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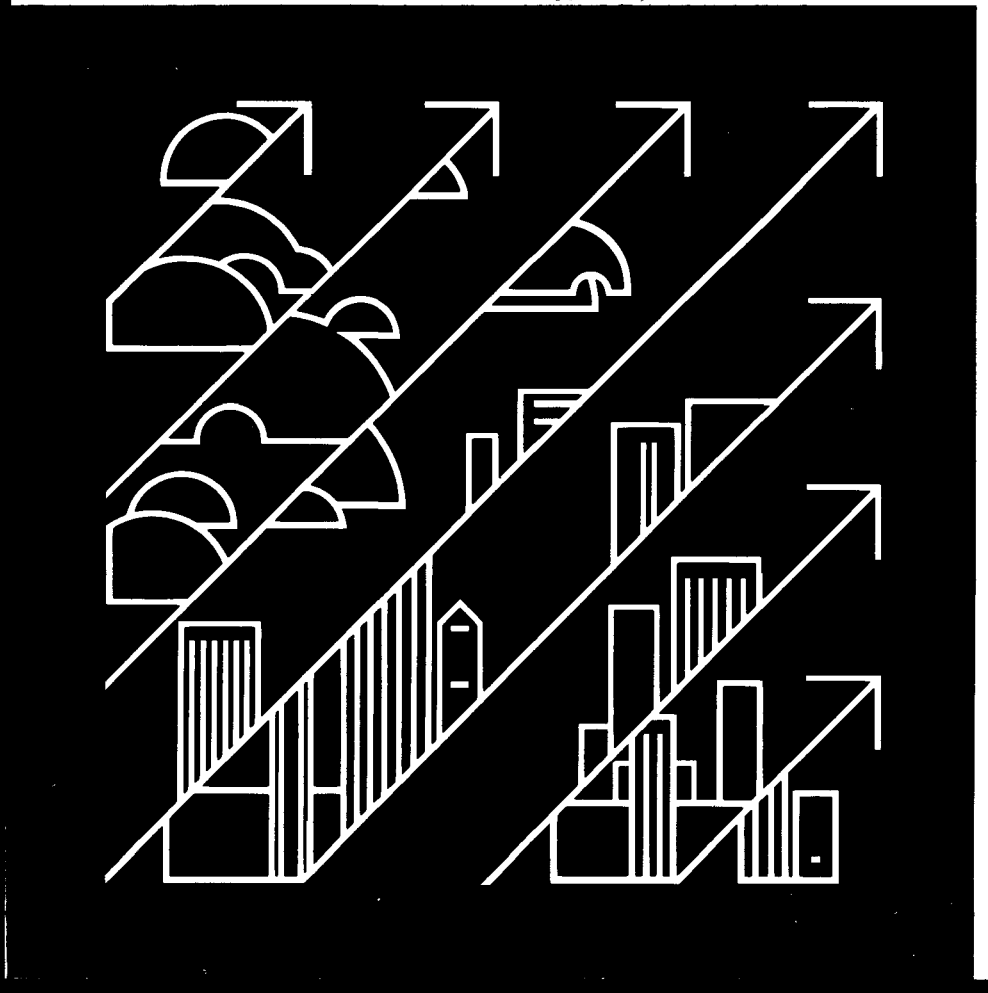
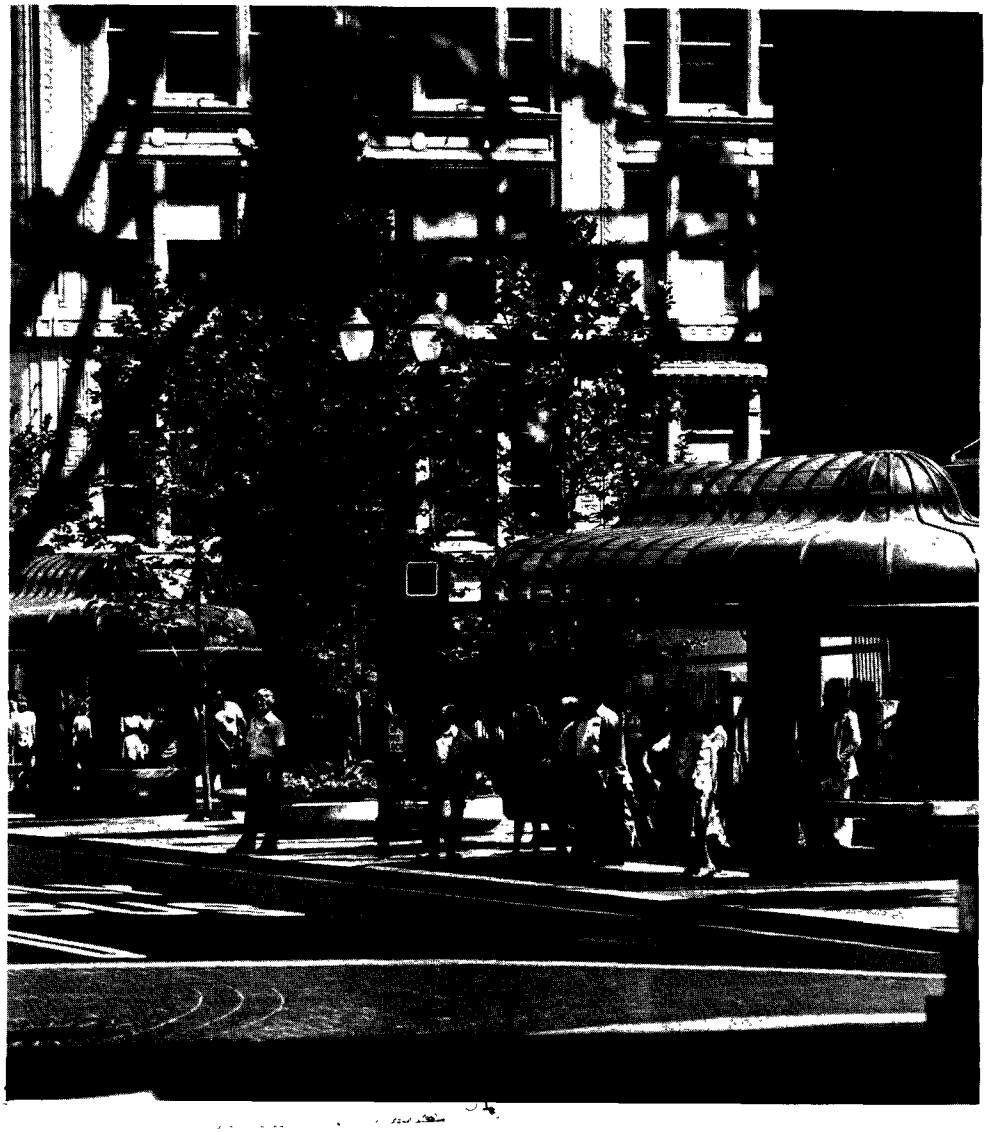
Air March 1980

EPA

Parallel Goals: Clean Air and Economic Development

Exploring New Strategies for Urban Areas





In the past three decades, problems of rising unemployment and decaying industrial and commercial centers in America's urban communities have been accompanied by abandonment or deterioration of old neighborhoods. As urban inhabitants—often followed by business—leave cities, seeking a cleaner, healthier and safer environment in which to live, property values drop, the tax base is depleted, and business decline accelerates.

Air pollution has contributed substantially to the general degradation of the quality of life in urban centers. The adverse health effects suffered by urban residents are widespread and the medical treatment is costly—as much as $10 billion annually according to one study.* Another study** estimates that a 60 percent reduction in particulates could result in a $36 billion annual savings to industry from lost time-on-the-job and lower worker productivity. Air pollution damages buildings and vegetation. Studies also show that air pollution decreases property values. In the Los Angeles area, a study*** found property values for similar homes were substantially lower in areas with high pollution levels.

Because air pollution exacts such a heavy toll, public support for environmental improvement remains high. Two recent nationwide polls found that about half the public favors enforcement of the strictest environmental standards, even if that would mean higher costs to business and to consumers. And according to a recent Gallup poll conducted for the National League of Cities, 60 percent of urban residents feel that not enough is being done to reduce air pollution in their communities.

Responding to these needs, in March 1978, President Carter announced a National Urban Policy that committed the federal government to the long-term goal of making America's urban communities more attractive places in which to work and to live. New federal initiatives under this policy are helping local governments plan and implement growth opportunities in a manner that addresses urban problems in a coordinated fashion.

As part of this policy, the Air Quality Technical Assistance Demonstration (AQTAD) program is a unique federally-funded effort to integrate two national goals of direct concern to cities and counties: cleanup of air pollution and revitalization of urban economies. It is an attempt to demonstrate that reduction of air pollution to levels scientifically determined to be healthful, as required by the Clean Air Act, is fully compatible with urban recovery efforts. The AQTAD program is an opportunity to show communities across the country how to incorporate air quality requirements into their economic development decisions.

Under AQTAD, the U.S. Environmental Protection Agency (EPA) and the Departments of Housing and Urban Development, Commerce, and Transportation are providing $3.5 million directly to the following eight urban governments: Boston, Mass.; Erie County (Buffalo), N.Y.; Philadelphia, Pa.; Chicago,

*_Health Costs of Air Pollution_, American Lung Association, December 1977.

**_Methods Development for Assessing Air Pollution Control Benefits_, Report developed for EPA Office of Research and Development, February 1979.

***Ibid

Ill.; Minneapolis and St. Paul, Minn.; Bridgeport and Waterbury, Conn.; Elizabeth, N.J.; and Portland, Ore. While these areas all share characteristics of distress such as job loss, inadequate tax base, and environmental degradation, they also all have aggressive economic development programs. With AQTAD funding, they will work to coordinate such programs with air quality planning. The ways in which they propose to accomplish this are summarized in this booklet. The information should help other jurisdictions devise innovative strategies suitable to their own situations.

Economic Growth and the Clean Air Act

Air Pollution: An Urban Public Health Problem

Even in healthy individuals air pollution has been directly linked with lung, throat and eye irritation, breathing difficulties and increased respiratory problems. Scientists are convinced that air pollution is a very real contributing factor to three major types of diseases that cause sickness and death in our society—heart disease, lung disease and cancer. Research has shown that air pollution will accelerate the rate of disease in those people already afflicted, and earlier death is a very real possibility. Air pollution is particularly burdensome on the very old and the very young.

The most common pollution problems in urban areas are *ozone* (the principal component of smog) and *carbon monoxide*. Both come primarily from cars, trucks and buses (ozone is not emitted directly, but is formed by a chemical reaction between nitrogen oxides, volatile organic compounds [generally referred to as hydrocarbons], and sunlight). Industry also contributes substantially to the ozone problem. *Sulfur oxides* and *particulates* are two other urban health hazards. These pollutants come mainly from coal and oil burning in industry and utility power plants. A less severe pollution problem in most areas is the level of *nitrogen oxides* which come from both vehicles and industry.

Urban areas generally have higher levels of dangerous air pollutants than rural areas because of the concentration of industry and the large number of motor vehicles.

The Clean Air Act, as amended in 1977, requires all areas to restrict the concentration of these pollutants to levels determined not to be unhealthful for humans. These levels, called National Ambient Air Quality Standards, must be achieved by the end of 1982,

although areas with severe auto-related pollution can receive an extension to 1987 for ozone and carbon monoxide. In order to keep clean air clean, Congress also mandated the Prevention of Significant Deterioration (PSD) of air quality where levels of the regulated pollutants do not violate the national ambient standards.

Areas that do not meet national standards for any one of the regulated pollutants are called nonattainment areas for that pollutant. Each State is required to develop and update a State Implementation Plan (SIP) identifying measures the State and its subdivisions will take to reduce existing emissions in order to meet and maintain national standards in accordance with the Act's deadlines. By law, the State is required to consult with local governments when revising this plan, and in areas that are nonattainment for ozone or carbon monoxide, must "jointly determine" with local elected officials the planning and implementation roles which the State and localities will play.

To allow for continued economic growth in nonattainment areas, the Clean Air Act permits States and localities to develop mechanisms that will permit new sources of air pollution to locate in nonattainment areas. However, the new pollution must not interfere with reduction of emissions to levels not harmful to health within the Act's time limitations.

To accomplish growth, new sources of pollution can be considered on a case-by-case basis, using an "emissions offset" mechanism. For example, if a factory that will emit sulfur dioxide wants to locate or expand in a nonattaiment area, sulfur dioxide emissions from other existing facilities must be reduced by at least the amount that will be added by the new factory. The reductions, called "offsets," can be made within other facilities operated by the owner of the new or expanding facility, or at plants operated by others. To create an offset, existing industries would have to control pollution beyond what is required by state and

federal regulations. Offsets might also be obtained by reducing pollution from cars or other "areawide" sources of pollution such as dust on city streets.

Another way to move toward clean air while allowing growth is to provide a built-in "growth cushion." In this case, the state air plan must require extra pollution control measures on existing sources that go beyond federal requirements.

Regardless of whether an emissions offset system, a growth cushion or some other combination of the two approaches is used, as long as total air pollution from both old and new sources continues to decrease, the nonattainment area will be making the required progress toward meeting ambient air standards.

To keep clean air, Congress included a separate regulatory framework for PSD in the Clean Air Act. It is important to note that most urban areas, even center cities, have attained standards for *some* pollutants, and are, therefore, subject to both nonattainment requirements for certain pollutants and PSD requirements for others.

The law permits a clean air area only limited increases in emissions. Just how much pollution may be added depends on the nature of the area. So-called Class I areas—mainly large national parks—are allowed almost no pollution. Most clean air urban areas are Class II for PSD pollutants, and are permitted moderate emission increases. If more industrial growth is desired, however, an urban area can petition for

reclassification as a Class III area. (If it wants *more* protection of its air quality in order to foster tourism and recreation, reclassification to Class I can also be requested.) In no case, of course, can air quality become poorer than national standards.

The levels of additional pollution allowed are referred to as PSD increments. Each time a new pollution source is constructed, a portion of the increment is used up. Additional major new sources cannot receive construction permits where total new emissions will exceed the increment.

Most often, permits have been distributed on a first come, first serve basis; this insures clean air, but may limit the type and amount of a community's economic growth in the future. Without local involvement, increment allocation by the State or EPA will not necessarily be consistent with local and regional long-term economic growth plans.

States and communities may also want to make room for more economic growth by reducing existing emissions through techniques similar to emission offsets or growth cushions.

The Clean Air Act and federal policy permit various mechanisms to cities, counties and States for integrating air quality and economic development. Any such mechanisms must be compatible with, and, in many cases, incorporated into SIPs.

The urban areas in the AQTAD program, often in conjunction with state agencies, are investigating, and in many cases implementing the following strategies:

Technical and Financial Assistance to Industry. Some businesses may lack the financial or technical resources to control their pollution, and may be threatened by the maintenance or installation costs of pollution control equipment required by law. New industries may also need help in meeting pollution requirements if they are to locate in an area.

Other companies may be able to meet federal air requirements, but will need technical or financial incentives if they are to invest in the additional emission reductions needed for an area's growth. If growth is to be accommodated on a case-by-case basis, new development cannot occur unless there are enough offsets on the market.

Cities and counties can help private industry by identifying potential emission reductions, accumulating information on state-of-the-art pollution control technologies, and analyzing the cost-effectiveness of alternative pollution control techniques.

A local one-stop permitting or referral service can cut red tape for companies wanting to expand or locate in the area.

Tax-free municipal industrial bonds for pollution control equipment have been a popular tool in recent years to help companies meet the costs of pollution control.

Other local financial benefits, such as reduced property tax assessment or municipal loans or loan guarantees for pollution abatement equipment are also being investigated.

A city or county with limited resources may want to target this assistance to firms meeting certain criteria such as need, size, type of industry and consistency with long-term development objectives. When used to create offsets needed to attract new industry, a portion of the revenue lost can be recovered as taxes paid by the new industry.

In addition, local governments can encourage firms to take *extra* measures to reduce pollution by promoting the profit-making potential of producing offsets for the use of others.

Emissions Offset Clearinghouse. One of the major problems for a new or expanding industry in a nonattainment area is finding emissions offsets and estimating their value. An emissions offset clearinghouse run by a local government or coordinated with the State can locate potential emissions reductions and accumulate information on control technologies and costs.

The clearinghouse would actively link up firms that need offsets with those that have or can produce them. A clearinghouse can also estimate the cost of generating each offset to establish its value. It would certify offset transactions and keep continuous track of them to make sure projected emission reductions are accurate and permanent.

Questions about public vs. private ownership of emissions offsets and the costs of administering a clearinghouse remain to be investigated.

Emissions Offset Bank. An offset generally is not created until there is a use for it. That is, an industry will not reduce pollution further than required by law until it wants to expand, or until another industry offers to finance the reduction for its own expansion. However, under the emissions banking concept, an industry could reduce its emissions now and deposit that offset in a bank to use later—when it wants to grow or wants to sell that offset to another industry.

In addition to reducing delays and uncertainties associated with locating reasonably priced offsets, an emissions bank can result in considerable long-run savings to companies with emission reduction potential. Because most state plans in nonattainment areas require companies to install some pollution control equipment, initial purchase of more sophisticated equipment capable of greater-than-required pollution abatement may be more cost-effective than purchasing additional equipment later, when an offset is needed for expansion or sale.

In order for local governments to become involved in emissions banking, the State plan must provide a sufficient legal framework.

Publicly-Owned Offsets. There are several potential sources for publicly-owned offsets: those actually produced by public facilities, those produced by private industry but bought by or accrued to the public, and those resulting from reduction of emissions from small private sources such as motor vehicles.

Local governments can reduce their own emissions by such activities as switching to cleaner fuels or cutting fuel use in public buildings through energy conservation

measures. They can take intensive measures to reduce the public automobile driving, or encourage energy conservation from small sources. To be considered an offset, however, all these measures must go beyond what is required by the state plan.

Local governments could also buy offsets created by private industry, or assume ownership of offsets, for example, from companies that close facilities. It is possible that local governments may be able to assume at least partial ownership of private offsets which they helped to finance or create.

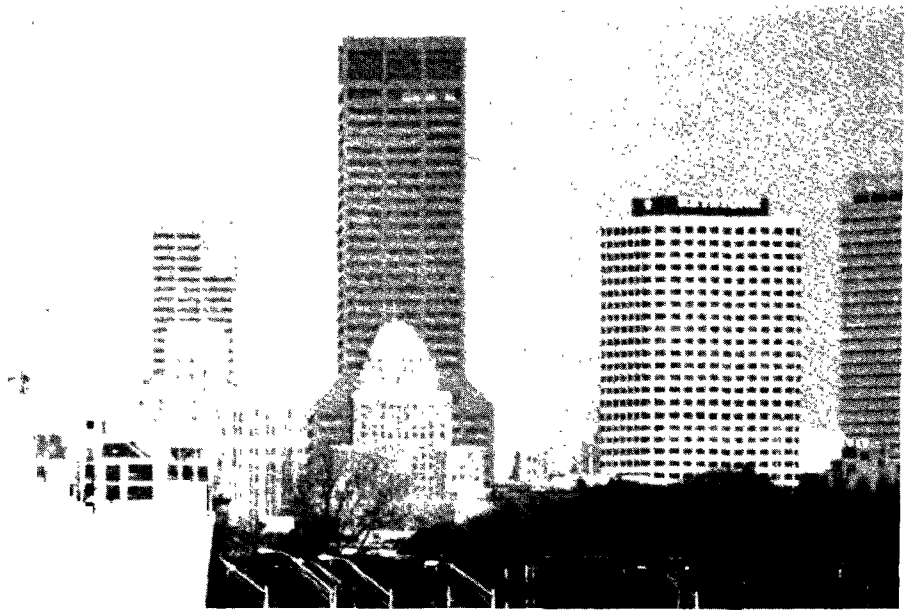
Allocation of Air Quality Offsets or PSD Increments. Local governments may want to allocate offsets or an increment of allowed pollution only to industries that further local economic or social goals. The ability of cities and counties to integrate these goals into air quality programs will be tested by several grantees in the AQTAD program.

Local governments can rank the industries or industry types which they would like to have or retain in their area. Criteria for ranking could include such things as number and type of jobs, income of employees, property or income tax generation, and quantity and type of pollution generated.

A city or county could then either directly allocate the available offsets or increments to high-ranking industries, or alternatively control the information about offsets and increments and agressively market it to desired businesses.

Emission Fees. The theory of emission fees is that placing a fee on each unit of pollution will encourage the polluter to continue adding controls until the cost of further controls exceeds the fee, at which point the polluter will opt to pay the fee. The fee can theoretically be set to produce any level of emissions control desired for an area—a higher fee results in more control and less emissions; a lower fee results in fewer controls and more emissions.

Although emission fees have the advantage of maximizing innovative and cost-effective control techniques, a number of serious questions remain. The fee may discriminate against companies whose industrial processes result in higher emissions, and require more expensive control tech-



niques than other industries. The fee must be carefully set to produce the desired amount of emission reduction without undue costs to industry. Difficult and costly monitoring and enforcement problems may be involved.

One city in the AQTAD program, Philadelphia, is experimenting with emission fees (see page 19).

Siting/Zoning Mechanisms. Ambient air quality information can be incorporated with other characteristics of a site to determine the suitability of a given location for development. This description could be used to identify the kinds of offsets needed for development or the growth margin available in each area.

In "emission density zoning," a metropolitan area would be divided into a grid, or a series of zones. Each zone or combination of zones can be assigned a ceiling level of pollution based on projections of future emissions. This sort of approach relies on computer models which use current emissions data, economic development projections, current land uses and land use plans, and climatic and geographical data to predict how air pollution will disperse throughout the area. Density limits for new or expanding plants can then be set which will assure progress toward clean air.

Former Senator Edmund Muskie, a chief architect of the Clean Air Act, said, "A community which chooses to languish in its current economic situation will need to make few of the really tough decisions. . . ." However, a community that wants to attract new economic activity will have to take an aggressive role. Trying new strategies means many unresolved issues will have to be addressed. The AQTAD cities will be among the first to face these questions squarely:

- How are air quality factors best integrated comprehensively with other local programs such as economic development, housing, transportation and public facilities investment?

- What can a local government undertake on its own and what is best done on a regional or statewide basis?

- How much control can and should a local government wield over allocation of that scarce resource—the capacity to pollute? How will the decisions of one local government affect the entire region? How should local governments work with the State to address these interlocal problems?

- How can state and local governments ensure that a private offsets market works equitably? That enough offsets are available to accommodate new economic activity? To what extent should an offset be regarded solely as property of the owner?

- What will be the effect of local government initiatives on locational preferences of industry? What sort of assistance will be most valuable to industry and to which industries should it be provided?

- Are there economic incentives to replace or supplement regulation that will work more efficiently toward clean air?

- Who should bear the burden of making room for new industry? Existing industries? New development? Area commuters? Or the community at large?

The AQTAD projects will result in an integration of federal and local development programs with state and locally-devised air quality programs in these eight communities. Federal development programs, such as Community Development Block grants, Urban Development Action Grants and the Public Works and Economic Development Act programs, are a cornerstone of growth management strategies in each. At this time, many state air quality plans have only vague outlines of growth management mechanisms. Local officals have the chance *now* to help the State form policy acceptable to them.

A successful air quality growth management program will not, of course, ensure economic development; other factors may intervene. However, by establishing a body of experience and knowledge, the air quality technical assistance demonstrations in the eight communities should encourage other local governments to formulate their own strategies.

The decisions involved are tough, but without aggressive action by cities and counties, they will be made by others.

Local Programs

The Boston Program

In the last 25 years, Boston's service industries have grown, but a severe decline in the manufacturing, trade and construction industries left the city with a net employment loss and a growing unemployed force of less skilled, lower income workers. To reverse this trend, the city launched a major effort in the 1960's that has attracted a billion dollars a year in public and private sector investment.

Recently, Boston was also selected by the U.S. Department of Commerce to develop a Comprehensive Economic Development Strategy (CEDS) program to encourage job creation for Boston's existing unemployed blue collar workers and to preserve the stability of neighborhoods in the city.

Autos and many of the industries Boston is trying to attract and retain are major emitters of hydrocarbons, a primary ingredient of smog. Extensive efforts to reduce hydrocarbons from cars have been underway since the mid-1960s. Thus, the emphasis of the Boston technical assistance grant is on stationary sources of pollution which contribute about 30 percent of the area's hydrocarbons.

Existing air pollution control programs require "reasonably available" controls for existing stationary sources. But this leaves a good deal of room for Boston's new program to create offsets for growth by promoting pollution reductions beyond the minimum control level.

Boston's program, administered by the Boston Redevelopment Authority (BRA) will create and bank offsets, publicize their availability, allocate them to new industries and assist industries in crossing any environmental hurdles to expanding or locating in the city.

To create offsets, the city will take direct action with city-owned hydrocarbon sources. After a thorough analysis of costs and benefits, Boston will select from such measures as cutting fuel use in public buildings and installing vapor recovery systems at city-run garages. Many measures will require only small or one-time outlays which can be partially recouped by the sale of the resulting offsets.

Getting privately-owned pollution sources to reduce emissions beyond the minimum required by law is also an important part of the plan. The city may provide tax benefits for existing sources that reduce pollution. Then when the offset is sold or given to new industry, the city could recover its costs through increased tax revenues from the new source. Technical and financial assistance on energy conservation will also be provided to small private consumers. In return, the city would gain ownership of the offset.

Once the offsets are created, Boston wants to allocate them to industries and other sources that promote its economic goals. The BRA will develop an industrial ranking system that considers such factors as:

- Retention of existing, expanding industries;
- Attraction of new industries to provide new manufacturing jobs;
- Evaluation of proposed plants to relate costs in terms of air emissions to benefits such as the number of new employees and increased payroll and municipal tax revenues.

The city will try to facilitate the sale of privately-owned offsets by establishing a clearinghouse at the Boston Air Pollution Control Commission. Industries will be encouraged to get together to generate and market their own offsets.

Finally, BRA will provide technical assistance to industries. Initially, this will take the form of a handbook outlining the steps for participating in Boston's offset program.

Later, when BRA identifies existing sources that need help in reducing pollution to create offsets, BRA will provide more comprehensive advice. The city could help existing industries find the most cost-effective pollution controls based on the market value of the offset, improve a plant's pollution control engineering and management skills, and evaluate investment options for buying controls. The city may concentrate on groups of industries with similar emission characteristics so that purchase of pollution control equipment could be done collectively.

Boston's plan is characterized by a concern for preserving existing firms as well as attracting new ones. The mechanisms developed in Boston could help other cities do the same.

Contact: Vivian Li, Director, Air Quality Technical Assistance Project, Boston Redevelopment Authority, 1 City Hall Square, Ninth Floor, Boston, Mass, 02201. (617) 722-4300, Ext. 381.

The Bridgeport and Waterbury Program

In the Naugatuck Valley of central Connecticut, intense development and a high population concentration as well as pollution blown in from other areas have resulted in the worst air pollution in the State. The area does not meet health standards for ozone, carbon monoxide or particulates.

Although the cities of Bridgeport and Waterbury are still major manufacturing sites, the area has experienced a decline in economic activity over the last generation. Employment is clustered in old facilities along the Naugatuck River. Five major companies have left the area since 1970. Both cities have initiated major economic development programs to change this trend.

The air quality technical assistance grant will draw upon the commitment and expertise of nine agencies at three levels of government in an intense cooperative effort to reach the parallel goals of clean air and economic revitalization.

Small and mid-sized municipalities, the cities of Bridgeport and Waterbury, regional planning agencies, the state Departments of Environmental Protection, Transportation and Commerce all have essential roles to play. A Management/Advisory Group will be made up of representatives from each of these agencies to oversee the project. The Naugatuck Valley Task Force, which was established by the Governor to promote economic development and includes business representatives, has also made a firm commitment to the program.

The Connecticut Department of Environmental Protection (DEP) will determine the ambient air quality and potential offsets in the valley from stationary and mobile sources, including those that are not currently regulated. The survey will include cost

estimates for each type of potential offset. The Department of Transportation will assist with identification of mobile source offsets; the state Department of Commerce will identify offsets from shutdowns and other stationary sources.

The resulting inventories can be broken down into small geographical areas. The growth margins available to individual communities in the valley will then be known. This information will enable each local government to have specific data for land use and growth management decisions.

The Valley Regional Planning Agency will study the rights of local communities under the Connecticut SIP to manage the growth margins available to them, and will suggest how municipalities can control and regulate the sale of privately-owned offsets or increments. It will also recommend an efficient system for keeping records of offsets created, banked and transferred.

The Central Naugatuck Valley Regional Planning Agency will evaluate 21 industries already identified as having a competitive advantage in a Connecticut location to determine the balance between jobs and pollution in a given firm. The results of this study would be used to further target marketing efforts for local industrial parks.

DEP will work with the cities of Bridgeport and Waterbury to produce case studies of possible air quality constraints on three industrial park projects to show the alternatives that are possible for full development.

The transportation, community and economic development and environmental protection agencies of the two cities will consider specific measures to create emission offsets for the future—for example, the coordination of residential with industrial development to reduce commuter trips, or financing by cities to pay for private offsets. The local governments and regional agencies can then incorporate air quality requirements into their economic development planning.

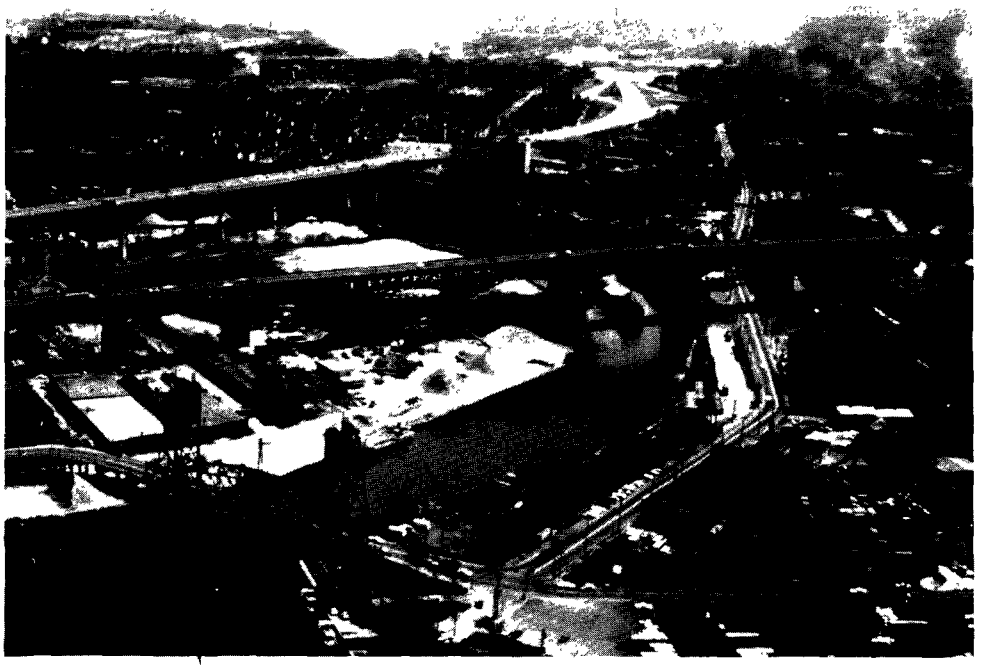
Waterbury will implement some of the more advanced pollution reduction measures to demonstrate their effectiveness in providing a margin for greater economic growth. The Waterbury demonstration program will also test the feasibility and legality of an offset banking system.

The Greater Bridgeport Regional Planning Agency will assist smaller communities in the area and study whether some development projects might be diverted to nearby suburbs where air quality considerations or the availability of offsets are more favorable. This could be done with minimal harm to Bridgeport if there is public transit to the jobs and if there is a sharing of tax revenues generated by the development.

The Bridgeport-Waterbury effort may show how regional cooperation in both economic development and air quality can eliminate institutional and government barriers. City officials are confident that new industries are ready to move into the area; the AQTAD program will help the Naugatuck Valley realize its full economic potential.

Contact: Ned Moore, Director, Air Quality Technical Assistance Project, Office of Community Development, City of Waterbury, Waterbury, Conn. 06702. (203) 547-6777.

The Erie County (Buffalo) Program



Thorny environmental problems combine with severe economic decline and fragmented local governments to make Buffalo and surrounding Erie County a tough test for reconciling clean air and economic revitalization

The county includes rural, suburban and urban land—clean air as well as nonattainment areas. Much of the county's densest urban center has severe air pollution problems and does not meet standards for ozone and particulates. This area includes a large part of the traditional industrial zone, a fact that places limits on the expansion potential of the Buffalo area's heavy industrial base, especially steel, coke, chemicals and grain milling.

The selection of the Erie County Department of Environment and Planning (ECDEP) as principal coordinating agency for an air quality demonstration grant will provide a regional forum for cooperative solutions to these problems. Three different units of government will be working together: ECDEP, the Erie County Industrial Development Agency (ECIDA), and the city of Buffalo. A policy committee and a technical advisory committee guiding much of the proj-

ect activity will ensure region-wide representation and commitment to the program.

The goal of the Erie County (Buffalo) project is to use a package of government services as an incentive to industries for expanding or locating in the county.

The project will develop a system for identifying, tracking, expanding and distributing available air pollution offsets, relying as much as possible on private economic incentives to spur development. The ECDEP will administer an offsets information center which will combine air quality data with other site information. Computers will be used to provide officials and business people convenient access to accurate air quality data. A possible addition to the service would be the creation of an offsets bank.

ECDEP will also consider ways to create additional air quality capacity to accommodate growth, including public sector emission reductions. The county wants to develop the capacity to measure the effects of changing federal, state and local policies on regional development goals.

ECIDA, the regional economic planning body, will participate as a full partner in achieving AQTAD goals. In addition to helping to develop and administer the offsets information center or other trading mechanisms, ECIDA will develop a one-stop air quality, financial assistance and technical advisory service for industrial firms targeted as high priority in the regional development plan. After assessing the financial needs of industry, ECIDA can put together federal, state and local loan packages, including sources such as the Small Business Administration, Economic Development Administration and the county's own industrial revenue bonds. Special emphasis will be placed on assisting as many as 600 small and medium-sized firms, industry with the greatest local growth potential, to relocate or expand in Erie County.

The city of Buffalo will be developing a land reuse plan for the southern industrial half of the Lake Erie waterfront. Although offering some of the finest economic growth opportunities in the county, much of the waterfront currently is a nonattainment area.

Buffalo will be looking at the existing land uses and the proposals for redevelopment as well as the interrelationships of the public and private sector in the area. After analyzing the effects of different development alternatives, the city's Department of Community Development, working with ECDEP and ECIDA, will devise a long-term land redevelopment strategy that makes best use of both air resources and economic development potential. ECDEP will eventually reexamine municipal land use and zoning ordinances in the whole county.

Involving the diverse local, special, regional and state units of government will minimize legal, political or administrative roadblocks in the future. A regional approach is implicit in any clean air or economic development strategy; in Erie County, that approach will be explicit.

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The Elizabeth Program

The city of Elizabeth, N.J., lies within the New York–Philadelphia urban corridor. Like the rest of the State and surrounding area, Elizabeth does not meet the minimum health standard for ozone. It also does not meet the standard for carbon monoxide.

Elizabeth is confronted with many of the economic problems of an older industrial city but, through its Industrial Commission and the Union County development committee, the city government has done much to arrest its decline. For example, the city has just initiated development of a 500-acre industrial park.

Elizabeth has also operated its own air pollution control program for a decade.

The city already has a basis for the new demonstration program in its Comprehensive Land Development Control Ordinance and a master planning program which provides for the integration of economic development and environmental requirements. Also, a county authority already offers financial assistance to industries for pollution control equipment.

The city's objectives for the new program are two:

- To evaluate stationary and mobile source control options for potential reductions in emissions which would allow expansion of

existing industries and attraction of new facilities; and

- To integrate potential offsets into the development review process.

Project activities will begin with an inventory of pollution control equipment currently used by each industrial facility and an inventory of vehicle emissions produced by employees traveling to and from those plants. Then, an analysis will be made of improvements in stationary source control equipment, as well as alternative transportation facilities to reduce transportation-related emissions.

The analysis and recommendations for further pollution controls will be supervised by task forces of federal, state and local officials, concerned not only with Elizabeth but with the whole of Union County.

The city will then establish an "emission capacity" for land areas based on projections of possible offsets and identify areas suitable for future industrial growth. The Land Development Control Ordinance will be altered by the city council to specify the level of control that must be attained by new or expanded industries in each land-use zone.

A city air quality coordinator will ensure that stationary and mobile source emissions meet requirements, that they do not exceed the emission limit for the land-use zone and that sufficient emission offsets are procured where necessary.

The public and private sectors will be partners in attaining "clean air for progress." Current waterfront and industrial park development indicates the partnership is working. The city's marketable location and proximity to air, land and sea transportation facilities are valuable economic resources. Compliance with national ambient air standards and economic growth will be made possible by the innovative thinking, financial redevelopment and retooling support provided by the AQTAD grant.

Elizabeth is weighing the possibility of obtaining significant emission reductions through car and van pooling. Off-site parking areas coupled with mass transit could reduce single passenger automobile trips.

Elizabeth is relying heavily on industry cooperation to put these car and van pool measures into effect. Compliance will be voluntary and no city funds will be available to buy vans.

Because experience in other areas has shown that emission reductions from these sorts of measures are small and hard to quantify, Elizabeth is also considering other area source reductions as offsets, so that its program will not falter on over-optimistic projections.

Using mobile emission reductions as well as stationary source controls to obtain offsets is an attempt to expand responsibility for achieving cleaner air and economic growth. The city's experience will be a guide for other areas with substantial transportation-related pollution.

Contact: John N. Surmay, Director of Health, Welfare and Housing,
60 West Scott Place, Elizabeth, N. J. 07207,
(201) 353-6000, Ext. 200.

In the past nine years, employment in Philadelphia has declined by 130,000 jobs—80,000 in manufacturing—a decline twice that of the city's population loss. At the same time, pollution has become severe due to the combination of too many cars and emissions from older, dirtier industries.

Philadelphia does not meet health standards for ozone, carbon monoxide, particulates, or sulfur dioxide.

The city's officials recognize that, to reduce their growing unemployment rate, they must retain existing plants as well as attract new ones, even though many of the older facilities are operating in deteriorating buildings and face other physical site and economic problems.

Perhaps because of the difficult economic problems Philadelphia has had to face, the city's commitment and ability to foster economic development is substantial. The AQTAD grant will be administered by a consortium of city agencies with a demonstrated record of cooperation and achievement: the Philadelphia City Planning Commission, the Philadelphia Industrial Development Corporation and the city's Air Management Services.

Initially, the city will be collecting basic information and establishing mechanisms necessary for a successful air quality/growth management program. The project will include air quality considerations in the city's development by identifying advanced control technologies and expanding financial programs to target industries.

Target industries will be chosen based on a broad range of criteria, such as their potential for remaining in the city, anticipated cooperation with the city and their economic benefit. This effort may forestall some closings by letting industries know that the city is preparing to assist them. A secondary objective is to identify new industries that might be persuaded to locate in Philadelphia.

An inventory of advanced and innovative pollution control techniques for targeted in-

dustries, along with financial assistance, will help businesses obtain the most advanced control measures they can afford. To pay for installation of this equipment, the city will investigate new financing programs, such as public-private investment pools, insurance for private lenders, and innovative loan programs such as those already established in New York and California. The needs of small industrial firms will be given priority; the local development corporation which handles Small Business Administration loans will be expanded.

An offset clearinghouse will be established early in the program. The clearinghouse will publicize availability of offsets, certify and record them, arrange purchase of offsets by the city as they are created and transfer offsets through gift or purchase to industries that need them. Philadelphia will be retaining close control over the distribution of offsets to ensure that they assist targeted industries.

The city has set aside considerable time and resources to investigate the possible legal and institutional hurdles to an offset program, such as who owns the emissions reductions when a company goes out of business.

Philadelphia will also explore region-wide implementation of the offset clearinghouse and other growth management measures. Through Philadelphia's representation on the Delaware Valley Regional Planning Council, the air quality grant will be coordinated with the surrounding counties and municipalities in both states in the Philadelphia metropolitan area.

The city's unique contribution to the AQTAD demonstration program will be its experiment with emission fees. Emission fees rely on economic incentives rather than regulation to reduce air pollution from industry. Although many economists feel the approach makes sense, emission fees have yet to be put into effect by any level of government in the United States. The city is very concerned about the possible inequities of emission fees and will be examining ways to distribute revenues from the fees to industries. Philadelphia will be reviewing legal feasibility and the city/county/state tax structure, as well as the technical data needed to set fees and reallocate revenues. Industry reaction to a "reallocated emission fee" approach will be assessed.

The city will also explore the use of extra reductions from transportation sources as offsets for economic development. However, because of the city's continuing difficulty in meeting the ozone standard by 1987, all its reductions in transportation emissions may have to be allocated to that effort, leaving none for transfer to the industrial sector.

Philadelphia's commitment to the program extends beyond the two-year federal grant because the mechanisms established under the grant will be carefully integrated into ongoing city departments and agencies. Improving air quality will become a permanent part of Philadelphia's revitalization efforts.

Contact: Elba C. Pellecchia, Chief, Comprehensive Planning, Philadelphia City Planning Commission, City Hall Annex — 14th Floor, S.E. Corner Juniper and Filbert Streets, Philadelphia, Pa. 19107, (215) 686-4609.

The Chicago Program

In just ten years, Chicago's manufacturing job base has eroded by one-third, mostly in high unemployment minority areas. Air pollution levels during the same period of time have shown improvement. Due primarily to conversion of city buildings to natural gas and to regulations limiting fuel oil sulfur content, Chicago now meets the minimum health standard for sulfur dioxide and has significantly reduced levels of particulates. But, despite efforts of the city's air pollution control agency, now in the Department of Inspectional Services (DIS), large sections of the city still violate the particulate standard and the entire Chicago area has unhealthy ozone and carbon monoxide levels.

To counter the decline in manufacturing employment, Chicago has used city and federal funds to develop a comprehensive approach, the Chicago Plan, to create new industrial development. The Chicago Economic Development Commission (EDC) has been a moving force in the Chicago Plan which targets for redevelopment industrial areas located in these high unemployment neighborhoods. These areas are also those with the highest pollution in the city.

While both EDC and DIS have been aggressive in their own areas of jurisdiction, air quality improvement and economic growth have been treated as independent issues. The air quality technical assistance grant was awarded to help create a partnership between the two city agencies.

The Chicago area transportation control plan addresses one category of the city's major air pollution sources—motor vehicles. Therefore, the city has chosen to focus its air quality technical assistance grant on stationary sources of pollution. The project's goals are to promote the creation of emission offsets with a city-administered offset bank, and to use financial assistance to both create offsets and to help new and expanding firms obtain pollution control equipment.

Two new planning councils will be formed. The In-City Review Committee, made up of city department heads, will develop policies for allocation of emission offsets to industries and recommendations for the use of public funds for any capital improvement needs identified by the program. This group will also review and evaluate the air quality demonstration program as it progresses.

An Advisory Council will consist of the directors and staffs of the city departments involved, and several representatives from industry. The Advisory Council will enable city staff to get industry's reactions to proposed policies before putting them into effect.

As a first step, the city must learn who is producing what types and amounts of pollution, and the cost and degree of control technology being used at each facility. DIS will establish a technical base to begin an offset banking system and identify ways to create more offsets for the bank. At the same time, EDC will be interviewing companies that are representative of their industry. They will be eliciting industry views on potential offsets needed and available, as well as gathering data on potential job loss, tax base contribution, payroll, minority representation and skill level of employees.

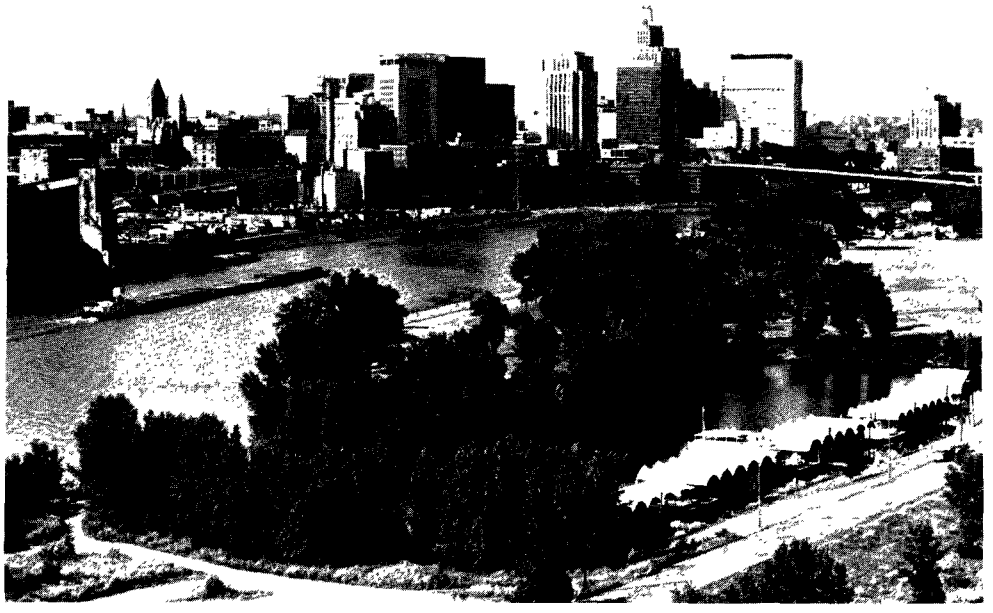
Both agencies will be working to link the environmental permit system with Chicago's existing one-stop service at EDC. The one-stop service provides direct assistance to industries to alleviate any problems a company might have either with staying in Chicago or locating there. It expedites the processing of all local, federal and state permits and solves problems involving city services. It also locates, purchases and prepares sites for industrial expansion. To this service will be added the information available from the offsets bank.

EDC will be assisting existing Industrial Councils to work with companies that want to develop emission offsets. With DIS providing the technical support, EDC will develop recommendations on the air quality, technological and financial needs of area companies, making sure that the unique needs of smaller companies are accommodated.

The Chicago air quality grant should bring permanent benefits to the city's urban revitalization effort. The city has pledged to carry on the program after the federal funding has expired, although an intensive evaluation after the initial two years may serve to refine the process.

Contact: Edward Petkus, Air Quality Technical Assistance Demonstration Project Manager, Department of Inspectional Services, City Hall—Room 900, 121 N. LaSalle, Chicago, Ill. 60602. (312) 744-4081.

The Minneapolis and St. Paul Program



Air in the Twin Cities of Minneapolis and St. Paul has more ozone, carbon monoxide, particulates and sulfur dioxide than meet health standards.

During the period 1961–1975, Minneapolis's economy as well as its air suffered. Due to plant obsolescence and high land costs, industrial and commercial employment declined by 15 percent. St. Paul's economy in the same period remained stagnant.

Each city has already taken steps to improve its environmental and economic prospects. The cities, with their areawide agency, the Metropolitan Council, have formulated a regional plan for attainment of air quality standards and have separately developed plans for the revitalization of their central business districts.

One of the unique aspects of the Twin Cities area is the system of regional cooperation that has been developed. The seven-county Metropolitan Council oversees transportation, housing redevelopment, public facility investment, and land use, as well as air quality. The air quality technical assistance demonstration grant will enable the Council to add a regional air quality demonstration program that stresses community and economic development.

The Council will be exploring an in-

novative zoning strategy using emission density limits. One form which these limits might take is a jurisdiction or district emission quota, obtained by dividing up the metropolitan area into grids and forecasting land uses for each. Based on these projections, planners could estimate future emissions in different areas and establish ceiling levels of pollution which could not be exceeded. Floating zone quotas, another option for guiding growth, would stipulate that a new source could not add more than a certain amount of emissions within a given radius of its proposed site. Thus, growth in one area would be dependent on the growth that occurs adjacent to it.

Once the cost and feasibility of each zoning option is established, the Council will draft model zoning ordinances and submit them to the local governments in the region. Although the Council has no authority to require cities and counties to enact these measures, the state Land Use Planning Act gives the Council approval authority over local land use plans. The ordinances, when enacted, would be integrated into the zoning and land use provisions that are part of the metropolitan area redevelopment scheme.

The major attraction of this emission density zoning plan is that it provides a capability to integrate air quality assessments with capital improvement projects in transportation, waste management and open space.

Although the Council is principally interested in applying these zoning concepts to the cities of Minneapolis and St. Paul, the actions will have regional implications. For example, in order to provide enough of an incentive for certain industries to locate or stay in downtown areas, more restrictive air quality limits may be necessary in outlying areas. The broad land use objectives in the Twin Cities area call for economic growth to occur in the "public service area" where such services as water and sewer already exist or are planned by 1990. This area is much larger than the boundaries of the two major cities.

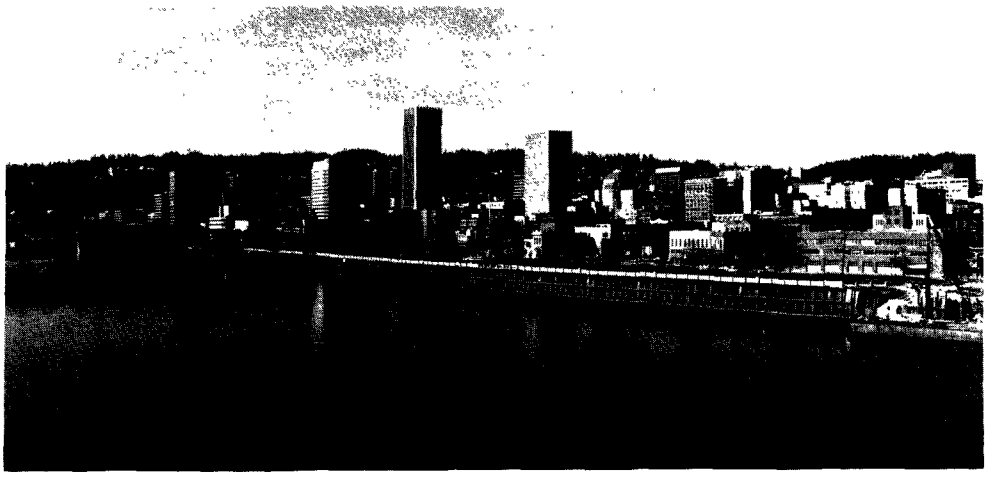
The Twin Cities metropolitan area is also unique in that the property tax revenues from new development are shared in part by all jurisdictions under the Fiscal Disparities Act. This regional revenue sharing could make it politically less threatening for jurisdictions to enact strict emissions zoning ordinances because of the potential for sharing some revenue from growth occurring elsewhere.

The Council will also consider various other metropolitan management strategies. Examples include an offset banking system to reallocate emissions savings from one area to another or the use of economic incentives such as tax breaks to encourage industries to install pollution abatement equipment.

The Metropolitan Council has made specific provisions for continuation of the project beyond the demonstration program. One objective of the program is to devise mechanisms which are not only innovative but simple enough to be applicable in other areas.

Contact: Ray Thron, Director, Air Quality Project, Environmental Planning Division, Metropolitan Council, 300 Metro Square Building, Seventh and Robert Streets, St. Paul, Minn. 55101, (612) 291-6409.

The Portland Program



In Portland, a burgeoning population of suburban commuters and a topography that creates frequent incidents of stagnant air have led to an increase in ambient air pollution. The Portland area does not meet national air standards for ozone or carbon monoxide.

Portland has embarked on a central city economic revitalization effort. The city was the first in the country to be designated by the U.S. Department of Commerce for the CEDS program.

The completed CEDS plan did take air quality and transportation considerations into account. The new air quality technical assistance demonstration grant will allow the city to refocus its CEDS development program to achieve air quality goals.

Portland has already instituted an extensive number of control measures to reduce transportation-related pollution, including emission inspection and maintenance of vehicles, downtown parking limits, bus and carpool lanes, park-and-ride programs and a transit mall. The city's development program has also tried to minimize pollution from vehicles of workers commuting to industrial centers by promoting new construction near commercial and industrial locations served by transit.

Measures beyond those considered in the state air quality implementation plan could allow industrial expansion that is currently precluded by high pollution in certain areas. The demonstration project will focus on reducing transportation-related pollution in the Swan Island industrial area. Employment on the island, which lies in the center of Portland, could double by 1990 if pollution is significantly reduced.

The Swan Island Transportation Committee will coordinate the project. Swan Island employers sit on the committee with staff from the Port of Portland (owner of Swan Island), Tri-Met (the regional transportation agency) and the city of Portland.

The project involves three components:

- Four new bus lines to the island, based on surveys showing residential concentrations of Swan Island employees.

- An intensive marketing program of brochures, posters, route maps, a carpool matching service and a personal campaign in employee neighborhoods.

- Free transit passes to promote bus ridership for up to four months, funded by city, regional and federal money.

Six firms have been selected for a more intensive planning effort and will work with the city in developing unique transportation schemes to reduce employee auto trips.

The Portland proposal contains an explicit plan for evaluating the effectiveness of an incentive approach to changing commuter travel behavior. The city, Port of Portland and the regional transit agency will monitor auto traffic into Swan Island and increases in transit ridership to determine the extent of reductions in auto trips. The reductions can then be related to a decrease in air pollution emissions. The participating agencies will also conduct opinion surveys to determine which marketing and incentive devices were most effective in inducing people to switch to bus or vehicle pools.

If the project is successful on Swan Island, Tri-Met and the city are committed to continuing the project as part of their regular operating budgets. The Swan Island project would also be the first step in expanded transit service to the five other inner city industrial areas with similar access problems for more than 60,000 employees.

The control strategy would become a permanent part of Portland's air quality and economic development planning.

The second part of the Portland program is the development of a growth management strategy for the area. Without it, the area could soon face a moratorium on new development.

The management study must first determine how much room in the airshed is actually available for growth by identifying the potential emissions reduction by each facility and the probable cost of the reduction. The reductions will be ranked on a cost/benefit basis.

Then, an analysis will be made of all the major growth management alternatives, including consideration of institutional, financial and regional factors. The growth margin, emission offsets and land use/zoning alternatives as well as combinations of these and other strategies will be considered.

A specific recommendation will then be presented to the Air Quality Management Committee, which is charged with managing growth. Ultimately, a strategy for the Portland area will be proposed as part of the Oregon SIP.

In this way, local government will have as much control as possible over decisions about local development while progress toward clean air is made.

Contact: Cynthia Kurtz, Office of Planning and Development, 620 S.W. Fifth Avenue, Room 610, Portland, Ore. 97204, (503) 248-4293.

Air Quality Technical Assistance Grant Program:
Summary of City Activities

[1]Receives Sec. 302 planning money from EPA
[2]Has developed a Comprehensive Economic Development Strategy (CEDS)
S Study
*Emission density zoning

Activity	1.2 Boston	1 Br/Wat	1 Eliz	1 Buf/Erie C.	1.2 Phil	1.2 Chi	M/St. P	1.2 Port
Offset clearing (assemble & distribute info. on sources of offsets)	X	X		X	X	X	S	S
Offset banking		X		X	X	X		S
Develop strategies to create city owned offsets	X	X	X	X		X		S
Allocation of offsets (city develops methodology to distribute offsets)	X	X	X	X		X		S
Legal analysis of offset issues		X		X	X		X	S
Rank ordering and targeting industries for technical & financial assistance	X			X	X		X	
Technical assistance/target technology (includes inventory of pollution equip. in use, analysis of potential reductions)	X	X	X	X	X	X		S
Transportation improvements intended to create offsets		X	X		X			X
Financial assistance for pollution abatement equipment or tax inventories	X			X	X	X		
Small and medium business emphasis	X	X		X	X			
One stop permits						X		
Siting/Zoning (Air Quality info combined with indust. siting info)		X		X	X		X*	
Case studies/strategies applied to specific areas of city		X		X		X		
Emission fees					X			

Glossary

Air quality standard: (see NAAQS)

Ambient air: the surrounding air (see also emissions)

Areawide sources of pollution: emissions that do not come from a particular facility. They can be mobile sources, such as cars, or stationary sources, such as unpaved roads.

Attainment area: an area meeting national ambient air quality standards for a given pollutant.

Carbon monoxide (CO): an invisible gas often produced from incomplete combustion in car engines.

Control technology: the equipment or process change used by industries to control pollutant emissions. The Clean Air Act sets up a complex system to decide what kind of technology is required based on availability and cost.

Emissions: air pollutants discharged into the ambient air.

Emission standard: a limit set for the amount of a given pollutant a particular source may emit into the air.

Hydrocarbons: substances such as gasoline vapors, paint thinner and alcohol made of hydrogen and carbon. Hydrocarbons react with nitrogen oxides in sunlight to form photochemical oxidants such as ozone.

Mobile sources: cars, buses, trucks, airplanes.

National Ambient Air Quality Standards (NAAQS): Federal standards that set maximum levels for several pollutants: ozone, carbon monoxide, sulfur dioxide, total suspended particulates, hydrocarbons, nitrogen dioxide and lead. Primary standards protect human health; secondary standards protect public welfare (plants, animals, aesthetics).

Nitrogen oxides: gases which result from high temperature combustion processes or from chemical plants.

Nonattainment area: an area dirtier than NAAQS for a given pollutant.

Offset: a procedure whereby a new or expanding pollution source in a nonattainment area must arrange for the reduction of pollution from existing sources by more than the pollution to be added. States decide how *much* more will be necessary to maintain progress toward meeting air standards.

Ozone (O_3): The principal photochemical oxidant.

Particulates (total suspended particulates): suspended particles in the air.

Prevention of Significant Deterioration (PSD): a provision of the Clean Air Act that protects already clean air by limiting the amount of additional pollution that can be emitted by new sources.

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PSD increments: the amount of new pollution that can be emitted in a clean air area.

Reasonable further progress: areas must reduce pollution by a given amount per year until standards are attained by 1982 or 1987.

State Implementation Plan (SIP): a plan prepared by States (in consultation with local officials) which must be approved by EPA, that outlines strategies for achieving and maintaining the goals of the Clean Air Act.

Stationary sources: non-moving pollutors such as manufacturing industries and utility plants.

Sulfur oxides (SOx): gases which result from burning of sulfur-containing fuels in industry and power plants.

Transportation Control Plan: part of the SIP designed to make certain that traffic emits the least pollution possible. Includes measures to reduce reliance on private cars.

Transportation-related pollutants: principally ozone and carbon monoxide.

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