

The EPA Programs and Land Use Planning

Russell E. Train*

To define and achieve good use of land may be the most fundamental of all environmental objectives. In the broadest sense, the way in which we use our land determines the way in which our society functions. Land is the basic source of our food, fiber, shelter, water, and oxygen. Sound land use is fundamental to preserving stable ecosystems, to controlling pollution, and to creating the political, social, and economic structure of our society.¹

This observation about land use in a recent report of the Council on Environmental Quality may well reflect our current awareness of this issue. This awareness has not come quickly or easily. Some forty years ago, a wholly different perspective seemed more representative:

In the United States there is more space where nobody is than where anybody is. This is what makes America what it is.²

Long before this rather optimistic 1936 statement about America's abundant supply of open space, we had busily begun the task of filling it. In the post-World War II years which followed, our country was so busy growing that we failed to develop rational, equitable systems for deciding how best we should grow, nor

* Russell E. Train is the Administrator of the United States Environmental Protection Agency, Washington, D.C. He has served in that position since September 1973. Previously, Mr. Train was the first Chairman of the President's Council on Environmental Quality (1970-73); Undersecretary of the U.S. Department of the Interior (1969-70); President of the Conservation Foundation (1965-69); and Judge of the U.S. Tax Court (1957-65). Mr. Train founded the African Wildlife Fund in 1959 and served as Vice President of the U.S. World Wildlife Fund from 1959 to 1969. He has represented the United States in many international environmental endeavors. Mr. Train holds an LL.B. degree from Columbia University School of Law (1948).

1. COUNCIL ON ENVIRONMENTAL QUALITY, ENVIRONMENTAL QUALITY: THE FIFTH ANNUAL REPORT OF THE COUNCIL ON ENVIRONMENTAL QUALITY 1 (1974).

2. U.S. GEOLOGICAL SURVEY (1936).

did we have any clear sense of the resultant social, economic and environmental consequences. We were not then particularly concerned, for example, about how patterns of growth and development might affect the most basic of human needs—the maintenance of a healthy environment. Only recently have we begun to realize how much the way we use our land affects the quality of our environment.

The thrust of this article will be to examine some aspects of this relationship between land use and environmental quality within the framework of Environmental Protection Agency (EPA) programs. Examination of these aspects will yield some distinctions between the requirements of land use planning and those of land use control, some limits on the potential of land use control, and a role for land use as an integrative device for other environmental media in EPA programs.

More than half of our nation's land area (57 percent) is classified as agricultural, although only about one-fourth of that (15 percent of the total) is used for cropland. Of the land classified as non-agricultural (43 percent of the total), more than half is forested. Most of what remains is marsh, open swamp, desert, tundra and the like, which may have great ecological value but offer limited scope for development by man. The most commercially valuable of the remaining acreage is the 60 million-plus acres (less than 3 percent of the total) which is classified as urban areas, roads and other built-up areas.³ This fraction of the United States' domain is the focus of land use decisions. It is where most of us live, where most business and commerce are located, and where most of the irreversible commitments to intensive land use have been made.

Over the years, increasing public and governmental concern over the use and misuse of the nation's land has led to various forms of land use planning and control. New legislation and regulatory requirements are being considered at the local, state and federal levels of government. Many local, regional (sub-state) and state land use planning processes, plans and controls have been adopted.⁴

3. U.S. DEP'T OF AGRICULTURE, ECONOMIC RESEARCH SERVICE, MAJOR USES OF LAND IN THE UNITED STATES: SUMMARY FOR 1971 (1971), cited in COUNCIL ON ENVIRONMENTAL QUALITY, ENVIRONMENTAL QUALITY: THE SIXTH ANNUAL REPORT OF THE COUNCIL ON ENVIRONMENTAL QUALITY 162 (1975).

4. See F. Bosselman & D. Callies, *The Quiet Revolution in Land Use Control* (1972) (prepared for the Council on Environmental Quality; published by the U.S. Government Printing Office).

The Environmental Protection Agency has recognized that many of its programs designed to achieve specific environmental quality objectives are closely related to land use planning and decision-making precepts.⁵ Patterns of land use significantly affect the nature, amount and concentration of air and water pollutants, noise emissions, solid waste and other environmentally harmful by-products generated by our society. Conversely, environmental protection requirements can significantly affect the decisions which shape land use patterns.

Given the increasingly complex relationship between land use and environmental quality, the EPA has a responsibility to ensure that its various programs for particular environmental media (air and water, for example) do not have significant adverse effects on other media, including land. The EPA has a further responsibility to provide leadership to secure full and proper consideration of environmental quality objectives in local, regional and state land use planning and decision-making and to provide assistance to other government agencies making or influencing land use decisions which affect environmental quality.

Land use planning and decision-making is one of the most complex and least understood domestic concerns facing America today. The "frontier" land ethic, the rights of private property owners, the economic imperatives of local communities, the limited role of state and federal government, and a variety of other deep-seated and long-standing values and principles influence every facet of our present land use system. As a result, agreement on a national land use policy is nearly impossible.⁶ Yet as much as we cling to these values, most of us would concede that one of our most precious national resources—our land—is being committed daily to new, essentially irreversible uses without sufficient insight to the future.

5. See F. Bosselman, D. Feurer & D. Callies, *EPA Authority Affecting Land Use*, March 12, 1974 (prepared for the Office of Planning and Evaluation, U.S. Environmental Protection Agency under Contract No. 68-01-1560).

6. Several land use bills have been introduced in the Congress during the past four years. Of the major national land use policy bills, S. 632, 92d Cong., 2d Sess. (1972) and S. 268, 93d Cong., 1st Sess. (1973) have been passed by the Senate. H.R. 7211, 92d Cong., 2d Sess. (1972) was reported by the House Interior and Insular Affairs Committee, but was not considered on the floor. H.R. 10294, 93d Cong., 2d Sess. (1974) was also reported by the Committee, but was returned to Committee by a narrow margin in June 1974. In July 1974, Representative Udall introduced H.R. 16028, 93d Cong., 2d Sess. (1974), a bill substantially the same as H.R. 10294.

I. LAND USE PLANNING AND THE ENVIRONMENT

A thorough description of land use problems is not intended here, since much has been written on this subject recently by others.⁷ Nonetheless, some introductory thoughts of a general nature may be helpful as a context.

I define land use planning broadly to mean planning how we organize our activities in space. Planning for physical and economic growth includes residential, commercial, industrial and transportation facilities to provide needed housing, schools, shopping, employment, commerce and other essential goods and services. And equally as important, planning the use and preservation of land for production of food, fiber, energy and minerals, as habitat for wild-life, as a recreational and aesthetic resource, and as an integral element in the continued health of the atmospheric and hydrologic systems of the earth. It means being concerned about the *qualities of use* to which we put land, as well as the *qualities of land* which we use. Thus, I do not conceive the planning and regulation of the use of land as "anti-growth," but rather the creation of a process within which orderly and necessary growth can take place and, at the same time, afford protection to the natural systems upon which we all depend.

The American land use paradox can be summed up in these simple observations: an admirable and enduring quality Americans seem to have is the ability to respond well in times of crises, and an agonizing frailty we have is the seeming inability to anticipate far enough in advance and plan to avert many crises before they are upon us.

7. See, e.g., Haskell, *Land Use and the Environment: Public Policy Issues*, 5 BNA ENVIR. RPTR., Monograph No. 20 (1974). See references cited in note 110 *infra* and the following reports for further discussion of issues surrounding land use and environmental protection: B. Berry *et al.*, *Land Use, Urban Form and Environmental Quality*, 1974 (prepared for the EPA; available from Department of Geography, University of Chicago); Harbridge House, Inc., *Key Land Use Issues Facing EPA*, February, 1974 (submitted to Office of Planning & Evaluation, EPA); *Land Use and the Environment: An Anthology of Readings* (V. Curtis ed. 1973) (prepared by the American Society of Planning Officials, Chicago, Illinois); *Managing the Environment* (Office of Research and Development, Environmental Studies Division, EPA ed. November, 1973) (EPA Report No. 600/5-73-010); A. Strong & J. Keene, *Environmental Protection Through Public and Private Development Controls*, May, 1973 (EPA Report No. R5-73-018); C. Thurow, W. Toner & D. Erley, *Performance Controls for Sensitive Lands*, March, 1975 (EPA Report No. 600/5-75-005); and in preparation: M. Alford *et al.*, *Evaluation of Existing Land Use Controls*. See also H. R. DOC. No. 94-253, 94th Cong., 1st Sess. (1975).

In the late 1960's and early 1970's, a series of events—the increasingly noxious atmosphere of Los Angeles, the eutrophication of Lake Erie, and the Santa Barbara oil spill, to name just a few—indicative of a more pervasive condition, signaled the appearance of an environmental crisis. We realized that the environment could not withstand indefinitely the pollution load we were releasing into the air and water and that substantial damage, often irreparable, had been done to fragile ecosystems through years of expansive growth unchecked by an environmentally sensitive perspective. Perhaps more importantly, the threat was manifested directly in terms of human health. The public policy response was rapid and vigorous.

The National Environmental Policy Act (NEPA)⁸ became law on January 1, 1970, creating the Council on Environmental Quality⁹ and establishing the environmental impact analysis process.¹⁰ The President consolidated federal pollution control authorities in the Environmental Protection Agency,¹¹ and Congress swiftly overhauled existing environmental legislation, passing the Clean Air Act of 1970,¹² the Resource Recovery Act of 1970,¹³ the Federal Water Pollution Control Act Amendments of 1972,¹⁴ the Noise Control Act of 1972,¹⁵ the Marine Protection, Research, and Sanctuary Act of 1972,¹⁶ the Federal Insecticide, Fungicide, and Rodenticide Control Act of 1972,¹⁷ and the Safe Drinking Water Act of 1974.¹⁸ Federal legislation to regulate toxic substances¹⁹ and to establish national land use policy is still being debated.²⁰

8. 42 U.S.C. §§ 4321-47 (1970).

9. NEPA §§ 201-07, 42 U.S.C. §§ 4341-47 (1970).

10. NEPA § 102, 42 U.S.C. § 4332 (1970). In spite of its persistent critics, the environmental evaluation techniques involved in the environmental impact statement process, which applies to every major federal action significantly affecting the quality of the human environment, 42 U.S.C. § 4332(2)(C) (1970), have revolutionized the way we address some of our most important land use related decisions.

11. Reorg. Plan No. 3 of 1970, 84 Stat. 2086 (1970).

12. 42 U.S.C. §§ 1857-58a (1970).

13. 42 U.S.C. §§ 3251-59 (1970).

14. 33 U.S.C. §§ 1251-1376 (Supp. III, 1973).

15. 42 U.S.C. §§ 4901-18 (Supp. III, 1973).

16. 33 U.S.C. §§ 1401-44 (Supp. III, 1973).

17. 7 U.S.C. §§ 136-36y (Supp. III, 1973).

18. 42 U.S.C. §§ 300f to j-9 (Supp. IV, 1974).

19. At the time of this writing, a toxic substances bill, S. 3149, 94th Cong., 2d Sess. (1976), has been approved by the Senate and is due to be taken up in the House.

20. See note 6 *supra*.

The measures already enacted and now being implemented have done much to stem the environmental crisis by creating ambitious, enforceable pollution abatement programs. They also have laid the foundation for future planning to prevent pollution in the first place. As we now know only too well, however, the cost of remedying past abuse is substantial.²¹

In 1973 and 1974, we were confronted by an energy crisis precipitated by the Arab oil embargo. We learned that we had become dangerously dependent upon foreign sources of petroleum, and thus vulnerable to external political influence over the energy upon which our entire economic system depends. We learned that our own energy resources are not unlimited. And again, the country responded.²² Voluntary energy conservation measures and governmental initiatives during 1974 helped avert a more severe short-term crisis.²³ These combined measures, if maintained, should greatly alleviate more serious energy problems in the years ahead. But again, this will have to be achieved with substantial costs which might have been less had we perceived the problem and acted at an earlier stage.

The analogy to land use is obvious and the lesson should be clear. There is a need for immediate action to develop effective ways to deal with our patterns of growth and development. We cannot afford the luxury of waiting for more dramatic signs of a crisis. The costs of undoing misguided land use decisions could well be beyond our physical and economic means. The self-cleaning properties of the air and water, over-taxed as they are, do

21. Estimates vary, but the latest figures available (1976) indicate that the cost of cleaning up the air to the level required by the national standards is \$290 billion, and the cost necessary to meet national water quality standards is estimated to be approximately \$190 billion over the next decade (including investment, operating and maintenance costs, and interest costs). See U.S. ENVIRONMENTAL PROTECTION AGENCY, COST OF AIR AND WATER POLLUTION CONTROL: 1976-1985 (forthcoming).

22. For a brief period during early 1974, the EPA received and shouldered its share of the "blame" for the energy crisis. A number of analyses were conducted to show that the energy cost of pollution control programs is now and will continue to be a tiny fraction of total energy consumption. It was also demonstrated that energy conservation and environmental protection are more often in harmony than in conflict. See *id.*

23. These conservation measures included the federally-mandated lowering of automobile speed limits pursuant to the Emergency Highway Energy Conservation Act, Pub. L. No. 93-239, 87 Stat. 1046, and 23 C.F.R. §§ 658.1-15 (1974); and the lowering of thermostats by several degrees in all federal buildings. 34 C.F.R. Part 232, Appendix C (1974).

not exist in the case of land. Our land use decisions are more permanent and irreversible, and the damage more lasting, affecting not only us but future generations as well.

In recent years, a number of significant studies have been made of the diverse implications of our land use decisions and growth patterns.²⁴ One recurring theme in these studies is that the way we organize our activities in space affects everything around us: the quality of our physical environment, the nature of our social environment, the modes of travel we choose to get from one place to another, the amount of energy we consume, the cost of essential goods and services.

One of these studies, *The Costs of Sprawl*,²⁵ undertaken jointly by the EPA, the Council on Environmental Quality and the Department of Housing and Urban Development, reaches several conclusions relevant to this discussion. (1) In terms of *environmental* costs, sprawling low density communities stimulate more automobile use and create 45 percent more air pollution than higher density planned communities. (2) In terms of *energy* costs, planned higher density communities can save up to 44 percent in energy now consumed by sprawled communities, through savings in residential heating and air conditioning costs and decreased automobile use. (3) In terms of *economic* costs, operating and maintenance costs of sprawling low density communities are higher and require 44 percent more investment capital than higher density planned communities. (4) In terms of *land utilization*, four times as much land is used for residential purposes in low density sprawl communities as in higher density planned communities, and only two-thirds as much is dedicated to open space.²⁶

The major importance of this study and others like it is not that it provides any single, best answer to guide future growth and development, but that it identifies and quantifies some of the key factors that should be considered before land use decisions are made. In short, it points out the diverse impacts of land use deci-

24. See note 6 *supra* and notes 25 and 110 *infra*.

25. Real Estate Research Corporation, *The Costs of Sprawl: Detailed Cost Analysis*, April, 1974 (prepared for the Council on Environmental Quality, the Department of Housing and Urban Development, and the Environmental Protection Agency).

26. Real Estate Research Corporation, *The Costs of Sprawl: Executive Summary 2-5*, April, 1974 (prepared for the Council on Environmental Quality, the Department of Housing and Urban Development, and the Environmental Protection Agency).

sions and illustrates the necessity for careful, effective land use planning.

In the awakening years of the environmental movement, the issue of land use was seldom viewed as important as air and water pollution or solid waste management. This emphasis has changed. A recent survey conducted for the EPA found that municipal officials identify "land use" and "growth" as their two most serious environmental problems.²⁷

Today we realize that land use issues lie at the heart of many of the most critical environmental decisions facing the nation, whether they be air quality implementation plans, decisions on where to locate large-scale energy facilities, policies for use in our public lands, how best to manage the national parks and forests, seasonal home subdivisions in the mountains and along the coasts, or problems of urban encroachment on valuable natural areas. In short, land use has evolved as one of our most serious environmental problems, and formulation of land use policy has become indistinguishable from the formulation of environmental policy.

There are a number of reasons for this evolution. First, land use issues are often many-sided and often call for value judgments related to acceptable degrees of development and of mitigation of adverse impacts. The effects of land use decisions are widespread throughout the range of environmental concerns, including pollution, crowding, and loss of wildlife and natural cover; thus, land use issues require an extraordinary degree of understanding of system interrelationships and ecological balance.

Second, the job of institution-building for better land use involves the difficult task of reforming an existing and complicated structure of sometimes overlapping and often fragmented decision-making processes. Developing the EPA's air and water pollution control programs and other areas of environmental concern was somewhat easier since there were fewer governmental entities to deal with and less diffusion of institutional commitment to those programs' goals. When we look at land use, however, we encounter a wide array of decision-making bodies, each with its constituency, interests, requirements and regulations, as well as sense

27. See S. Carter, M. Frost, C. Rubin & L. Sumek, *Environmental Management and Local Government*, February, 1974 (prepared by the International Management Association for the EPA) (EPA Report No. 600/5-73-016).

of self-preservation. This makes change harder to accomplish.

Third, the kind of basic reform in our attitudes toward land use which is required to meet the challenge of development and preservation pressures in our country today necessitates a reexamination of some of our most deep-seated values regarding the private use of land and the public welfare.

Land use planning should not be an end in itself, but it can provide the means to consider and resolve conflicting environmental, social and economic goals related to specific land uses. Through the process of balancing these goals, land use planning provides a basis for determining the location and timing of various single or multiple uses of our land resources.

Sound land use planning is not intended to restrict or prohibit economic development or freedom of choice. It is a process intended to assure that choices involving the commitment of land resources are made wisely, that a full range of alternatives is considered, and that decisions which broadly affect our society are made with reasonable opportunity for the interests of the society as a whole to be taken into account. It should facilitate general economic development by maximizing more efficient use of basic resources. Land use planning should ensure that growth deemed desirable by the public at large is planned and managed in a way which will minimize adverse impacts on the environment.

The role which the federal government plays in promoting more effective land use planning and influencing land use decisions has become increasingly more significant. Many problems which were once thought of as merely local in scope and impact have emerged as regional, statewide, or national concerns. These problems overlap not only in their geographic dimensions but also in their program dimensions. Consider, as a partial sample, the following federal programs variously affecting land use decisions: forest management, soil conservation and rural development programs of the Department of Agriculture; the coastal zone management program of the Department of Commerce; civil works projects of the United States Army Corps of Engineers; community development and flood insurance programs of the Department of Housing and Urban Development; public land management, fish and wildlife, outdoor recreation, and water, land and mineral resource development programs of the Department of the Interior; and airport, highway, railroad and mass transit programs of the Department of

Transportation.²⁸ These programs involve direct federal actions (navigation, irrigation and flood control projects, public housing), federal loans and grants (coastal zone management, metropolitan areawide planning, sewage treatment plant construction), tax policies, regulatory programs and transportation policy.²⁹ In all, there are nearly 140 separate federal programs having a significant effect on state and local land use planning and decision-making.³⁰

Not the least of the federal programs which affect land use planning and decision-making are those administered by the EPA—air, water, solid waste, noise, and to some extent, even the pesticide and radiation programs.

II. THE IMPACT OF EPA PROGRAMS ON LAND USE

The EPA was established in 1970 to bring together a number of already existing federal environmental programs. Testimony before Congress in 1970 by the Chairman of the Advisory Council on Executive Organization set forth the reasoning for creating the Agency:

Such fragmentation is . . . characteristic of organizational responses to problems that were first perceived independently. Such piecemeal organizational structure becomes inadequate when the interrelation of the problem and the solution becomes the dominant factor. In our opinion, the present fragmentation of pollution control programs among several agencies of government no longer serves the public interest.³¹

There is not perfect structural arrangement which will reconcile all interests or resolve all conflicts The reorganization provides an opportunity to integrate the functions and activities of those programs incorporated in the EPA. In doing so, the potential for effectiveness of these programs is enhanced.³²

Since its initial creation, a number of additional pieces of en-

28. See Tekenekron, Inc., Applied Research Division, Survey of Land Use Related Activities of Federal Agencies in Relation to EPA Programs, February, 1974 (prepared for the EPA).

29. See Haskell, *supra* note 7, at 16-17.

30. See OFFICE OF MANAGEMENT AND BUDGET, CATALOGUE OF FEDERAL DOMESTIC ASSISTANCE, June, 1975.

31. *Hearing on Reorganization Plan No. 3 of 1970, Hearings Before a Subcomm. of the House Comm. on Gov't Operations*, 91st Cong., 2d Sess. 45 (1970).

32. *Id.* at 47.

vironmental legislation have been enacted,³³ however, and the problems caused by fragmentation of pollution control still exist. The various statutes under which the EPA operates were enacted at different times, each designed to remedy a single and separate category of environmental damage. Each of them significantly affects the way land is used, although none by itself provides the means to coordinate implementation and intermedia impacts with other environmental standards and policies for which the EPA is responsible.

Environmental problems tend to be interrelated with one another through a complex network of ecological connections. It is difficult to find a simple solution to any single environmental problem without threatening new problems in another media. Nowhere is the complex network of interrelationships more apparent than in an examination of the land use impacts of various EPA programs. In any analysis of environmental problems there are many instances in which the interrelation of the problem and the solution becomes the dominant factor. Addressing these interrelationships can provide an avenue for the EPA to integrate the functions and activities of its programs.

A. Air Quality Programs

To understand the impact of the Clean Air Act of 1970, (Clean Air Act)³⁴ on land use, one must first be aware of two key sections of the Act: section 109,³⁵ which directs the EPA to establish "ambient" (atmospheric) air quality standards for widespread air pollutants; and section 110,³⁶ which requires regulatory programs to achieve and maintain these ambient standards. Once an ambient standard is set, the Act in effect decrees that no portion of the United States' atmosphere should contain pollutant concentrations in excess of that standard.³⁷

33. See notes 12-18 and accompanying text *supra*.

34. 42 U.S.C. §§ 1857-58a (1970). Except for amendments not relevant here, the Clean Air Act's basic structure derives from Pub. L. No. 91-604, 84 Stat. 1676 (1970). Citations hereinafter will be to sections as enumerated in the Act's Public Law form.

35. 42 U.S.C. § 1857c-4 (1970).

36. 42 U.S.C. § 1857c-5 (1970).

37. 40 C.F.R. Part 50 (1975) contains the ambient standards. Standards have been promulgated for six pollutants: sulfur dioxide, particulates, carbon monoxide, nitrogen dioxide, hydrocarbons and photochemical oxidants. Section 109 requires the establishment of "primary" standards at such level as to protect the public *health* with an adequate margin of safety, § 109(b)(1), 42 U.S.C. § 1857c-4(b)(1) (1970), and "sec-

The legal mechanism for achieving and maintaining the ambient standards is the "state implementation plan" (SIP) required by section 110.³⁸ A SIP is basically a combination of laws and regulations designed to insure attainment and maintenance of each ambient standard. States are given the opportunity to develop their own requirements under section 110, but whenever a state's own measures are insufficient, the EPA is required to fill in the gap with its own regulations.³⁹

One basic means of achieving ambient standards is to control air pollution emissions from sources of air pollution. For instance, by limiting a power plant to x pounds per hour of sulfur dioxide emissions and a neighboring chemical plant to y pounds per hour, the ambient standard for sulfur dioxide may be met. The quality of the ambient air at any given point, however, is determined not only by the degree to which sources' emissions are controlled; it is also highly dependent upon the *number* of sources in the area. Thus, if a new power plant were to locate between the old power plant and the chemical plant mentioned above, the ambient sulfur dioxide levels in the area could worsen, perhaps even to the point of violating the national standards.

The crucial point is this: no matter how well pollution sources' emissions are controlled (unless they are controlled to zero),⁴⁰ the ambient standards may be violated if too many sources are located in the same area. *Thus the Act, by demanding that ambient stan-*

ondary" standards at such level as to protect the public *welfare* (effect on crops, materials, personal comfort and well-being), §§ 109(b)(2), 302(h), 42 U.S.C. §§ 1857c-4(b)(2), 1857h-2(h) (1970). See *Kennecott Copper Corp. v. EPA*, 462 F.2d 846 (D.C. Cir. 1972).

38. Primary (health-related) standards are to be achieved "as expeditiously as practicable," but in no event later than three years after plan approval by the EPA. § 110(a)(2)(A)(i), 42 U.S.C. § 1857c-5(a)(2)(A)(i) (1970). Secondary (welfare-related) standards are to be achieved within a "reasonable time." § 110(a)(2)(A)(ii), 42 U.S.C. § 1857c-5(a)(2)(A)(ii) (1970). For a discussion of the state implementation plan mechanism, see *Train v. Natural Resources Defense Council*, 421 U.S. 60 (1975).

39. Clean Air Act § 110(c), 42 U.S.C. § 1857c-5(c) (1970). All EPA approval/disapproval actions regarding SIP's are codified at 40 C.F.R. Part 52 (1975). There is a separate subpart in Part 52 for each state and territory. For a recent discussion of Part 52's organization, see 41 Fed. Reg. 8956 (1976).

40. "Zero" pollution from major industrial sources is, for the most part, unfortunately beyond reality at this time. The Clean Air Act is inherently "technology-forcing," however. See Bonine, *The Evolution of "Technology-Forcing" in the Clean Air Act*, 6 BNA ENVIR. RPTR. Monograph No. 21 (1975). The impact of the Clean Air Act on land use will vary inversely with industry's success at developing better pollution control technology.

ards be met everywhere, necessarily demands land use controls. This is made explicit in section 110(a)(2)(B),⁴¹ which requires that SIP's contain "emission limitations . . . and such other measures as may be necessary to insure attainment and maintenance of such [ambient] standard, including, but not limited to, *land-use and transportation controls.*"⁴²

Most land use controls now present in SIP's involve preconstruction review of new air pollution sources. These programs, described below, are in effect land use permit requirements. Consistent with the Act's policy of placing primary air pollution control responsibility with state and local governments,⁴³ it is the EPA's policy to encourage state and local governments to develop and implement their own land use-related programs under the Act. Only where states have failed to do so has the EPA stepped in, as required by section 110(c)⁴⁴ of the Act.

Preconstruction review programs cover two basic types of air pollution sources: (1) *stationary sources*, which directly emit air pollutants—for example, power plants and steel mills; and (2) *indirect sources*, which do not themselves emit air pollutants, but which attract autos in sufficient numbers so as to have the potential for creating excess concentrations of auto-related pollutants—for example, shopping centers, parking garages and highways.

1. *Preconstruction Review of Stationary Sources.* SIP's now have provisions for two types of preconstruction review for stationary sources. The purpose of one is to assure that a new source will not cause a violation of the *ambient* standards; the purpose of the other is to assure that the new source will not cause *significant deterioration* of air quality.

The Act explicitly requires all SIP's to contain a procedure to prohibit the construction of new major air pollution sources wherever such a source would "prevent the attainment or maintenance" of the ambient standards.⁴⁵ The EPA's regulations, in recognition

41. 42 U.S.C. § 1857c-5(a)(2)(B) (1970).

42. (Emphasis added). The Clean Air Act's legislative history also clearly reveals a congressional intent to require land use controls. See, e.g., S. REP. NO. 91-1196, 91st Cong., 2d Sess. 2, 12-13 (1970).

43. Clean Air Act §§ 101(a)(3), 107(a), 42 U.S.C. §§ 1857(a)(3), 1857c-2(a) (1970).

44. 42 U.S.C. § 1857c-5 (1970).

45. Clean Air Act §§ 110(a)(2)(D), 110(a)(4), 42 U.S.C. §§ 1857c-5(a)(2)(D), 1857c-5(a)(4) (1970). See generally *Sierra Club v. Drain*, 7 ERC 2030 (D. Neb. 1975); *Wisconsin's Environmental Decade, Inc. v. Wisconsin Power & Light Co.*, 395 F.

of the potential social, economic and land use impact of this type of permit program, require each state to publicly announce in advance its proposed permit approvals or disapprovals, and to provide opportunity for public comment prior to finalization.⁴⁶ At present, all but six states have fully-approved SIP procedures of their own in this area.⁴⁷

The courts have construed the Act to require SIP's to ensure that wherever existing air quality is better than the ambient standards, "significant deterioration" from that existing air quality will not occur.⁴⁸ For example, assume the ambient air standard for a pollutant is 100x and that existing air quality in a region is 30x. Prior to the court decisions on significant deterioration, the EPA had interpreted the Act to allow construction of new pollution sources in that region until the air quality reached 100x. As interpreted by the courts, however, the Act demands that new sources cannot create significant deterioration from the existing 30x level. The land use implications of such an interpretation are readily apparent.

In response to a court order,⁴⁹ the EPA promulgated "prevention of significant deterioration" (PSD) regulations into all SIP's in 1974.⁵⁰ These regulations are now being implemented by the EPA, but the Agency's policy is to encourage states to implement and enforce the PSD program.⁵¹ In essence, these regulations provide an additional permit constraint on the construction of new stationary sources: it must be shown not only that the source will not violate the ambient standards, but also that it will not violate the applicable PSD "increment" for the area in which it seeks to locate.

Supp. 313 (W.D. Wis. 1975); *New Mexico Citizens v. Train*, 6 ERC 2061 (D. N.M. 1974) (these cases all involve alleged state failures to conduct preconstruction review properly).

46. 40 C.F.R. § 51.18(h) (1975).

47. The EPA is conducting ambient permit reviews in California, Nevada, Arizona, Indiana, Michigan and Utah. *See* 40 Fed. Reg. 50267 (1975); 41 Fed. Reg. 7508 (1976).

48. *Sierra Club v. Ruckelshaus*, 344 F. Supp. 253 (D. D.C.), *aff'd* 4 ERC 1815 (D.C. Cir. 1972), *aff'd per curiam by an equally divided Court sub nom. Fri v. Sierra Club*, 412 U.S. 541 (1973); *NRDC v. EPA*, 489 F.2d 390, 408 (5th Cir. 1974); *cf. City of Highland Park v. Train*, 519 F.2d 681, 685-86 (7th Cir. 1975).

49. *Sierra Club v. Ruckelshaus*, 344 F. Supp. 253 (D. D.C.), *aff'd* 4 ERC 1815 (D.C. Cir. 1972), *aff'd per curiam by an equally divided Court sub nom. Fri v. Sierra Club*, 412 U.S. 541 (1973).

50. 40 C.F.R. § 52.21 (1975); 39 Fed. Reg. 42510 (1974), *amended*, 40 Fed. Reg. 25004 (1975), *and* 40 Fed. Reg. 42012 (1975).

51. *See* preamble materials accompanying regulations cited at note 50 *supra*.

The process by which PSD "increments" are assigned to an area is itself a significant land use measure. States are to designate their land according to three basic classes: "Class I" applies to areas in which practically any change in air quality would be considered significant, and therefore very little growth in new polluting sources would be allowed; "Class II" applies to areas in which deterioration normally accompanying moderate growth would be considered insignificant; "Class III" applies to those areas in which deterioration up to the ambient standard would be considered insignificant.⁵²

The PSD regulation provides for allowable "increments" in air quality for new sources, based upon which of the above described "Classes" the source seeks to locate within. For example, assume Class I allows a 5x increase in ambient concentrations of a pollutant and Class II allows a 15x increase. If a new power plant which would add 10x pollution to the atmosphere sought to locate in an area, the PSD classification of the area would be crucial. If the area were Class II, the plant would meet the PSD increment requirements, and (assuming it met all other legal requirements) it could be built. If the area were Class I, however, the plant could not legally be built.

2. *Preconstruction Review of Indirect Sources.* In response to another court order,⁵³ the EPA issued guidelines in 1973⁵⁴ requiring that SIP's provide for preconstruction review of indirect as well as stationary sources. Under this type of permit program, the construction of a shopping center or highway could be prevented if such a source were found to cause violations of the ambient standard.⁵⁵ For instance, assume the ambient standard for carbon

52. 39 Fed. Reg. 42510 (1974).

53. *Natural Resources Defense Council v. EPA*, 475 F.2d 968, 971-72 para. 9 (D.C. Cir. 1973). The order did not specifically mention "indirect sources," but it did direct the EPA to correct SIP's for maintenance. The "indirect source" concept was the EPA's response. See 39 Fed. Reg. 7270-85 (1974). See also *District of Columbia v. Train*, 521 F.2d 971, 989 (D.C. Cir. 1975); *South Terminal Corp. v. EPA*, 504 F.2d 646, 667-71 (1st Cir. 1974); *City of Highland Park v. Train*, 519 F.2d 681, 686-87 (7th Cir. 1975); *Plan for Arcadia v. Anita Associates*, 501 F.2d 390 (9th Cir. 1974); *Citizens Ass'n of Georgetown v. Washington*, 370 F. Supp. 1101 (D. D.C. 1974); *Pinkney v. Ohio EPA*, 375 F. Supp. 305 (N.D. Ohio 1974); and *Wuillamey v. Werblin*, 364 F. Supp. 237 (D. N.J. 1973).

54. 40 C.F.R. § 51.18 (1975); 38 Fed. Reg. 15834 (1973).

55. Other possible "indirect" sources are churches, hospitals, stock car race grounds and any other facilities with sufficient parking spaces. See 40 C.F.R. § 52.22(b) (1975); 39 Fed. Reg. 7270 (1974).

monoxide (CO) is 9x, and existing CO air quality in an area is 6x. If a new shopping center were proposed in the area which would attract autos in such concentrations as to add to the CO levels by 4x, its construction would be prevented.⁵⁶ Again, the land use implications are evident.

Because of the rapid time-frame of the court order, most states were initially unable to develop acceptable SIP regulations for indirect sources.⁵⁷ The EPA was therefore forced to promulgate its own regulations for 52 of the 55 states and territories.⁵⁸ The EPA's regulations in this area, as in the case of stationary source review, have stressed the need for public involvement in the decision-making process and the benefits of state and local (rather than federal) implementation and enforcement.⁵⁹

Although the EPA has indefinitely suspended its own regulations⁶⁰ because of congressional directives and pending legislation which could substantially modify indirect source requirements,⁶¹ many states are continuing to adopt and enforce their own regulations.⁶²

3. *Maintenance of Ambient Standards.* In addition to the pre-construction review requirements described above, one other EPA

56. It may often be the case that a proposed indirect source can avoid permit denial by undergoing design changes in order to alleviate congestion problems. (Congestion is directly related to high carbon monoxide levels.) See 39 Fed. Reg. 7275 (1974); 39 Fed. Reg. 25292 (1974).

57. Only Alabama, Florida and Guam had submitted approvable regulations by the court-ordered deadline. 39 Fed. Reg. 7271 (1974).

58. 40 C.F.R. § 52.22(b) (1975); 39 Fed. Reg. 7270 (1974), *amended*, 39 Fed. Reg. 25292 (1974), *delayed*, 39 Fed. Reg. 45014 (1974), *indefinitely suspended*, 40 Fed. Reg. 28064 (1975).

59. 40 C.F.R. § 52.22(b)(8) (1975). See also 39 Fed. Reg. 7270 (1974).

60. See note 50 *supra*.

61. Section 510 of the Agriculture—Environmental and Consumer Protection Appropriation Act, 1975, Pub. L. No. 93-563, § 510, 88 Stat. 1822, provides that:

No part of any funds appropriated under this Act may be used by the Environmental Protection Agency to administer any program to tax, limit, or otherwise regulate parking facilities.

For similar language, see the Department of Housing and Urban Development—Independent Agencies Appropriation Act, 1976, Pub. L. No. 94-116, § 407, 89 Stat. 581.

62. Since early 1974, the EPA has approved indirect source regulations for North Carolina, 39 Fed. Reg. 28879 (1974); Washington, 39 Fed. Reg. 40855 (1974); Idaho, 40 Fed. Reg. 4420 (1975); Nevada, 40 Fed. Reg. 13306 (1975); New York, 40 Fed. Reg. 42542 (1975); Nebraska, 40 Fed. Reg. 41778 (1975); Virgin Islands, 40 Fed. Reg. 42012 (1975); West Virginia, 40 Fed. Reg. 52374 (1975); Connecticut, 41 Fed. Reg. 6765 (1976); and Oregon, 41 Fed. Reg. 8058 (1976).

program under the Clean Air Act has significant land use implications. This is the EPA's ongoing program to insure, as specifically required by the Act,⁶³ that all SIP's are adequate for *maintenance* of the ambient standards once they are attained.

It should be readily apparent from the foregoing discussion that for one to ensure maintenance of the ambient standards for any period into the future, one must ensure that growth of industry and motor vehicle use occurs in a manner compatible with those standards. Since it is impractical to provide for preconstruction review of every stationary and indirect source, some additional mechanism needs to be developed by states to fill in the gaps. The EPA has provided detailed guidance to the states on preparing SIP revisions to accomplish this by May 3, 1976.⁶⁴

Because of the nature of the ambient standard concept, states may have to implement additional land use controls to ensure maintenance. A state or locality may, for example, choose to zone portions of its land according to maximum allowable emission density rates. Or a local government may designate certain areas as unavailable to any major pollution sources.

The EPA's role in this "maintenance" process will be limited, to the maximum extent possible under the Act, to assisting the states in detecting areas in which further measures are needed and providing technical assistance in the development of those measures.⁶⁵ The EPA has completed the process of identifying areas which may need additional measures,⁶⁶ and has issued numerous guidance documents⁶⁷ to the states on ways they may wish to assure maintenance of the ambient standards. Since maintenance plan revisions

63. *E.g.*, Clean Air Act § 110(a)(2)(B), 42 U.S.C. § 1857c-5(a)(2)(B) (1970). The legislative history of the Act states: "In areas where current air pollution levels are already equal to, or better than, the air quality goals [the EPA] should not approve any implementation plan which does not provide, to the maximum extent practicable, for the continued maintenance of such air quality." S. REP. NO. 91-1196, 91st Cong., 2d Sess. 11 (1970).

64. *See* 40 C.F.R. § 51.12(e)-(h) (1975); 39 Fed. Reg. 15834 (1973). For amendments to these requirements and a detailed discussion of the entire "maintenance" program, *see* 40 Fed. Reg. 49048 (1975), and 41 Fed. Reg. 18382 (1976). These discussions make reference to the 13 volumes of guidelines on air quality maintenance planning which have been published by the EPA.

65. 40 Fed. Reg. 49048 (1975), and 41 Fed. Reg. 18382 (1976).

66. These areas are known as "Air Quality Maintenance Areas" and are identified at 40 Fed. Reg. 18726 (1975); 40 Fed. Reg. 23746 (1975); and 40 Fed. Reg. 41942 (1975).

67. *See* note 64 *supra*.

will not be developed by the states for some time, and since the choice of control measures will be made by the states (and local governments), it is impossible to assess the real land use implications of this program at the present time.

B. *Water Quality Programs*

With the increased awareness and demand for protection of the environment in the decade of the 1960's, several water quality improvement laws were enacted⁶⁸ culminating in the Federal Water Pollution Control Act Amendments of 1972 (FWPCA Amendments).⁶⁹ This Act replaced previous water pollution laws and provided a more comprehensive program for water pollution control and abatement.

The FWPCA Amendments call for the EPA to address the problem of water pollution by requiring the states to develop water quality standards.⁷⁰ Limitations on permissible effluents which may be discharged into the nation's waters are to be developed by the EPA.⁷¹ States are to strive to achieve the standards and limitations by devising plans and programs for administering and enforcing the water quality and effluent standards.⁷² If they fail to do so, the EPA must undertake enforcement measures.⁷³

The 1972 Amendments also provided for a National Pollutant Discharge Elimination System (NPDES).⁷⁴ All point sources⁷⁵ discharging pollutants into navigable waters are required to have a permit issued either by a state under an EPA-approved NPDES program or by the EPA in those states which have no such

68. Act of July 20, 1961, Pub. L. No. 87-88, 75 Stat. 204; Water Quality Act of 1965, Pub. L. No. 89-234, 79 Stat. 903; Clean Water Restoration Act of 1966, Pub. L. No. 89-753, 80 Stat. 1246; Act of April 3, 1970, Pub. L. No. 91-224, 84 Stat. 91.

69. 33 U.S.C. §§ 1251-1376 (Supp. III, 1973).

70. FWPCA Amendments § 303, 33 U.S.C. § 1313 (Supp. III, 1973).

71. FWPCA Amendments § 301, 33 U.S.C. § 1311 (Supp. III, 1973).

72. FWPCA Amendments § 303, 33 U.S.C. § 1313 (Supp. III, 1973).

73. FWPCA Amendments § 309, 33 U.S.C. § 1319 (Supp. III, 1973).

74. FWPCA Amendments § 402, 33 U.S.C. § 1342 (Supp. III, 1973).

75. The term "Point source" means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged.

FWPCA Amendments, § 502(14), 33 U.S.C. § 1362(14) (Supp. III, 1973).

program.⁷⁶ Permittees must be found in compliance with all applicable standards.

Another area of considerable potential impact is the Safe Drinking Water Act,⁷⁷ which requires the Agency to assure that any federally-assisted project within a sole source aquifer recharge zone⁷⁸ be carried out so as not to contaminate the drinking water source.⁷⁹ Although the EPA's approach to administering the aquifer protection section of the Safe Drinking Water Act has not yet been finalized, the land use implications are considerable since the nature and intensity of land uses in an aquifer recharge zone ultimately determine the quality of the water runoff from land surfaces which finds its way into the aquifer.

At the present time, however, the two programs most closely related to land use questions are the waste treatment facilities program under section 201⁸⁰ and the areawide waste treatment management planning requirements under section 208⁸¹ of the FWPCA Amendments.

1. *Wastewater Treatment Facilities Construction.* The section 201 facilities construction grants program, by providing sewage capacity to existing and future residential areas, will to a large extent determine the pace and intensity of growth in these areas. Of particular relevance to local land use concerns are the siting and sizing of sewage treatment facilities. Located in presently urbanized areas, which may coincidentally contain the main sources of pollution, they fulfill their primary mission of abating public health hazards. But sewage treatment plants are not always the most welcome neighbors, and finding desirable and acceptable locations is often difficult. The nature of this layout can govern the type, extent and staging of development in any given locality. This potential influence on land use patterns suggests that sewer systems may be the new underground highways. Thus, when sewer

76. FWPCA Amendments § 402(a), 33 U.S.C. §§ 1342(a), (b) (Supp. III, 1973).

77. 42 U.S.C. §§ 300f to j (Supp. IV, 1974).

78. Aquifers are natural reservoirs for groundwater, serve as natural filters for groundwater, and are interconnected with surface water systems in lakes, streams and wetlands. Pollution of surface waters and seepage of leachate from land uses within the aquifer recharge zone can cause contamination of the groundwater within the aquifer. For further information on aquifers and the Safe Drinking Water Act, see 40 Fed. Reg. 58354 (1975).

79. Safe Drinking Water Act § 2(a), 42 U.S.C. § 300j-6 (Supp. IV, 1974).

80. 33 U.S.C. § 1281 (Supp. III, 1973).

81. 33 U.S.C. § 1288 (Supp. III, 1973).

treatment planning is addressed solely to the primary objective of abating public health hazards, it may also provoke unanticipated and undesired community growth and exacerbate other existing pollution problems.

The fact that many sewage treatment plant sites have already been selected, planned and constructed under the section 201 construction grants program without the benefit of the areawide section 208 perspective may be injurious, but not necessarily fatal to "good" planning. Nevertheless, this is a situation which the EPA and local officials must address promptly and judiciously, lest the wall-to-wall statewide section 208 plans called for in a recent court decision⁸² become merely unimplemented wall-to-wall plans.

2. *Areawide Waste Treatment Management Plans.* An areawide waste treatment management planning process and plan for areas with serious water pollution control problems anticipates municipal and industrial waste treatment needs, establishes construction priorities, regulates the location, modification and construction of any waste treatment facility in the area, and enforces procedures and methods to control various nonpoint sources of pollution.⁸³ These section 208 areawide waste management plans will influence overall residential patterns by deciding which areas are to be serviced by public facilities and by prescribing alternative methods of maintaining water quality in the regions.

Once an areawide plan is approved, permits under the NPDES system cannot be issued for point sources which are in conflict with the plan.⁸⁴ Similarly, when the plan has been approved, the EPA cannot make grants for construction of municipal treatment works unless such works are included in the areawide plan.⁸⁵ Prior to EPA approval, the primary sanction available to the EPA is the withholding of further planning assistance funds.

The importance of section 208 and the intention that it encompass the coordination of land use matters with environmental control is evidenced by the report of the Senate Committee on Public Works accompanying the bill originally passed by the Senate, which was substantially in the form finally enacted:

82. *Natural Resources Defense Council v. Train*, 396 F. Supp. 1386 (D.D.C. 1975), *appeal pending*, D.C. Cir., No. 75-1873.

83. FWPCA Amendments § 208(b), 33 U.S.C. § 1288(b) (Supp. III, 1973).

84. FWPCA Amendments § 208(e), 33 U.S.C. § 1288(e) (Supp. III, 1973).

85. FWPCA Amendments § 208(d), 33 U.S.C. § 1288(d) (Supp. III, 1973).

Perhaps the principal cause of inefficiency and poor performance in the management of waste in the metropolitan regions is the incoherent and uncoordinated planning and management that prevails in many areas of the Nation. Adjacent communities and industries are under no mandate to coordinate land use or water quality planning activities. This results in poor overall performance and the proliferation of many direct and indirect discharge sources into receiving waters. Such diffuse and divergent programs not only intensify pollution problems but they prevent the use of economies of scale, efficiency of treatment methods, and, most importantly, coherent, integrated and comprehensive land use management.

Consequently, the Committee has included in the bill a mechanism that would establish planning and management capability throughout each State. The mechanism is initiated by the Administrator who would set forth definitive criteria on those interstate and intrastate areas for which regional waste treatment management plans are to be developed A regional planning mechanism will be ineffective if it does not provide an effective means of regulating all sources of pollutants within the region, and if it does not provide an overall management mechanism to assure implementation of any plan development.

Uncontrolled growth and expansion and competition among units of government will be reduced if effective environmental controls are to be imposed.⁸⁶

Potentially the most far-reaching provision in section 208 is that requiring any areawide plan to include a program "to regulate the location, modification and construction of any facilities within such area which may result in any discharge in such area."⁸⁷ This phrase might be interpreted to refer to regulation of the patterns and intensity of buildings, such as homes or commercial buildings, which contribute to the discharge of wastes into navigable waters.

Impacts of these programs on land use also are felt from the requirement that plans be developed to improve water quality. As is implicitly recognized in section 208, if basin plans do not take land use into consideration, it is difficult to effectively implement a strategy to achieve and maintain water quality standards approved by the EPA.

86. S. REP. NO. 92-414, 92d Cong., 1st Sess. 36-37 (1971).

87. FWPCA Amendments § 208(b)(2)(C)(ii), 33 U.S.C. § 1288(b)(2)(c)(ii) (Supp. III, 1973).

Although section 303(e)⁸⁸ does not contain the same kind of language found in section 110 of the Clean Air Act,⁸⁹ which specifically authorizes the inclusion of land use controls in state implementation plans, it is apparent that land use controls can and should be an element in section 303(e) plans. Without the ability to plan and control where point and nonpoint sources of pollution will be permitted to operate and where land sites for disposal of pollutants will be located, achievement of the objectives of the 1972 FWPCA Amendments may be impossible. The report of the House Committee on Public Works in at least two places emphasizes the need to consider land disposal as one of the techniques for dealing with pollution.⁹⁰ In discussing section 201 construction grants, the report states:

In arriving at the best practicable waste treatment technology consideration must be given to its full environmental impact on water, land, and air and not simply to the impact on water quality

In defining "best practicable waste treatment technology" for a given case, consideration must be given to new or improved treatment techniques which have been developed and are now considered to be ready for full-scale application. These include land disposal⁹¹

Again, in discussing the provisions of section 304⁹² relating to alternative techniques for implementing the section 301⁹³ effluent limitations, the House Committee repeats the importance of land disposal techniques:

The Committee intends that the Administrator shall emphasize land disposal techniques. If the goal of eliminating the discharge of pollutants into our Nation's waters is to be achieved, land disposal of the waste from treatment works will be necessary.⁹⁴

88. 33 U.S.C. § 1313(e) (Supp. III, 1973). Section 303(e) requires a statewide assessment of water quality problems and their causes, a listing of geographical priorities for these problems, and a description of the state's approach to water quality problems, including those originating from non-point sources. These requirements are all premised on the availability of accurate land use information and land use controls.

89. See notes 41-42 and accompanying text *supra*.

90. H. R. REP. NO. 92-911, 92d Cong., 2d Sess. (1972).

91. *Id.* at 87.

92. 33 U.S.C. § 1314 (Supp. III, 1973).

93. 33 U.S.C. § 1311 (Supp. III, 1973).

94. H. R. REP. NO. 92-911, 92d Cong., 2d Sess. 108 (1972).

Control simply over technology employed at point sources or over methods of operation utilized by operators of nonpoint sources is not sufficient to enable the EPA to "emphasize" land disposal techniques. Such a limited approach also does not permit the EPA any control over the proximity of various sources to one another, a key element in the spatial distribution pattern of pollutants.

C. *Solid Waste Management Programs*

In 1965, Congress enacted the Solid Waste Disposal Act,⁹⁵ which was later amended by the Resource Recovery Act of 1970.⁹⁶ Under the latter's provisions, the EPA is authorized to make planning grants to state and local agencies enabling them to make surveys of solid waste disposal practices and problems, develop solid waste disposal plans, and make studies of the effect of solid waste disposal practices on adjoining areas.⁹⁷ Applicants for such grants must assure that full consideration will be given to all aspects of planning essential to areawide implementation of effective solid waste disposal systems. Such factors as population growth, urban and metropolitan development, land use planning, air and water pollution control, and the feasibility of regional disposal and recycling systems must be considered.⁹⁸

Solid waste disposal is currently, and for the predictable future will continue to be, land intensive. The principal method currently in use in the United States for disposal of municipal and industrial solid waste is open dumping. Usually, open dumps occupy sites for which competing land uses were not apparent, such as abandoned gravel pits, marshes and swamplands; most of these low cost sites are conducive to environmental degradation. Most new disposal facilities now and for the predictable future will be sanitary landfills. The site characteristics of sanitary landfills are such, however, that acquisition by default is no longer possible.

Patterns of land use and the mechanics of land ownership are inimical to the local operation of the site acquisition process. Land is a finite, spatially fixed resource. In areas of intensive land use new parcels cannot be introduced to fulfill new requirements. Therefore, the economic efficiency criterion applies, and those uses

95. 42 U.S.C. §§ 3251-59 (Supp. I, 1965), *as amended*, 42 U.S.C. §§ 3251-59 (1970).

96. 42 U.S.C. §§ 3251-59 (1970), *amending* 42 U.S.C. §§ 3251-59 (Supp. I, 1965).

97. Resource Recovery Act § 207, 42 U.S.C. § 3254a (1970).

98. Resource Recovery Act § 207(b)(2), 42 U.S.C. § 3254a(b)(2) (1970).

which are the most economically, socially and politically feasible are allocated the scarce land resources.

The apparent environmental threat from land disposal of solid waste, particularly ground and surface water pollution, dictates that extreme care be taken in site selection. Man-made devices to control pollutant emissions at landfills are as yet unproven in practice, and will need to be operated for many years beyond the life of the landfill, a period in which responsibility for this operation becomes uncertain. In view of these uncertainties, a program strategy emphasizing nonstructural control, such as land management for solid waste objectives, should be strongly favored over one emphasizing technological and structural discharge controls.

D. *Noise Control Programs*

The Noise Control Act of 1972⁹⁹ requires the EPA to develop criteria concerning the effects of noise on the public health or welfare and to report on available noise control techniques. Additionally, industries emitting high noise levels are to be identified, leading to the promulgation of guidelines to aid in locating these industries.¹⁰⁰ These guidelines might include such techniques as the establishment of buffer zones or minimum acreage requirements to reduce the effects of noise on surrounding development.¹⁰¹

The authority of the EPA under section 5 of the Noise Control Act¹⁰² is merely advisory, for no power is given to the Agency to require states to adopt and enforce the published criteria or to preempt state noise regulations. However, states may adopt and enforce the criteria developed by the EPA or other similar criteria, as Illinois has done.¹⁰³ Such an approach is suggested in the Senate Public Works and House Interstate and Foreign Commerce Committee Reports which dealt with the Noise Act:

[S]tates and local governments have the primary responsibility under the bill for setting and enforcing limits on environmental

99. 42 U.S.C. §§ 4901-18 (Supp. III, 1973).

100. Noise Control Act § 5, 42 U.S.C. § 4904 (Supp. III, 1973).

101. See National Institute of Municipal Law Officers, Model Community Noise Control Ordinances, September, 1975 (prepared in conjunction with the EPA) (EPA Report No. 550/9-76-003).

102. 42 U.S.C. § 4904 (Supp. III, 1973).

103. Order of the Illinois Pollution Control Board, 4 BNA ENVIR. RPTER. 596 (July 26, 1973).

noise which in their view are necessary to protect the public health and welfare. This essentially local responsibility is not assumed or interfered with by this bill, although Federal leadership and technical assistance are provided in the criteria required by §407(a) which will set forth levels of environmental noise protective of public health and welfare.¹⁰⁴

With respect to aircraft noise, the legislative history indicates that initial versions of the Noise Act did not contemplate giving the EPA authority to control noise around airports by controlling land use. The final version, however, authorizes the EPA to propose regulations "as EPA determines is necessary to protect the public health and welfare."¹⁰⁵ No specific reference is made to land use regulations, but the legislative history indicates that the EPA's regulations can encompass more than technological noise reduction requirements.

III. LAND USE PLANNING AND THE PROTECTION OF ENVIRONMENTAL QUALITY

It seems reasonable to hypothesize that no form of land use planning and control can satisfy all competing demands for land. There are divergent interests, some of which inevitably get less than they desire. While these competing demands seek satisfaction through private market mechanisms, we cannot fail to recognize that public land use planning and controls are integral requisites of that process. Indeed, if the existence and operation of such public processes yielded a result no different than what the uninhibited private market would produce, there would be no purpose in having them. The realization of this relationship places a special emphasis on careful formulation of goals and objectives in land use planning as a basis for formulating land use controls.

While land use controls are ultimately exercised at the state and local level, in land use planning there are appropriate roles for all levels of government. All of the national land use proposals¹⁰⁶ have left many aspects of land use planning in the hands of local government, but they also have provided for a greater degree of state and federal involvement. The real issue lies in trying to draw appropriate lines between activities most suitable to government at

104. S. REP. NO. 92-1160, 92d Cong., 2d Sess. 7 (1972).

105. Noise Control Act § 7(b), 49 U.S.C. § 1431(c)(1) (Supp. III, 1973).

106. See note 6 *supra*.

each level. The gradual evolution of environmental management roles to state and local governments will mean greater reliance on sensitive and comprehensive land use plans for effectively protecting the environment. At the same time, it places more pressure on federal agencies to clarify their land use program objectives and resolve conflicts prior to state and local implementation.

A. *Current Shortcomings in Land Use Planning*

Over the years, land related problems resulting from urban growth and industrial expansion have been addressed through the planning process. Yet, land use planning has frequently been ineffective in preventing land misuse or in protecting environmental quality. These shortcomings stem primarily from (1) inadequate consideration of the natural environment in the planning, (2) a failure to take a comprehensive approach, and (3) inadequate implementation of land use plans.¹⁰⁷

Traditional land use planning has been oriented to a zoning approach. Various urban uses—residential, industrial and commercial—are isolated from each other to reduce nuisances and to protect human health, safety and welfare. Although there are examples of planning decisions being based on environmental criteria, for the most part protection of environmental quality and finite resources has not been fundamental to the planning process. Ignoring these physical and ecological factors has resulted in property damage and destruction of environmental quality.

A second shortcoming of most planning processes is their single-purpose orientation. The object of planning such projects as highways, sewers, airports and water supply systems is primarily to get the job done for that single purpose. Highways, for example, are planned to facilitate movement from urban center to urban center. Ample consideration is not always given to the dislocation of people, the disruption of the natural environment, and the stimulus to secondary development.

A third basic limitation in the current land use planning process is the absence of adequate implementation of plans. Frequently, local communities have considered it necessary to up-zone, grant exceptions and yield to outside pressures to alter well-intended plans. Such plans have often failed to provide specific implement-

107. See National Youth Advisory Board, *Land Use and Environmental Protection*, 1973 (a report to the EPA).

ing mechanisms (*e.g.*, legislation, procedures, incentives) or build the bridges to the legislative, regulatory, budgetary or resource allocation functions in various governing bodies.

B. *The EPA's Role in Program Coordination*

While the EPA itself has no explicit mandate for direct land use control, many provisions in its various enabling statutes require land use planning and control for their successful implementation.¹⁰⁸ A more active response to land use issues has been limited by the absence of specific organic legislation establishing the EPA. This factor has limited the Agency's efforts to explicitly address land use considerations in its program activities. Furthermore, the enabling legislation antedates the Agency, falls within the jurisdiction of several committees of the Congress, and is generally single-media in nature. With the exception of NEPA, these authorizations stress a media rather than an intermedia approach to pollution abatement.

Independent program responsibility for air, water, solid waste management, pesticides, radiation and noise control now exist. The activities of each program office are based on a specific enabling authority, and the program offices confine their authority to the enabling legislation. A similar pattern has evolved at the state and local level. Yet air, water and land are interdependent parts of the ecosystem, and any effort to protect and enhance the environment requires equal attention to all three parts and places a premium on coordination among them. Indeed, a small land use coordination function was established in my immediate office to serve just such a purpose.¹⁰⁹

Pursuant to the EPA's programs, many states and their subdivisions are promulgating plans and undertaking enforcement strategies which have or will have a major impact on the use of land. In many cases, however, these plans are designed to achieve only a single environmental goal rather than the combined

108. Implicit requirements for land use planning are contained in the following: FWPCA Amendments §§ 104, 105, 107, 201, 204, 208, 209, 303, 305, 314, 403, 404, 405, 33 U.S.C. §§ 1255, 1257, 1281, 1284, 1288, 1289, 1313, 1315, 1324, 1343, 1344, 1345, (Supp. III, 1973); Clean Air Act §§ 110, 309, 42 U.S.C. §§ 1857c-5, 1857h-7 (1970); Resource Recovery Act of 1970 § 207, 42 U.S.C. § 3254a (1970); Noise Control Act of 1972 §§ 4(c)(1), 5(a)(1), 5(a)(2), 7, 42 U.S.C. §§ 4903(c)(1), 4904(a)(1), 4904(a)(2), 4906 (Supp. III, 1973).

109. See EPA Order No. 1110.18C, CHGE 1 (August 16, 1974).

achievement of all environmental goals. In order to prevent conflict and avoid duplication among environmental programs, state, regional and local systems for controlling development must be coordinated with the relevant federal mandates in a manner which best achieves the national environmental goals.

This conclusion has been reached in a number of recent studies commissioned by the Agency, which stress not only the necessity for greater intermedia coordination, but also for devising specific mechanisms to resolve conflicts.¹¹⁰

The Agency is becoming increasingly aware of these concerns in its own and other land use control programs. A recent EPA senior management meeting focused on this subject of program integration.¹¹¹ It was observed that the more the Agency learns about the interactions of various pollutants and the relationships between the media through which pollutants are transported, the more desirable it becomes to address problems through a "systems" or "intermedia" approach. PCB's (polychlorinated biphenyls) and asbestos fibers associated with the mining of taconite are recent examples of problems that are not restricted to water and air. The solutions to controlling pollution also cross media boundaries.

110. The University of North Carolina's Center for Urban and Regional Studies examined methods of implementing environmental goals in local planning and decision-making. It was concluded that a system for combining isolated methods and tools into a single coordinated planning process was needed, and that "some form of intergovernmental framework" was also needed to guide local planning. E. Kaiser *et al.*, *Promoting Environmental Quality Through Urban Planning and Controls*, February, 1974, (EPA Report No. 600/5-73-015).

Argonne National Laboratory, in a report published in March 1972, focused on the need for the EPA to supplement its role in coordinating federal environmental programs by encouraging local and state governments to engage in similar coordination. The report advocated the merging of land use programs and the integration of land use and environmental factors in transportation and other infrastructure plans. Argonne National Laboratory, *The Relationship Between Land Use and Environmental Protection*, March, 1972.

A similar conclusion was reached in a report by Daniel R. Mandelker and Susan B. Rothschild. The authors also noted, however, that encouraging greater coordination among federal, state and local environmental and land use control programs is inadequate unless a method for resolving conflicts with federal mandates is provided as well. D. Mandelker & S. Rothschild, *The Role of Land Use Controls in Combating Air Pollution Under the Clean Air Act of 1970, 1973* (a report to the EPA's Air Programs Office). The study is reprinted with minor changes in 3 *ECOLOGY L.Q.* 235 (1973).

111. A meeting of Senior EPA Headquarters and Regional Officials was held on December 1, 1975, in Washington, D.C. for the purpose of assessing past Agency progress and developing future environmental goals and objectives.

The removal of a pollutant from one media can lead to its release into another media such as air, for example, where incineration is allowed as a control technique. The meeting concluded that the Agency should make a major commitment toward program integration and that a process or guidelines would be developed for this purpose.

C. *Land Use Planning as an Integrative Device*

Land use planning, and land as an environmental media may well provide the key ingredient for program integration. Since pollution is locationally generated and spatially distributed, it is closely tied to uses of land. Thus, a land use focus should become more central to Agency missions in the future. This implies an Agency focus which would:

1. Add a pollution "prevention" to a pollution "abatement" mode of action through agency wide recognition of long-range environmental problems and prospects, and the development of intermediate and short-range strategies to deal with them (*e.g.*, economic incentives).

2. Seek to integrate individual EPA programs in order that they may be implemented on an intermedia basis. Where appropriate, land use would be emphasized as the focus for this intermedia approach to environmental management.

3. Improve the quality of state and local governments to more effectively implement environmental management programs.

4. Develop and emphasize the EPA's capability for working with other federal agencies whose actions impact on national/regional growth and thus on the environment.

5. Orient EPA programs to ensure coverage, accountability and protection of the full range of environmentally "critical" areas involving interests at national, state and local levels.

Current Agency goals are directed toward achievement of basic national commitments to environmental cleanup problems common to much of the country and which have arisen largely from existing patterns of plant location, equipment utilization, and community growth and development. As the means for achieving these basic goals become accepted and routinized, national attention can be expected to turn to preventive maintenance of the environment, and to addressing unique regional (sub-national) conditions. These new orientations will require insights about alternative growth and

development prospects for the nation, a knowledge of the spatial land use implications of these alternatives, and, as a result, a better handle on the new sets of pollution problems and abatement opportunities that the EPA may be expected to face. In short, a "land use-environmental policy" perspective could aid in fine tuning future Agency programs to respond to unique regional situations.

IV. CONCLUSION

Having considered the land use implications of current EPA programs, and the notion of land use as an integrating device for other environmental media, some important operational questions arise. Will Agency programs require further legislation in the land use area? Is it possible to achieve our objectives without new organic legislation? Must we mandate comprehensiveness, or can we make progress using an incremental approach?

These questions suggest that there is at least something to be said for incrementalism, or what one commentator¹¹² has termed euphemistically as "muddling through." It is much easier to focus initially on a single issue—*e.g.*, control of air pollution, protection of coastal areas, acquisition of recreation areas—and to coalesce various sectional interests to get necessary support. A moral which might be suggested from the failure to enact national land use legislation is: make progress a step at a time. Where dirty water is the problem, clean it up. Where polluted air is the problem, reduce the pollutant level. If energy is running scarce, conserve it. While these represent only partial attempts at progress or achievement, pragmatic considerations are not complicated by more comprehensive interrelationships and interdependencies.

Yet, this does not dismiss the case for comprehensiveness. Our ability to make intelligent choices for the future is constrained by our continued refusal or inability to establish, as a matter of conscious government policy, a mechanism for comprehensive long-range planning. We continue to view planning as synonymous with government intervention in decisions better left to private enterprise—as if lack of planning can somehow provide a guaranteed future for free enterprise. This strikes me as dangerous thinking in today's interdependent world. We clearly need a process,

112. See Lindblom, *The Science of "Muddling Through,"* 19 PUBL. ADMIN. REV. 79 (1959).

even an imperfect one, for identifying and assessing our choices for the future.

The really critical issues before this country are not immediate and isolated, but interrelated and long-range—indeed, the day-to-day “crises” that seem to capture all our attention and consume all our energies are simply manifestations of far deeper problems that we never seem to get around to acknowledging, much less addressing. The worn cliches that everything relates to everything else and that we live in an interdependent world has become the fundamental fact of our economic, social and political life. Our economic health and growth, our patterns of settlement and physical development, our social stability and strength—these all determine and depend upon a vast and intricate system of material (including food), energy and environmental resources. Under these conditions, we cannot hope to come to grips with the issues before us unless we strengthen our ability to assess problems and programs not simply in isolation, but in relation to each other.

It is possible to improvise an incremental approach to comprehensiveness. Indeed, some of the necessary ingredients for this approach seem to be already in place. States, and to some extent localities, are beginning to approach their problems more comprehensively—perhaps as a defense against the plethora of federal programs and requirements they are required to cope with. Confronted with numerous interconnected and conflicting requirements, state governors and their planners and budget officers are beginning to develop coordinative mechanisms to rationalize what it is they are supposed to do, what they may do it with, and what public benefits result from their effort. State environmental impact statement requirements,¹¹³ more imaginative use of the A-95 clearinghouse process¹¹⁴ and more comprehensive outlooks on

113. For a general discussion of state environmental impact statement requirements, see T. Trzyna, *Environmental Impacts Requirements in the States: NEPA's Offspring*, April, 1974 (EPA Report No. 600/5-74-005); see also T. Trzyna & A. Jokela, *California Environmental Quality Act: Innovation in State and Local Decision-Making*, October, 1974 (EPA Report No. 600/5-74-023).

114. OMB Circular A-95, promulgated pursuant to section 204 of the Demonstration Cities and Metropolitan Development Act of 1966, 42 U.S.C. § 3334 (1970), designates agencies with an areawide planning review function on a metropolitan scale, to comment on member jurisdiction applications for federal funding for a wide variety of public facility projects. The A-95 clearinghouse process is also in furtherance of the purposes of Title IV of the Intergovernmental Cooperation Act of 1968, 42 U.S.C. §§ 4231-33 (1970), which provides that “to the maximum extent possible, consistent with national objectives, all Federal aid for development purposes shall

functional planning requirements are some examples of these mechanisms.¹¹⁵

Federal agencies might also take a closer look at their planning assistance programs to determine how they can encourage these tendencies. The EPA's statewide section 208 planning requirements¹¹⁶ can be viewed as an opportunity in this regard. State planning agencies should be encouraged through funding and technical assistance to assume closer coordinating roles among the state air and water pollution control agencies, among environmental, economic development and growth management planning functions, and among the different agencies and levels of government. In turn, the areawide section 208 agencies need to face up to the realization that when section 208 funding support expires, results thereafter will depend on the bridges they are currently building to the funding and implementing authority resting with state government. The hoped-for outcome of such efforts might well be the emergence of comprehensive planning agencies in each state, responsible to the chief executives and with authority to deal with various federal programs on a coordinated basis.

Pursuing this incremental approach, it would be necessary for the federal establishment to put and maintain its own house in order. The placement of strong and meaningful coordinative mechanisms within and among the various agencies that impact on local community growth and development decisions is needed. Mutually supportive goals need to be solidified, conflicting program requirements remedied, and use of common planning data, projections and methodology encouraged. The federal interagency agreements involving coastal zone management, the Housing and Urban Development section 701 planning assistance program, and the EPA section 208 programs are good starting points.¹¹⁷ What is now

be consistent with and further the objectives of State, regional, and local comprehensive planning." 42 U.S.C. § 4231(c) (1970).

In addition, some states, for example Connecticut, have extended the review function of these designated areawide agencies to include comment on development proposals and zoning changes that occur within a certain distance from municipal jurisdictional boundaries. This added responsibility is a means of public disclosure to adjacent municipalities of possible impacts upon their physical facilities and public welfare.

115. See The Council of State Governments, *Integration and Coordination of State Environmental Programs*, September, 1975 (a report to the EPA).

116. See notes 83-87 and accompanying text *supra*.

117. These agreements between program offices of different federal agencies

required is specific program guidance and a review process to make them work.

A concerted effort also seems in order at all levels to articulate, formulate, manage and coordinate those broader policies concerning the nature of growth in individual communities. As recent court decisions have indicated,¹¹⁸ local communities are more likely to be permitted to chart their own destinies if they can demonstrate they have done so in a reasonable and non-arbitrary fashion. Their ability to do this would be greatly enhanced if the longer-range policies and program objectives of state and federal establishments were more deliberately formulated and effectively communicated. While some judicial decisions may be generally supportive of orderly growth management, they are usually rendered on an ad hoc basis and should not be regarded as a substitute for responsive long-range thinking and responsible comprehensive planning. Recognition of this has caused many local communities to embark upon or accelerate growth management plans and controls. It also suggests a closer look at federal programs and national objectives is needed to discover how they might con-

seek to streamline the flow of program guidance and funding assistance to state and local governments concerned with land use and environmental protection. They can be as informal as a "memorandum of understanding" or as formal as an "interagency agreement." An example of authority for pursuing such arrangements in the water quality area is found in section 304(j)(1) of the FWPCA Amendments, 33 U.S.C. § 1314(j)(1) (Supp. III, 1973).

118. In *Southern Burlington Co. N.A.A.C.P. v. Township of Mount Laurel*, 67 N.J. 151, 336 A.2d 713 (1975), the New Jersey Supreme Court invalidated the Township's zoning ordinances on the ground that they unlawfully excluded persons of low and moderate income. The court held that a municipality may not, through land use regulation, make it physically and economically impossible to provide low and moderate income housing for persons who need and want it, and that Mount Laurel's ordinances were contrary to public policy. The court viewed ecological and environmental considerations as inadequate reasons for limiting housing to single-family dwellings on large lots.

Five months later, in *Construction Indus. Ass'n of Sonoma Co. v. City of Petaluma*, 522 F.2d 897 (9th Cir. 1975), the Ninth Circuit reversed a district court opinion, 375 F. Supp. 574 (N.D. Cal. 1974), which had voided as unconstitutional certain aspects of Petaluma's five-year housing and zoning plan. The Ninth Circuit upheld the plan as rationally related to the social and environmental welfare of the City, stating:

[T]he concept of the public welfare is sufficiently broad to uphold Petaluma's desire to preserve its small town character, its open spaces and low density of population, and to grow at an orderly and deliberate pace.

522 F.2d at 908-09. See generally Comment, *Environmental Law and Residential Exclusion: Protecting the Environment or Preserving Neighborhood Status Quo?*, 2 COLUM. J. ENVIR. L. 102 (1975).

tribute to consistent and cohesive growth policy formulation, while preserving maximum local option and initiative.

Environmental protection programs can be short-sighted and off target if they do not fully account for their land use impacts and implications. Similarly, land use policies are meaningful only in the context of overall community growth—a context where tradeoffs between environment and economy, resource availability and consuming propensities, today's urgencies and tomorrow's aspirations are confronted and dealt with in an open manner.

Because land use decisions are so critical in determining the quality and character of our lives, the citizens of a given area or region and their elected officials must have the strongest possible voice in these decisions. Such decisions cannot be based upon a single concern or criterion—whether it be air quality, housing, or economic development. Instead, they must embrace the broad social, economic and ecological concerns and needs within an area or region. It was largely for these reasons that the EPA—in the significant deterioration regulations it recently issued¹¹⁹—refused to impose, by federal fiat and according to the single criterion of air quality, what would amount to an almost absolute prohibition against growth over vast regions of the nation.

One of the major challenges to our society, and specifically to our states and localities, is to deal effectively with the issues of growth. These issues will involve an increasing shift in emphasis from abatement to the prevention of pollution. In terms of technology, the EPA must seek not simply to encourage the development of more sophisticated kinds of "add-on" controls, but to push effectively for basic changes in the processes themselves. In terms of life-style changes and land use environmental policy decisions, the EPA must encourage the states and localities—and their citizens—to really come to grips with the complex and critical consequences posed by our patterns and pressures for physical growth.

These kinds of issues cannot be dealt with by handing out a grant or requiring the installation of a cleanup device. It is, moreover, in most cases not the job of a federal agency to make the basic decisions and choices concerning these issues—it is the job of citizens themselves to do so through the democratic political

119. 40 C.F.R. § 52.21 (1975); 39 Fed. Reg. 42510 (1974), *amended*, 40 Fed. Reg. 25004 (1975), *and* 40 Fed. Reg. 42012 (1975). The significant deterioration regulations are discussed at notes 48-52 and accompanying text *supra*.

process at the state, local and regional levels. It is an EPA responsibility to see to it that citizens, through the political process at these levels, face up to these issues in full knowledge of the consequences of alternative choices. It is, in other words, the federal responsibility to emphasize these issues by not only ensuring that states and localities do not continue to duck them, but by helping them make the appropriate institutional changes and to assure that the financial and technical resources available are effectively used. Too often we at the federal level tend to evade responsibility through the rhetoric of "turning things over to the locals." We must continue to take our responsibilities seriously and work with state and local governments and an enlightened citizenry in making the hard choices we must all live with.