of the Act left to EPA the major task of interpreting the land-use control provisions. Since the statute places major emphasis on direct emission restrictions, we must determine whether land-use controls are intended only as a supplement to direct regulation when it is insufficient or as a major weapon which

29. Id. at 42387.
can and should be utilized in place of a more direct emission control strategy. Analysis of this question depends on further elaboration of congressional intention in adopting the land-use controls provision contained in section 110 of the Act. But, as discussed above, the legislative history reveals little more than a general endorsement of land-use measures, so on this point we are left to speculation. Given the types of land-use control powers presently exercised by state and local governments, it is possible to isolate three issues which must be resolved before we can define a possible land-use control strategy within the Clean Air Act.

A. Direct Versus Indirect Land-Use Controls

Does the federal statute limit land-use measures to direct controls, such as relocation or bans on construction of possible pollution sources, or may indirect controls, such as regulation of density, be included as well? Direct restrictions are clearly mandated by the Act at two points. First, the statute provides explicitly for regulating construction of stationary pollution sources as part of state air pollution abatement programs. Secondly, it could be argued that the land-use controls authorized for state implementation plans “as may be necessary” should likewise be applied only to new pollution sources.

There is little difference between the types of land-use controls authorized by these two sections. Controls over emissions from and location of new sources are limited to the individual polluter. Thus the San Francisco Bay Area Pollution Control District has experimented with a direct ban on the construction of new filling stations, a source of hydrocarbon pollution. Under the “as necessary” clause,

31. See text accompanying notes 19-28 supra.

32. 42 U.S.C. § 1857c-6(c)(1) (1970) directs the Administrator upon approving a state’s review procedure to delegate to the state his authority for “implementing and enforcing standards of performance for new sources located in such State.” 42 U.S.C. § 1857c-5(a)(4) (1970) provides for pre-construction review of all such new sources with the authority to prevent construction if any national air standard is threatened.

33. The Act provides that the Administrator of EPA must approve any state implementation plan which contains eight listed items, the second of which mandates that the implementation plan must include:

- emission limitations, schedules, and timetables for compliance with such limitations, and such other measures as may be necessary to insure attainment and maintenance of such primary or secondary standard, including, but not limited to, land-use and transportation controls.

Id. § 1857c-5(a)(2)(B) (emphasis supplied).

34. The Bay Area Air Pollution Control District (BAAPCD) denied authority to construct 18 gasoline stations throughout the Bay Area in late October 1972. Under section 1309 of the BAAPCD Permit Regulations, the Air Pollution Control Officer must deny permits for facilities which emit air pollutants in areas where air quality standards are exceeded. The air in most of the district exceeded the air quality standard. Of the 1500 tons of smog-producing organic gases emitted per day in the
states could utilize more conventional land-use measures such as zoning. For example, a filling station construction ban or its equivalent could be legislated through a revision of local zoning ordinances. Preference for one approach over the other may depend on the relative effectiveness of the two measures. That a construction ban imposed by the pollution control district can be made applicable throughout the region may be a sufficient argument for preferring this approach over the more localized zoning ordinance approach. Even the gasoline station example, however, reveals that any imposition of direct land-use controls over potential polluters may restrict economic opportunities within air quality control regions where restriction on the entry of new sources is required to achieve and maintain air quality. In these instances, local policy makers may resist the application of direct land-use controls.

Changes made in the original language of the land-use controls provision of the Clean Air Act indicate that more extensive controls over land uses were contemplated. These controls are indirect; they are not used to restrict emissions or the location of pollution sources, but are applied throughout the community to all land uses, with the more general objective of improving air quality. Many indirect land-use controls of this nature may have limited immediate effect, but may restore air quality over time. For example, ordinances requiring setbacks from streets and highways, minimum distances between residential and other dwellings, and the dedication and maintenance of open-space areas in new residential developments all have an aggregate impact on air pollution by providing open areas which can absorb atmospheric pollutants. The immediate effect of any such controls in these situations may be quite small, but over a longer period and on a larger scale many types of land-use control will enhance air quality.

Residential zoning offers an example. Since the dispersal of air pollutants is to some degree dependent on residential densities throughout a metropolitan region, a local zoning ordinance whose den-

Bay Area in 1971, about 75 tons per day came from filling stations. BAAPCD, Air Currents No. 11, at 1 (Nov. 1972). The ban was lifted after ten weeks. Marin County Independent J., Jan. 4, 1973, at 1. However, construction will only be permitted if stations install devices designed to cut emissions at the gas pump by 90%. Telephone interview with David Self, Counsel for BAAPCD, Mar. 15, 1973.

35. See Buck v. Kilgore, 298 A.2d 107 (Me. 1972). In this case the municipality enacted an ordinance requiring filling stations to be located at a stated distance from places of public assembly. The effect of the ordinance was to ban all filling stations from the community. The court held the ordinance unconstitutional on the ground that the spacing requirement was not justified by reasons of health.

36. See discussion accompanying notes 70-74 infra.

37. See note 44 infra.

38. See, e.g., ILL. ANN. STAT. ch. 24; § 11-14-1 (1962), authorizing street setbacks in part to obtain “pure air.”
sity requirements reflect dispersal patterns clearly would help achieve and maintain air quality. Similarly, air quality can be bettered by zoning restrictions on the location of non-polluting uses which contribute indirectly to air pollution problems. Typical examples include major sports complexes which generate additional automobile traffic and thus cause an increase in motor vehicle emissions.\textsuperscript{39} EPA has extended its authority over pre-construction review of new stationary sources to include new developments which add to air pollution problems by generating additional motor vehicle traffic.\textsuperscript{40}

### B. Comprehensive and Regional Planning

Indirect land-use controls must be exercised with a regional context in mind. First, the entire approach of the Clean Air Act is regional. States are divided into Air Quality Control Regions, and state implementation plans must provide control strategies on a region-by-region basis.\textsuperscript{41} Secondly, since indirect land-use controls have limited immediate impact, they are effective only if practiced on a large

\textsuperscript{39} See In re Sports Complex in Hackensack Meadowlands, 62 N.J. 248, 300 A.2d 337 (1973). The court refused to disapprove the site of a new sports complex in the meadowlands though it had been alleged that motor vehicle traffic generated by the complex would cause air pollution in violation of federal standards.

The authority of state air quality control agencies over land uses would be considerably extended by proposed EPA regulations governing "complex sources" "which may result in increased emissions from motor vehicle activity or emissions from stationary sources that could cause or contribute to violations of national ambient air quality standards." 38 Fed. Reg. 6279 (1973). A "complex source" is described as a "facility that has or leads to secondary or adjunctive activity which emits or may emit a pollutant for which there is a national standard." 38 Fed. Reg. 6279 (1973). The control over complex sources contemplated by these regulations is strikingly similar to the state control over major developments and developments of regional benefit required by the proposed national land-use policy bill. See S. 924, 93d Cong., 1st Sess. § 202(a) (1973). For background on the complex source regulation see Wall Street J., Mar. 8, 1973, at 2, col. 2. See also text accompanying notes 114-20 infra.

In June 1973 EPA promulgated regulations which added to 40 C.F.R. § 51.11 a subsection requiring that the states:

- Prevent construction, modification, or operations of a facility, building, structure, or installation or combination thereof, \textit{which directly or indirectly results or may result in emissions of any air pollutant at any location which will prevent the attainment or maintenance of a national standard.}

States had to establish procedures for assessing the impact of complex sources, and then demonstrate authority to regulate such sources as required by § 51.11 no later than August 15, 1973. By March 1974 they were required to have analyzed the impact of projected growth on air quality for a ten-year period in certain identified problem areas. 38 Fed. Reg. 15834-36 (June 18, 1973) (emphasis supplied). 4 ENV. RPT.—CURR. DEV. 211 (1973).

\textsuperscript{40} See text accompanying notes 114-16 infra.

\textsuperscript{41} 42 U.S.C. § 1857c-5(a)(1) (1970) provides in pertinent part: "Each State shall . . . adopt and submit to the Administrator . . . a plan which provides for implementation, maintenance, and enforcement of such primary standard in \textit{each air quality control region} (or portion thereof) within the State. . . ." (emphasis supplied).
scale. Only through planning which encompasses entire metropolitan regions can attention be given to a comprehensive land-use control program which would significantly improve the air.

Experience with comprehensive metropolitan regional plans that consider air quality is still quite limited, and there is presently no consensus regarding the kind of metropolitan development pattern which is best suited to optimizing air quality. Moreover, the links between comprehensive planning and land-use controls generally are quite weak in most jurisdictions. There are few states in which local zoning regulations must be based on a comprehensive plan. Thus, it is uncertain to what extent air quality planning can be translated directly into a land-use control strategy. Even so, the uniform applicability of air quality standards throughout air quality regions suggests that some form of comprehensive regional planning is needed.

C. Governmental Entities

Comprehensive planning for land-use control raises a third question: Which state, regional, and local governments are to be delegated authority to administer those land-use control provisions which are adopted as part of state air quality implementation plans? To be effective, any land-use plan to reduce air pollution must have authority vested at a level higher than the local municipality. Any control over major land-use developments which are likely to generate pollutants or which are likely to have a major effect on land-use and transportation patterns will have to be exercised at the regional, if not the state level. Although local governments may take a parochial view of their land-use control responsibility, local zoning agencies may simply not have the expertise or the necessary information to make judgments about land-use measures related to region-wide programs.

The problem is complicated further because air pollution control agencies ordinarily do not have the authority to adopt and enforce land-use measures, although it is possible to have that power dele-

42. See Kurtzweg, supra note 2. Rutgers University has published a paper which evaluates the effects of a comprehensive county general plan on air pollution levels. Environmental Planning Studio, The Relationship between Land Use and Air Pollution in Middlesex County, New Jersey, Rutgers Univ. Dep't of Planning and Policy (May 1, 1973). See also Hassett, Enforcement Problems in the Air Quality Field: Some Intergovernmental Structural Aspects, 19 WAYNE STATE L. R. 1080 (1973).


44. It is interesting that the Clean Air Act does not require states to possess powers of condemnation by eminent domain when needed to implement air pollution
Where land-use controls are to be exercised by an air quality control agency, however, an accommodation will have to be developed between that agency and local governments exercising zoning authority. It is also possible to provide for supervening state-wide control of land use, such as that required by federal legislation dealing with management of land uses in coastal zones. Prototypes of this kind of state management already have been adopted in several jurisdictions. Matters are complicated further because some air quality control regions contain portions of more than one state. These issues are difficult to resolve, and because they did not receive attention during the formulation of the Clean Air Act, the statute itself does not assist in resolving them.

control programs. Such powers could be helpful, to take one example, in instances in which the state needs to acquire pollutive industrial plants which must be shut down in order to help reduce air pollution levels. Condemnation authority is required by recent federal legislation calling for the exercise of state powers in coastal zones. 16 U.S.C.A. § 1455(d)(2) (Supp. 1973).

45. Land-use control powers have been delegated to the air quality control agency in Philadelphia, Pennsylvania. See Keeney, Enforcement of Philadelphia's 1969 Air Management Code: The First Three Years, 18 VILL. L. REV. 173 (1972).


47. See F. Bosselman & D. Callies, The Quiet Revolution in Land Use Control (Council on Environmental Quality 1971). Such recent efforts include the following statutes. The California Coastal Zone Conservation Act creates a statewide commission and six regional commissions to study the coastal zone and develop a "comprehensive, coordinated, enforceable plan for the orderly, long-range conservation and management of the natural resources of the coastal zone." The commission may adopt necessary regulations and issue permits for development consistent with its plan. CAL. PUB. RES. CODE §§ 27000-302 (West Supp. 1973). The Delaware Coastal Zone Act defines a coastal zone and declares heavy industrial uses therein not in operation on the date of the enactment (June 28, 1971) to be "absolutely prohibited." Other manufacturing uses are allowed only by permit issued by the "State Planner" who must consider specified environmental impacts. 29 DEL. STAT., ch. 70; ENV. RPTR.—STATE SOLID WASTE—LAND USE 1136:2141. The Michigan Shorelands Protection and Management Act of 1970 directs the Water Resources Commission to identify "high risk" [erosion] and "environmental" areas of shoreland. The commission must promulgate regulations for the use of these areas. Local zoning is allowed, but all ordinances, including those already existing, which affect these areas must be approved by the commission. MICH. COMP. LAWS ANN. §§ 281.631 to .645 (Supp. 1973-74). Rhode Island law mandates that state's Coastal Resources Management Council to identify and study the state's coastal resources and to plan for their management. The council has power to approve or disapprove any development or operation extending past the mean high-tide mark. Its authority over land areas above the mean high-tide mark extends only to certain specified activities deemed likely to conflict with its management plan. The council serves as a binding arbitrator between municipalities and state agencies where coastal resources are involved. 46 GEN. LAWS OF R.I. §§ 46-23-1 to -12 (Supp. 1972).

48. While the question of delegation of authority to implement a state air quality plan is not covered by the Act, EPA regulations allow delegation of authority to carry out a portion of a plan to a state agency other than the state air pollution control
At least three problems thus are raised by the land-use controls provision of the Clean Air Act. First, a choice must be made among competing alternatives—to apply land-use controls directly to sources of pollution, to apply land-use controls indirectly to regulate indirect sources, or to utilize a combination of direct and indirect measures. Next, given the regional focus of air quality control strategies, any effective use of land-use regulations in an air pollution control context will have to be based on planning policies which consider regional growth and development patterns. We have noted that regional planning which takes air pollution factors into account is still in an early and developing stage. The importance of regional planning as the basis for land-use regulation raises two issues: which governmental level will exercise the authority; and how these powers will be apportioned between the air quality control board and conventional zoning agencies.

III

LAND-USE CONTROLS AND THE CLEAN AIR ACT: WHERE SHOULD WE GO?

A. The Duty to Impose Land-Use Controls Under the Act

1. Primary Standards

The federal Clean Air Act requires that primary ambient air quality standards be met “as expeditiously as practicable,” but not later than three years from the date of approval of a state’s implementation plan. For most states this date is 1975. Secondary air quality standards must be met within a “reasonable time.” Because land-use controls may be part of a state’s implementation plan, and because the state plan must provide air pollution control measures which will achieve required air quality levels within the statutory periods, it could be argued that states may adopt only land-use control measures which meet the statutory timetable. Most indirect land-use and planning controls require a long period of time before their effect on the pollution source base is noticeable. On the other hand, direct controls over the location of emission sources can be imposed more quickly in the usual case, and may lead to more dramatic and immediate reductions in air pollution. Thus, in meeting primary standards, the statute arguably may not require the exercise of other than short-range and

board. 40 C.F.R. § 51.11(e). Further, 40 C.F.R. § 51.11(f) provides that the state may authorize a local agency to carry out a plan or portion thereof. EPA appears to assume that once a state implementation plan is approved, the state itself has authority to carry the plan out, normally through its air pollution control agency.


thus direct land-use controls, such as those affecting the location of pollution sources. This reasoning finds support in the statutory language that requires primary standards to be met "as expeditiously as practicable," and at most by the three-year deadline. It may be that the federal Clean Air Act will have to be interpreted to limit land-use controls to those relevant to the short timespan the statute allows for compliance with the primary standards mandate.

States may attempt to alleviate the burden of this time constraint in the implementation of national primary standards by requesting extension of the three-year time limit. Under the federal statute, the administrator of EPA may grant a two-year extension to meet primary standards but only if the state has "considered and applied as part of its plan reasonably available alternative means of attaining such primary standards" other than emission controls. Presumably, the reference to "alternative means" includes land-use controls. But, as indicated earlier, strict control over pollution sources to achieve air quality standards may inhibit growth in all or a part of a particular air quality region. Therefore, state governments are likely to be under intense pressure to avoid such controls. The question, then, is whether a state can refuse to consider land-use controls as a "reasonably available" strategy, on the ground that they would have adverse socio-economic effects.

There is very little in the legislation which can help to answer this question. Except for a reference in the provision authorizing pre-construction review of new sources, economic balancing language is conspicuously absent from the Act. However, the statutory language which requires that air quality standards be met only as expeditiously as "practicable" may imply some limitation on the exercise of land-use controls which inhibit economic growth. The difficulty with any interpretation of this statutory language is that social and economic issues in the enforcement of the Clean Air Act received very little explicit consideration in the legislative development of the Act. The Senate Report on the 1970 amendments did discuss the technical feasibility claim as an excuse for delay in attaining air quality standards,

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51. Id.
52. Id. § 1857c-5(e)(1)(B) (emphasis supplied). Cf. the order of the court in Natural Resources Defense Council v. EPA, 475 F.2d 968, 4 ERC 1945 (D.C. Cir. 1973). Section 1857c-5(e) also provides, however, that such extensions are allowable only if technology required to attain primary standards is not available in time to meet the statutory deadline.
53. E.g., concerning The Los Angeles Basin, see CALIF. INST. OF TECHNOLOGY ENVIRONMENTAL QUALITY LABORATORY, SMOG—A REPORT TO THE PEOPLE (1972).
54. The exception is quoted in text accompanying note 91 infra.
and concluded: "The health of people is more important than the question of whether the early achievement of ambient air quality standards is technically feasible." Yet here, as elsewhere, the limited congressional consideration of social and economic issues appears more directed toward the economic costs of compliance with ambient air quality standards than toward the economic (and social) dislocations that would result from the exercise of land-use controls. This omission is not surprising, since the scope of the land-use controls provision broadened greatly during consideration of the 1970 amendments and congressional attention focused largely on the role of emission limitations. As a consequence, the extent to which EPA and the states are entitled to consider socio-economic consequences in developing land-use controls as part of air quality implementation plans is not clear. The limited discussion of social and economic factors in the legislative history, however, implies that states can take advantage of section 110 extension provisions to utilize long-range land-use controls, but states may not use the prospect of adverse socio-economic impact to claim that land-use controls are not "reasonably available."

2. Secondary Standards

We now may consider the extent to which the Act requires land-use controls to achieve secondary air quality standards. Secondary standards are not developed merely to serve as an extra margin of safety to protect the public health. They are designed to "protect the public welfare from any known or anticipated adverse effects associated with the presence of such air pollutants in the ambient air." The

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56. S. Rep., supra note 20, at 2. For example, the Senate Report also called for rigorous controls on "existing sources in order to provide a margin for future growth" in regions where air quality levels are below standard. Id. at 13. When the socio-economic issue surfaced during subsequent oversight hearings on the enforcement of the Clean Air Act, a congressional intent to permit consideration of such impacts again was hotly denied:

Senator Eagleton: ... In respect to economic feasibility, it is clear again beyond any shadow of a doubt that Congress intended that this not be a factor insofar as the primary standards were concerned relating to public health. Economic feasibility was included in the House bill, it was hotly debated in conference and it was deleted.

Oversight Hearings, supra note 26, at 18, 19. See also id. at 308, 312. These statements were also made in the context of a discussion about emission limitations.

57. This argument, of course, is not universally valid. Recent experience with transportation control plans under § 1857c-5 indicates that EPA will not require extreme economic dislocation or social disruption for the sake of attaining clean air on schedule. See Los Angeles transportation control plan, 38 Fed. Reg. 17683 (1973) (preamble).


effects on soils, water, crops, vegetation, man-made materials, animals, wild-
1970 law as finally passed contained no specific deadline for the attainment of secondary standards, but only indicated that such standards must be attained within a "reasonable time." 59

Secondary standards that are more stringent than primary standards must require a greater total reduction in emissions and correspondingly tougher controls, having greater socio-economic impact. If a state were to rely at all on land-use controls to attain secondary standards, such controls would have to cover a wider range than those adopted to attain primary standards. A state might have to consider the adoption of land-use controls strictly regulating indirect as well as direct sources of pollution. Such regulation would be easier in the case of secondary standards than in that of primary ones, since secondary standards need only be achieved within a reasonable time, rather than within three years. Thus a state would have the freedom to exercise land-use controls which are long-range in scope and contemplate more fundamental changes in urban development patterns.

The reasonable-time requirement also suggests that socio-economic factors, whether or not they can be considered in programs for attaining primary standards, might be more relevant in a program to achieve secondary standards. Nevertheless, even if states may balance socio-economic costs against environmental gains in achieving and maintaining secondary standards, the extra benefit gained in meeting secondary standards suggests that the need to meet these standards through land-use controls may at some point overcome substantial socio-economic considerations. For example, if it could be shown that direct control of emissions had been utilized to the fullest extent possible and yet secondary standards had not been achieved in an air quality control region, land-use controls might be treated as necessary despite adverse socio-economic effects.

3. Maintenance of Air Quality

As discussed above, 60 the time limits set for achieving primary standards restrict state implementation plans to direct, short-range land-use measures. However, the Clean Air Act also requires state implementation plans to contain measures mandating the maintenance of air quality levels once they are achieved. 61 For this task indirect

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60. See text accompanying note 50 supra.
61. See Natural Resources Defense Council v. EPA, 475 F.2d 968, 4 ERC 1945 (D.C. Cir. 1973), in which the court found that EPA may not have properly reviewed
land-use controls may be useful. For example, if it could be shown for an air quality control region that direct reduction of pollutant emissions had been utilized to the fullest extent possible in meeting primary standards, land-use controls might have to be adopted to maintain the air quality levels thus achieved in order to meet the "maintenance" mandate of the federal statute. This interpretation would create roles for both short- and long-term land-use control measures in the implementation of primary standards.

As with primary standards, there is a statutory duty to "maintain" secondary standards once they are achieved. Indirect controls would be particularly well adapted to this task. Secondary standards more stringent than primary standards, just might be maintainable only through a comprehensive program of such indirect, long-range land-use controls. In addition, states would have the time necessary to set up and implement such indirect, long-range controls carefully, because of the longer time allowed for achieving secondary standards.

A related issue concerns regions where air quality already meets or exceeds that level EPA and the Clean Air Act require. The recent case of Sierra Club v. Ruckelshaus held that in such regions, state implementation plans must provide means to insure that the existing air quality will not deteriorate significantly. Both direct and indirect land-use controls are appropriate tools to assure such non-degradation.

This review of the duty to impose land-use controls reveals that unclear statutory language is but one barrier to construing the nature of the land-use controls mandated by the Clean Air Act. The short time period specified for achieving primary standards suggests that only direct, short-range land-use controls such as those regulating the location of polluters may be feasible means for achieving those standards. Long-range controls based on comprehensive planning may be more relevant to the attainment of secondary standards, which do not have such an urgent compliance schedule, or to the maintenance of both primary and secondary standards once they have been attained. Thus far we have not discussed explicitly the problems posed by the choice of governmental agency to implement whatever land-use controls are adopted. Clearly, however, the more we rely on long-range controls based on wide-scale comprehensive planning, the more we will have to rely
on governmental agencies whose jurisdiction is statewide or regional and which can respond to the demands of region-wide planning. Broad jurisdiction is especially important if the socio-economic impact of land-use controls must be considered as part of any strategy adopted.


To understand the role which the Environmental Protection Agency has assigned to land-use controls, an examination of regulations issued by EPA under the Clean Air Act is required. Analysis of these regulations also will contribute to an understanding of how land-use controls might fit into a state air quality control strategy. It should be noted that major changes in the content of EPA regulations for state implementation plans were made between the original publication of these regulations and their final adoption. These changes—which many critics of EPA claim have weakened the implementation of the Clean Air Act—have had an indirect but important impact on the exercise of land-use controls in air quality programs.

Certain basic land-use guidelines are included in the regulations, such as a general requirement that state plans contain such "other measures necessary for attainment and maintenance of national standards," and a provision requiring that, in regions where air quality does not meet national standards, the control strategy must provide for the "degree of emission reduction necessary to offset emission increases . . . reasonably expected . . . to result from projected growth of population, industrial activity, motor vehicle traffic, or other factors." 63


The Clean Air Act required that within nine months after the standards were published (i.e., by January 30, 1972), each state submit implementation plans designed to attain and maintain the national standards in each air quality control region under its jurisdiction. 42 U.S.C. § 1857c-5(a)(1) (1970). On May 31, 1972, EPA issued further regulations, on the "Approval and Promulgation of Implementation Plans," which approved or disapproved specific provisions in each state plan. 37 Fed. Reg. 10842 (1972). Then, on June 14, 1972, the Administrator proposed changes or additions to various state plans as he is required to do under section 110 of the law. These changes and additions were open to public debate. 37 Fed. Reg. 11826 (1972).

64. See text accompanying notes 85-87 infra.
66. Id. § 51.12(a).
In an important sense, the EPA regulations expanded state authority to utilize land-use strategies in their implementation plans. While there is no explicit statutory basis for the concept, the regulations introduce what is referred to as a “control strategy” for the abatement of air pollution. A “control strategy” is defined as:

a combination of measures designated to achieve the aggregate reduction of emissions necessary for attainment and maintenance of a national standard, including but not limited to, measures such as: . . . (9) any land use or transportation control measures not specifically delineated herein.\(^67\)

In short, the “control strategy” is the sum total of all of the measures which the state adopts to achieve the required air quality standards.\(^68\) This strategy, it may be noted, includes measures which are not explicitly authorized by the statute as appropriate for inclusion in a state implementation plan. For example, a control strategy may include “federal or state emission charges or taxes or other economic incentives or disincentives not specifically authorized by the Act.”\(^69\) Thus the regulations insure that indirect, longer-range land-use control measures may be included in state implementation plans even though they are not explicitly mandated under the Act.

1. Recognition of Socio-Economic Factors

As stated in a preamble thereto, the final regulations of August 14, 1971, changed many of the earlier proposed regulations which had been issued on April 7.\(^70\) The most controversial change, and the most likely to affect the exercise of land-use controls to achieve air quality standards, was the inclusion of several provisions allowing socio-economic factors to influence policy decisions in the preparation of state plans. These regulations stated in part:

67. Id. § 51.1(n).

68. Although the term “control strategy” as used in practice refers to any particular technique for reducing emissions (e.g., a vehicle ban or an emission charge) rather than to the panoply of techniques included in a state plan, the definition which the regulation provides may be used to augment state land-use authority under the Act. See text accompanying notes 102-10 infra.

69. 40 C.F.R. § 51.1(n)(2) (1972).

70. 36 Fed. Reg. 6680 (1971). In regard to land use, perhaps most obvious was the deletion of the requirement for a state permit system to review construction, modification, or operation of stationary sources. General authority for pre-construction review was still required. 40 C.F.R. §§ 51.11(4), 51.18 (1972). One of the reasons given privately for dropping the permit requirement was EPA’s fear that an environmental impact statement might be required for each permit. The requirement that any necessary land-use control authority be in effect immediately upon submission of the plan was also deleted. Instead, the state was required to submit a timetable for obtaining the requisite legal authority if its plan contained land-use or transportation control measures. Id. § 51.11(b).
Nothing in this part shall be construed in any manner:

... (b) To encourage a State to adopt any particular control strategy without taking into consideration the cost-effectiveness of such control strategy in relation to that of alternative control strategies.

... (d) To encourage a State to prepare, adopt, or submit a plan without taking into consideration the social and economic impact of the control strategy set forth in such plan, including, but not limited to, impact on availability of fuels, energy, transportation, and employment.

In developing their plans, states are also "encouraged to identify alternative control strategies, as well as the costs and benefits of each such alternative, for attainment and maintenance of the national standards." Do these provisions mean only that states need give some attention to socio-economic effects when developing the land-use controls element of their implementation plans? Or do they mean that if socio-economic disruption can or may occur through the exercise of land-use controls the states can be excused from including these controls in their implementation plans?

The most pressing problem posed by these questions is the extent to which meeting air quality standards in any region will require the exclusion from that region of industry which may stimulate economic growth. Where socio-economic considerations must be weighed in developing an implementation plan, construction of new but heavily polluting industry may be permitted on the ground that the region's growth otherwise might be curtailed. In this event, meeting primary standards within the statutory three-year period will have to be achieved by increased reliance on the use of source controls on emissions. This strategy has less effect on economic growth, but it places a greater share of the cost of abatement on existing as compared with new industries within an air quality control region.

2. Extension of Deadlines

Assuming that immediate and direct land-use controls prohibiting the location of new pollution sources would create socio-economic disruption, EPA may feel obligated to provide two-year extensions in meeting the deadlines for primary standards to states that request them. As the basis for such an extension, EPA regulations require only a

71. 40 C.F.R. § 51.2 (1972). See also preamble to Appendix B, authorizing states to consider the "social and economic impact" of emission limitations.
72. Id. § 51.10(a).
showing that the "necessary technology or alternatives" will not be available within the three-year period. The state must also make a "clear identification of any alternative means of attainment of such primary standard which were considered and rejected." Presumably, rejection of land-use controls because of adverse socio-economic effects would qualify under this language.

Study of the May 31, 1972, EPA regulations approving and disapproving various portions of state plans indicate that this policy may have been followed. Few state plans contained land-use controls, and those that did provided only for minor measures. Yet EPA granted numerous extensions of the attainment date for various pollutants without requiring a showing that land-use controls were not reasonably available or would not aid in the attainment of air quality levels by the three-year limit. Where EPA disallowed requests for extensions, the agency found that the plan in question indicated the standard would be attained within the three-year limit. No state was asked whether it could achieve primary standards before the deadline by instituting land-use controls. In this connection, it is interesting to observe that while some states did indicate that they would attain

73. Id. § 51.30(c)(2).
74. Id. § 51.30(d)(3).
75. Project on Clean Air, Natural Resources Defense Council, Analysis of Twenty-four Proposed State Implementation Plans for the Control of Air Pollution, to Determine Their Compliance with the Clean Air Amendments of 1970 (Apr. 18, 1972). California listed a number of proposed land-use regulations in its implementation plan; controls also were listed as under consideration for the metropolitan areas of Portland, Oregon, Baltimore, Maryland, and Washington, D.C.
76. See 37 Fed. Reg. 10842, 10846, § 52.03 (1972), and the relevant portions of approvals and disapprovals of state plans. Note, however, that if EPA disapproves a state implementation plan, it must itself publish regulations which substitute for those disapproved and which meet the requirements of the Clean Air Act. City of Riverside v. Ruckelshaus, — F. Supp. — , 4 ERC 1728 (C.D. Calif. 1972) (transportation controls).
77. EPA also had permitted the states to defer submission of their transportation control plans beyond the statutory deadline, on the ground that it was still studying the effectiveness of transportation control measures. 37 Fed. Reg. 10842 (1972). In addition, extensions of time were granted for achieving primary standards for the three major pollutants produced by motor vehicles. Id. at 10845. However, as no plans had yet been submitted, the EPA administrator technically did not comply with the provisions of section 1857c-5(e) authorizing an extension of time to meet air quality standards. These extensions were invalidated as not in strict conformance with the Clean Air Act, in Natural Resources Defense Council v. EPA, 475 F.2d 968, 4 ERC 1945 (D.C. Cir. 1973). EPA then revoked the extension of time for filing transportation controls as well as the extension of time for meeting air quality standards for motor vehicle pollutants. 38 Fed. Reg. 7323 (1973). While the order of the court and the subsequent EPA regulations make cursory reference to the statutory duty to adopt land-use as well as transportation controls, the litigation arose primarily with respect to the transportation controls element of the implementation plan. EPA's subsequent compliance with the court order thus does not appear to signal a significant change in its attitude toward land-use control strategies.
primary standards within the time limit, when EPA had to specify an attainment date for those plans which had failed to do so or which had specified unreasonable dates, the agency never set a date less than three years away.

Similarly, EPA avoided even mentioning land-use controls when dealing with state plans to implement secondary standards. Its regulations state that a "reasonable time" to attain secondary standards is three years only if the "[necessary] degree of emission reduction" can be achieved through "the application of reasonably available control technology."\(^7\) If the necessary reduction cannot be achieved through available control technology, a "reasonable time shall depend on . . . the social, economic, and technological problems involved in carrying out [an adequate] control strategy."\(^8\) EPA routinely granted requests for 18-month extensions authorized by the Act for delaying submission of a secondary standards plan. The agency approved dates as far away as July 1978 with no mention of the possibility that land-use controls might shorten the time required to attain secondary standards.\(^9\)

In general, EPA made no comment about the widespread failure of state plans even to consider the exercise of land-use controls. One minor land-use measure was required by EPA's implementation plan guidelines—a projection of growth and how this projection would affect the attainment and maintenance of air quality standards.\(^10\) However, such measures were not included in many state plans. EPA excused even this failure on the ground that the expertise necessary to make such projections was lacking.\(^11\) When EPA's approval of state implementation plans was remanded by a federal court of appeals because inadequate attention had been given to maintenance of air quality standards,\(^12\) EPA amended its implementation plan regulations to require state identification of those areas where projected growth could jeopardize maintenance of air quality standards.\(^13\) These new

\(^{78}\) 40 C.F.R. § 51.13(b)(1) (1972).
\(^{79}\) Id. § 51.13(b)(2).
\(^{81}\) 40 C.F.R. § 51.12(a) (1972).
\(^{83}\) Natural Resources Defense Council v. EPA, 475 F.2d 968, 4 ERC 1945 (D.C. Cir. 1973).
\(^{84}\) 38 Fed. Reg. 15836 (1973). See also the discussion of complex source regulations at text accompanying notes 114-16 infra. Later changes in what EPA requires of the states are also made possible by provisions in the Act to the effect that, as part of their plans, states must retain the power to revise their plans "(i) . . . to take account of revisions of [a] . . . national . . . standard or the availability of improved or more expeditious methods of achieving such . . . standard; or (ii) whenever the Administrator finds . . . that the plan is substantially inadequate to achieve . . . [a] na-
requirements and statutory provisions are consistent with the earlier observation that indirect land-use controls based on long-range comprehensive planning are more properly exercised in carrying out the duty to maintain air quality once national standards have been attained. EPA's actions also suggest that, at least with respect to long-range planning for air quality control, socio-economic factors may have to be set aside if the maintenance of standards requires constraints on growth and population.

3. Weakening the Act

Many critics of EPA's administration of the Clean Air Act have objected even more fundamentally to EPA's unilateral introduction of socio-economic factors into air pollution control strategies, arguing that such regulations weaken the Act.85 A full airing of the controversy over the introduction of socio-economic considerations in the preparation of state implementation plans can be found in the Oversight Hearings held by the Senate Subcommittee on Air and Water Pollution on the Implementation of the Clean Air Amendments of 1970. Senator Eagleton, who chaired most of the hearings and who had been active in the drafting of the Clean Air Act Amendments of 1970, maintained that Congress never intended to have socio-economic factors included in state implementation plans.86 He and other witnesses charged that EPA had been pressured by the White House Office of Management and Budget (OMB) into withdrawing its own final guidelines and substituting the set which became the August 14th regulations, with the significant addition of the socio-economic provisions. These witnesses asserted that OMB's purpose was to give industry an economic excuse to delay full compliance with air quality standards—an excuse which the Senate-House conference committee intended to delete from the Act by striking out all references to socio-economic considerations in the section of the final bill on state implementation plans. EPA's answer at the hearings was that while economic factors could not be weighed in setting primary standards, once they were set, EPA was free to encourage states to develop a control strategy which would...
reflect the economically least disruptive way of achieving those standards.\footnote{Administrator Ruckelshaus testified: We are not permitted to take cost into account in setting that [primary] standard. What we are saying in these guidelines is that in order for the states to meet the standard... they ought to take into account the socio-economic costs of achieving it. \textit{Oversight Hearings, supra} note 26, at 276. See also Buckeye Power Co. v. EPA, 481 F.2d 162, 5 ERC 1611 (6th Cir. 1973), in which the court, though with little analysis, accepted EPA's interpretation concerning the role of socio-economic factors in imposing emission limitations on air polluters. \textit{But cf.} NRDC v. EPA, Civil Nos. 72-1219, 72-1224 (1st Cir., May 2, 1973).}

This review of EPA's implementation of the land-use controls provision suggests that the agency has just begun to see the many difficult problems that are involved in an interpretation of this section of the law. Strangely enough, EPA's attention to socio-economic needs as a factor in developing land-use as well as other elements of the air pollution control strategy contrasts with the usual failure explicitly to consider these needs in the more traditional land-use regulation setting.\footnote{Interest in local planning programs with growth limitation as the objective has been increasing, however. See, e.g., McGivern, \textit{Putting a Speed Limit on Growth}, 38 \textit{Planning} 263 (1972) (analysis of city planning in Petaluma, California).} Nevertheless, since traditional air pollution controls operate directly on industries and other employers essential to the economic growth of a region, EPA will be forced to consider this issue more explicitly than it has so far. Its decision to permit balancing of social and economic costs against achievement of air quality standards may have been justified by ambiguities in the legislative history of the Clean Air Act. But whether EPA's interpretation of this history is correct or not is less important than the fact that any control strategy, whether direct or indirect, will have an impact on regional growth and development. Therefore, we should look next at that provision of federal law which, apart from the land-use control provision, requires direct controls over stationary source location. The implementation of stationary source controls, more than any other action under the Clean Air Act, is likely to produce socio-economic costs by its impact on growth and development.

\textbf{IV}

\textbf{CONTROLS OVER STATIONARY POLLUTION SOURCES}

As we have seen, at least for primary standards, direct controls over land use are more likely to fit the scheme of the Act because of their immediate impact. Local governments are only beginning to consider the relationships between such long-range indirect controls and air pollution; EPA itself has refrained from insisting on indirect
controls and has yet to define its own policy. Thus in the near future, much attention will focus on the direct land-use controls clearly authorized by the Clean Air Act—pre-construction review of new sources of pollution.

Under this section of the Clean Air Act the Administrator must publish a list of categories of stationary sources which "contribute significantly to air pollution which causes or contributes to the endangerment of public health or welfare." After listing a category, the Administrator must propose and ultimately publish federal standards of performance for that category of sources. A standard of performance is defined under section 111(a)(1) as a standard for emissions of air pollutants which reflects the degree of emission limitation achievable through the application of the best system of emission reduction which (taking into account the cost of achieving such reduction) the Administrator determines has been adequately demonstrated.

The land-use provision relating to these new sources appears in section 110, which deals with state implementation plans. Section 110(a)(2)(D) requires a "procedure . . . for review (prior to construction or modification) of the location of new sources to which a standard of performance [under section 111] will apply." This procedure must "provide for adequate authority to prevent the construction or modification of any [such] new source . . . at any location which . . . will prevent the attainment or maintenance . . . of a national ambient air quality primary or secondary standard."

A. The Question of Federal Pre-emption

The authors of the Act believed that the new source provision granted the states great power to control major sources of pollution; the Senate Report lists nineteen categories of sources which could be regulated under this section. Congress asserted federal control over these sources because it feared that major industries would exert "economic blackmail" on the states by threatening to leave any state that tried to impose strict emission controls in an effort to meet air quality standards. By imposing uniform emission controls on major new sources at the federal level, Congress felt that these industries would lose that economic weapon. But by authorizing direct federal governance of these sources which previously had been subject only to state

90. Id. § 1857c-6(b)(1)(B).
91. Id. § 1857c-6(a)(1).
92. Id. § 1857c-5(a)(4).
pollution control, the Clean Air Act raises the question whether regulation of stationary sources is now to be based solely on considerations of health and welfare or on land-use factors as well.

We can resolve this question by comparing the original Senate version of section 111 with the section as finally enacted. The original Senate bill did authorize a land-use measure at the federal level, requiring a mandatory EPA certification procedure for new sources to determine whether each new source complied with section 111 performance standards. It ordered the federal agency to review the proposed location of each new source to ensure that its construction would not cause a violation of air quality standards.\(^\text{94}\)

Did the imposition of federal performance standards and a federal pre-construction review process in the Senate bill mean that the federal government had fully pre-empted regulation of future major stationary sources of pollution? If so, Congress would have utilized its commerce power to override the police power under which states traditionally regulate industries which contribute to air pollution. It is worth noting that the Senate provision dealing with federal pre-construction review was expressly concerned only with preventing interference with national air quality standards.\(^\text{95}\) Thus we are left with the following problem: Under the Senate bill, could a state have imposed upon a section 111 new source a land-use measure not required by the federal government in an attempt to enforce an ambient air quality standard more stringent than federal standards? More important, could a state have achieved national air quality standards by imposing land-use measures on proposed new sources covered by section 111 which already met federal new source performance standards?\(^\text{96}\) Or could affected industries have claimed that the federal government had fully pre-empted the area of new source regulation, so that if a new source

94. Id. at 17.

95. Regulations were to be published with provisions for “pre-construction review of . . . locations,” and “methods to insure that any . . . new source . . . not prevent implementation of national ambient air standards.” S. 4358, 91st Cong., 2d Sess. § 113(e)(1)(A) (1970).

96. A positive answer to this question is suggested by Allway Taxi v. City of New York, 340 F. Supp. 1120 (S.D.N.Y. 1972). A city ordinance required all pre-1970 taxis to have emission control devices complying with federal standards and later models to be equipped with such devices as might be specified by the city. This requirement was held not pre-empted by the provision of the federal Clean Air Act which prohibits the states and their subdivisions from creating standards for exhaust emission control devices for new motor vehicles and motor vehicle engines. Citing Chrysler Corp. v. Tofany, 429 F.2d 499 (2d Cir. 1969), the court noted that the pre-emptive effect of national legislation should be narrowly construed when local regulations serve the federal purpose. See also Strong, The Impact of Pre-emption on Environmental Regulation, 1972 LAND-USE CONTROLS ANN. 15; Comment, The Constitutionality of Local Anti-Pollution Ordinances, 1 FORDHAM J. URBAN L. 208 (1972).
complied with federal guidelines under section 111 the state could attain its air quality standards only by restricting those older sources left to its control?

In the Senate hearings on air and water pollution, Senator Muskie questioned Dr. John Middleton, former EPA Deputy Assistant Administrator for Air Programs, as to whether the states would still be able to exclude these sources for health reasons if they so desired. Middleton replied that if the proposed source would have a detrimental health impact, construction could be prohibited whether or not it met federal performance standards, and that the state would always have the power to exclude a new source under an applicable land-use plan. This response does not clarify matters. If a proposed source did pose a health threat, it automatically would not meet federal performance standards, since a proposed source can pass the required pre-construction review only if it does not prevent attainment or maintenance of national standards, which are designed to protect the public health and welfare. Furthermore, if states could not justify the imposition of land-use measures on new sources because of federal pre-emption in regulating new sources to protect the public health, attempts to assert land-use controls by means of state powers would raise serious legal problems.

In comparing the Senate bill with the law finally enacted, it seems clear that Congress did not intend the federal government to pre-empt state control over the location of new stationary pollution sources. First, the original Senate bill allowed the EPA Administrator to achieve the "greatest degree of emission control" possible through the use of the "latest available control technology, processes, operating methods, or other alternatives," thus apparently allowing land-use control measures. Presumably then, under the original bill, the Administrator could both set emission standards for new sources, and, if necessary, limit or prohibit the entrance of certain industries into a given region. But the final statutory provision only authorizes the Administrator to set emission standards for new sources, thus eliminating federal control over new source location. Consistent with congressional intent, regulations issued by EPA to implement section 111 performance standards do not permit discretion at the federal level to impose land-use controls on new sources, but only prescribe emission standards and monitoring and testing procedures.

97. Senate Hearings, supra note 24, at 1495-96.
98. S. 4358, supra note 95, § 113(b)(2) (emphasis supplied).
99. Section 60.6 of the regulations does allow the owner or operator of the proposed new source or modification voluntarily to request "technical advice" on his project from the EPA Administrator. Although this request must identify the location of...
B. Pre-construction Review

In addition to limiting the federal role to setting emission standards, the bill as finally enacted shifted the pre-construction review process entirely to the states. Section 110 requires state implementation plans to provide for mandatory pre-construction review of the location of new stationary pollution sources or their modification, with authority to prevent construction or modification "at any location which . . . will prevent the attainment or maintenance . . . of a national ambient air quality . . . standard." As this process at the state level is intended to protect air quality standards, and not just to insure that federal new source performance standards are recognized at the construction planning stage, land-use considerations can presumably form a part of the required review. Thus, the states could use this review process to implement land-use decisions about the location of stationary pollution sources so long as those decisions were related to the state's pollution control strategy.

One difficulty with this interpretation is that location controls over stationary sources are only one of several options open to a state seeking to achieve or maintain required air quality levels. An industry faced with a ban on new construction because it would violate air quality standards might thus argue that the state should adopt alternative methods for achieving or maintaining air quality so that the construction ban could be lifted. For example, more stringent air pollution measures could be imposed in other parts of the air quality region, either through direct performance controls on emissions or through limits on the construction or modification of stationary sources elsewhere.

1. EPA's Interpretation

EPA regulations designed to implement the section 110 requirement that states have a pre-construction process may provide the states with an answer to this kind of objection. Procedures for state review are required by regulation to include "means of disapproving such

the affected facility, it does not appear from reading the regulations that the Administrator need consider the location of the source when giving technical advice. While the technical advice which the Administrator is to give is not limited in the regulations to determining compliance with federal performance standards, there is no way to interpret the term to include advice on land-use questions, such as the appropriate location for a new stationary source. These regulations are codified in 40 C.F.R. § 60.1 et seq. (1972).


101. Id. § 1857c-5(a)(4).

102. This process presumably could also be utilized to enforce stricter air pollution standards than those required under the federal law. See 40 C.F.R. § 51.2(f) (1972).
construction or modification if it will result in a violation of applicable portions of the control strategy or will interfere with attainment or maintenance of a national standard."103 The importance of this directive lies in the reference to the state's control strategy. As we have indicated, control strategies consist of all of the measures which the state has adopted to implement its air quality plan, including land-use controls. Although land-use controls are authorized as a means by which the state can achieve national air quality standards, there is no requirement that any particular land-use control be justified by the need to meet a national standard. Therefore, it would appear that state pre-construction review, including land-use controls, may be imposed on new stationary sources even where national air quality standards are not threatened, provided this review is intended to implement some other aspect of the control strategy. For example, if the land-use controls contemplated by an implementation plan required a limitation on new industry in a region to provide a margin of safety in maintaining air quality standards once achieved, pre-construction review of new sources could be utilized to carry out this maintenance objective whether or not the construction of any particular new source would lead to a violation of a national standard. Thus, if a state control strategy dictates that no construction or modification may take place at certain locations whether or not the proposed construction would violate federal ambient air quality standards, the state must acquire the authority to insist that its control strategy be honored. It can thus avoid the difficult problem of defending its ban on the ground that a particular construction or modification would lead to a violation of an air quality standard.

EPA regulations concerning the scope of this pre-construction review procedure are nevertheless contradictory. Section 51.11(a)(4) implies that pre-construction review is concerned only with achieving national standards. It requires states to have the legal authority to "prevent construction, modification, or operation of any stationary source at any location where emissions from such source will prevent the attainment or maintenance of a national standard." Two other regulations, however, imply a broader scope. Section 51.18(a) describes such a state review process as a set of

legally enforceable procedures that will be used to implement the authority described in Section 51.11(a)(4), which procedures shall be adequate to enable the State to determine whether construction or modification of stationary sources will result in violations of applicable portions of the control strategy or will interfere with attainment or maintenance of a national standard.

103. Id. § 51.18(a) (emphasis supplied).
Section 51.18(c) states that "such procedures shall also include means of disapproving such construction or modification if it will result in violation of applicable portions of the control strategy or will interfere with attainment or maintenance of a national standard." These sections differ in that the first restricts the required authority to the power to prevent construction or modification at a particular location if air quality standards are threatened, while the latter two do not mention location but are only concerned with interference with the national standards or the applicable control strategy.105

2. The Need for Local Authority

EPA has been fairly consistent in disapproving some state new-source review procedures because they failed to provide adequate authority as required by the latter two regulations.106 We might infer from these disapprovals that EPA requires each state to acquire the authority to implement any portion of its control strategy, including land-use controls, and that state review of new source locations is not limited to instances in which national standards would be violated. However, the power to prevent construction that would interfere with relevant parts of the control strategy is not necessarily a land-use power. If the portion of a state implementation plan applicable to industry consists entirely of emission limits and design requirements, the power to prevent construction vanishes once these requirements are met, since land-use controls are not part of the control strategy. If national air quality standards are directly threatened, the regulations empower states to prevent construction whether or not their control strategies specifically authorize land-use restrictions. However, EPA is very unclear about how this power is to be carried out. Perhaps it believes that the states will make calculations for each proposed source or modification to determine whether the projected emissions from that source will violate air quality standards for that region, but this expectation is not spelled out in any of the regulations. Furthermore, projected emission levels are tentative at best; it is significant

104. Id. §§ 51.11(a)(4), 51.18(a), 51.18(c) (emphasis supplied).
105. Note also that Section 51.11(a)(4) of the regulations requires the authority to prevent the operation of an existing source if its "location . . . will prevent the attainment and maintenance of a national standard. . . ." (emphasis supplied). This requirement must be read with the definition of a control strategy to include the "closing or relocation of industrial facilities." § 51.1(n)(3). Read together, these provisions would require the state to have the authority to close down existing stationary sources, but only in cases where a violation of national standards is threatened.
106. When the pre-construction review process was inadequate to achieve compliance both with national standards and the control strategy, this fact was usually mentioned. See, e.g., 37 Fed. Reg. 10876, § 52.1329 (1972) (Missouri).
that EPA regulations defer performance tests on stationary sources until after construction is completed.\textsuperscript{107}

Another EPA omission reduces the possibility that state pre-construction review procedure provides land-use control authority. EPA nowhere requires that even partial responsibility for pre-construction review be given to the state or local bodies traditionally responsible for land-use decisions, nor does it require such bodies to delegate part of their land-use powers to the responsible air pollution control agency. State and local air pollution agencies usually are not authorized to exercise land-use control powers, and are limited in their strategies to requiring technological improvements.\textsuperscript{108} Consequently, pre-construction review procedures utilized by these agencies are limited to assuring that these technical requirements are met before permission to construct or modify is granted. EPA regulations have recognized that implementing air quality standards may require authority beyond that traditionally found in air pollution control agencies. The regulations allow responsibility for implementing a part of the plan to be delegated to another state or local agency, provided it has the necessary legal authority to implement that part.\textsuperscript{109} However, EPA regulations approving or disapproving state plans make no comment on whether the pre-construction review procedure has been vested in an agency capable of exercising land-use powers.\textsuperscript{110}

The regulations promulgated by the EPA Administrator in accordance with his statutory duty to propose federal regulations for inadequate state plans do not shed much additional light on the required scope of the pre-construction review procedure.\textsuperscript{111} The new source-review provisions which the Administrator proposed for those states whose control of new stationary sources was found inadequate give him authority to grant or deny permission for construction or modification. However, the regulations do not indicate what part land-use considerations will play in the Administrator's determination. The applicant must demonstrate to the Administrator's satisfaction that the proposed source "will operate without causing a violation of any applicable local, State, or Federal regulation which is part of the applicable [implementation] plan" and "will not prevent or interfere with attainment or maintenance of any national standard."\textsuperscript{112} There is no indication of what the Administrator would consider an adequate showing.

\textsuperscript{107} 40 C.F.R. § 60.8 (1972).
\textsuperscript{108} See note 44 supra.
\textsuperscript{109} 40 C.F.R. § 51.11(b) (1972).
\textsuperscript{111} E.g., 37 Fed. Reg. 11827 (1972), (§ 52.426 applying to Delaware).
\textsuperscript{112} Id.; see 38 Fed. Reg. 12696 (1973).
3. Complex Sources

Thus the pre-construction review procedure required by the Clean Air Act and outlined by EPA regulations is not necessarily a land-use measure. Yet, according to the preamble to the May 31, 1972, regulation approving and disapproving state plans, EPA is relying exclusively upon the Act—at least for now—to maintain air quality standards in those states whose plans envision just meeting the standards. To implement this policy, EPA has now substantially extended its control over stationary sources by including so-called "complex" sources within its pre-construction review procedures. Requirements for state implementation plans now include commands to:

Prevent construction, modification, or operation of a facility, building, structure, or combination thereof, which directly or indirectly results or may result in emissions of any air pollutant at any location which will prevent the attainment or maintenance of a national standard.

While no definition of a complex source is given, it is the intent of the regulations to reach "major highways and airports, large regional shopping centers, major municipal sports complexes or stadiums" and similar uses. These uses contribute indirectly to air pollution by generating large amounts of motor vehicle traffic emitting vehicle-related pollutants. EPA has therefore asserted jurisdiction over decisions about their location, to insure that the decisions take adequate account of the impact of such uses on potential increases in air pollution levels.

Several problems are presented by EPA's entry into complex-source regulation, most of which arise because the agency, for the first time, has asserted jurisdiction over land-use activities which do not in themselves aggravate air pollution problems. These uses have not previously been subject to regulation by air pollution control agencies, decisions over their location and design formerly having been left entirely to traditional land-use agencies. Moreover, the uses specified for review as complex sources are significant generators of related land-

114. See 38 Fed. Reg. 6279 (1973) (preamble to proposed complex source regulations). EPA was responding to a court order which required it to review state implementation plans to assure that adequate strategies had been adopted to maintain air quality standards once they had been achieved. See text accompanying note 84 supra.
115. 40 C.F.R. § 51.18(a), as added by 38 Fed. Reg. 15834, 15836 (1973) (emphasis supplied).
use activities, and have received very close attention in most land-use programs. Asserting jurisdiction over complex sources in the air quality program thus will conflict directly with the exercise of land-use controls over these sources by traditional agencies. The problem is further complicated because the strategic character of these sources as land-use generators has led to related federal legislation which requires land-use controls over these same uses at the state level.\textsuperscript{117} Since the state agencies which have been selected to implement federally required land-use restrictions are not air pollution control agencies, additional problems of coordination will develop.

The earlier discussion of the potential role of land-use controls in air quality programs noted the importance of comprehensive planning in the utilization of land-use measures. Assertion of control over strategic complex sources by EPA and state air pollution control agencies will provide the badly needed regional perspective on decisions about the location of these sources. Yet the air pollution agencies do not have the necessary expertise to provide the planning framework within which decisions about complex source locations must be made. This problem is only partly alleviated by a provision in EPA's complex source regulations which permit the delegation of authority over complex source review to a local agency other than the air pollution control agency.\textsuperscript{118} The difficulty is that responsibility for planning and land-use control in metropolitan areas is severely fragmented, and there are no agencies at the regional level which have the substantive authority to exercise definitive land-use control powers.

On balance, these considerations suggest that EPA might have been better advised to leave control over complex sources to the traditional land-use authorities. It could then have exercised its powers under the Clean Air Act to require an additional clearance from air

\textsuperscript{117} E.g., the federal Coastal Zone Management Act of 1972, 16 U.S.C.A. § 1451 et seq. (Supp. 1973), discussed in text accompanying note 133 infra.

\textsuperscript{118} 40 C.F.R. § 51.18(e), as added by 38 Fed. Reg. 15834, 15836 (1973). Some scope may exist for the exercise of local control over complex sources because decisions must be made on issues other than their location. For example, the amount of air pollution contributed by motor vehicles using a shopping center will be determined in part by the design of the center as well as the number and location of access points. These design features affect the flow of traffic into the center as well as the amount of idling and circulating time for motor vehicles seeking to approach and use the center. They thus influence very directly the extent of motor vehicle emissions which the center will generate. Therefore, although control over site plans and design is arguably a matter for local authorities, decisions over these features are not easily separated from decisions about location. Both have an impact on pollution. One possibility may be an initial delegation of responsibility over site and design questions to the local level, with review by the air pollution control agency. Yet the air pollution agencies lack expertise in design review as much as they lack expertise in comprehensive planning.
pollution control agencies on the air quality effects of decisions about complex sources. But this approach would force major changes in the legal structure of air pollution and land-use controls at the state level, a problem complicated by the enactment of federal legislation which requires the assumption of land-use control powers by state land-use agencies. In addition, the Clean Air Act's single-minded concentration on air pollution abatement and the rigid standards built into that Act foreclose the development of interrelated strategies which can consider the objectives of both land-use and air pollution legislation. These problems are discussed in more detail in the text that follows.

C. Ambient Air Standards and Federal Performance Standards

A final complexity in the control of stationary sources arises because the Clean Air Act does not require national ambient air quality standards for every pollutant emitted by a source subject to federal performance standards. Therefore, where federal performance standards have been set for particular pollutants for which no national ambient air quality standards have been prescribed, it is unclear what authority a state has over a stationary source of such pollutants in its pre-construction review process. Since the purpose of state pre-construction review, according to the regulations, is to protect ambient air quality standards or a control strategy designed to implement those standards, a state logically has no statutory authority under the Clean Air Act to review a proposed source emitting a pollutant for which no air quality standard has been set.

This gap in the controls may have been remedied, however. The statute, as well as EPA regulations establishing performance standards for stationary sources, defines a stationary source as "any building, structure, facility, or installation which emits or may emit any air pollutant." In addition, EPA guidelines for implementation plans do not limit the pre-construction review process to stationary

119. But see the discussion accompanying note 138 infra.
120. See part VI infra.
121. This conclusion is supported by section 111(d)(1) of the Act, which provides that the states will be required to submit a plan establishing emission standards for any existing source for any air pollutant (i) for which air quality criteria [and therefore air quality standards] have not been issued . . . but (ii) to which a [federal] standard of performance . . . would apply if such existing source were a new source. Thus the Act itself recognizes the possibility that federal performance standards will be set for some sources, even though no air quality standards are set for the pollutants they emit.
sources covered by section 111, but contemplate that the construction or modification of "any stationary source" may be reviewed.\textsuperscript{123}

When no air quality standard has been set, however, and when it can be shown that the new stationary source will comply with emission performance standards, the legal basis for the state's control over the new stationary source must be carefully examined. In the absence of health reasons for disapproving the location of the new source, the state (or local agency) will have to rely on other constitutionally acceptable reasons for disapproving the construction of the new source. These may be lacking if the new stationary source otherwise does not violate applicable state or local regulations and meets federal performance standards. For example, if no applicable federal air quality standard has been adopted, it may be difficult to preclude construction of a new stationary source in a substantially developed heavy industry zone as long as the new source meets performance standards. On the other hand, the state or local agency may be able to demonstrate, even in the absence of an air quality standard, that the quality of the air will not meet the required levels in the immediate area where the proposed new source is to be built. In that event, it should be able to find an adequate health reason for disapproving the new construction even though national ambient air quality standards have not been established. The availability of air quality standards for most pollutants should assist states in finding such a justification, even though not all of these standards have been officially adopted by EPA.\textsuperscript{124}

V

IMPACT OF RELATED FEDERAL LAND-USE CONTROL AND ENVIRONMENTAL LEGISLATION

A consideration of the role of land-use controls in the achievement and maintenance of air quality levels also requires some examination of related federal legislation which will have a bearing on the air quality problem. One such law, enacted by Congress in 1969 as the National Environmental Policy Act (NEPA),\textsuperscript{125} requires environmental impact statements to be filed by federal agencies responsible for "major Federal actions significantly affecting the quality of the human environment."\textsuperscript{126} While the environmental impacts listed in the federal law do not explicitly include air quality, the effect of

\begin{itemize}
  \item \textsuperscript{123} 40 C.F.R. § 51.11(a)(4) (1972).
  \item \textsuperscript{124} For a favorable view of supplementary local authority to regulate emission sources which limits the pre-emptive effect of the Clean Air Act, see Allway Taxi v. City of New York, 340 F. Supp. 1120 (S.D.N.Y. 1972).
  \item \textsuperscript{125} Codified at 42 U.S.C. § 4321 \textit{et seq.} (1970).
  \item \textsuperscript{126} \textit{Id.} § 4332(2)(c).
\end{itemize}
federal and federally-funded facilities such as highways on air pollution levels definitely has been a factor which agencies have been forced to consider in the environmental review process.127

There are several difficulties, however, in relating the environmental impact statement requirement to a larger air pollution control strategy. While NEPA sets forth a procedure under which environmental effects are to be considered, it does not provide a substantive standard against which they are to be evaluated.128 Moreover, since air pollution is only one of several environmental effects considered in the impact statement, the resultant environmental assessment is of marginal value in the implementation of state air pollution control strategies.

Another problem posed by the environmental impact statement process is its limited coverage. Since the federal statute applies only to federal or federally-funded projects, the impact statement requirement does not reach private developments affecting air quality, especially industrial and other employment facilities which do not receive federal subsidies. Indeed, the environmental impact statement process has benefited air pollution programs primarily through its effect on the siting and location of federally-funded highways.129 Highway agencies have had to consider the effects of air pollution created by motor vehicle traffic. Presumably, these considerations affect the planning of the highway network and thus, indirectly, the impact that network will have on urban development and growth patterns.130 It should be noted that at least one state environmental quality law has now been interpreted to extend the impact statement requirement to some private as well as public and publicly-funded development.131

127. See, e.g., Office of the Secretary, United States Dep't of Transportation, Procedures for Considering Environmental Impacts, 36 Fed. Reg. 23679, 23682, Attachment 1, § 4(a)(6) (1971). The phrase "significantly affecting" the environment is defined to include "[a]ny action which . . . (b) has a significantly detrimental impact on air or water quality . . . ."

128. Most courts have held that the National Environmental Policy Act does not provide a substantive standard under which they may, if they wish, set aside an agency decision to proceed with a project on the ground that its environmental impact will be adverse. But cf. Environmental Defense Fund v. Corps of Engineers, 470 F.2d 289 (8th Cir. 1972); Note, Substantive Review Under the National Environmental Policy Act: EDF v. Corps of Engineers, 3 Ecology L.Q. 173 (1973).


131. Friends of Mammoth v. Mono County, 8 Cal. 3d 247, 104 Cal. Rptr. 761, 502
Where this extension occurs, the environmental impact statement requirement will be more helpful in air pollution control efforts, since all major private development will at least entail a published report of environmental effects. Nevertheless, state environmental quality acts, like their federal counterparts, are usually without substantive guiding criteria which can provide a rule for assessing impact statements once they are filed.  

A piece of federal legislation which could have a more direct effect on the exercise of land-use restrictions as a part of state air pollution control strategies is the Coastal Zone Management Act of 1972. Although its coverage is limited to the 30 coastal and Great Lakes states, it provides a prototype state land-use control power which would be required of all states if similar but more general national legislation were passed. For coastal zones within the coastal states, the federal legislation requires a state program for the control of land use which can, when necessary, supersede local governmental authority. Briefly, the federal law requires state control of “land and water uses within the coastal zone,” which shall include the following alternatives: directly exercised state land-use controls; establishment of state criteria for local implementation; state administrative review of “all development plans, projects, or land and water use regulations;” or a combination of these measures.

P.2d 1049, 4 ERC 1705, modifying 8 Cal. 3d 1, 500 P.2d 1360, 104 Cal. Rptr. 16, 4 ERC 1593 (1972). See Note, Aftermammoth: Friends of Mammoth and the California Environmental Quality Act, 3 Ecology L.Q. (1973). The statutory analysis used by the court was based largely on NEPA guidelines and therefore would readily allow a finding that private projects requiring federal agency permits fall within NEPA’s purview.

132. See, e.g., the New Mexico statute, which is set forth in City of Roswell v. New Mexico Water Quality Control Comm’n, 84 N.M. 561, 505 P.2d 1237 (1972).


134. Legislation now pending before Congress would require the enactment for all states, as a condition to federal planning assistance, of a state land-use control program similar to the coastal zone management program which is discussed in the text. See Land Use Policy and Planning Assistance Act of 1973, S. 924, 93d Cong., 1st Sess. (1973). See also Comment, Recent California Planning Statutes and Mountain Area Subdivisions: The Need for Regional Land Use Control, 3 Ecology L.Q. 107, 141 (1973).

Though it does not directly effect air pollution, another federal act which can serve as a prototype for relating land-use management and pollution control is the federal Water Pollution Control Act Amendments of 1972. Those amendments have been called a land-use act within the Water Act. 3 Env. Rptr.—Curr. Dev. 1488 (1973). The area-wide waste treatment management which section 208 of the amended Act mandates can be used to solve land-use problems caused by industrial concentration or other factors having an impact on water quality. Indirect effects on air pollution will undoubtedly accrue from the no-effluent limitation which the Act imposes in the mid-1980’s. Current discharges might then be solidified or burned only to become either solid wastes or air pollution.

As discussed above, land-use controls for abatement of air pollution may be direct or indirect, long-range or short-range. State land-use restrictions under the federal Coastal Zone Act can be exercised similarly, either to prohibit the location of potential new pollution sources, or in a more general way to control land uses so that air pollution impacts may be minimized. Indirect and long-range land-use controls to achieve clean air likewise must be based on comprehensive long-range planning. On this point, although the federal Coastal Zone Act does not mandate formal adoption of a coastal zone plan, it does require all the major elements of a planning inventory in coastal zone areas. State land-use powers exercised as part of a coastal zone program will be comprehensive since they will be exercised pursuant to land-use and development strategies based on statewide policies and criteria.

In addition to serving as a prototype, the Coastal Zone Act may provide state air pollution control agencies with part of the authority they need to carry out state implementation plans under the Clean Air Act. The Coastal Zone Act provides that nothing in that Act:

shall in any way affect any requirement (1) established by . . . the Clean Air Act . . . (2) . . . or by any state or local government pursuant to such . . . [Act]. Such requirements shall be incorporated in any program developed pursuant to [the Coastal Zone Act] . . . and shall be the . . . air pollution control requirements applicable to such program.

This section is ambiguous, especially since the term “requirement” is not defined. But the provision is subject to the interpretation that actions taken by state or local air pollution control agencies to regulate stationary sources bind state agencies exercising land-use control powers in the coastal zone. Under such an interpretation the ability of state air quality control agencies to pre-empt the exercise of land-use controls by other state agencies will be substantial. Indeed, statutes like the Coastal Zone and Clear Air Acts, when read together, appear to confer on air quality agencies substantial pre-emptive authority over the actions of local governments. State coastal zone agencies will have substantial pre-emptive powers over local land-use agencies when coastal areas are affected, but these state agencies will in turn be subject to air pollution control requirements established pursuant to the federal Clean Air Act. Indirectly then, state air quality requirements can be read to pre-empt local land-use powers whenever they are exercised so as to affect coastal zone areas.

136. See text accompanying notes 32-40 supra.
138. Id. § 1456(b).
139. Pending federal legislation would require state and federal control over the
VI

PRACTICALITIES OF EXERCISING LAND-USE CONTROLS IN AIR POLLUTION PROGRAMS

As noted above, Congress and the states are committed to achieving and maintaining national air quality standards, and it is clear that land-use controls have some role to play in meeting this objective. The question is whether we can discover a role for land-use controls in air pollution programs consistent with the Clean Air Act and yet capable of being implemented, considering both the limitations and requirements imposed by that Act and the practicalities of adopting and enforcing such controls at state and local levels. The statutory framework of the Clean Air Act presents problems of interpretation which make elaborating a land-use control strategy a more than routinely difficult task. Problems arise from the legislation both because of the absolute air pollution control objectives it imposes and because it fails to prescribe administrative tradeoffs among various authorized control techniques or to provide a method for considering such tradeoffs on a state-by-state basis.

The Clean Air Act is directed toward the reduction of air pollution to appropriate levels, and makes this goal its single and paramount objective. A program based on attainment of a single environmental objective is ill-suited to the exercise of land-use powers, which ordinarily are applied to achieve many different developmental and environmental goals. Indeed, accommodating competing and even conflicting growth and development objectives is one of the earmarks both of land-use control programs and of the comprehensive planning process which in theory they are intended to implement. Strict implementation of a single-minded approach to air pollution to the exclusion of possible land-use and development criteria thus would be inconsistent with the statutory framework under which land-use controls are usually exercised.140

Other difficulties arise because federal clean air legislation authorizes a series of pollution control strategies without specifying how these strategies are to be combined into an integrated and effective air quality

location of power plants. Since power plants make significant contributions to air pollution, the enactment and exercise of review powers under legislation of this kind could have a substantial impact on state air pollution control programs. For general discussion see Special Committee on Electric Power and the Environment, Association of the Bar of the City of New York, Electricity and the Environment: The Reform of Legal Institutions (1972).

140. These tensions are particularly evident when seen in light of the role of socio-economic considerations in the development of air-pollution implementation plans. See text accompanying notes 70-74 supra.
control program. It is conceivable that stringent application of direct restriction of emissions at the source would obviate any need to adopt land-use controls in some areas. Important problems of cost allocation in air pollution programs are involved in this mix of strategies. For example, to the extent that existing industries are required to bear the cost of complying with technological standards, the compliance burden will be shifted almost entirely to these industries in order that additional industries which may contribute to air pollution can enter the area. Banning new stationary pollution sources to allow relaxation of standards applicable to existing industries will shift the burden of compliance to potential new entrants to the extent that location elsewhere imposes extra costs. The general public, too, will suffer from such a ban to the extent that it restricts economic growth. This allocation problem must receive more explicit consideration in air pollution control legislation before a realistic and acceptable role can be found for land-use control powers in achieving clean air.

These problems are compounded by the comparatively short compliance schedules required by the Clean Air Act. Primary standards are to be achieved within three years, and secondary standards within a reasonable time; yet experience with land-use controls everywhere suggests that a much longer period of time is needed to accomplish the goals for which land-use control programs are designed.\textsuperscript{141} Reversal of long-term development trends through planning and land-use restrictions takes time, and we still know very little about the ways in which urban environments can be regulated so as to minimize the effects of development patterns on air pollution levels.\textsuperscript{142} At the same time, short-term direct regulation of stationary pollution sources duplicates legal authority in the Clean Air Act itself, permitting the states (and their local government units) to carry out pre-construction review of stationary source locations. Gaps in the Clean Air Act's authority over stationary source locations, however, may leave room for the exercise of some land-use powers over these sources as well.

Other problems are intergovernmental as well as conceptual. Historically, land-use authority in this country has been delegated to local governments with full autonomy to pass and administer regulations. Air quality control has been delegated to the states subject to federal criteria, and while the states may in turn delegate powers of administration to regional and local agencies, the basis for the exercise of pollution control is regional and not local. Any mechanism for reconciling the possibly divergent objectives of air pollution and traditional land-

\textsuperscript{141} See generally D. Boyce, N. Day & C. McDonald, Metropolitan Plan Making (1970).
\textsuperscript{142} See discussion of complex sources accompanying notes 114-20 supra.
use regulation will have to take these varying governmental structures into account.

To date, no such statutory or administrative mechanism exists. Ambiguities in policy have been reinforced by the almost concurrent adoption of potentially conflicting and inconsistent federal legislation. The requirement of environmental impact assessments of major federal and federally-funded projects is limited in its effectivenesses by congressional failure to provide guiding substantive criteria. The centralization of broad land-use controls at the state level is ill suited to accomplish limited or localized environmental objectives such as the regulation of coastal zones. And neither of these programs was designed by Congress to relate coherently with federal and state programs intended to achieve specified air quality goals within absolute time limits.

Apart from its requirements for state regulation of complex sources, EPA thus far has not insisted that states begin to develop adequate land-use control programs in their efforts to attain clean air. EPA's failure to require or even encourage the states seriously to consider comprehensive land-use regulation is no incentive to state development of land-use programs which are needed to achieve air quality standards. State initiative in adopting land-use controls in the absence of a clear federal directive is all the more unlikely as these controls may place severe restrictions on residential and industrial growth and thus stimulate controversy. But Congress and the agencies established to implement its environmental programs cannot avoid the land-use problem forever. Even deletion of the land-use provision from the Clean Air Act would not foreclose consideration of the land-use issue. State land-use regulations are now required under related federal legislation, and land-use control strategies unavoidably affect the achievement of air quality objectives whether or not they are explicitly required under the federal air pollution control statute.

CONCLUSION

Perhaps the central problem raised by this discussion is one of reconciling inevitable conflicts between the narrow goals of air pollution legislation and the more broadly defined objectives of land-use control programs. Spelling out the desired relationship between land-use restrictions and direct emission and performance controls in the development of an air quality implementation plan may even be impossible within the confines of federal legislation concerned principally with guidelines and policies. But the issue must be faced at some point in the federal or state administrative hierarchy. If statewide land-use control programs are more widely adopted as a result of the Coastal Zone Management Act and any subsequent related federal legislation,
the resolution of competing objectives in land-use and air pollution control strategies may be more properly resolved within the comprehensive legal framework provided by these programs. In this event, the development and implementation of land-use regulations would be left to state and local land-use agencies, while the air pollution agency would be vested with the responsibility for determining overall air quality objectives to which these land-use programs must conform.\textsuperscript{144} If this occurred, Congress would first have to reconsider the absolute quality of its air pollution control objectives. Areas of potential conflict would still exist, as in the case of pre-construction review of stationary sources, although this problem could be handled by delegation of authority to land-use agencies. Nevertheless, assuming that regional and statewide land-use control programs are more widely adopted and implemented, the comprehensive framework of the land-use regulation process is a better legal and policymaking setting in which to resolve the many problems created by the interaction of air pollution and land-use control strategies.


\textsuperscript{144} Some such accommodation appears to have been contemplated by the federal coastal zone legislation, but the legislative solution is imperfect. See text at note 138, \textit{supra}. 