

A
STATE IMPLEMENTATION PLAN
FOR
PHOTOCHEMICAL OXIDANTS

September 1978

PREPARED BY THE
OFFICE OF AIR QUALITY PLANNING AND STANDARDS
STRATEGIES AND AIR STANDARDS DIVISION



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

Mr. Harry H. Hovey
Chairman, STAPPA
Director, Air Pollution Control Board
New York State Dept. of Environmental
Conservation
50 Wolf Road
Albany, NY 12223

Dear Mr. Hovey:

During recent months, we have received requests from State and Local Air Pollution Control Agencies, and from our Regional Offices concerning the need to develop information documents on photochemical oxidant. In responding to this need, two projects have been undertaken after discussions with Tony Cortese of STAPPA. These documents represent compromises between what was desired by STAPPA and the time and resources available to me. I hope that they will be helpful.

The first one, accomplished under contract to the Stanford Research Institute, was the preparation of a short document written in non-technical language directed to mayors, councilmen, informed laymen, and others in the local public decision making process. The main theme of the document is to advise this target group that ozone is a significant air pollution problem in nearly all U.S. cities and that SIPs having a sound technical basis are needed to resolve the problem. A draft of this public information document has been provided as reference VIII-3. The final copy will be distributed soon.

The output of the second project is included with this letter. It is a SIP technical support document intended to assist State and local agencies in responding to a variety of issues related to oxidants. It is also intended to assist agencies in developing SIP revisions. The document is a compilation of policy papers, technical studies, procedural guidelines, and other materials related to photochemical oxidant.

Pertinent documents have been organized into eight major areas as follows:

- | | |
|----------------------------|--|
| 1. SIP Requirements | 5. Modeling |
| 2. Transportation Controls | 6. Control Technique Guidelines |
| 3. Inspection/Maintenance | 7. Costs |
| 4. Emission Inventories | 8. Health Effects and Public Information |

The document contains three parts. Part I is a listing of the most relevant policy statements, technical studies, and other support documents; Part II is a brief description of the information listed in Part I; and Part III contains copies of selected references.

The references cited are generally available from the National Technical Information Service, Government Printing Office, EPA Regional Offices or from the Headquarters program offices responsible for the specific work cited. In cases where a reference is not available from the normal sources, you are invited to contact Joseph Sableski, Control Programs Development Division, Office of Air Quality Planning and Standards, FTS 629-5437 or commercial (919) 541-5437 for assistance.

Sincerely yours,



Walter C. Barber
Director
Office of Air Quality Planning
and Standards

Enclosure

cc: Directors, Air and Hazardous Materials Division, Region I, III-X
Director, Environmental Programs Division, Region II
All State Air Pollution Control Agencies
All Local Air Pollution Control Agencies

Identical Letter sent to: Mr. Kenneth MacKenzie
Chairman, ALAPCO
Houston Dept. of Pollution
1115 N. MacGregor
Houston, TX 77025

PART I

LISTING OF
POLICY STATEMENTS
TECHNICAL STUDIES
&
OTHER SUPPORT
DOCUMENTS

Section I - SIP Requirements

1. Criteria for Proposing Approval of Revision to Plans for Non-Attainment Areas; Federal Register Vol. 43, No. 98, May 19, 1978.
2. Workshop on Requirements for Non-Attainment Area Plans (Revised Edition), April 1978.
3. Attainment Designation List Required by the 1977 Clean Air Act Amendments, September 28, 1977.
4. Questions and Answers on 1979 SIP Revisions. Memo from G. T. Helms to the Regional Air Branch Chiefs, July 28, 1978.
5. Final Guidelines for Section 174: Guidance on Designation of Lead Planning Organizations for Non-Attainment Areas and on Determination of Agency Responsibilities, Hawkins, December 14, 1977.
6. Questions and Answers in 1979 SIP Revisions from G.T. Helms to the Regional Office Air Branch Chiefs, September 8, 1978.
7. Continuity of SIP Regulations. Memorandum from David Hawkins to the Regional Administrator, September 11, 1978

Section II - Transportation Controls

1. Transportation Air Quality Planning Guidelines, June 1978.
2. Memorandum of Understanding Between the Department of Transportation and the Environmental Protection Agency regarding the Integrating of Transportation Air Quality Planning, June 14, 1978.
3. Air Quality Impacts of Transit Improvements, Preferential Lane, and Carpool/Vanpool Programs - Contract Report, EPA 400/2-78-002a, March 1978.
4. Transit Improvement, Preferential Lane, and Carpool Programs (An annotated Bibliography of Demonstration and Analytical Experience). - Contract Report EPA 400/2-78-002b, March 1978.

Section III - Inspection Maintenance

1. Inspection/Maintenance Policy - Memorandum from David Hawkins to the EPA Regional Administrators, July 17, 1978.
2. Information Document on Automobile Emissions Inspection and Maintenance Programs. GCA Corporation, EPA 400/2-78-001, February 1978.

Section IV - Emission Inventories

1. Procedures for the Preparation of Emission Inventories for Volatile Organic Compounds, Volume I, EPA-450/2-77-028, December 1977.
2. Mobile Source Emission Factors, EPA 400/9-78-005, March 1978.

Section V - Modeling

1. Procedures for Quantifying Relationships Between Photochemical Oxidants and Precursors: Supporting Documentation, EPA-450/2-77-021b, February 1978.
2. Uses, Limitations, and Technical Basis of Procedures for Quantifying Relationships Between Photochemical Oxidants and Precursors, EPA-450/2-77-021a, November 1977.
3. Question and Answers on Relationship Between Hydrocarbons and Photochemical Oxidants, OAQPS, MDAD, September 1978

Section VI - Control Technique Guidelines

1. Development of Regulations for HC RACT from CTG's, Memorandum from Walter Barber, April 28, 1978.
2. Regulatory Guidance for Control of Volatile Organic Compound Emissions from 15 Categories of Stationary Sources, GCA Corporation, Contract No. 68-02-2887, April 1978.
3. Control Techniques for Volatile Organic Emission from Stationary Sources. EPA Final Report, Radian Contract 68-02-2608, Tasks 12 and 23, February 1978.
4. Stationary Sources of Volatile Organic Compounds and Schedule for Applicable Control Technique Guidelines, OAQPS, ESED, July 10, 1978.
5. Control Techniques Document from Hydrocarbon Sources, see listing dated 7-14-78 in Part III.
6. Recommended Policy on Control of Volatile Organic Compounds, Federal Register, Vol. 42, No. 131, July 8, 1977.
7. Seasonal Operation of Natural Gas-Fired Afterburners, Memo from Roger Strelow to the Regional Administrators, July 28, 1976.
8. Vapor Recovery Regulations Required to Meet RACT Requirement for the 1979 SIP, June 30, 1978.

Section VI (Con't)

9. Hydrocarbon Control Strategies for Gasoline Marketing Operations, EPA 450/3-78-017, April 1978.
10. Clarification of EPA Policy on Emissions of Methyl Chloroform. Memorandum from Walter Barber to the Regional Administrator, August 17, 1978.

Section VII - Costs

1. Cost and Economic Impact Assessment for Alternative Levels of the National Ambient Air Quality Standards for Ozone, OAQPS, June 1978.

Section VIII - Health Effects and Public Information

1. The Health Implications of Photochemical Oxidant Air Pollution to Your Community, EPA-450/2-76-016-1, August 1976.
2. Summary Statements from EPA Advisory Panel on Health Effects of Photochemical Oxidants. University of North Carolina, June 1978.
3. Ozone and Other Photochemical Oxidants, SRI International, Contract Report EPA 68-02-2835, August 1978 (Draft Final Report.)

Section IX - Proposed Oxidant Standards

1. Photochemical Oxidants-Proposed Revisions to the National Ambient Air Quality Standard, Federal Register, Vol. 32, No. 121, June 22, 1978.
2. Guideline for Interpretating Ozone Air Quality Standards (DRAFT), OAQPS 1.2-108 Guideline Series (Issued June 1978).
3. Air Quality Criteria for Ozone and Other Photochemical Oxidants, Vols. 1 & 2, EPA 600/8-78-004, April 1978.
4. The Use of Judgmental Probability Distribution in Setting NAAQS for Ozone--Final Report, SRI International (Project 6780), May 1978.
5. Alternative Forms of the Ambient Air Quality Standard for Photochemical Oxidants, OAQPS, SASD, May 1978.
6. Assessment of Welfare Effects and the Secondary Standard for Ozone, OAQPS, SASD, June 1978.
7. Environmental Impact Assessment of Control Measure Required for Attainment of the NAAQS for Ozone, OAQPS, SASD, June 1978.

8. Energy Impact Assessment for Alternative Levels of the NAAQS for Ozone, OAQPS, SASD, June 1978.
9. A Method for Assessing the Health Risks Associated with Alternative Air Quality Standards for Ozone, OAQPS, SASD, July 1978.

PART II

BRIEF DESCRIPTION

OF

POLICY STATEMENTS

TECHNICAL STUDIES

&

OTHER SUPPORT
DOCUMENTS

SECTION I

I. SIP REQUIREMENTS

1. Criteria for Proposing Approval of Revision to Plans for Non-Attainment Areas, Federal Register, Vol 43, No. 98, May 19, 1978. (Copy enclosed--Part III, Section X).

This directive from the EPA Administrator summarizes the elements that must be included in State Implementation Plan revisions for areas that do not meet national ambient air quality standards. It established elements which a State Plan submittal must contain in order to be approved by EPA and was published as information for the public.

2. Workshop on Requirements for Non-Attainment Area Plans (Revised and Edited), April 1978.

EPA held a series of three two-day workshops to discuss requirements of the Clean Air Act Amendments of 1977 and specifically discuss the provisions of the Act Amendments pertaining to non-attainment areas. The objective of the workshops was to outline the criteria for an acceptable 1979 plan. The workshops focused on the major portions of an implementation plan revision and provided guidance on specific items that must be part of the plan. The workshops were not designed to cover all the details of preparation of a SIP revision such as how to estimate future emissions and how to model air pollution concentrations.

The workshop held in Kansas City was videotaped. Edited tapes of this workshop are available through the EPA Regional Offices to further disseminate information concerning the requirements for the 1979 SIP revisions.

The workshop report was designed to accompany the workshops and be used as an aid by both the participants and those interested in the subject matter. The compilation contains visual aids and textual material supporting the presentations. The material is restricted to the requirements for the non-attainment area SIPs.

The following subjects are addressed:

Overview of Clean Air Act Requirements and Organization of Workshop

Control Strategy and General Plan Requirements

Transportation-Related Issues

Emission Inventory

Emissions - Air Quality Relationships

Definition of RACT

Public Participation and Intergovernmental Consultation

Reasonable Further Progress

Procedural Requirements

New Source Review

Summary of Clean Air Act Amendments of 1977

Memorandum, "Criteria for Approval of 1979 SIP Revisions"

3. Attainment Designation List Required by the 1977 Clean Air Act Amendments, September 28, 1977 (Copy enclosed, Part III).

The requirements for designating areas as attainment, non-attainment, or unclassified is contained in a memorandum from David Hawkins.

4. Questions and Answers in 1979 SIP Revisions, Memo from G.T. Helms, to the Regional Office Air Branch Chiefs, July 28, 1978 (Copy enclosed, Part III).

A number of questions concerning specific SIP requirements and policy implications on SIP decisions are covered in this memorandum. (Copy enclosed, Part III).

5. Final Guidelines for Section 174: Guidance on Designation of Lead Planning Organizations for Non-Attainment Areas and on Determination of Agency Responsibilities, Hawkins, December 14, 1977. (Copy enclosed, Part III)

6. Questions and Answers on 1979 SIP Revisions from G.T. Helms to the Regional Office Branch Chiefs, September 8, 1978. A number of questions-----Guidance on requirement for VOC RACT Regulations in all Oxidant Non-Attainment Areas is continued in the memo from David Hawkins to the Regional Administrators August 4, 1978, (Copy enclosed, Part III)

7. Continuity of SIP Regulations. Memorandum from David Hawkins to the Regional Administrator, September 11, 1978. Guidance is provided on retaining existing regulations and minimize deterioration of air quality in non-attainment areas. (copy enclosed, part III)

II. TRANSPORTATION CONTROLS.

1. Transportation Air Quality Planning Guideline, June 1978, (Copy enclosed, Part III).

The guideline developed jointly by EPA and DOT addresses the following subject areas:

The introduction (Chapter I) covers the following aspects of the guidelines: (1) Purpose, including the basic policy goal; (2) Applicability, including the primary roles of the lead agency as well as DOT and EPA Regional Offices; (3) Funding -- authorized (but not yet appropriated) and available funds; and (4) Background, including the relationship of the guidelines to the original transportation control planning process and the existing process administered by DOT.

Chapter II, SIP POLICY, summarizes and elaborates upon the transportation portions of a major EPA policy memorandum, "Criteria for Approval of 1979 SIP Revisions." This memorandum signed by the EPA Administrator on February 24, 1978, is wholly contained in Appendix B. Chapter II also provides an abbreviated checklist of the major transportation-related requirements of an acceptable 1979 SIP.

Chapter III, PROCESS, presents the procedural part of the guidelines by describing the elements of the integrated transportation-air quality planning process designed to accomplish the policy goal and SIP requirements of Chapters I and II. Chapter III defines procedures for: (1) Interagency Coordination, (2) Elected Official Involvement, (3) Public Information and Consultation, and (4) Evaluation of Alternative Strategies.

Chapter IV describes: (1) modifications to ongoing transportation planning activities required by the Clean Air Act and (2) documentation of those modifications. Chapter IV discusses the Planning Work Programs, Transportation Plan, Transportation Improvement Program, Alternatives Analysis, Consistency Determination and the SIP.

Chapter V concludes the Guidelines with a discussion of the purpose, frequency, and content of progress reports.

The Appendix contains a general summary and description of the provisions of the Clean Air Act that primarily concern or most directly affect the transportation-air quality planning process.

These sections include:

- § 108: AIR QUALITY CRITERIA AND CONTROL TECHNIQUES
(§ 108(e): Planning Process Guidelines, § 108(f):
Information Documents)
- § 110: IMPLEMENTATION PLANS
- § 121: CONSULTATION
- § 172: NONATTAINMENT PLAN PROVISIONS
- § 174: PLANNING PROCEDURES
- § 175: EPA GRANTS

2. Memorandum of Understanding Between the Department of Transportation and the Environmental Protection Agency regarding the Integrating of Transportation Air Quality Planning, June 1978 (Copy enclosed, Part III).

This Memorandum of Understanding, developed pursuant to the President's request, is designed (1) to establish certain principles which DOT and EPA agree to follow in the preparation of more detailed regulations and administrative procedures required to achieve the objective of integrating the air quality and transportation planning processes; (2) to identify specific areas of agreement with regard to the joint administration of the air quality aspects of the planning process.

3. Air Quality Impacts of Transit Improvements, Preferential Lane, and Carpool/Vanpool Programs - Contract Report - EPA 400/2-78-002, March 1978.

This report was prepared in accordance with Section 108(f) of the Clean Air Act, as amended, August 1977. It is intended to assist urban areas in developing transportation measures for the State Implementation Plan and integrating their transportation system management and air quality planning programs as required by the Federal Highway Administration, the Urban Mass Transportation Administration and the Environmental Protection Agency.

The specific types of short-range transportation programs examined in this report include:

- priority treatment for high occupancy vehicles on freeways and arterials;
- areawide carpool and vanpool programs; and
- transit fare reductions and service improvements.

Other transportation measures such as parking controls, traffic operations, and pricing are not covered in this project, but will be the subject of future EPA information reports.

The report is intended to provide information to help urban areas covered by EPA's Transportation Planning Guidelines to:

- assess the applicability and potential of the three classes of TSM programs described above for improving localized and regional air quality;
- estimate and evaluate the cost effectiveness of such programs and their related travel, energy consumption, cost, and economic impacts; and
- identify key factors, (e.g., meteorological conditions, vehicle type distributions and vehicle operating speeds) likely to affect air quality and air pollution emissions.

4. Transit Improvements, Preferential Lane, and Carpool Programs (An annotated Bibliography of Demonstrations and Analytical Experience) Contract Report - EPA 400/2-78/002b, March 1978).

The Environmental Protection Agency is evaluating the use and cost effectiveness of alternative short-range transit fare and service improvement strategies, carpool and vanpool strategies, and strategies involving the preferential treatment of high occupancy vehicles to improve air quality in urban areas. The evaluation of individual strategies and combinations of the above strategies includes their emission and air quality impacts and their related energy, noise, and economic impacts. A comprehensive literature review was also conducted, as part of this evaluation, to identify both observed and projected travel, emission, air quality, energy, noise, and economic impacts of the short-range, low-cost strategies of interest.

This document presents an annotated bibliography of useful reports, papers, and other references describing the above impacts for the transit, carpool, vanpool, and preferential treatment strategies of interest. The bibliography should be useful to elected officials, government administrators and their technical staffs, and citizens involved in the development of Transportation Control Plans, Transportation System Management Elements and related short-range planning activities.

Abstracts within this bibliography are organized under five subject areas. Each area is described briefly below:

- General. Reports broadly addressing transportation system management, short-term transportation planning techniques, conference proceedings, and sources which treat several of the strategies addressed in the project.
- Preferential Treatment of High Occupancy Vehicles (HOV). Descriptive, simulation, and case study material on reserved lanes, priority ramp facilities, and traffic signal preemption for buses, carpools, and vanpools on urban freeways and arterial facilities.
- Carpool and Vanpool Programs. Descriptive, case study, and simulation analyses on area-wide and employer-based carpool and/or vanpool programs.
- Transit Fare and Service Strategies. Studies addressing the impacts of transit fare reductions or restructuring, and of transit service improvements on transit ridership and system performance.
- Energy, Air Quality, Emissions, and Economic Impacts. Studies addressing the potential positive and negative impacts of various transportation-related actions on energy consumption, air quality, emissions, and the economy of urban areas.

III. INSPECTION/MAINTENANCE

1. Inspection/Maintenance Policy - Memorandum from Dave Hawkins to the EPA Regional Administrator, July 17, 1978.

This memorandum establishes what EPA will consider a minimally acceptable program whenever I/M is required. It is designed to aid states in developing adequate I/M submissions for the SIP revisions due in January 1979, (copy enclosed).

2. Information Document on Automobile Emission Inspection and Maintenance Programs. GCA Corporation, EPA 400/2-78-001 February 1978.

This document presents information on inspection/maintenance programs, a means of reducing vehicular emissions which has been successfully adopted by several states. The increased interest in this strategy has led to a need for an inspection/maintenance primer. It is this need to which this report is addressed.

The objectives or purposes of this compendium are twofold. First, it is to provide basic information on a number of both the technical and nontechnical aspects of I/M and, second, to do so in a manner which is virtually free of esoteric terms. Such information was developed to be of use to both policy makers and interested citizens.

The report is organized in to seven sections: Section 1 is an introduction to this report; Section 2 discusses the purpose of inspection/maintenance programs and Section 3 presents the benefits which result from their implementation. The various approaches to I/M programs are discussed in Section 4. The implementation of I/M programs is presented in Section 5. Section 7 provides fact sheets on existing I/M programs. A bibliography glossary are included as appendices to the report.

IV. EMISSION INVENTORIES

1. Procedures for the Preparation of Emission Inventories for Volatile Organic Compounds, Volume I, EPA-450/2-77-028, December 1977.

This guide is intended for general use by the air pollution community in planning and compiling inventories for use in oxidant control strategy development. Emphasis is placed on compiling organic emission inventories; however, to some extent, planning considerations and procedures described are applicable to inventories in general.

This guide is published in two volumes. Volume I provides technical guidance on compiling organic emission inventories on an annual or seasonal basis at the county (or county equivalent) level. Such inventories are considered adequate for use in less data-intensive source/receptor relationships that are based on rollback or chemical kinetics considerations. Volume II provides technical guidance on compiling organic emission inventories at a more detailed level of temporal and spatial resolution than results from the techniques prescribed in Volume I. Methodologies are discussed for compiling daily and hourly inventories, with emissions being allocated to subcounty grids. Volume II should be available in early 1979.

2. Mobile Source Emission Factors, EPA 400/9-78-005, March 1978.

This document revises previous mobile source emission factors contained in supplement No. 5 to AP-42, Compilation of Air Pollutant Emission Factors (December 1975). This document does not revise all information in Supplement No. 5. Updated factors are not included for light-duty diesel automobiles, light-duty diesel trucks, off-road source, or aircraft. No information is included in particulates. The major areas addressed include:

Part I - For all Regions except California and High Altitude

1. Light-duty, Gasoline-powered vehicles (LDV)(Automobiles)
2. Gasoline-powered, light-duty trucks (LDT)
3. Heavy-duty, gasoline-powered vehicles (HDG)
4. Heavy-duty, Diesel-powered vehicles (HDD)
5. Motorcycles (MC)

Part II - Mobile Source Emission Factors for California

Part III - High-Altitude Regions

V. MODELING

1. Procedures for Quantifying Relationships Between Photochemical Oxidants and Precursors: Supporting Documentation, EPA-450/2-77-021b, February 1978.

The purpose of this report is to amplify the information in Uses, Limitations and Technical Basis of Procedures for Quantifying Relationships Between Photochemical Oxidants and Precursors, EPA 450/2-77-021a. Several of the assertions are applicable only to the Empirical Kinetic Modeling Approach (EKMA) described at length in that document. Others, such as the prevailing background concentration of ozone and the greater importance of transported ozone as opposed to transported precursors, have general significance in a number of different procedures for quantifying ozone-precursor relationships. Specifically, eight issues are addressed:

1. What levels of ambient ozone and precursors are attributable to natural sources?
2. How significant are natural sources of ozone and precursors likely to be in contributing to maximum ozone concentrations observed within and downwind or urban areas?
3. What are typical ratios of non-methane hydrocarbon (NMHC) to oxides of nitrogen (NO_x) in urban and suburban areas?
4. How do ambient precursor concentrations vary, both spatially and diurnally, in and near urban areas?
5. Is there any apparent difference in precursor levels and NMHC/ NO_x ratios on days experiencing high ozone concentrations as opposed to other days?
6. Can existing ambient data be used to draw inferences about ozone gradients upwind and downwind of major cities?
7. What is the relative importance of transported ozone, NMHC, NO_x , NO_2/NO_x ratio and aldehydes in contributing to a maximum ozone concentrations observed in the vicinity of urban areas?
8. How is the impact of transported ozone likely to be affected by such factors as changes in locally generated precursor levels, prevailing NMHC/ NO_x ratios, varying diurnal emission patterns, level of transported ozone aloft, prevailing atmospheric dilution rates, and sunlight intensity?

2. Uses, Limitations and Technical Basis of Procedures for Quantifying Relationships Between Photochemical Oxidants and Precursors, EPA-450/2-77-021a, November 1977.

This document describes the technical basis, uses and limitations of several approaches for relating photochemical oxidant (expressed as ozone) to organic compounds and oxides of nitrogen. It is not intended as a statement of EPA policy concerning which method to use in relating ozone to precursors. By reporting the nature and present status of various analytical techniques, it is intended that the document will prove useful to (1) estimate the amount of precursor controls needed to attain the National Ambient Air Quality Standard (NAAQS) for photochemical oxidants ($160\mu\text{g}/\text{m}^3$ hourly average concentration not to be exceeded more than once per year), and (2) estimate the reduction in ozone concentrations accompanying specified reductions in precursors. Some of the methods described also provide additional measures of improvement in ambient air quality which may accompany precursor controls. These additional capabilities are identified where applicable. (Note April 12, 1978 errata sheet).

3. Questions and Answers in Relationships between Hydrocarbons and Photochemical Oxidants, OAQPS, MDAD, September 1978
(Copy enclosed - Part III, Section IX)

This series of questions and answers supports the position that reducing hydrocarbon emissions reduces ambient ozone levels. This position is based on experimental and theoretical studies that establishes a physical cause/effects relationship between organic pollutants and ozone in the precursors of oxides of nitrogen. The questions and answers focus on the control strategies of contracting organic emissions to reduce ambient levels of ozone.

VI. CONTROL TECHNIQUE GUIDELINE

1. Development of Regulations for HC RACT from CTGs. Memorandum from Walter Barber, April 28, 1978 (copy enclosed). This memorandum stresses the need for flexibility and case-by-case determination in developing RACT regulations.
2. Regulatory Guidance for Control of Volatile Organic Compound Emissions from 15 Categories of Stationary Sources - GCA Corporation, Contract No. 68-02-2887, April 1978. (DRAFT)

This report provides guidance for regulation development in the form of sample regulations based heavily on guidelines for 15 categories of stationary sources as well as existing Federal and State laws. In addition, the report contains a compendium of existing regulations and test procedures. The sample regulations set forth in regulatory format definitions, emission limitations, equipment standards, exemptions, compliance schedules and testing methods and procedures. Note: States are advised to consider economic impact in determining RACT requirements.

The 15 stationary volatile organic compound source categories for which guidelines were available in January 1978 include:

- o Surface Coating of Automobiles and Light-Duty Trucks
 - o Surface Coating of Cans
 - o Surface Coating of Metal Coils
 - o Surface Coating of Paper
 - o Surface Coating of Fabric Products
 - o Surface Coating of Metal Furniture
 - o Surface Coating of Large Appliances
 - o Surface Coating for Insulation of Magnet Wire
 - o Petroleum Liquids in Fixed-Roof Tanks
 - o Bulk Gasoline Plants
 - o Gasoline Loading Terminals
 - o Service Stations Stage I.
 - o Miscellaneous Refinery Sources
 - o Solvent Metal Cleaning
 - o Cutback Asphalt
3. Control Techniques for Volatile Organic Emissions from Stationary Sources. EPA-Final Report, Radian Contract 68-02-2608, Task 12 & 23.

This is a revised and updated version of a March, 1970, EPA publication entitled, Control Techniques for Hydrocarbon and Organic Solvent Emissions from Stationary Sources (AP-68). It is intended primarily as a general reference for State and local air pollution control engineers. It provides:

1. Basic information on sources of photochemical oxidant precursors and control of these sources,
2. Estimates of control costs,
3. Estimates of control technique energy requirements, and
4. Estimates of emission reductions achievable through control application,

The cost curves presented in the text are the result of averaging costs for differing industrial applications. The costs derived from these curves are rough estimates. Actual costs for a particular installation may vary.

The control techniques described in this document present a spectrum of information from many technical fields. The devices, methods, and principles have been developed and used over many years and are constantly being revised and improved. They are recommended as the techniques generally available, control hydrocarbon and organic solvent emissions. Because of the general nature of the document, it is not intended to be used as the basis for developing or enforcing regulations.

4. Stationary Sources of Volatile Organic Compounds and Schedule for Applicable Control Technique Guidelines, OAQPS, ESED, July 10, 1978. (Copy enclosed.)

A schedule of the issuance of the control technique guidelines for volatile organic compounds has been established by OAQPS.

5. RACT Documents - A number of control technique documents have been published and are listed in the reference section. (Part III)
6. Recommended Policy on Control of Volatile Organic Compounds, Federal Register, Vol. 42, No. 131, July 8, 1977. (copy enclosed).

The purpose of this notice is to recommend a policy for States to follow on the control of volatile organic compounds (VOC), which are a constituent in the formation of photochemical oxidants (smog). This notice does not place any requirements on States; State Implementation Plan (SIP) provisions which offer reasonable alternatives to this policy will be approvable. However, this policy will be followed by EPA whenever it is required to draft State Implementation Plans for the control of photochemical oxidants.

7. Seasonal Operations of Natural Gas Fired Afterburners, Memo from Roger Strelow to the Regional Administrators, July 28, 1976. (copy enclosed)
8. Vapor Recovery Regulations Required to meet RACT Requirement for the 1979 SIP, June 30, 1978 (copy enclosed). This memorandum provided guidance on how much regulations can vary from RACT requirements and still be acceptable to EPA.
9. Hydrocarbon Control Strategies for Gasoline Marketing Operations, EPA 450/3-78-017, April 1978.

This document provides basic and current descriptions of gasoline marketing operations and methods that are available to control hydrocarbon emissions from these operations. The three types of facilities that are described are terminals, bulk plants, and service stations. Operational and business trends are also discussed. Emissions from typical facilities, including transport trucks, are estimated.

The operations which lead to emissions from these facilities include (1) gasoline storage, (2) gasoline loading at terminal and bulk plants, (3) gasoline delivery to bulk plants and service stations, and (4) the refueling of vehicles at service stations.

Available and possible methods for controlling emissions are described with their estimated control efficiencies and costs. The costs for control of a unit weight of hydrocarbon are calculated from these estimates.

10. Clarification of EPA Policy on Emissions of Methyl Chloroform. Memorandum from Walter Barber to the Regional Administrator, August 17, 1978. Guidance is provided on the preparation of SIP regulatory packages regarding the exemption of methyl chloroform for control and wide scale substitution.

VII. COST

Cost and Economic Impact Assessment for Alternative Levels of the National Ambient Air Quality Standards for Ozone - OAQPS, June 1978.

This report includes an analysis of 90 Air Quality Control Regions (AQCRs) which currently exhibit ambient ozone concentrations in excess of the current photochemical oxidant standard (.08 ppm hourly average not to be exceeded more than once per year). For each AQCR this analysis estimates potential emissions in 1987 and potential emission reductions achievable with the Federal Motor Vehicle Control Program (FMVCP), new and modified source control, application of reasonably available control technology (RACT) on existing stationary sources and further motor vehicle controls through transportation control plans. Based on the projected emission reductions, control costs are estimated for applying technology in an attempt to attain alternative standard levels. While the analysis considers each AQCR separately, the results are presented in aggregate form for all 90 AQCRs instead of each individual AQCR.

VIII. HEALTH EFFECTS

1. The Health Implications of Photochemical Oxidant Air Pollution to Your Community - EPA-450/2-76-016-1, August 1976.

This document explains in laymans' language the basic health effect of photochemical oxidants. Its purpose is to convey this information to local public decision makers and to others with non-technical backgrounds.

2. Summary Statements from the EPA Advisory Panel on Health Effects of Photochemical Oxidants. University of North Carolina, June 1978.

The Advisory Panel on Health Effects of Photochemical Oxidants N.C. on June 7th and 8th, 1977.

The purpose of the panel discussions was to interpret the current state of knowledge on health effects of ozone and other photochemical substances, with the objective of developing a guideline to the Environmental Protection Agency (EPA) for the protection of public health. These discussions were prompted by EPA's current program for review and re-assessment of the existing air quality standard for photochemical oxidants.

The panel reviewed studies relating to the following categories of health effects:

A. Human studies

1. Mechanical function of the lung (controlled human exposures)
2. Asthma and lung function in children
3. Athletic performance
4. Other effects: mortality, occupational hazards

B. Toxicological studies

1. Experimental infection of animals
2. Morphological abnormalities of the respiratory system
3. Biochemical effects
4. Mutagenic and teratogenic potential
5. Performance and behavioral effects

In its discussions, the Panel considered several issues bearing on the overall interpretation of reported studies. Among the major issues were: relative weights to be given to published and unpublished reports, concept of threshold concentrations for effects, human health significance of toxicological data, chemical specificity of the air quality standard ("ozone," "oxidants," "photo-chemical substances") margins of safety, and the health significance of exceeding a stated concentration one

or more times. Conclusions and recommended guidelines for the protecting public health are contained in this report.

3. Ozone and other Photochemical Oxidants, SRI Contract Report, EPA 68-02-2835, (Draft) August 1978, (copy enclosed).

This report is addressed to the local decision makers and other interested persons with an understanding for informal decisions realted to oxidant pollution and its control. The report covers the following aspects of oxidants;

1. Definition, Effects, and Standards
2. The Ozone Problem
3. Ozone and the Law
4. Approaches to Control

IX. PROPOSED OZONE STANDARD

1. Photochemical Oxidants - Proposed revisions to the National Ambient Air Quality Standard - Federal Register, Vol. 32, No. 121, June 22, 1978.

In accordance with the provisions of Sections 108 and 109 of the Clean Air Act as amended, EPA conducted a review of the criteria upon which the existing primary and secondary photochemical oxidant standards was based. The revised criteria was published simultaneously with the issuance of this proposed rulemaking. The existing primary and secondary standards for photochemical oxidants is currently set at 0.08 ppm, 1-hour average not to be exceeded more than once per year. As a result of the review and revision of health and welfare criteria, EPA proposes to raise the primary standard level to 0.10 ppm, 1-hour average. EPA also proposes that the secondary welfare-based standard remain at 0.08 ppm, 1-hour average. Other changes proposed in the rule-making included: (1) changing the chemical designation of the standard from photochemical oxidants to ozone, and (2) changing to a standard with a statistical rather than deterministic form, i.e., allowable exceedances will be stated as an expected value, not an explicit value.

2. Guideline for Interpretating Ozone Air Quality Standards (DRAFT), OAQPS 1.2-108 Guidelines Series.

The purpose of this document is to amplify discussions dealing with compliance assessment and to indicate the data analysis procedures necessary to determine appropriate design values for use in developing control strategies. Where possible, the approaches discussed are conceptually similar to the procedures presented in the earlier "Guideline for Interpreting Air Quality Data with Respect to the Standards" (OAQPS 1.a-008, revised February 1977). However, the form of the proposed standards necessitates certain modifications in two general areas: (1) accounting for less than complete sampling and (2) incorporating data from more than one year.

The following subjects are addressed:

ASSESSING COMPLIANCE

Interpretation of "Expected Number"
 Estimating Exceedances for a Year
 Extension to Multiple Years
 Examples Calculation

3. Air Quality Criteria for Ozone and Other Photochemical Oxidants, Vols. 1 & 2, EPA 600/8-78-004, April 1978.

This two-volume report summarizes current data on effects on man, vegetation, and ecosystems of oxidant/ozone in the ambient air. The effects that have been observed will form the scientific basis for supporting the present National Ambient Air Quality Standard of $160 \mu\text{g}/\text{m}^3$ (0.08 ppm) or a revised standard.

VOLUME I

Nature and Atmospheric Concentration of Photochemical Oxidants
 Sources and Sinks of Oxidants
 Oxidant Precursors
 Relationships between Ambient Oxidant and Precursor Emissions
 Measurement Methods for Oxidant and Oxidant Precursors
 Health Effects of Ozone and Other Photochemical Oxidants
 Effects of Photochemical Oxidants on Vegetation and Certain Microorganisms
 Effects of Photochemical Oxidants on Ecosystems
 Effects of Photochemical Oxidants on Materials

Volume II

Clinical Appraisal of the Effects of Oxidants

- Occupational and Accidental Exposure to Ozone
- Controlled Studies of Human Health Effects

Epidemiological Appraisal of Photochemical Oxidants
 Effects of Photochemical Oxidants on Vegetation and Certain Microorganisms
 Ecosystems
 Effects of Ozone on Materials

4. The Use of Judgmental Probability Distribution in Setting NAAQS for Ozone--Final Report, SRI International (Project 6780), May 1978.

This report presents a discussion of the concept of judgmental probability, its past use (especially by government agencies), its proper role in decision-making, and a brief description of an accepted method of encoding a probability distribution. This paper is being prepared in support of the document A Method for Assessing the Health Risks Associated with Alternative Air Quality Standards for Photochemical Oxidants, EPA (1978). The assessment of probabilities from health experts is one part of the method.

The report is divided into three sections. The first section defines judgmental probability and shows how it has been used in both the public and private sectors. The relationship of probability encoding to the other aspects of the discipline of decision analysis is also covered.

The second section describes a procedure that has been developed for the assessment of probability, and shows how this procedure counteracts the effects of possible biases that may influence the result of some assessment techniques.

The third section discusses the question of validation of assessments.

5. Alternative Forms of the Ambient Air Quality Standard for Photochemical Oxidants, OAQPS, SASD, May 1978.

The current standard can lead to inconsistent treatment from one AQCR to the next in deciding both compliance and degree of emission control required. While health and welfare effects are the primary considerations in choosing the most appropriate form of the standard it is also important that the form provide an adequate and clear basis for defining the overall quality of ambient air it is desired to achieve.

In the report it is suggested that the form should be designed to: (1) adequately define what must be measured to determine compliance and measurements which can be made with the needed accuracy; (2) provide clear, unambiguous criteria for determining whether an area is or is not in compliance; and (3) provide a clear, unambiguous definition of the air quality it is desired to achieve to serve as a target for the development and verification of control strategies.

In this report the form of the standard is examined from this point of view and provides a basis for examining the impact of health and welfare effects on the form.

6. Assessment of Welfare Effects and the Secondary Standard for Ozone, OAQPS, SASD, June 1978.

The Clean Air Act mandates the setting of a national secondary ambient air quality standard to protect the public welfare from any known or anticipated adverse effects associated with the presence of an air pollutant in the ambient air. Ozone and other photochemical oxidants constitute a form of air pollution that affects vegetation and materials. The resultant economic loss has been estimated to be in the range of several hundred million dollars per year nationwide. Non-quantifiable losses to the natural environment occur as well. Major areas covered by the report include:

Effects of Ozone and Other Photochemical Oxidants

Vegetation Damage

- Monitoring Methods and Data Reliability
- Foliar Injury
- Growth and Yield Effects
- Pollutant Interactions and Ambient Exposures
- Economic Assessment
- Effects on the Natural Environment

Materials Damage

Air Quality Issues

Sources and Concentrations of Oxidants in Ambient Air

- Sources
- Urban Oxidant/Ozone Levels
- Rural Ozone Levels
- Natural Background Levels
- Levels of Non-Ozone Oxidants

7. Environmental Impact Assessment of Control Measure Required for Attainment of the NAAQS for Ozone, OAQPS, SASD, June 1978.

A review of the National Ambient Air Quality Standard (NAAQS) for photochemical oxidants has recently been concluded and the Air Quality Criteria for Ozone and Other Photochemical Oxidants and Control Techniques for Hydrocarbons and Volatile Organic Compounds have been reissued. The criteria document has been revised to incorporate new information about the health and welfare effects on oxidants. The control techniques documents presents available control technology based on experience and new developments since the previous publications.

The purpose of this assessment is to review the information presented in the control techniques document and to present an analysis of the environmental impact of control measures required for attainment of the air quality standard for ozone.

8. Energy Impact Assessment for Alternative Levels of the NAAQS for Ozone, OAQPS, SASD, June 1978.

Energy requirements for the selected control strategy depend upon the rate of emissions, the concentration of the effluent stream, and the specific arrangement of equipment and process. For some industries, substitution of water-based materials for photochemically reactive materials or process changes that reduce or eliminate vapor emissions prove to be the least cost strategy. Process changes may also include measures such as good housekeeping practices and electrostatic sprays to

reduce or eliminate solvent emissions. Recently completed studies on energy impacts associated with asphalt paving, gasoline marking, automobile and light duty truck body painting operations, and petroleum refining formed the principal data base on energy impacts used in this study.

9. A Method for Assessing the Health Risks Associated with Alternative Air Quality Standards for Ozone, OAQPS, SASD, July 1978.

The National Academy of Sciences recommended that EPA make use of some of the principles and techniques developed in the discipline of decision analysis which are helpful to rational decision-making under uncertainty. The method discussed in this report incorporates some of these principles and techniques. For example, the technique of "probability encoding", which enables optimal use of the quantitative judgments of health experts, plays an important role. The decision analysis principle of reducing complex judgments to smaller, more manageable sub-judgments whose logical implications can be determined mathematically is employed. Subjects addressed in this report include the following:

Underlying Principles of the Method

Risk and Margins of Safety

- Legislative Guidance
- Health Effect Threshold
- Idealized Risk Surfaces
- "Risk" Nomenclature
- Basic Model

Uncertainty Concerning Health Effect Threshold Concentrations

- Subjective Probability
- Independence of Health Effects
- Responses of Concern
- Sensitive Population
- Seriousness of Effect
- Uncertainty about Causality
- Defining the Encoding Variable

Uncertainty in Peak Air Quality Levels

Secondary Uncertainties and Public Probability

General Description of the Method

- Mathematical Description of the Method
- Obtaining the $P_c(C)$ Distributions

Application of the Risk Assessment to Ozone

The Judgments of Health Experts
Determination of P_C Functions for Ozone
Risk Tables and Risk Ribbons

PART III

COPIES OF SELECTED REFERENCES

RULES AND REGULATIONS

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SUMMARY INFORMATION: New provisions of the Clean Air Act enacted in 1977 require states to revise their State Implementation Plans for all areas that do not attain National Ambient Air Quality Standards. States must submit the necessary Plan revisions to EPA by January 1, 1979.¹

The Memorandum reproduced below, which the EPA Administrator issued to the ten Regional Administrators on February 24, 1978, summarizes the elements which a Plan submittal must contain in order to be approved by EPA as meeting the requirements of Part D of the Act. Copies of this Memorandum have already been supplied to the state air pollution control agencies, to provide guidance in their preparation of Plan revisions. It is being published now for the information of the public.

EPA considers this Memorandum to state "nationally applicable" Agency policy, but not "regulations promulgated, or final action taken, by the Administrator" that is ripe for judicial review under the first sentence of section 307(b)(1) of the Act (42 U.S.C. 7607(b)(1)). Only after EPA has received actual Plan submittals, and has invited and considered public comment on whether the submittals satisfy the requirements for approval under the Act, will the Administrator take final actions with respect to the individual submittals. The opportunity for judicial review of those final Agency actions under the second and third sentences of section 307(b)(1) of the Act, will provide an opportunity for judicial consideration of the policy issues addressed in this Memorandum.

Dated: May 9, 1978.

DAVID G. HAWKINS,
*Assistant Administrator for
Air and Waste Management.*

On February 24, 1978, the Administrator of the Environmental Protection Agency issued the following Memorandum:

SUBJECT: Criteria for Approval of 1979 SIP Revisions.

FROM: The Administrator (A-100).

TO: Regional Administrators, I-X.

FEBRUARY 24, 1978.

The attachment to this memo sum-

¹The new requirements for nonattainment areas are contained in Part D to Title I of the Act (42 U.S.C. 7501-7508). The general requirements for Plans are set forth in section 110 of the Act (42 U.S.C. 7410). Several consequences that may result if a state fails to adopt and carry out the necessary Plan provisions for a nonattainment area are found in sections 110(a)(2)(I), 173(4), and 176(a)-(b) of the Act. (42 U.S.C. 7410(a)(2)(I), 7503(4), and 7506(a)-(b)). The January 1, 1979, deadline is stated in section 129(c) of the Clean Air Act Amendments of 1977, Pub. L. 95-95 (note under 40 U.S.C. 7502).

marizes the elements which a 1979 State Implementation Plan (SIP) revision for a non-attainment area must contain in order to be approved by EPA as meeting the requirements of Part D of the Clean Air Act.

In summary, the Act requires the demonstration of attainment of the air quality standards (primary and secondary) as expeditiously as practicable, but in the case of national primary standards not later than December 31, 1982. However, for carbon monoxide (CO) and oxidants (Ox), if the State can demonstrate attainment is not possible by 1982 despite the implementation of all reasonable stationary source and transportation control measures, the Act provides for up to a five-year extension. In those cases the plan revisions must demonstrate attainment as expeditiously as practicable but no later than December 31, 1987. The extension is not automatic; a demonstration of need must be made and the State must fulfill the other statutory requirements.

It is the intent of the Agency to establish reasonable and achievable goals for SIP submissions and to take a firm posture on the imposition of sanctions where the reasonable goals are not achieved. Accordingly, while the policy requires a commitment to many specific strategies in the 1979 submissions (e.g., RACT on stationary sources, inspection/maintenance programs where attainment for carbon monoxide or oxidants extends beyond 1982, other reasonable transportation control measures, etc.) the memo also requires (for carbon monoxide and oxidants) a commitment to a continuing process. This process must be one which extensively involves the public as well as State and local elected officials and which ambitiously pursues a wide range of alternatives.

Since reliance on stationary controls and Federal new car standards alone will not enable most areas with oxidant and carbon monoxide problems to attain these standards by 1982, each Regional Office will need to put particular emphasis on additional measures to reduce transportation system emissions. The process committed to in the 1979 plan submission must lead to the expeditious selection and implementation of comprehensive transportation control measures. In judging the adequacy of the 1979 plan submission for the transportation sector, each Regional Administrator should ensure that ambitious alternatives (as described in the draft "Transportation Planning guidelines" which have been circulated) will be analyzed.

The Department of Transportation (DOT), Housing and Urban Development (HUD) and EPA are seeking to integrate the transportation/air qual-

[6560-01]

Title 40—Protection of Environment

CHAPTER I—ENVIRONMENTAL PROTECTION AGENCY

[FRL 897-11]

PART 51—STATE IMPLEMENTATION PLANS UNDER CLEAN AIR ACT

Criteria for Proposing Approval of Revision to Plans for Nonattainment Areas

AGENCY: Environmental Protection Agency.

ACTION: Notice of policy memorandum.

SUMMARY: Reproduced below is a copy of a Memorandum in which the EPA Administrator summarized the elements that must be included in State Implementation Plan Revisions for areas that do not meet national ambient air quality standards under the Clean Air Act. The Memorandum establishes elements which a State Plan submittal must contain in order to be approved by EPA. EPA is publishing this Memorandum for the information of the public.

EFFECTIVE DATE: February 24, 1978.

FOR FURTHER INFORMATION CONTACT:

Darryl D. Tyler, U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards (MD-15), Research Triangle Park, N.C. 27711, 919-541-5425.

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ity planning and implementation required by the Clean Air Act into existing planning and programming procedures. The air planning activities should be included in the Unified Work Program required by DOT and the adopted transportation measures should be included in the Transportation Improvement Program required by DOT. In complying with the Clean Air Act requirements, the Regions should also keep in mind the requirements of the HUD-EPA Agreement which provides for coordination of air quality planning and planning assisted under the HUD Comprehensive Planning Assistance (701) Program. Integration of air and transportation planning with comprehensive planning which incorporates growth management concerns should improve the effectiveness of air quality planning and could reduce the need for enforcement measures in the future.

States will be provided some discretion regarding the amount of emissions growth to be accommodated within the SIP. EPA generally will not question the growth rates desired by the State so long as reasonable further progress is demonstrated and there is a demonstration of attainment by the statutory deadline (1982 or 1987). However, the growth rate identified in the SIP must be consistent with growth rates used (or implied by) other planning programs in the area (e.g., FWPCA §§ 208, 201, HUD § 701, FHWA § 134).

You should note that there are other SIP revisions which are not discussed in the attachment but which are required by the 1977 Amendments. These include:

1. Section 128 (relating to State boards).
2. Section 126 (relating to interstate pollution).
3. Section 127 (relating to public notification).
4. Part C (relating to prevention of significant deterioration).
5. Section 110(a)(2)(K) (relating to permit fees).
6. Section 123 (relating to stack heights for existing source in other than non-attainment areas).
7. Section 121 (relating to consultation).

Although incorporation of these provisions is required by the law, failure to achieve final approval by July 1, 1979 does not trigger the new source prohibition of Section 110(a)(2)(I).

It is important to emphasize to the States that all current SIP requirements remain in effect despite the development of the 1979 revisions. Any suspension or discontinuance of an existing SIP provision must be submitted for EPA approval. This should be done as part of the revision submitted in January 1979. Exceptions to this procedure may be found in certain new

provisions of § 110 relating to reduction of on-street parking, bridge tolls, and other measures.

The development of the January 1979 SIPs to meet the minimum requirements of the Clean Air Act Amendments of 1977 is a complex and demanding program. It will require the commitment of significant resources on the part of the air programs staff of the Regional Office to ensure that the States develop and submit a comprehensive and approvable plan. We are working with your staff to develop the necessary guidance and follow-up programs which will assist your office and the State to carry out this very difficult but important part of the overall air program.

Attachment

cc: Air & Hazardous Division Directors, Air Branch Chiefs.

CRITERIA FOR APPROVAL OF 1979 STATE IMPLEMENTATION PLAN REVISIONS FOR NON-ATTAINMENT AREAS

PURPOSE

The purpose of this document is to define the criteria by which State Implementation Plan (SIP) revisions for non-attainment areas required by the Clean Air Act Amendments of 1977 (the Act) will be approved. These revisions are to be submitted to EPA by January 1, 1979.

CATEGORIES OF SIP REVISIONS

SIP revisions submitted by January 1, 1979 can be divided into two categories:

1. Those which provide for attainment of the Primary Ambient Air Quality Standards (primary standards) for all criteria pollutants on or before December 31, 1982.
2. Those which provide for attainment of the primary standards for sulfur dioxide, nitrogen oxides, and particulate matter on or before December 31, 1982 but show that despite the implementation of all reasonable transportation and stationary source emission control measures attainment of the primary standards for carbon monoxide and/or oxidants cannot be achieved until after this date. In these cases, the revisions must demonstrate attainment as expeditiously as practicable but no later than December 31, 1987.

In order for an adequate SIP revision to fall into the second category, the State has an affirmative responsibility to demonstrate to the satisfaction of EPA that attainment of the primary carbon monoxide and/or oxidants standards is not possible in an area prior to December 31, 1982.

It should be noted that SIP revisions of either category should also provide for attainment of Secondary Ambient Air Quality Standards (secondary

standards) as expeditiously as practicable although there is no specific deadline contained in the Act.

GENERAL REQUIREMENTS OF ALL 1979 SIP REVISIONS

Each 1979 SIP revision must contain the following:

1. A definition of the geographic areas for which control strategies have been or will be developed. Consideration should be given to the practical benefits of defining areas which correspond whenever possible to those sub-state districts established pursuant to Part IV, Attachment A of OMB Circular No. A-95.

2. An accurate, comprehensive, and current (1977 calendar year) inventory of existing emissions.

3. A determination of the level of control needed to demonstrate attainment by 1982 (including growth). This demonstration should be made by the application of modeling techniques as set forth in EPA's Guideline on Air Quality Models. For oxidants, any legitimate modeling technique (e.g., those referenced in "Use, Limitation and Technical Basis of Procedures for Quantifying Relationships Between Photochemical Oxidants and Precursors," EPA 450/2-77-021a, November 1977) can be used. Consideration of background and transport for oxidants should generally be in accordance with the procedures documented in "Procedures for Quantifying Relationships Between Photochemical Oxidants and Precursors." In developing photochemical oxidant control strategies for a particular area, states may assume at a minimum that the standard will be attained in adjacent states.

If a state can demonstrate that the level of control necessary for attainment of the primary standards for carbon monoxide and/or oxidant is not possible by 1982 despite the application of all reasonable measures, an extension past 1982 (but not beyond 1987) is authorized.

4. Adoption in legally enforceable form² of all measures necessary to

²Written evidence that the State, the general purpose local government or governments, or a regional agency designated by general purpose local governments for such purpose, have adopted by statute, regulation, ordinance or other legally enforceable document, the necessary requirements and schedules and timetables for compliance, and are committed to implement and enforce the appropriate elements of the plan. The relevant organizations shall provide evidence that the legally enforceable attainment measures and the "criteria, standards and implementing procedures necessary for effectively guiding and controlling major decisions as to where growth shall and shall not take place," prepared by State and local governments in compliance with Section 701 of the Housing Act of 1954, as amended, are fully coordinated in the attainment and maintenance of the NAAQS.

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provide for attainment by the prescribed date or, where adoption of all such measures by 1979 is not possible, (e.g., certain transportation control measures, and certain measures to control the oxides of nitrogen and total suspended particulate) a schedule for expeditious development, adoption, submittal, and implementation of these measures. The situations in which adoption of measures may be scheduled after 1979 are discussed in the pollutant specific sections of this document. Each schedule must provide for implementation of all reasonably available control measures as expeditiously as practicable. During the period prior to attainment, these measures must be implemented rapidly enough to provide at a minimum for reasonable further progress (see discussion below). Each schedule will be considered part of the applicable implementation plan and thus will represent a commitment on the part of the State to meet the key milestones set forth in the submitted schedule.

5. Emission reduction estimates for each adopted or scheduled control measure or for related groups of control measures where estimates for individual measures are impractical. It is recognized that reduction estimates may change as measures are more fully analyzed and implemented. As such estimates change, appropriate responses will be required to insure that the plan remains adequate to provide for attainment and for reasonable further progress.

6. Provision for reasonable further progress toward attainment of the primary and secondary standards in the period prior to the prescribed date for attainment. Reasonable further progress is defined as annual incremental reductions in total emissions (emissions from new as well as existing sources) to provide for attainment by the prescribed date. The plan shall provide for substantial reductions in the early years with regular reductions thereafter.

Reasonable further progress will be determined for each area by dividing the total emission reductions required to attain the applicable standard by the number of years between 1979 and the date projected for attainment (not later than 1987). This is represented graphically by a straight line drawn from the emissions inventory submitted in 1979 to the allowable emissions on the attainment date. However, EPA recognizes that some measures cannot result in immediate emission reduction. Therefore, if a State can show that some lag in emissions reduction is necessary, a SIP will be acceptable even though reductions sufficient to produce decreases at the "straight-line rate" are not achieved for a year or two after 1979. This lag in achieving the "straight-line rate" for emissions

reduction is to be accepted only to accommodate the time required for compliance with the first set of regulations adopted on or before January 1, 1979, if immediate compliance is not possible. It does not authorize delays in adoption of control requirements.

The requirement to demonstrate reasonable further progress will, in most areas designated non-attainment for oxidant or carbon monoxide, necessitate a continuous, phased implementation of transportation control measures. In areas where attainment of all primary ambient standards by 1982 is not possible EPA will not accept mere reliance on the Federal Motor Vehicle Control Program by itself as a demonstration of reasonable further progress.

In determining "reasonable further progress", those emission reductions obtained from compliance between August 7, 1977, and December 31, 1979, with (1) SIP revisions that have been submitted after August 7, 1977, and (2) regulations which were approved by the Agency prior to the enactment of the 1977 Clean Air Amendments, can be treated as having been achieved during 1979. There should be an assurance, however, that these are real emission reductions and not just "paper" ones.

7. An identification and quantification of an emissions growth increment which will be allowed to result from the construction and operation of major new or modified stationary sources within the area for which the plan has been developed. Alternatively, an emissions offset regulation can be adopted to provide for major new source growth.

The growth rates established by states for mobile sources and new minor stationary sources should also be specified, and in combination with the growth associated with major new or modified stationary sources will be accepted so long as they do not jeopardize the reasonable further progress test and attainment by the prescribed date. However, the growth rate identified in the SIP must be consistent with the growth rates used (or implied by) the other planning programs in the area (e.g., FWPCA Section 208 [201], HUD Section 701, FHWA Section 134). A system for monitoring the emission growth rates from major and minor new stationary sources and from transportation sources and assuring that they do not exceed the specified amounts must also be provided for in the revision.

8. Provision for annual reporting on the progress toward meeting the schedules summarized in (4) above as well as growth of mobile sources, minor new stationary sources, major new or modified stationary sources, and reduction in emissions from existing sources to provide for reasonable

further progress as in (6) above. This should include an updated emission inventory.

9. A requirement that permits be issued for the construction and operation of new or modified major sources in accordance with Section 173 and 110(a)(2)(D).

10. An identification of and commitment to the financial and manpower resources necessary to carry out the plan. The commitment should be made at the highest executive level having responsibility for SIP or that portion of it and having authority to hire new employees. This commitment should include written evidence that the State, the general purpose local government or governments, and all state, local or regional agencies have included appropriate provision in their respective budgets and intend to continue to do so in future years for which budgets have not yet been finalized, to the extent necessary.

11. Evidence of public, local government, and state legislative involvement and consultation. It shall also include an identification and brief analysis of the air quality, health, welfare, economic, energy, and social effects of the plan revisions and of the alternatives considered by the State, and a summary of the public comment on such analysis.

12. Evidence that the SIP was adopted by the state after reasonable notice and public hearing.

ADDITIONAL REQUIREMENTS FOR CARBON MONOXIDE AND OXIDANT SIP REVISIONS WHICH PROVIDE FOR ATTAINMENT OF THE PRIMARY STANDARDS LATER THAN 1982

For those SIP revisions which demonstrate that attainment of the primary standards for carbon monoxide and/or oxidants is not possible in an area prior to December 31, 1982 despite the implementation of all reasonable emission control measures the following items must be included in the January 1, 1979 submission in addition to all the general requirements listed above:

1. A program which requires prior to issuance of any permit for construction or modification of a major emitting facility an analysis of alternative sites, sizes, production processes, and environmental control techniques for such proposed source which demonstrates that benefits of the proposed source significantly outweigh the environmental and social cost imposed as a result of its location, construction, or modification.

2. An inspection/maintenance program or a schedule endorsed by and committed to by the Governor for the development, adoption, and implementation of such a program as expeditiously as practicable. Where the necessary legal authority does not cur-

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rently exist, it must be obtained by June 30, 1979. Limited exceptions to the requirement to obtain legal authority by June 30, 1979 may be possible if the state can demonstrate that (a) there was insufficient opportunity to conduct necessary technical analyses and/or (b) the legislature has had no opportunity to consider any necessary enabling legislation for inspection/maintenance between enactment of the 1977 Amendments to the Act and June 30, 1979. In addition, where a legislature has adequate opportunity to adopt enabling legislation before January 1, 1979, the Regional Administrator should require submission of such legal authority by January 1, 1979. In no case can the schedule submitted provide for obtaining legal authority later than July 1, 1980.

Actual implementation of the inspection/maintenance program must proceed as expeditiously as practicable. EPA considers two and one half years from the time of legislative adoption to be the maximum time required to implement a centralized inspection/maintenance program and one and one half years to implement a decentralized program. In no case may implementation of the program, i.e., mandatory inspection and mandatory repair of failed vehicles be delayed beyond 1982 in the case of a centralized program (either state lanes or contractor lanes) or beyond 1981 in the case of a decentralized (private garage) system.

3. A commitment by the responsible government official or officials to establish, expand, or improve public transportation measures to meet basic transportation needs as expeditiously as is practicable.

4. A commitment to use insofar as is necessary Federal grants, state or local funds, or any combination of such grants and funds as may be consistent with the terms of the legislation providing such grants and funds, for the purpose of establishing, expanding or improving public transportation measures to meet basic transportation needs.

Note that HUD has prepared guidelines for local development codes and ordinances to provide special requirements for areas which for significant periods of time may exceed the primary standards. These guidelines specify criteria for new construction operation of buildings which minimize pollutant concentrations to ensure a health indoor and outdoor environment. States are encouraged to adopt such measures as part of the SIP.

POLLUTANT SPECIFIC REQUIREMENTS

Sulfur Dioxide

Specifically, with regard to item (4) of the General Requirements, the January 1979 plan revisions dealing with sulfur dioxide must contain all the

necessary emission limitations and legally enforceable procedures to provide for attainment by no later than December 31, 1982 (i.e., schedules for the development, adoption, and submittal of regulations will not be acceptable).

Nitrogen Oxides

For NO_x, the January 1979 plan must contain all the necessary emission limitations and the legally enforceable procedures, or as a minimum, the appropriate schedules to adopt and submit the emission limitations and legally enforceable procedures which provide for implementation so that standards will be attained by no later than December 31, 1982. EPA is currently evaluating the need for a short term NO_x standard and expects to promulgate such a standard during 1978. If such a standard for air quality is promulgated, a new and separate SIP revision will be required for this pollutant.

Particulate Matter

The January 1979 plan revisions dealing with particulate matter must contain all the necessary emission limitations and legally enforceable procedures for traditional sources. These emission limitations and enforceable procedures must provide for the control of fugitive emissions, where necessary, as well as stack emissions from these stationary sources. Where control of non-traditional sources (e.g., urban fugitive dust, resuspension, construction, etc.) is necessary for attainment, the plan shall contain an assessment of the impact of these sources and a commitment on the part of the state to adopt appropriate control measures, this commitment shall take the form of a schedule to develop, submit, and implement the legally enforceable procedures, and programs for controlling non-traditional particulate matter sources. These schedules must include milestones for evaluating progress and provide for attainment of the primary standards by no later than December 31, 1982, and attainment of the secondary standards as expeditiously as practicable. States should initiate the necessary studies and demonstration projects for controlling the non-traditional sources as soon as possible.

Carbon Monoxide and Oxidant

An adequate SIP for oxidant is one which provides for sufficient control of volatile organic compounds (VOC) from stationary and mobile sources to provide for attainment of the oxidant standard. Accordingly, the 1979 plan revision must set forth the necessary emission limitations and schedules to obtain sufficient control of VOC emissions in all non-attainment areas.

They must be directed toward reducing the peak concentrations within the major urbanized areas to demonstrate attainment as expeditiously as practicable but in no case later than December 31, 1987. This should also solve the rural oxidant problem by minimizing VOC emissions and more importantly oxidants that may be transported from urban to rural areas. The 1979 submission must represent a comprehensive strategy or plan for each non-attainment area; plan submissions that address only selected portions of non-attainment are not adequate.

For the purpose of oxidant plan development, major urban areas are those with an urbanized population of 200,000 or greater (U.S. Bureau of Census, 1970). A certain degree of flexibility will be allowed in defining the specific boundaries of the urban area. However, the areas must be large enough to cover the entire urbanized area and adjacent fringe areas of development. For non-attainment urban areas, the highest pollutant concentration for the entire area must be used in determining the necessary level of control. Additionally, uniform modeling techniques must be used throughout the nonattainment urban area. These requirements apply to interstate as well as intrastate areas.

Adequate plans must provide for the adoption of reasonably available control measures for stationary and mobile sources.

For stationary sources, the 1979 oxidant plan submissions for major urban areas must include, as a minimum, legally enforceable regulations to reflect the application of reasonably available control technology (RACT)¹ to those stationary sources for which EPA has published a Control Techniques Guideline (CTG) by January 1978, and provide for the adoption and submittal of additional legally enforceable RACT regulations on an annual basis beginning in January 1980, for those CTG's that have been published by January of the preceding year.

For rural non-attainment areas, the Ox plan must provide the necessary legally enforceable procedures for the control of large HC sources (more than 100 ton/year potential emissions) for which EPA has issued a CTG by January 1978, and to adopt and submit additional legally enforceable procedures on an annual basis beginning in January 1980, after publication of subsequent CTG's as set forth above.

For mobile sources in urbanized area (population 200,000) SIPs must pro-

¹As defined by the U.S. Bureau of Census, urbanized area generally include core cities plus any closely settled suburban areas.

²While it is recognized that RACT will be determined on a case-by-case basis, the criteria for SIP approval rely heavily upon the information contained in the CTG. Deviations from the use of the CTG must be adequately documented.

vide for expeditious implementation of reasonably available control measures. Each of the measures for which EPA will publish information documents during 1978 is a reasonably available control measure. These measures are listed on the following page:

1. To be published by February 1978:
 - a. Inspection/maintenance;
 - b. Vapor recovery;
 - c. Improved public transit;
 - d. Exclusive bus and carpool lanes;
 - e. Area wide carpool programs.
2. To be published by August 1978:
 - a. Private car restrictions;
 - b. Long range transit improvements;
 - c. On street parking controls;
 - d. Park and ride and fringe parking lots;
 - e. Pedestrian malls;
 - f. Employer programs to encourage car and van pooling, mass transit, bicycling and walking;
 - g. Bicycle lanes and storage facilities;
 - h. Staggered work hours;
 - i. Road pricing to discourage single occupancy auto trips;
 - j. Controls on extended vehicle idling;
 - k. Traffic flow improvements;
 - l. Alternative fuels or engines and other fleet vehicle controls;
 - m. Other than light duty vehicle retrofit;
 - n. Extreme cold start emission reduction programs.

The above measures (either individually or combined into packages of measures) should be analyzed promptly and thoroughly and scheduled for expeditious implementation. EPA recognizes that not all analyses of every measure can be completed by January 1979 and, where necessary, schedules may provide for the completion of analyses after January 1, 1979 as discussed below. (If analysis after January 1979 demonstrates that certain measures would be unnecessary or ineffective, a decision not to implement such measures may be justifiable. However, decisions not to implement measures will have to be carefully reviewed to avoid broad rejections of measures based on conclusory assertions of infeasibility.)

As described previously, annual incremental reductions in total emissions must occur in order to achieve reasonable further progress during the period prior to attainment of the standards. Therefore, not all transportation measure implementation activities should wait until the comprehensive analyses of control measures are completed. Demonstration studies are important and should accompany or precede full scale implementation of the comprehensive strategy. It is EPA's policy that each area will be required to schedule a representative selection of reasonable transportation measures (as listed above) for imple-

mentation at least on a pilot or demonstration basis prior to the end of 1980.

Every effort must be made to integrate the air quality related transportation plan and implementation required by the Clean Air Act into planning and programming procedures administered by DOT. EPA will publish "Transportation Planning Guidelines" which will, if followed carefully, insure that an adequate transportation planning process exists.

EPA recognizes that the planning and implementation of very extensive air quality related transportation measures can be a complicated and lengthy process, and in areas with severe carbon monoxide or oxidant problems, completion of some of the adopted measures may extend beyond 1982. Implementation of even these very extensive transportation measures, however, must be initiated before December 31, 1982.

In the case of plan revisions that make the requisite showing to justify an extension of the date for attainment, the portion of the 1979 plan submittal for transportation measures must:

1. Contain procedures and criteria adopted into the SIP by which it can be determined whether the outputs of the DOT Transportation planning process conform to the SIP.

2. Provide for the expeditious implementation of currently planned reasonable transportation control measures. This includes reasonable but unimplemented transportation measures in existing SIPs and transportation controls with demonstrable air quality benefits developed as part of the transportation process funded by DOT.

3. Present a program for evaluating a range of alternative packages of transportation options that includes, as a minimum, those measures listed above for which EPA will develop information documents. The analyses must identify a package of transportation control measures to attain the emission reduction target ascribed to it in the SIP.

4. Provide for the evaluation of long range (post-1982) transportation and growth policies. Alternative growth policies and/or development patterns must be examined to determine the potential for modifying total travel demand. One of the growth alternatives evaluated should be that prepared in response to Section 701 of the Housing Act of 1954, as amended.

5. Include a schedule for analysis and adoption of transportation control measures as expeditiously as practicable. The comprehensive analysis of alternatives (item 2 above) must be completed by July 1980 unless the designated planning agency can demonstrate that analysis of individual com-

ponents (e.g., long range transit improvements) may require additional time. Adopted measures must be implemented as expeditiously as practicable and on a continuous schedule that demonstrates reasonable further progress from 1979 to the attainment date. Determinations of the reasonableness of a schedule will be based on the nature of the existing or planned transportation system and the complexity of implementation of an individual measure.

ADDITIONAL CARBON MONOXIDE AND OXIDANT MONITORING REQUIREMENTS

It is EPA's policy to require that all SIPs which provide for attainment of the oxidant standard after December 31, 1982, must contain commitments to implement a complete oxidant monitoring program in major urbanized areas in order to adequately characterize the nature and extent of the problem and to measure the effectiveness of the control strategy for oxidants. The 1979 plan submittal must provide for a schedule to conduct such CO monitoring as necessary to correct any deficiencies as identified by the Regional Office.

SIPs FOR UNCLASSIFIED AREAS REDESIGNATED NON-ATTAINMENT

With respect to unclassified areas which are later found to be non-attainment areas the state will be required to submit a plan within nine months of the non-attainment determination. During plan development, the state will be required to implement the offset policy for that area. However, it should be noted that in many cases, because of previous plan revisions or adoption of previous control regulations, the baseline for offsets will be more restrictive and thus offsets may be more difficult to obtain. For oxidants, state-wide regulatory development (for at least all sources greater than 100 tons/year), however, would permit the state to utilize the regulations developed for the entire state as the applicable plan for the newly designated non-attainment area. This would normally constitute an approvable SIP per the above criteria and could essentially accommodate the proposed growth within the previously submitted state plan and not require offsets once the area is designated as non-attainment.

[FR Doc. 78-13634 Filed 5-18-78; 8:45 am]



REF I-3
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

SEP 28 1977

OFFICE OF
AIR AND WASTE MANAGEMENT
CDB

SUBJECT: Attainment Designation List Required
by the 1977 Clean Air Act Amendments

OCT 12 1977

FROM: David G. Hawkins, Assistant Administrator
for Air and Waste Management

DGH

REC'D.

MEMO TO: Regional Administrators, Regions I-X

With the passage of the 1977 Clean Air Act Amendments, many new tasks have been placed upon this Agency. One of the most pressing of these is the requirement by Section 107(d) of the revised Act to publish a list by February 3, 1978, of air quality control regions (AQCRs) or portions thereof reflecting their attainment/nonattainment status for all criteria pollutants.

You are requested to notify your States of this requirement and convey the importance of these designations for future air quality control strategy planning. I have enclosed a model letter to use as a guide in preparing a letter from your office to the head of each State's air pollution control agency detailing the requirements of the Act in regards to this task and giving the necessary guidance for developing these attainment designation lists.

The State submittals should be reviewed by the Regional Offices for consistency in applying the criteria set forth for determining attainment status. The validation of the air quality monitoring data used by the State in making such determinations is most important. In light of the tight schedule, copies of the State submittals should be forwarded to the Office of Air Quality Planning and Standards (OAQPS) for concurrent review as they are received by the Regional Offices. Where modifications are made by the Regional Office to the status of any designated area, these revisions should be submitted to OAQPS no later than January 19, 1978. States will be given notification by the Regional Offices when modifications are made and allowed to rebut any such changes. OAQPS will then prepare a Federal Register notice compiling the attainment designations for all areas and publish the notice by February 3, 1978.

Given the time schedule and the resulting impact of such designations on future air quality planning, your immediate attention is requested.

Enclosure

cc: Air & Hazardous Materials Division Directors, Regions I, III-X
Environmental Programs Division Director, Region II
Air Branch Chiefs, Regions I-X



REF 1- 3

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
AIR AND WASTE MANAGEMENT

OCT 7 1977

77-023

SUBJECT: Model Letter Regarding State Designation
of Attainment Status.

MEMO TO: Regional Administrators, Region I-X

FROM : David G. Hawkins, Assistant Administrator
for Air and Waste Management

DH

On October 6, 1977, members of your staff were notified, via telephone, of the pending revision to the model letter prepared as guidance for notification to the State agencies concerning designation of attainment/non-attainment status as required by the 1977 Clean Air Act Amendments. The language of the September 28, 1977, model letter to you has been revised regarding designation for photochemical oxidants. The attached model letter requests States to presume that all urban areas greater than 200,000 population are non-attainment areas for photochemical oxidants and encourages States to consider oxidant non-attainment designation on a State-wide basis in States east of the Mississippi River.

Please consider this model letter as representing Agency policy and proceed to notify each State.

Attachment

cc: Air & Hazardous Materials Division Directors, Regions I,
III-X
Environmental Programs Division Director, Region II
Air Branch Chiefs, Regions I-X

On August 7, 1977, President Carter signed the Clean Air Act Amendments of 1977. As a result, several new tasks are being required of the States and of the Environmental Protection Agency (EPA).

One of the most pressing tasks prescribed by the Clean Air Act Amendments is the submission by each State, by December 5 of a list of air quality control regions (AQCRs) or portions thereof which denotes the attainment/nonattainment status of the areas in regards to the National Ambient Air Quality Standards (NAAQS) for all criteria pollutants. Section 107 of the amended Act requires attainment designations as is shown by the attached format which we request you follow when compiling State designations.

Generally, the area designations should be on a basis not larger than an AQCR. However, the Act does allow that, when adequate information is available, States may divide AQCRs into various non-attainment, attainment or unclassifiable portions. The designated area should be as precise as feasible, i.e., county, sub-county or other geographic area that can be clearly defined in written terms. A different geographical area can be used in designating each pollutant. The attached listing format is designed to accommodate such sub-AQCR designations without modification to the form.

QAQPS Guideline No. 1.2-015, Guidelines for the Evaluation of Air Quality Data published in February, 1974, should be used to evaluate air quality data in making the required determinations. That is, each monitoring site within the designated area must meet the standards or the area is considered nonattainment for the specific pollutant. The most recent consecutive four quarters of data available are to be used. If the most recent four quarters of data show attainment, the previous four quarters of data should also be examined. This minimizes the chances of relying on a single year's data which might reflect abnormally favorable meteorological conditions. In using older data, States may wish to account for control that has taken place since those data were recorded. Modeling data can be used to supplement or be used in lieu of ambient data. Future growth should not be considered in determining attainment status for purposes of Section 107.

You should be aware of the implications of designating an area as attainment, nonattainment, or unclassifiable. For any pollutant, the designation of "nonattainment area" will require that a SIP be developed for that area by January 1, 1979. During this interim period, offsets will be required in the nonattainment areas. However, the baseline for determining offset credit will be the applicable SIP regulations at the time a permit is considered.

In designating the attainment status for the criteria pollutants, the following guidelines apply:

Total Suspended Particulates

The area should be designated attainment when a TSP violation can be clearly attributed to rural fugitive dust (as defined in the EPA fugitive dust policy paper).

Total Suspended Particulates and Sulfur Dioxide

In cases where an area is unclassifiable or is designated as attainment, major new or modified sources must be reviewed to ensure consistency with PSD requirements.

Carbon Monoxide

Specific areas covered by monitors showing violations should be designated as non-attainment. However, SIP revisions covering larger geographic areas may be necessary to solve the non-attainment problem.

Photochemical Oxidants

It is well established that the high concentrations of oxidant precursors and the ratio of hydrocarbons to nitrogen oxides typically found in major urban areas is conducive to formation of photochemical oxidants. For example, measured data from cities with urbanized area populations exceeding 200,000 show violations of the oxidant standard for all areas where data are available. Data are available for almost all urbanized areas that exceed 200,000 population. Accordingly, non-attainment can, and should be presumed for all such urbanized areas, even for those few urbanized areas that do not have measured data. Since oxidant levels well in excess of the oxidant standard have been shown to persist for many miles downwind of urban areas, the area designated as non-attainment around urban areas should reflect this phenomenon.

Because urban areas are relatively numerous east of the Mississippi River, there are few, if any, areas that are not affected by an urban oxidant plume. Available rural monitoring data support this conclusion. Rather than designating areas as unclassifiable, States east of the Mississippi River are encouraged to designate their State non-attainment (which probably reflects the actual case). The fact that ozone is transported from urban areas will be explicitly recognized in the development of policies related to SIP content and approval. Additional monitoring will be required for areas designated as unclassifiable pursuant to Section 107 (d)(1)(E). If data showing non-attainment become available, the appropriate change to the attainment status must be made.

The Act requires that States submit designations to EPA by December 5, 1977. EPA must then promulgate the lists in the Federal Register by February 3, 1978, with any modifications as necessary. When any modification to the list is proposed by the Administrator, the affected State will be notified and provided an opportunity to demonstrate why the proposed modification is inappropriate. EPA will compile all State lists with all modifications as may be necessary and publish as required by the Act.

REF I-3

Given the time required to designate attainment status and resolve any differences which may arise, we would appreciate it if you would give this your immediate attention. If you have any questions, please contact (designated Regional Office contact).

List of Noncomplying Regions REF I-3
Section 103 of the 1977 Clean Air Act Amendments

FORMAT A for Designating TSP and SO₂

Designated Area	Primary Standard Exceeded Section (d)(1)(B)	Secondary Standard Exceeded Section (d)(1)(C)	Unclassifiable Section (d)(1)(D)	Attainment
Area designated can be an AQCR, county or other defined geographic area				

FORMAT B for Designating CO/O_x/NO₂

Designated Area	Primary Standard Exceeded Section (d)(1)(A)	Unclassifiable Section (d)(1)(E)	Attainment Section (d)(1)(E)
Area designated can be an AQCR, county or other defined geographic area			

INSTRUCTIONS:

Format A is to be used for designating the attainment status for TSP and SO₂ required by Section 103 (d)(1)(B); Section 103 (d)(1)(C) and Section 103 (d)(1)(D).

Format B is to be used for designating the attainment status for CO, oxidants and NO₂ required by Section 103 (d)(1)(A) and Section 103 (d)(1)(E).

A separate table is to be used for designating the status of each pollutant. An "x" is to be used to indicate the appropriate status of each pollutant using at least the most recent four consecutive quarters of air quality data or modeling data where applicable.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DATE: 28 JUL 1978

SUBJECT: Questions and Answers on 1979 SIP Revisions

FROM: G. T. Helms, Chief *Tom*
Control Programs Operations Branch

TO: See Addressees Below

This is a compilation of the five monthly questions and answers memos. Also included are questions and answers (dated January 12) from the January Air Branch Chiefs' meeting in Denver. The questions and answers are grouped by subject in the hopes it will enhance the use of the memos in clarifying the 1979 SIP revision requirements. The date of the original memo follows each question.

Enclosure

Addressees:

Thomas Devine, Region I
William Baker, Region II
Howard Heim, Region III
Greg Glahn, Region IV
Wayne Pearson, Region V
Jack Divita, Region VI
Art Spratlin, Region VII
Robert DeSpain, Region VIII
Wayne Blackard, Region IX
Clark Gaulding, Region X

SECTION 107 DESIGNATIONS

Q: What are the general criteria for EPA promulgation where a State defaults and a violating monitoring site is present? And for EPA acceptance of State designations for Section 107? (1/12)

A: Given below on a pollutant-by-pollutant basis are the two cases--first, where EPA must promulgate the area to be generally designated as non-attainment is given; and second, the criteria to be used by the Regional Offices in evaluating State submitted designations.

TSP

EPA promulgation -- political boundaries such as county, city,
State designation -- if monitoring sites are unrepresentative according to SAMWG -- call area unclassified.

Oxidants

EPA promulgation -- county as a minimum.
State designation -- accept all reasonable designations.

SO₂

EPA promulgation -- county as a minimum.
State designation -- accept all reasonable designations.

CO

EPA promulgation -- urban core area.
State designation -- accept reasonable designations. Regional Office would redesignate as "unclassified" if State submitted attainment designation for large urban area > 200,000 population with no monitoring or modeling data.

Designation of all areas as nonattainment, attainment, or unclassified relative to air quality standards must be made by EPA in early February, 1978, based on State recommendations due December 5, 1977.

Q: Which should be given preference in designating areas, monitored data or modeling results? (1/12)

A: In urban areas monitoring results should be used. For areas around isolated point sources, especially for SO₂, it is difficult for a few monitors to catch the hotspot. If there is a conflict between adequate monitoring data and modeling results, monitored values should be used. However, if the monitoring data are inadequate, then available modeling results should be used. It is not necessary to model specifically for the §107 designations.

Q: Is there any flexibility allowed in determining nonattainment areas? (1/12)

A: Areas clearly showing attainment or nonattainment must be classified as such. Areas with only sketchy data may be defined as unclassifiable.

We recognize the subtle complexity of this issue and the inherent difficulties created by the above guidance. However, two factors must be recognized: (1) sites with clearly defined nonattainment problems cannot be arbitrarily reclassified except as provided in the fugitive dust policy paper; and (2) a SIP cannot be totally approved by EPA unless it demonstrates attainment of the NAAQS in all areas.

Q: Are all sampling sites to be included in determining nonattainment areas? (1/12)

A: Yes, unless it can be clearly shown that such data points do not represent the true ambient air quality occurring at the site in question.

Q: If the last four quarters of sampling were shown to be abnormal in terms of frequency and magnitude of violations, would previous data be accepted as the basis for not declaring nonattainment status at this time? (1/12)

A: Both the long term trend and specific data point given by the four quarter analysis should be examined. If there is a discrepancy between the two, the State should make a judgment as to which is the most valid indicator. Rationale utilized in making this judgment should be provided to EPA. As a practical guide, data significantly impacted by rare meteorological conditions (for example, the recent Northwest drought) may be considered abnormal and thus be discounted for these determinations.

Q: Will EPA accept a designation of attainment for an area with a monitor showing recent violations due to a temporary situation such as construction? (1/12)

A: Yes, if a history of attainment can be shown and if the temporary activity is demonstrated to be responsible for the violation.

Q: Is it necessary to designate an area as nonattainment if the source of the violation is known and regulatory measures are underway? (1/12)

A: Yes, if the data are available and valid. The area of nonattainment can be made small in these situations.

Q: Is the boundary of a nonattainment area best determined by the "contour" around areas experiencing ambient violations or by the location of sources that contribute to these violations? (1/12)

A: Nonattainment areas are in general defined by ambient violations. It appears that sufficient flexibility exists to allow States to include an additional area around the actual nonattainment area to make new sources located immediately adjacent to the problem areas subject to offset requirements.

Q: What are EPA's intentions on O_x designations? (1/12)

A: It is our intention to designate all urbanized areas with populations greater than 200,000 (1970 census) as nonattainment for O_x even in the absence of air quality data. Valid rural data on O_x cannot be ignored and at a minimum the county in which the sampler is located must be declared nonattainment if a violation has been recorded.

Q: Does EPA intend to hold public hearings on the State designations of attainment status? (1/12)

A: EPA does not intend to conduct public hearings on the State designations. Instead, EPA will publish a list of attainment, nonattainment and unknown designations on February 3, 1978, followed by a 30-day comment period. Any changes to the designation status will be promulgated at least 30 days later.

Q: Should illegal stack heights be considered in Section 107 designations? (1/12)

A: Yes, to the extent that they are known.

Q: Can attainment/nonattainment status be changed? (1/12)

A: Yes. An area designated nonattainment on the basis of this year's data could be redesignated whenever the data show that the area has achieved attainment.

Q: What form will the February 3, 1978, Federal Register notice take which will give the State designations for attainment/nonattainment areas as required by Section 107 of the Clean Air Act? (1/12)

A: The designations will appear in the notice section of the Federal Register with a general national perspective preamble accompanying the actual list of designations as approved by EPA. Where necessary, a portion of the preamble will be devoted to a discussion for any significant actions taken by the Regional Offices.

Q. Is it true that if a monitor is properly sited, i.e., influenced by a significant stationary source, then the area of the nonattainment designation should be as small as possible, so as to reflect only the impact of a nearby source? (6/2)

A. Yes. The nonattainment area may be as small as possible as long as it covers the whole area of the source's impact.

Q. Should monitors that are improperly sited, according to EPA criteria, and hence could be unduly influenced by resuspended street dust, be ignored in establishing the attainment status of an area? (6/2)

A. No. It is not current Agency policy that only those monitoring sites which meet SAMWG guidelines be used for both SIP development and Section 107 designation purposes. EPA's proposed guidance states that there are situations in which data from existing monitors located in the "unacceptable" zone may still be useful. For sites not located within the proposed guidelines, an evaluation is needed to determine the roadway influence. This evaluation is then used to decide if the roadway influence is significant enough to warrant relocation of the monitor. If relocation is necessary, the monitor must be within the immediate vicinity of the original location such that the new site meets the proposed guidelines. The area is presumed to be nonattainment until such time as data from the relocated station indicate otherwise.

Q. Are States required to monitor air quality in areas designated as unclassified in order to establish a base for determining the attainment/nonattainment status? (7/11)

A. No specific monitoring requirements apply. However, the requirement for sources subject to PSD regulations to obtain one year of air quality data prior to construction does apply and that data could be used for purposes of designating the area.

Q. What is the future of the Section 107 designation process? Will designations be modified, changed, and updated on any kind of annual basis? (7/28)

A. There is no specific schedule for revising the Section 107 designations. The designations are dynamic and designation changes are to be made whenever new and relevant information is brought to the attention of the State (or EPA if the State does not act.) The designation changes are to be accomplished by the Regional Office as an informal rulemaking action revising Part 81.

EMISSION INVENTORIES

Q. Must the emission inventory forms recommended in the workshops on requirements for nonattainment area plans be used for submitting inventories with the 1979 SIP submissions? (6/2)

A. No. The formats in the nonattainment workshop summaries are merely suggestions. Due to the vast number of computerized systems using varied storage formats, it is nearly impossible for all submissions to fit the particular suggested formats. Whatever particular summary format a State chooses, must be approved by their Regional Office and should reflect that the emission inventory is accurate, current, and comprehensive.

Q. Must chemical species information be included in the emission inventory? (6/2)

A. Total nonexempt volatile organic compound emissions are the only emissions that need to be identified in the emission inventory submitted in the January, 1979, plan. Chemical species information may be useful in the determination of the most appropriate method of control for a particular industry, but this information need not be submitted in the emission inventory.

Q. Emission inventories are to be on an annual basis, yet some problems and standard violations occur on a short-term basis (daily or seasonal). Is there a way these sources can be reported so their emission inventories will reflect this? (3/31)

A. If the nonattainment area has short-term problems, the State can attempt to develop a selective short-term emission inventory for those sources which have an impact on the air quality problem.

Q. Are sources located outside a nonattainment area which significantly impact on that area required to be inventoried? (3/31)

A. Sources outside the nonattainment area which, due to meteorological conditions, impact on the nonattainment area are required to be included in the emissions inventory. It is unlikely that standards will be attained if these outside sources are not part of the inventory and control strategy.

Q. What date is acceptable as a "current" emission inventory? (5/4)

A. A "current" emission inventory is generally considered to be 1977. However, the emission inventory should be comparable with the air quality data used to develop the control strategy and if pre-1977 air quality data were used, a "current" emission inventory can be anywhere from 1975-1977.

Q. What information is available to do a mobile source emission inventory? (6/2)

A. Mobile Source Emission Factors (EPA 400/9-78-005) is now available. The computer program Mobile 1 tape along with a short user's guide, is available from Len Fleckenstein in OTLUP (755-0603).

FUGITIVE DUST

As previously stated in the Hawkins to the Regional Administrators, memo dated October 7, 1977, for rural areas, the contribution of fugitive dust to monitored air quality levels can be neglected before determining the attainment/nonattainment status for Section 107 designations.

Q: For purposes of defining nonattainment areas for TSP, what is rural fugitive dust? (1/12)

A: The State may subtract both the impact of industrial sources located within an area and the normal ambient background level. The remainder may be considered "rural fugitive dust" in non-urban areas.

Q: Windblown particulate need not be counted against nonattainment in rural areas but all particulate must be counted in urban areas. What is a rural area? (1/12)

A: Significant flexibility is allowed in this determination. Generally, Regional Offices have been using 25,000 population as the cut point between an urban setting and a rural situation. However, for the purposes of implementing the fugitive dust policy, rural areas are determined by the following criteria: (1) the lack of major industrial development or absence of significant industrial particulate emissions; and (2) low urbanized populations.

Q. If an area influenced by fugitive dust is designated as a non-attainment area due to point source emissions, does the control strategy analysis have to include fugitive dust controls? (5/4)

A. Yes, fugitive dust may only be discounted in accordance with the fugitive dust policy paper. An area which cannot be classified as attainment through the discounting of fugitive dust cannot subsequently discount fugitive dust sources in developing control strategies, assuming, of course, that point source control alone will not be sufficient to attain the ambient standards.

OFFSETS

Q: If a source locates or expands in an attainment area and is therefore not subject to offset, can it be allowed to significantly contribute to violations of standards in an adjacent nonattainment area? (1/12)

A: No, the requirement that each NAAQS shall act as an overriding ceiling to any otherwise allowable increment assures that a source constructed in an attainment area will not significantly contribute to violations of standards in an adjacent area.

Q: Can sources be allowed to construct under the State emission offset ruling after July 1979? (1/12)

A: Yes, in the following situations:

(1) The requirements of Part D are otherwise met, but the allowance for growth has been used up (or none was provided initially).

(2) If an area is determined to be nonattainment subsequent to the initial February 1978 designations, a State will have 9 months in which to develop an acceptable SIP, and EPA will have six months to approve during which time new sources may be permitted in accordance with the offset ruling.

Q. How is a nonattainment area treated before promulgation in the Federal Register, specifically with respect to offsets? (6/2)

A. Section 107 designations in no way affect offset requirements. Once data show an area to be nonattainment, the area is required to get offsets immediately, irrespective of the Federal promulgation date. This works both ways. If data show an area to be attaining the standards and that a new source will not cause or contribute to a violation, offsets are not required.

Q. Are hydrocarbon (HC) offsets required of major new sources locating in rural O_x nonattainment areas? (5/4)

A. Yes, offsets are required in rural O_x nonattainment areas until the State develops a SIP which demonstrates attainment in the urban nonattainment areas and requires RACT on all existing 100 ton HC sources located in rural nonattainment areas. The required offsets, however, do not have to be obtained in the vicinity of the proposed new source.

Q. Does a source wishing to construct in a nonattainment area need to obtain offsets if the new source permit is approved after the SIP is submitted? (7/11)

A. Offsets are required up until the time a SIP is approved by EPA even if the SIP submittal has a margin for growth provision rather than an offset requirement. However, rather than go through the offset ruling, the State could process a new source application under the new source review procedure in the revised SIP. As soon as EPA approves the SIP, the State can issue the permit.

PSD

Q: Do the PSD increments become applicable when an area moves from nonattainment to attainment? (1/12)

A: No. Since the baseline for determining air quality deterioration for PSD purposes is air quality as of January 6, 1975 (which exceeded the NAAQS), the NAAQS would always be more restrictive than any PSD increment.

Q: Can Indian reservations unilaterally redesignate to Class I? (1/12)

A: Yes, Indian reservations can reclassify their lands from Class II to Class I by following the proper procedures outlined in the Clean Air Act Amendments and PSD Federal Register.

Q: Can a new source be allowed in a rural attainment area that is just barely achieving the NAAQS if the source's emissions, even though within the allowable PSD increment, would cause violations of the NAAQS? (1/12)

A: No. If the source would cause violations of NAAQS, it would not be allowed to build. PSD increments are not allowed to cause an area to exceed the NAAQS. Yes, if offsets are practiced.

Q: If a source is constructed in a nonattainment area and meets the required offset, would it be allowed to violate PSD increments in an adjacent Class I area even though it is not subject to the PSD regulations? (1/12)

A: PSD reviews are required in all areas. The source would not be allowed to violate PSD increments in any area.

Q: Will sulfur dioxide from ships be included in the PSD requirements if the potential cumulative emissions exceed 250 tons per year? (1/12)

A: Yes, it is recommended that the SO₂ emissions from ships be included in the PSD analysis for the duration of time that they are docked or attached to the facility.

Q: Do hydrocarbons and oxidants have to be included in PSD reviews at this time? If not, when do you anticipate that they will be included? If these pollutants are to be included at some future date, will facilities previously planned or under construction be exempt? (1/12)

A: If a source can get a final permit by March 1, 1978, the PSD applications will only need to assess the impacts for SO₂ and particulates. After March 1, 1978, the new definitions and regulations under Section 165 will go into effect. (Even a source which could obtain a final permit by March 1, 1978, must be reviewed in accordance with the new rules to be issued in March if it will commence construction on or after December 1, 1978.) BACT would be required for all sources which require PSD review. Increments for hydrocarbons and oxidants may go into effect within the next few years.

Q. Will EPA require PSD permit applicants to monitor for hydrocarbons in addition to oxidant? (7/11)

A. Since the .24 ppm hydrocarbon standard is only a guide for developing SIPs to attain the oxidant standard, no monitoring for hydrocarbons will be required.

Q. What is the effect of reducing baseline emissions? (7/11)

A. Reductions in baseline emissions (such as the application of RACT as a result of 1979 SIP revisions) will serve to expand the available increment for an area.

Q. Does a SIP relaxation count against a PSD increment? (7/11)

A. SIP relaxations that were pending as of August 7, 1977, are part of the baseline. The contribution to the baseline from existing sources affected by the relaxation that was pending as of August 7 would be based on the allowable emissions under the SIP as revised.

SIP relaxations received by EPA after August 7, 1977, but before promulgation of the PSD regulations do consume increment. However, these revisions require special consideration due to the uncertainty of how the new Act would apply to such SIP relaxations. These SIP relaxations need not be individually assessed to determine the precise amount of consumed increment before such relaxations may be approved. The periodic assessment requirement to verify that the applicable increments have not been exceeded is thought to be sufficient protection. This assessment would result in revisions to the SIP if an increment were found to have been violated. All SIP relaxations received after the date of promulgation of the PSD regulations will be individually reviewed against the available PSD increments. If deterioration beyond that allowed under the available increments would occur under a SIP relaxation, then such a SIP revision would be disapproved to the extent that it would cause significant deterioration. Whether a plan relaxation would consume the available increment would be typically determined through modeling the difference between the allowable emissions resulting from the new relaxed SIP limit and the emissions of the applicable source(s) which were included in the baseline.

Q. Can EPA delegate PSD as an interim measure? (7/11)

A. The PSD program can be delegated to the States as has been done in the past. States should, however, be encouraged to develop their own PSD program.

Q. Does an applicant located in a nonattainment area have to obtain one year of air quality data if the control agency has sufficient data reflecting the predicted ambient impact of the new source? (7/11)

A. No. If the Regional Office feels that existing air quality data are representative, then no additional monitoring would be required.

Q. SIP relaxations which would exceed the air quality increments established under Part C of the Clean Air Act to prevent significant deterioration will be disapproved. Will this be retroactive for previously approved SIP relaxations? (7/11)

A. There is no need to immediately disapprove previously approved SIP relaxations which would have caused the increment to be violated. However, the State should be notified of the need to assess the possible violation of the increment. If the review indicates a violation of an increment, then the plan should be revised within 60 days or such time as determined by the Administrator. The SIP revision should be designed to obtain such reduction in emissions so that the increment is no longer exceeded.

Q. Is it appropriate to disapprove implementation plan relaxations if such relaxations would exceed the air quality increment established under Part C of the Clean Air Act (CAA) to prevent significant deterioration (PSD) of air quality? (3/31)

A. Yes, Section 110(a)(2)(J) of the CAA requires, prior to approval, that each plan contains measures to prohibit a stationary source from emitting pollutants which would interfere with any PSD increment. Any SIP relaxations which exceed the increment would be in violation of this provision. It should be noted that this policy applies in all instances, even if the relaxation would not jeopardize attainment or maintenance of the ambient standards.

Q. If a State is conducting some of the PSD review but not issuing permits, should it obtain a formal delegation of authority from EPA to conduct that review? (7/28)

A. Yes. In order to clarify the relationship between EPA and the State, the Governor (or his designated agent) should request a partial delegation.

Q. Will post-construction monitoring play any role in determining whether a source has used up the increment? (7/28)

A. Section 52.21(n)(1) of the PSD regulations provides that the owner or operator shall conduct such post-construction monitoring as the Administrator determines may be necessary to establish the effect which emissions of a criteria pollutant from a source are having or would have on air quality. In the preamble to the regulations, EPA indicates it would, in any event, only require monitoring data for the purpose of determining whether a NAAQS has been or would be violated. At the present time, however, EPA is generally not requiring post-construction monitoring for this purpose.

TRANSPORTATION-AIR QUALITY PLANNING GUIDELINES

I. INTRODUCTION

A. Purpose

These guidelines implement Section 108(e) of the Clean Air Act as amended, August 1977.^{1*} Section 108(e) directs EPA to provide guidelines on the basic elements of the planning process for nonattainment areas.² This procedural guidance addresses the transportation-related sections of the Clean Air Act. These guidelines describe an integrated transportation-air quality planning process (hereafter called the integrated planning process) for developing the transportation system component of State Implementation Plans (SIPs) for areas that are designated nonattainment with respect to photochemical oxidants (Ox) and/or carbon monoxide (CO).^{3,4} EPA will subsequently provide more technical information on costs, effects and analytical techniques for selecting measures and developing strategies as required by Section 108(f).

The basic policy goal of the integrated planning process described herein is to reduce transportation system emissions and resulting adverse air quality impacts while maintaining compatibility with other community goals. The guidelines build upon the existing planning process by providing specific procedures designed to result in a program of transportation strategies that provide for incremental reductions in transportation system emissions as expeditiously as practicable.⁵ The guidelines stress continuing development and expeditious implementation of all reasonably available measures, but particularly those that can be planned and implemented by 1982 or during the following five years to 1987 as provided for in the Clean Air Act. Major long-term transportation improvements necessary for maintenance of the air quality health standards beyond 1987 also should be considered within the integrated planning process.

B. Applicability

These guidelines apply to all public agencies with responsibilities in planning or implementing the transportation portions of SIPs in nonattainment areas.⁶ (Section 174 of the Act requires: (1) designation of a lead planning organization and, (2) state and local elected officials to determine jointly the coordinated and combined responsibilities of the state, local governments and regional agencies in the SIP revision process.)⁷

*Footnotes are at the end of the guidelines beginning on page 25.

The guidelines describe an acceptable approach for accomplishing the continuing tasks of transportation-air quality planning and programming required by the Clean Air Act. These procedures are a realistic starting point. They should be improved upon by experience gained through actual applications. The guidelines build upon and should be implemented through the ongoing comprehensive planning processes. They recognize that institutional arrangements and planning procedures vary by area and, therefore, can be flexibly applied. But, while individual guideline elements need not be viewed as mandatory, the objective of each element is a necessary part of an effective process -- a process required by the Act. Therefore, modification of guideline elements will require substitution of a comparably effective approach.

The lead planning agency has the primary responsibility for implementing these guidelines. EPA and DOT Regional Offices are primarily responsible for monitoring the guideline implementation process. The Intermodal Planning Group (IPG) should be the federal coordinating mechanism. Modifications to these procedures by a state, regional or local agency should be closely coordinated with the appropriate EPA and DOT Regional Offices.

C. Funding

This section describes both authorized (but not yet appropriated) and currently available funds for conducting the transportation-air quality planning activities required by the Act. Appendix F describes funding for plan implementation and related planning.

1. Authorized Funds

Section 325 of the Act authorizes the appropriation of \$75,000,000 (available until expended) to carry out Section 175 beginning in fiscal year (FY) 1978. Section 175 directs EPA to make grants to meet the reasonable costs of plan development to any organization of local elected officials with transportation or air quality maintenance planning responsibilities recognized by the state under Section 174(a). Grants would cover 100 percent of any additional costs of developing a SIP revision for a nonattainment area for the first two fiscal years following grant receipt. Grants would supplement any other federal funds available to such organization for transportation or air quality maintenance planning. Grants could not be used for construction.

2. Available Funds

a. Section 175: Prior to the announcement of the President's urban policy, no Section 175 grant funds were included in the FY 1979 federal budget submitted to Congress. Funds to implement an EPA-DOT joint transportation-air quality planning process were, however, included as a contingency item in that budget. These funds were to be

Q. What is EPA's role in approval/disapproval of PSD classification redesignations? (7/28)

A. EPA can disapprove a redesignation only if the procedural requirements of Section 164 of the Clean Air Act and Sections 52.21(g) are not met (which includes, e.g., failure to give public notice or failure to hold public hearings) or if the redesignation is inconsistent with Section 162(a) or Section 164(a)(1)(2). If the above requirements are satisfied, EPA cannot overturn a redesignation and will approve the redesignation.

CO AND O_x ATTAINMENT DATE EXTENSIONS

Q. What is the effective date of Section 172(b)(11)? (5/4)

A. Section 172(b)(11) states that when a plan due on or before January 1, 1979, demonstrates that attainment is not possible for either O_x or CO (or both) before December 31, 1982, that plan must establish a permit system, a schedule for implementation of inspection/maintenance (I/M), and identify other measures necessary to provide attainment by December 31, 1987.

Q. Can an extension to 1987 be requested after 1979 if the original 1982 attainment for CO or O_x (or both) does not materialize? (5/4)

A. Yes. If a State has their SIP approved in 1979 which provides for attainment of CO or O_x (or both) by 1982, but that plan later proves inadequate for achieving attainment by 1982 and the State demonstrates that it cannot attain the standards by 1982 despite the implementation of all reasonably available control measures, a plan revision may be submitted providing attainment by 1987.

Q. If a State concludes it is impossible to demonstrate attainment of the CO or O_x standards or both by 1987 using all reasonable measures, will there be a no growth sanction as of July, 1979? (7/11)

A. A State should not draw that conclusion. The Clean Air Act requires commitment to the implementation of all RACT in the January, 1979, SIP. If these reasonable measures are not adequate to show attainment, the State must identify the additional control measures which could theoretically produce the additional required emission reductions and commit to further investigation of the measures. However, the Clean Air Act does not require that a State commit in 1979 to implement these specific additional measures. Such a commitment is not required until 1982.

Q. For CO nonattainment areas which cannot attain by 1982, is inspection/maintenance required? (6/2)

A. Yes. Section 172(a)(2) of the Clean Air Act says that in the case of the national primary ambient air quality standard for photochemical oxidants or CO (or both) "if the State demonstrates...that such attainment is not possible in an area with respect to either or both of such pollutants within the period prior to December 31, 1982,...such provisions shall provide for the attainment of the national primary standard for the pollutant (or pollutants) with respect to which such demonstration is made, as expeditiously as possible but not later than December 31, 1987." Section 172(b)(11) says that in the case of plans which make a demonstration pursuant to Section 172(a)(2), the plan provisions shall establish a specific schedule for implementation of a vehicle emission control inspection and maintenance program. However, as a matter of policy, EPA is not requiring I/M in cities with populations of less than 200,000.

GENERAL REQUIREMENTS

Q: What are the criteria that must be met for EPA to approve a State submitted SIP revision due in January, 1979? (1/12)

A. The criteria for approval are contained in the Hawkins' memo of February 24, 1978, entitled "The Criteria for Approval of 1979 SIP Revisions."

Q. If attainment is reached before the projected date (1982 or 1987), do control strategy measures not yet effective have to be implemented? (3/31)

A. Yes, unless the State wants to reevaluate the control strategy and demonstrate that some of the controls are no longer needed in view of changed conditions. Unless there is some reason to doubt the control strategy, it should be assumed that all the measures must be implemented to assure attainment at all times, not just during years with good dispersion conditions.

Q. Do the 1979 SIPs have to demonstrate maintenance and if so, for how long? (3/31)

A. The 1979 SIPs must demonstrate both attainment and maintenance. For most areas the maintenance requirements are satisfied by first demonstrating attainment and then having adequate new source review (NSR) procedures. For air quality maintenance areas (AQMAs) for which the Region has determined the need for an AQMA plan, such a plan is still required and maintenance for a period established by the Region must still be demonstrated. Otherwise, unless a nonattainment area is within an AQMA or there is a severe problem with minor source growth, a NSR program is adequate for satisfying the maintenance requirement.

SECONDARY STANDARDS

Q. Can an 18-month extension be granted for submission of a secondary standard control strategy? (6/2)

A. Yes. A state may request from the Administrator an extension under 40 CFR 51.31. Such a request shall show that attainment of the secondary standard will require emission reductions exceeding those achieved through application of RACT. A request for an extension must be submitted early enough to permit development of a plan prior to the deadline in the event that such request is denied.

Q. What criteria must a State meet prior to changing the date specified for attainment of a secondary standard? (5/4)

A. Section 172(a)(1) of the CAA requires that secondary standards be attained as expeditiously as practicable, while Section 110(a)(2)(A) requires that secondary standards be attained by a reasonable time. Reasonable time for attainment of TSP and sulfur dioxide (SO₂) secondary standards is 1982 if only reasonable available control technology (RACT) is needed to attain and maintain the secondary standard. Section 51.13 of Title 40 of the Code of Federal Regulations states that in any Region where application of RACT will not be sufficient for attainment and maintenance of the secondary standard, or where the State shows that good cause exists for postponing the application of such control technology, reasonable time shall depend on the degree of emission reduction needed for attainment of such secondary standard and on the social, economic, and technological problems involved in carrying out a control strategy adequate for attainment and maintenance of such secondary standard. A date specified for attainment of a secondary standard which satisfies these requirements will also satisfy the provision of Section 172 which requires that the secondary standard be attained as expeditiously as practicable.

NONATTAINMENT AREA PLANS

Q. Does the January 1, 1979, submission date hold for areas redesignated nonattainment for minor boundary adjustments as a result of the sixty-day comment period on the March 3, 1978, Section 107 designations? (6/2)

A. Yes. Any nonattainment area revised for minor boundary adjustments as a result of the 60-day comment period on the original designations promulgated March 3, 1978, is required to submit a SIP before January 1, 1979.

Q. When are SIPs due for nonattainment designations made after the revised March 3, 1978, final promulgations? (6/2)

A. SIPs are due nine months from the date of any new promulgations.

Q: Will all nonattainment areas of primary and secondary standards require SIP revisions? (1/12)

A: Nominally, yes, but the exact nature of the SIP revision could vary considerably. For instance, a number of TSP nonattainment areas will be washed out in advance by current EPA policy that authorizes a designation of "attainment" where present nonattainment is demonstrated to be caused by rural fugitive dust sources. It also appears possible in a number of cases that attainment might be possible by December 31, 1982; without adding any significant new regulatory requirements to the SIP; in such cases, the SIP "revision" might consist of an official notification that the time extensions for the primary and the secondary NAAQS contained in the Clean Air Act Amendments (accompanied by the underlying analysis).

Q: Is there any difference between violations of primary and secondary standards in terms of actions that must occur, especially with regards to offset? (1/12)

A: SIP revisions are required for both violations of primary and secondary standards. Offsets apply in both cases until July 1979 unless the State submits a revised attainment date for the secondary standard for either TSP or sulfur dioxide.

Q: Where a nonattainment plan is required by Section 178, should EPA require the States to implement the provisions of Section 124 (i.e., consider whether low polluting fuels that are presently being used will continue to be available) in their January 1979 SIP submissions? (1/12)

A: Yes. It makes little sense for a State to revise their SIP without dealing with these issues, and then have EPA call for a SIP revision several months later. Where a SIP is not required to be revised as a result of a nonattainment designation, the analysis and submission of a revised SIP (if necessary) may be done on the more extended schedule outlined in Section 124.

RURAL O_x NONATTAINMENT AREAS

Q. Are control strategies needed (and if so, what should they look like) for States whose only O_x nonattainment areas have a population of less than 200,000 persons? (7/11)

A. Control strategies are needed for all areas designated nonattainment, but their form and substance will vary depending on the nature and complexity of the problem. To have an approvable 1979 SIP, areas less than 200,000 persons need only to adopt VOC RACT regulations for 100 tons/yr point sources. As a minimum, these regulations should be accompanied with an emissions inventory quantifying emissions from the affected sources. For the 1982 O_x SIP, the State should adopt a more detailed plan which can rely upon any mix of measures it desires-- Federal Motor Vehicle Control Program, additional stationary source controls, I/M, and any other measures. A control strategy demonstration showing attainment must also be contained in the 1982 SIP.

Q. Must the attainment plan for areas designated nonattainment for photochemical oxidant with a population less than 200,000 contain an organic compound inventory? (7/11)

A. If an area has been designated nonattainment in accordance with Section 107 of the Clean Air Act, then the attainment plan must contain an inventory of organic compound emissions regardless of population. However, where a plan specifies Statewide RACT control for major sources, detailed emission inventories are required only for those areas specifically designated as nonattainment.

Q. If an O_x nonattainment area with a population less than 200,000 (i.e., rural areas) develops a control strategy, can Federal monies be used? (5/4)

A. The classification of areas by population is primarily for the purpose of rural and non-rural consideration as well as for setting of priority for resources. In some areas it may be necessary to develop strategies in these rural areas. If available, Federal monies can be used in these areas and the use and amounts of monies should be negotiated with the State and/or local agencies involved with the strategies.

Q. Are rural areas nonattainment for photochemical oxidants required to implement reasonably available control technology (RACT)? (3/31)

A. RACT must be applied to rural major stationary sources with the potential for emitting more than 100 tons per year, but a demonstration of attainment does not have to be made for such areas.

Q. Even though it is not required for rural areas to demonstrate attainment for oxidants, how are areas with urbanized populations of 40,000 - 200,000 classified? (3/31)

A. There may be some adjustment later, but for now areas with populations greater than 200,000 are considered urban areas and any areas less than 200,000 are considered as being rural areas for purposes of demonstrating attainment.

RACT REGULATIONS

Q: RACT on selected source categories is a requirement for SIP approval for O_x SIPs. RACT is defined by the CTG documents. Many States have existing regulations for VOC that are already being implemented. Can RACT determinations be softened to account for existing regulations and control control efforts? (1/12)

A: While it is recognized that RACT will be determined on a case-by-case basis, the criteria for SIP approval should rely heavily upon the information contained in the CTGs. Any deviations from the use of the CTGs should be adequately documented to be approvable.

Q. Is it possible to approve hydrocarbon control regulations which are less stringent than the emission limitations provided in the CTGs?(5/4)

A. Yes, in some cases if adequate justification is provided. Where economics or other circumstances justify regulatory requirements less stringent than those contained within CTGs, such justification is to be clearly documented in the SIP submittal.

Q. What will be accepted as adequate justification to explain deviations from the CTGs for hydrocarbon regulations? (7/28)

A. Where deviations from the CTG results in a more stringent control requirement, no justification is necessary. However, a deviation resulting in a less stringent control requirement is acceptable only if one of two conditions is met. One condition is that the 1979 SIP submittal contains adequate justification that economics or other circumstances warrant requirements less stringent than those contained within the CTG. The other condition is that the impact on emissions differs imperceptively (less than 5 percent in cases where it is possible to quantify the difference) from that of the CTG and there is no significant threat of undermining EPA activities elsewhere in the nation. This concept is only applicable on a source category basis. In other words, it would be unacceptable to approve a source category specific regulation requiring significantly less control than the corresponding CTG on the basis that other source categories are regulated to a degree significantly more stringent than the comparable CTGs.

Q. Can States apply VOC RACT regulations to sources in attainment areas surrounding a nonattainment area? (7/28)

A. Yes, States can obviously apply RACT regulations wherever they wish. The application of RACT regulations to expanded areas, perhaps even Statewide, is probably a wise action since it will greatly simplify the SIP revision process for future O_x nonattainment "discoveries" made through the PSD program. However, EPA presently does not require VOC RACT regulations for attainment areas.

MISCELLANEOUS

Q: Section 126 "Interstate Pollution Abatement" allows any State or political subdivision to petition EPA for finding that a source in a neighboring State "prevents attainment or maintenance...of any...national primary or secondary ambient air quality standard." The Administrator must make a decision within 60 days of the receipt of a petition and follow up with appropriate new abatement actions. What will be the basis for EPA decision on whether a source prevents attainment? (1/12)

A: EPA generally will make a positive finding only if the source is causing the violation of the standard and control of the out-of-state source will result in attainment. That is, the petitioning State must have its own house in order and must fail to attain only because of the interstate source before EPA will invoke the special powers of Section 126. Where the interstate source or sources are only contributing to violations that would exist anyway, the situation should be regulated through a comprehensive SIP revision for the area.

Q. What is the legal status of a source which is not meeting an approved SIP limit and to which the State has granted a variance but EPA has not yet approved the variance as part of the SIP? (3/31)

A. The source will be out of compliance and subject to Section 113 enforcement and noncompliance penalties under Section 120.

Q. What effect will non-ferrous smelter orders have on mandatory SO₂ attainment by 1982? (3/31)

A. The issuance of a nonferrous smelter order (NSO) will not interfere with the attainment of the ambient sulfur dioxide standards since any smelter subject to a NSO will be required to employ dispersion techniques to ensure attainment of the ambient standards until expiration of the NSO. Upon expiration, the smelter will be required to attain the ambient standards through constant control technology alone.

Q. Can monitors be relocated as part of a SIP revision? (6/2)

A. Yes.

Q. Are BACT and LAER nationwide or Statewide determinations? (3/31)

A. Neither, BACT and LAER are case-by-case determinations.

Q. Are Federal facilities subject to SIP limits and procedures? (3/31)

A. Yes, Federal facilities should be treated as any other source.

7. Q. Does the existence of Federal regulations alleviate sanctions? (6/2)

A. Only in limited circumstances. For example, to the extent resources permit, EPA will promulgate RACT for stationary sources. If this fills the only deficiency in the SIP, approval will then be possible and any sanctions will be lifted. However, in this case sanctions would apply if the State failed to implement the Federally promulgated regulations. Where States fail to adopt emission control regulations needed to provide for attainment and maintenance of the national air quality standards, EPA may not have sufficient resources to correct all deficiencies and it will be necessary to impose sanctions.

8. Q. Are Federal facilities required to pay permit fees to the State in which they are located? (5/4)

A. Yes, the Federal government is not exempt from these fees.

9. Q. Can Section 175 funds apply to TSP related projects or grants? (6/2)

A. Yes, Section 175 applies to TSP related projects or grants to solve reentrained dust and other TSP problems.

10. Q. What model should States use to determine percent reduction needed to attain the O_x standards? (6/2)

A. The Regional Office need not dictate model consistency but can leave it to the option of the States.

11. Q. Is a delayed compliance order (DCO) a SIP revision? (5/4)

A. A DCO is not a SIP revision under Section 110(a)(3) of the CAA. A DCO is, however, an addition to the SIP and modifies the terms of an approved SIP under Section 110(i) and Section 113(d)(11). Consequently, a source subject to a DCO is potentially subject to non-compliance penalties. DCO's will be published in 40 CFR 65.

12. Q. Who is required to submit a DCO to the Administrator? (5/4)

A. A State issued DCO is required to be submitted by the State to the Regional Office which in turn submits it to headquarters for review. A DCO is not required to be submitted by the State Governor but can be submitted by a local agency.

13. Q. When and to whom will the Section 108 transportation control measures (TCM) guideline documents be distributed? (6/2)

A. Inspection/maintenance and bus/carpool guidelines are now being distributed to the Regional Offices. The vapor recovery guideline is expected from the contractor on June 1. Limited copies of this will be distributed in early June with more copies available in early July. Other guidelines are due at the end of this year. Transportation planning guidelines have been completed in-house and are awaiting DOT consensus. This review should be completed in early June and the guidelines available then.

Q. When will the "Microinventory Technique for TSP Assessment" be available? (7/11)

A. This technique, which has recently been applied to several areas, emphasizes a more definitive area source inventory in the immediate vicinity of hi vols. It will be discussed, along with other analysis techniques, at the Workshop on Particulate Analysis and Assessment Methods, July 19 and 20, in Raleigh, North Carolina. A paper describing the technique in more detail will be available at that time and afterwards by requesting a copy from Tom Pace, MD-14, Research Triangle Park, North Carolina 27711, or at 629-5486 (FTS).

Q. How is an "urbanized area" of greater than 200,000 people defined? (7/21)

A. As defined in the U.S. Department of Commerce publication, 1970 Census Users' Guide Part 1, p. 82, urbanized area includes a core city plus any closely settled suburban area. For the purpose of oxidant plan development, major urbanized areas are urbanized areas with a population of 200,000 or greater. (See attachments to this enclosure for the Bureau of Census' definition and a list of urbanized areas.)

Q. Is the reference (in the February 24, 1978, memo on criteria for approval of 1979 SIP revisions) to use of the highest pollutant concentration for determining the necessary level of control for photochemical oxidants in nonattainment urban areas an attempt to modify current Agency policy regarding the use of the second highest value? (7/28)

A. No, the use of the highest pollutant concentration is intended by definition to mean the second highest value since the ambient standard dictates that the oxidant standard can be exceeded once per year.

Q. If an area contains several CO monitors all showing nonattainment, must the control strategy demonstrate attainment for all monitors or only the one with the highest reading? (7/28)

A. The control strategy must demonstrate attainment at all locations. Site specific controls alone are sufficient if they take care of the problem and do not serve simply to relocate it. However, measures that provide comprehensive control (such as I/M) and area-wide VMT reduction (such as mass transit, car pooling, etc.) may provide the best solution to the problem.

census, and therefore the boundaries are not permanent.

Contiguous urbanized areas with central cities in the same SMSA are combined. Urbanized areas with central cities in different SMSA's are not combined, except that a single urbanized area was established in each of the two Standard Consolidated Areas.

Essentially the same definition criteria are being, followed in 1970 as in 1960 with two exceptions:

A. The decision not to recognize selected towns in New England and townships in Pennsylvania and New Jersey as urban places under special rules will affect the definition of some areas in these States. Included in urbanized areas will be only the portions of towns and townships in these States that meet the rules followed in defining urbanized areas elsewhere in the United States. This also affects Arlington County, Virginia, which will be considered an urban unincorporated place rather than an urban by special rule county.

B. A change has been introduced with regard to the treatment of extended cities (previously called "overbounded") that contain large areas of very low density settlement. The decision to distinguish between urban and rural parts of extended cities in urbanized areas and to exclude the rural parts from the urbanized areas will help to present a more accurate representation of the population that is truly urban. Approximately sixty incorporated places are involved of which about twenty are central cities. An alphabetic code "A" appearing on the census summary tapes will identify these particular areas.

Pre-census planning indicated approximately fifty potential new urbanized areas. Those which prove to have a qualified central city or twin central cities in 1970 will appear in the published reports.

Maps in the Metropolitan Map Series essentially cover the urbanized areas of SMSA's and contain all recognized census boundaries down to the block level.

Two sets of four digit numeric codes for urbanized areas are contained in the 1970 census tabulations. The potential urbanized area code will identify each record (collection of related data items) in each urban fringe zone. This zone includes all of the area which has the potential of being part of an urbanized area after the 1970 census. The actual urbanized area code uniquely identifies all records in each urbanized area. The final extent of the urbanized

17. Urbanized areas (UA)-- An urbanized area contains a city (or twin cities) of 50,000 or more population (central city) plus the surrounding closely settled incorporated and unincorporated areas which meet certain criteria of population size or density. Beginning with the 1950 Censuses of Population and Housing, statistics have been presented for urbanized areas, which were established primarily to distinguish the urban from the rural population in the vicinity of large cities. They differed from SMSA's chiefly in excluding the rural portions of counties composing the SMSA's and excluding those places which were separated by rural territory from densely populated fringe around the central city. Also, urbanized areas are defined on the basis of the population distribution at the time of the

area and, therefore, each of the specific records that will contain this code is not determined until after the 1970 census.

or their parts, will qualify as part of the urbanized area only if they meet rule C above.

The components of UA's and their specific definitional criteria are as follows:

17.1 Central city of an urbanized area--An urbanized area contains at least one city which had 50,000 inhabitants in the census as well as the surrounding closely settled incorporated and unincorporated areas that meet the criteria for urban fringe areas. (There are a few urbanized areas where there are "twin central cities" that have combined population of at least 50,000.) All persons residing in an urbanized area are included in the urban population.

17.2 Urban fringe--In addition to its central city or cities, an urbanized area also contains the following types of contiguous areas, which together constitute its urban fringe:

A. Incorporated places with 2,500 inhabitants or more.

B. Incorporated places with less than 2,500 inhabitants, provided each has a closely settled area of 100 dwelling units or more.

C. Enumeration districts in unincorporated areas with a population density of 1,000 inhabitants or more per square mile. (The area of large nonresidential tracts devoted to such urban land uses as railroad yards, factories, and cemeteries is excluded in computing the population density.)

D. Other enumeration districts in unincorporated territory with lower population density provided that it serves one of the following purposes:

1. To eliminate enclaves.
2. To close indentations in the urbanized area of one mile or less across the open end.
3. To link outlying enumeration districts of qualifying density that were no more than 1-1/2 miles from the main body of the urbanized area.

A change in the definition since 1960 involves dropping the use of towns in the New England States, townships in New Jersey and Pennsylvania, and counties elsewhere which were classified as "urban by special rule." These areas

Table 21. Rank of Urbanized Areas in the United States by Population: 1970

[For meaning of symbols, see text]

Rank	Urbanized Areas	Population	Rank	Urbanized Areas	Population	Rank	Urbanized Areas	Population
1	New York, N.Y.-Northeastern New Jersey.....	16,206,841	81	Des Moines, Iowa.....	255,824	153	Portland, Maine.....	106,599
2	Los Angeles-Long Beach, Calif.....	8,351,266	82	Baton Rouge, La.....	249,463	156	Modesto, Calif.....	106,107
3	Chicago, Ill.-Northwestern Indiana.....	6,714,578	83	Worcester, Mass.....	247,416	157	Muskegon-Muskegon Heights, Mich.....	103,716
4	Philadelphia, Pa.-N.J.....	4,021,066	84	Peoria, Ill.....	247,121	158	Provo-Orem, Utah.....	104,110
5	Detroit, Mich.....	3,970,584	85	Oxnard-Ventura-Thousand Oaks, Calif.....	244,653	159	Pueblo, Colo.....	103,300
6	San Francisco-Oakland, Calif.....	2,987,850	86	Canton, Ohio.....	244,279	170	Durham, N.C.....	100,764
7	Boston, Mass.....	2,652,575	87	Columbia, S.C.....	241,781	171	Petersburg-Colonial Heights, Va.....	100,617
8	Washington, D.C.-Md.-Va.....	2,481,489	88	Harrisburg, Pa.....	240,751	172	Champaign-Urbana, Ill.....	100,417
9	Cleveland, Ohio.....	1,959,880	89	Las Vegas, Nev.....	236,681	173	Decatur, Ill.....	99,693
10	St. Louis, Mo.-Ill.....	1,882,944	90	Shreveport, La.....	234,564	174	Reno, Nev.....	99,687
11	Pittsburgh, Pa.....	1,846,042	91	Aurora-Elgin, Ill.....	232,917	175	Meriden, Conn.....	98,454
12	Minneapolis-St. Paul, Minn.....	1,704,423	92	Spokane, Wash.....	229,620	176	Wichita Falls, Tex.....	97,564
13	Houston, Tex.....	1,677,863	93	Lansing, Mich.....	229,518	177	Johnstown, Pa.....	96,146
14	Baltimore, Md.....	1,579,781	94	Charleston, S.C.....	228,399	178	Sioux City, Iowa-Nebr.-S. Dak.....	95,937
15	Dallas, Tex.....	1,338,684	95	Fort Wayne, Ind.....	225,184	179	Lawton, Okla.....	95,687
16	Milwaukee, Wis.....	1,252,457	96	Chattanooga, Tenn.-Ga.....	223,580	180	Manchester, N.H.....	95,140
17	Seattle-Everett, Wash.....	1,238,107	97	Wilkes-Barre, Pa.....	222,830	181	Springfield, Ohio.....	93,653
18	Miami, Fla.....	1,219,661	98	Little Rock-North Little Rock, Ark.....	222,616	182	High Point, N.C.....	93,547
19	San Diego, Calif.....	1,198,323	99	Corpus Christi, Tex.....	212,820	183	Seaside-Monterey, Calif.....	93,284
20	Atlanta, Ga.....	1,172,778	100	Columbus, Ga.-Ala.....	208,616	184	Salem, Oreg.....	93,041
21	Cincinnati, Ohio-Ky.....	1,110,514	101	Rockford, Ill.....	206,084	185	Wheeling, W. Va.-Ohio.....	92,944
22	Kansas City, Mo.-Kans.....	1,101,787	102	Madison, Wis.....	205,457	186	McAllen-Pharr-Edinburg, Tex.....	91,141
23	Buffalo, N.Y.....	1,086,594	103	Colorado Springs, Colo.....	204,766	187	Hamilton, Ohio.....	90,912
24	Denver, Colo.....	1,047,311	104	Scranton, Pa.....	204,205	188	Abilene, Tex.....	90,571
25	San Jose, Calif.....	1,025,273	105	Lawrence-Haverhill, Mass.-N.H.....	200,280	189	Monroe, La.....	90,567
26	New Orleans, La.....	961,728	106	Lorain-Elyria, Ohio.....	192,265	190	Muncie, Ind.....	90,427
27	Phoenix, Ariz.....	863,357	107	Knoxville, Tenn.....	190,502	191	Lake Charles, La.....	88,260
28	Portland, Oreg.-Wash.....	824,926	108	Jackson, Miss.....	190,060	192	Tuscaloosa, Ala.....	85,875
29	Indianapolis, Ind.....	820,259	109	Stamford, Conn.....	184,898	193	Steubenville-Weirton, Ohio-W. Va.....	85,492
30	Providence-Pawtucket-Warwick, R.I.-Mass.....	793,311	110	Lovell, Mass.....	182,731	194	Fargo-Moorhead, N. Dak.-Minn.....	85,446
31	Columbus, Ohio.....	790,019	111	Utica-Rome, N.Y.....	180,355	195	Boise City, Idaho.....	85,187
32	San Antonio, Tex.....	772,513	112	Ann Arbor, Mich.....	178,603	196	Kenosha, Wis.....	84,262
33	Louisville, Ky.-Ind.....	739,396	113	Bakersfield, Calif.....	176,155	197	Texas City-La Marque, Tex.....	84,054
34	Dayton, Ohio.....	685,942	114	Erie, Pa.....	175,263	198	Altamonte, Pa.....	81,795
35	Fort Worth, Tex.....	676,944	115	Reading, Pa.....	167,932	199	Odesa, Tex.....	81,645
36	Norfolk-Portsmouth, Va.....	668,259	116	Huntington-Ashland, W. Va.-Ky.-Ohio.....	167,583	200	Terre Haute, Ind.....	80,908
37	Memphis, Tenn.-Miss.....	663,976	117	Binghamton, N.Y.....	167,224	201	Anderson, Ind.....	80,704
38	Sacramento, Calif.....	633,732	118	Pensacola, Fla.....	166,619	202	Lafayette-West Lafayette, Ind.....	79,117
39	Fort Lauderdale-Hollywood, Fla.....	613,797	119	Savannah, Ga.....	163,753	203	Jackson, Mich.....	78,572
40	Rochester, N.Y.....	601,361	120	Fayetteville, N.C.....	161,370	204	Lafayette, La.....	78,544
41	San Bernardino-Riverside, Calif.....	583,597	121	Stockton, Calif.....	160,373	205	Bay City, Mich.....	78,097
42	Oklahoma City, Okla.....	579,788	122	Lexington, Ky.....	159,538	206	Fitchburg-Leominster, Mass.....	78,052
43	Birmingham, Ala.....	558,099	123	Charleston, W. Va.....	157,662	207	Tallahassee, Fla.....	77,851
44	Akron, Ohio.....	542,775	124	Greenville, S.C.....	157,073	208	Mansfield, Ohio.....	77,599
45	Jacksonville, Fla.....	529,583	125	Waterbury, Conn.....	156,986	209	St. Joseph, Mo.-Kans.....	77,223
46	Springfield-Chicopee-Holyoke, Mass.-Conn.....	514,308	126	Roanoke, Va.....	156,621	210	Albany, Ga.....	76,512
47	St. Petersburg, Fla.....	495,159	127	Joliet, Ill.....	155,500	211	Fort Smith, Ark.-Okla.....	75,517
48	Omaha, Nebr.-Iowa.....	491,776	128	Lincoln, Nebr.....	153,443	212	Sioux Falls, S. Dak.....	75,146
49	Toledo, Ohio-Mich.....	487,789	129	Raleigh, N.C.....	152,289	213	Santa Rosa, Calif.....	75,083
50	Albany-Schenectady-Troy, N.Y.....	486,525	130	Greensboro, N.C.....	152,252	214	Vineland-Millville, N.J.....	73,579
51	Salt Lake City, Utah.....	479,342	131	Kalamazoo, Mich.....	152,083	215	Asheville, N.C.....	72,451
52	Hartford, Conn.....	465,001	132	Lubbock, Tex.....	150,135	216	Bristol, Conn.....	71,732
53	Nashville-Davidson, Tenn.....	442,444	133	Ogden, Utah.....	149,727	217	Billings, Mont.....	71,197
54	Honolulu, Hawaii.....	442,397	134	Augusta, Ga.-S.C.....	148,953	218	Great Falls, Mont.....	70,905
55	Richmond, Va.....	416,562	135	Brockton, Mass.....	148,844	219	Lynchburg, Va.....	70,842
56	Bridgeport, Conn.....	413,366	136	Saginaw, Mich.....	147,552	220	Lima, Ohio.....	70,295
57	Youngstown-Warren, Ohio.....	395,540	137	Huntsville, Ala.....	146,565	221	Laredo, Tex.....	70,197
58	Syracuse, N.Y.....	376,169	138	Winston-Salem, N.C.....	142,584	222	Bloomington-Normal, Ill.....	69,392
59	Tulsa, Okla.....	371,499	139	Evansville, Ind.....	142,476	223	Gainesville, Fla.....	69,329
60	Wilmington, Del.-N.J.....	371,267	140	Fall River, Mass.-R.I.....	139,392	224	Boulder, Colo.....	68,634
61	Tampa, Fla.....	365,742	141	Eugene, Oreg.....	139,255	225	Gadsden, Ala.....	67,706
62	Allentown-Bethlehem-Easton, Pa.-N.J.....	363,517	142	Montgomery, Ala.....	138,983	226	Danbury, Conn.....	66,651
63	Grand Rapids, Mich.....	352,703	143	Duluth-Superior, Minn.-Wis.....	138,352	227	Dubuque, Iowa-Ill.....	65,550
64	New Haven, Conn.....	348,341	144	Atlantic City, N.J.....	134,016	228	Lewiston-Auburn, Maine.....	65,217
65	El Paso, Tex.....	337,471	145	New Bedford, Mass.....	133,667	229	San Angelo, Tex.....	63,884
66	Tacoma, Wash.....	332,521	146	Topeka, Kans.....	132,108	230	La Crosse, Wis.-Minn.....	63,373
67	Flint, Mich.....	330,128	147	Cedar Rapids, Iowa.....	132,008	231	Pittsfield, Mass.....	62,872
68	Orlando, Fla.....	305,479	148	New Britain, Conn.....	131,349	232	Salinas, Calif.....	62,456
69	Wichita, Kans.....	302,334	149	Santa Barbara, Calif.....	129,774	233	Galveston, Tex.....	61,609
70	Albuquerque, N. Mex.....	297,451	150	Appleton, Wis.....	129,532	234	Nashua, N.H.....	60,961
71	Tucson, Ariz.....	294,181	151	Green Bay, Wis.....	129,105	235	Pine Bluff, Ark.....	60,907
72	South Bend, Ind.-Mich.....	288,572	152	Macon, Ga.....	128,063	236	Midland, Tex.....	60,371
73	West Palm Beach, Fla.....	287,561	153	Anarillo, Tex.....	127,010	237	Tyler, Tex.....	59,701
74	Charlotte, N.C.....	279,530	154	York, Pa.....	123,106	238	Columbia, Mo.....	59,231
75	Trenton, N.J.-Pa.....	274,148	155	Biloxi-Gulfport, Miss.....	121,601	239	Texarkana, Tex.-Ark.....	58,570
76	Newport News-Hampton, Va.....	268,263	156	Springfield, Ill.....	121,340	240	Wilmington, N.C.....	57,645
77	Davenport-Rock Island-Moline, Iowa-Ill.....	266,119	157	Waco, Tex.....	120,794	241	Simi Valley, Calif.....	56,936
78	Austin, Tex.....	264,499	158	Racine, Wis.....	117,408	242	Rochester, Minn.....	56,604
79	Fresno, Calif.....	262,908	159	Lancaster, Pa.....	117,097	243	Oshkosh, Wis.....	55,480
80	Mobile, Ala.....	257,816	160	Port Arthur, Tex.....	116,474	244	Sherman-Denison, Tex.....	55,343
			161	Beaumont, Tex.....	116,350	245	Owensboro, Ky.....	53,133
			162	Waterloo, Iowa.....	112,881	246	Brownsville, Tex.....	52,627
			163	Norwalk, Conn.....	106,707	247	Bryan-College Station, Tex.....	51,395
			164			248	Harlingen-San Benito, Tex.....	50,469



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

14 DEC 1977

OFFICE OF
AIR AND WASTE MANAGEMENT

Subject: Final Guidelines for Section 174: Guidance on Designation of Lead Planning Organizations for Nonattainment Areas and on Determination of Agency Responsibilities

FROM: David G. Hawkins, Assistant Administrator
for Air and Waste Management

TO: Regional Administrators
Regions I-X

The Clean Air Act Amendments of 1977 include important changes which provide local governments with the opportunity to assume additional responsibilities for state implementation plan (SIP) revisions. Specifically, section 174 requires that for carbon monoxide and photochemical oxidant nonattainment areas, state and local elected officials must jointly determine their respective responsibilities for plan revisions by February 7, 1978. In addition, section 174 encourages that the revisions be prepared by an "organization of elected officials of local governments."

Attached are the final guidelines for implementing section 174. Note that they are issued jointly by EPA and the Department of Transportation. Due to the immediacy of the February 7 deadline, these guidelines were not proposed as regulations. However, they have gone through an extensive process of review and comment by many of the state and local public interest groups, including meetings with the National Association of Counties, National League of Cities, National Governors' Association, and the National Association of Regional Councils. In addition, the guidelines were reviewed by the Departments of Transportation, Housing and Urban Development, and Interior. A draft version was also circulated to the regions for review through the Air and Hazardous Materials Division Directors.

The guidelines consist of three parts. Section 1 explains the applicability, purpose, and background. Section 2 contains the criteria and describes the process for selection of a lead planning organization for an urbanized nonattainment area. Local governments can themselves agree to designate a planning organization to prepare the nonattainment plan, if they do so by February 7, 1978. Such a local designation must be

certified by the governor. After February 7, the governor is responsible for designating, in consultation with local governments, the planning organization. The designation of organizations of local officials, particularly those responsible for transportation or air quality maintenance planning, is encouraged by the amendments. In accordance with the EPA policy to consolidate and simplify environmental planning requirements, the guidelines also encourage the designation of agencies responsible for preparing other relevant areawide environmental plans.

Section 3 describes how state and local officials should jointly determine the division of responsibilities for development, implementation, and enforcement of the SIP. The initial determination of responsibilities must also be completed by February 7, 1978. The initial determination is expected to be general and identify primarily planning responsibilities, including the development of an emissions inventory, the completion of an air quality analysis, and the evaluation of control strategies. The final determination must be included in the plan revision submitted by January 1, 1979, and must address in detail implementation and enforcement responsibilities.

Copies of these guidelines should be sent to the states in your region and to appropriate local governments. The guidelines call for states to submit two items to the Administrator through EPA regional offices: (1) a list of all organizations or agencies designated and certified within the state including a description of their geographic jurisdictions, a general description of their responsibilities, and a brief discussion of the reason for their designation; (2) the initial joint determination of responsibilities for the SIP revisions. These two items should be transmitted to EPA no later than April 1, 1978. Copies of the submittals should be sent by regional offices to the offices listed below:

Office of Transportation and Land Use Policy (AW-445)
401 M Street, S.W.
Washington, D.C. 20460
Attn: John O. Hidingier

Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711
Attn: Walter Barber

cc: Walter Barber
Air and Hazardous Materials Division Directors, Regions I, III-X;
Environmental Programs Division Director, Region II

CLEAN AIR ACT
SECTION 174 GUIDELINES

Guidance on designation of
lead planning organizations
for nonattainment areas and
on determination of inter-
agency responsibilities

December 1977

Issued Jointly by
The U.S. Environmental Protection Agency
and
The U.S. Department of Transportation
Washington, D.C.

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General questions on any of the material covered by this guideline should be sent to the Office of Transportation and Land Use Policy (AW-445), U.S. Environmental Protection Agency, 401 M Street, S.W., Washington, D.C. 20460, Attention: Ms. Martha Burke. Ms. Burke's telephone number is (202) 755-0570. Questions concerning specific state or local areas should be directed to the appropriate EPA regional office.

1. INTRODUCTION

1.1 Applicability

These guidelines are applicable to all metropolitan area regions or portions of regions where the national ambient air quality standards for photochemical oxidants or carbon monoxide will not be attained by July 1, 1979.

1.2 Purposes

The purposes of these guidelines include:

1. To recommend procedures and criteria for determining a lead agency to be responsible for coordinating the preparation of the implementation plan revisions called for by the 1977 amendments to the Clean Air Act (P.L. 95-95) in metropolitan area regions where carbon monoxide or photochemical oxidant standards will not be attained by July 1979.
2. To assist state and local governments in identifying the initial planning, implementation, and enforcement responsibilities for the plan revisions and in establishing a process for further definition of responsibilities as development of the revisions progresses.
3. To encourage further coordination and consolidation of federally sponsored planning programs. This includes the integration of the new transportation related air quality requirements under P.L. 95-95 into the transportation planning process required by federal transportation grant statutes.

1.3 Background

On August 7, 1977, President Carter signed into law the first comprehensive amendments to the Clean Air Act since 1970. Among the more important changes in the Clean Air Act are provisions encouraging local governments and organizations of local elected officials to assume additional responsibilities in the development, implementation, and enforcement of plans to attain national ambient air quality standards. Such plans were first required under the 1970 amendments to the Clean Air Act. The 1977 amendments require plan revisions for areas where standards have not been attained.

The assumption of additional responsibilities by local governments and local officials is specifically encouraged in those areas where photochemical oxidant and carbon monoxide standards will not be attained by July 1, 1979 (section 174(a)). The first identification of nonattainment areas for these and other pollutants under the requirements of the 1977 amendments must have been made by states by December 5, 1977. The Administrator of the Environmental Protection

Agency (EPA) must publish a list of these areas, with any modifications he deems necessary, by February 3, 1978.

For areas where standards for photochemical oxidants and carbon monoxide will not be attained by July 1, 1979, state and local elected officials must jointly determine by February 7, 1978, their respective responsibilities for the plan revisions necessary to attain standards by the new deadlines in the 1977 amendments. The plan elements for which responsibilities are to be jointly determined encompass control measures for all pollutants for which standards have not been attained, not just photochemical oxidants and carbon monoxide.

The amendments require that, where possible, the implementation plan revisions be prepared by an organization of local elected officials designated by agreement of local governments. The amendments strongly encourage preparation by the organization now responsible for transportation planning under section 134 of title 23, U.S.C., or for air quality maintenance planning (or for both). The designated organization and its responsibilities must be certified by the state (or states if an interstate area is involved). Where local governments have not reached agreement by February 7, 1978, the governor must, in consultation with the elected officials of local governments in the affected area, designate an organization of local elected officials or a state agency to prepare the plan revisions. The designation by the governor must be in accordance with the joint determination of responsibilities made by state and local elected officials.

The governor must, under regulations which the EPA will propose during December 1977, submit a notice to the EPA certifying the designated agency for each nonattainment area or identifying the organization that he or she has designated. The notice must include a brief summary of the process involved in selecting the designated agency. A more detailed documentation of the selection process shall be included as part of the plan revisions to be submitted to the EPA by January 1, 1979. Evidence of the involvement of state legislatures and local governments is required as part of the plan revision submittal (section 172(b)(9)).

Only organizations of local elected officials of general purpose governments certified by the governor will be eligible for the grants authorized under section 175 of the amendments. In each urban area which is wholly or partially classified as a nonattainment area, only one organization will be eligible to receive a grant. The organization receiving the grant may use the grant funds to support plan revision activities carried out by other governmental organizations, public interest groups, or private consultants.

In addition to further defining the process for implementation of the Clean Air Act amendments, the EPA and the Department of Transportation also encourage in these guidelines further coordination and consolidation of federally sponsored planning programs. Such encourage-

ment is consistent with President Carter's Environmental Message of May 1977 and with subsequent actions taken by the President to eliminate, consolidate, or simplify federal planning requirements. The Environmental Message in part stressed the need for improved implementation of environmental laws through more efficient delivery of federally funded programs. The encouragement for coordination and consolidation does not imply the advocacy of any particular institutional mechanism. A wide variety of mechanisms ranging from concentration of authority or responsibility in a single organization to development of memoranda of understanding among several organizations are available to achieve the same objectives.

2. SELECTION OF A LEAD PLANNING ORGANIZATION

2.1 Criteria for Selecting an Organization

These guidelines are intended to assist state and local officials in reaching agreement on the lead planning organization to be responsible for plan revisions called for by the 1977 Clean Air Act amendments. The role of the lead planning organization may vary from developing almost all elements of the plan revision to acting as a forum for decisionmaking by elected officials on elements developed almost entirely by other organizations. In most instances the lead organization will probably develop some elements, coordinate the development of other elements, and serve as a forum for deciding the ultimate nature of the plan revisions.

The amendments require that, where feasible, the organization designated and certified to prepare the plan revisions shall be (1) the metropolitan planning organization (MPO) responsible for the continuing, cooperative, and comprehensive transportation planning process for the affected area; (2) the organization responsible for the air quality maintenance planning process; or (3) an organization responsible for both planning processes. Coordination of the development of a plan revision with the MPO transportation planning process is particularly important in those nonattainment areas where transportation control measures appear necessary to attain standards. Only through the MPO process can the federal funds available under Federal Highway Administration and Urban Mass Transportation Administration programs be used to implement necessary transportation management measures and capital projects.

The Administrator of the EPA also strongly encourages that, in addition to meeting the requirements described above, the designations made pursuant to section 174 contribute to a consolidation within a single organization of responsibilities for air quality planning and for other environmental planning carried out under federal laws administered by the EPA. These laws include the Federal Water Pollution Control Act, the Safe Drinking Water Act, and the Resource Conservation and Recovery Act. The EPA believes that, where properly applied, consolidation of environmental planning efforts is an essential step in the development of comprehensive environmental strategies that are able to take into account the interrelated nature of environmental problems. Comprehensive strategies can also result in a more efficient and effective use of resources in achieving environmental benefits.

The following criteria should be considered by local elected officials and by the governor when determining the lead planning organization for urban nonattainment regions:

1. The organization should be the forum for cooperative decisionmaking by principal elected officials of general purpose

local governments. The principle elected officials of general purpose local governments should have adequate (preferably majority or larger) representation in the organization but membership need not be limited to them or their designees. There should be participation by agencies that may be responsible for implementation of portions of the plan.

2. The organization should have a planning jurisdiction that includes the current urbanized area and the area likely to be urbanized at least over the period to be covered by the revised plan.
3. The organization should have the ability to produce the necessary plan revision for the planning jurisdiction described above by the January 1, 1979, submittal deadline. The organization should have the capability to perform the necessary analysis and planning tasks itself or be able to enter into binding agreements with other organizations to perform such tasks.
4. The organization should have the capability to coordinate the development of the plan revision with other relevant planning processes, if it does not have responsibility for those processes, and with agencies that may have responsibility for implementation or enforcement. Relevant planning processes include the continuing, cooperative, and comprehensive planning process; other environmental planning processes assisted through EPA-administered programs; and comprehensive planning processes established in accordance with Part IV of the Office of Management and Budget Circular A-95 (41 FR 2052).

2.2 The Selection Process

Local governments within a nonattainment area for photochemical oxidants or carbon monoxide may, by agreement, designate an organization of elected officials of local government to prepare the plan revision for the pollutants for which standards in that area have not been attained. A resolution by the governing body of an organization meeting the criteria in section 2.1 of these guidelines is sufficient to demonstrate agreement of local governments. Such a designation must be submitted to the governor by February 7, 1978. Local governments intending to designate an organization should consult with the state during the designation process.

If local governments agree on an organization by February 7, 1978, the governor shall certify that organization by April 1, 1978, unless he or she finds that the designated organization does not meet the criteria in section 2.1. If local governments have initiated, but have not completed, designation of an organization by February 7, 1978, they should inform the governor that an on-going process exists.

If local governments are unable to agree by February 7 on a single lead organization of local elected officials to be responsible for the

coordination of the plan revision, the governor shall, in consultation with local elected officials of general purpose local governments, designate an organization or a state agency by April 1, 1978. If more than one organization meeting the criteria in section 2.1 is self-designated in an area and proposed to the governor for certification, the governor shall certify the organization which, in his or her opinion, is most capable of completing the required plan revisions.

The governor may designate a state, local, or regional agency, but that designation shall be in accordance with the joint determination of responsibilities required by section 174 of the Clean Air Act amendments and discussed in the following section of these guidelines. In making a designation, the governor shall take into consideration any on-going process of local designation in existence on February 7, 1978, even though no formal agreement among local governments has been reached.

The governor shall submit to the Administrator of the EPA by April 1, 1978, through the appropriate EPA regional office, a list of all organizations or agencies certified or designated within the state, a description of the geographic jurisdictions of these organizations and agencies, and a general description of their responsibilities. Regardless of the agency finally designated or certified, the decisions should reflect an examination of all reasonable alternatives for consolidation of environmental and other planning functions. The submission should include a brief discussion of the alternatives investigated and the basis for the ultimate choice. If the organization designated or certified by the governor is not one of the organizations encouraged by the amendments and by the Administrator in these guidelines, the reasons that such an organization should not have the lead responsibility for planning should be specifically addressed. More detailed descriptions, including documentation of the consultation that occurred, shall be submitted by January 1, 1979, with the implementation plan revision.

3. JOINT DETERMINATION OF RESPONSIBILITIES

3.1 Joint Determination Process

The determination of responsibilities made jointly by state and local elected officials will necessarily have to be relatively general for many areas. The nature and extent of the air quality problem may not be adequately defined by the February 7, 1978, deadline specified in the amendments. In addition, the planning process guidelines for photochemical oxidant and carbon monoxide nonattainment areas, required to be prepared by the EPA also by February 7, will not be available for consideration in the joint determinations. The nature of the process recommended in the EPA guidelines should influence the ultimate determination of responsibilities.

Because agency responsibilities, especially for plan implementation and enforcement, will undoubtedly change or become more specific by the time a plan revision is actually submitted to the EPA for approval, the determination of responsibilities should be viewed as a process, the first phase of which is to be completed by February 7, 1978. The final product of the joint determination process should be included as part of the plan revision submitted by January 1, 1979. Possible steps in this phased process are set forth below. Because institutional arrangements differ from region to region and from state to state, specification of a generally applicable process for joint state-local determination of agency responsibilities is not possible.

Many state and local governments already have initiated such a process. As long as the approach taken provides for substantial involvement of all parties - local governments, regional agencies, and states - and results in the identification of agencies and responsibilities as described in these guidelines, such an existing process is sufficient to meet the requirements of section 174(a). The activities described in the following section should be completed by February 7, 1978, to comply with the requirements of section 174.

3.2 Notification of Affected Governmental Organizations

The state should, by correspondence or other established notification procedures, ensure that all affected governmental organizations within the nonattainment region are informed of the purpose and schedule of the joint determination process. In many instances, an entire state may be designated as a nonattainment area for photochemical oxidants. However, many control strategies will still generally focus on urban regions. As a minimum, the following organizations should be notified in each region:

- a. General purpose local governments.

- b. Organizations of local elected officials (including all metropolitan planning organizations).
- c. Air pollution control agencies (including the agency or agencies responsible for air quality maintenance planning)
- d. Areawide A-95 clearinghouses.
- e. Areawide and statewide water quality planning agencies designated under section 208 of the Federal Water Pollution Control Act.
- f. Areawide solid waste management agencies.
- g. Areawide comprehensive planning agencies.
- h. Coastal management agencies.
- i. Interested citizen groups.

3.3 Establishment of a Determination Process.

The state should ensure the establishment of a process for determination of agency responsibilities that will provide state and local elected officials of all major political subdivisions within a region with an opportunity for substantial involvement and that will enable the concerns of these officials to be adequately addressed. This may be done through a variety of mechanisms including the establishment of task forces with state and local government representatives and the use of public meetings or hearings with elected officials of all major general purpose local governments within the affected regions invited. Where appropriate, existing forums such as meetings of organizations of local elected officials or meetings of air quality maintenance policy advisory groups should be used in the determination process.

All state and local officials participating in the determination of agency responsibilities should have the opportunity to propose agencies and their respective functions. All proposals should be made available to affected agencies and the general public for comment.

3.4 Formal Identification of Responsibilities.

The initial joint determination of responsibilities shall at a minimum establish which level of government (although not necessarily the specific agency) - the state, local governments, regional agencies or any combination of these - shall be responsible for: (1) the development of an accurate, comprehensive, and current emission inventory; (2) the completion of an air quality analysis, using modeling techniques, to

determine the level of control needed to attain standards; and (3) the evaluation and selection of control strategies for mobile sources, point sources, and area sources. An initial assignment of responsibilities for implementation and enforcement must be considered. However, it is expected that the final determination of such responsibilities will occur after the measures to be included in the plan revision have been relatively well defined.

When agreement is reached among the state and the participating local elected officials, memoranda of understanding or other comparable joint acknowledgements of responsibilities should be signed. Because duties and responsibilities for implementation and enforcement of plan revisions may change as development of the plan revisions proceeds, the determination of agency responsibilities need not be incorporated in the state implementation plan until the revisions are submitted for federal approval. The initial determination of responsibilities made by February 7, 1978, to meet the requirements of section 174, should be submitted by April 1, 1978, to the EPA with the certifications of lead planning organizations discussed in section 2 of these guidelines.

APPENDIX A
LIST OF KEY DATES

<u>Date</u>	<u>Action</u>
August 7, 1977	Clean Air Act amendments are signed into law.
December 5, 1977	States identify nonattainment areas.
February 3, 1978	EPA publishes list of nonattainment areas.
February 7, 1978	Local governments designate organizations of local officials. State and local elected officials complete joint determinations of responsibilities.
April 1, 1978	Governors transmit to EPA certification of lead planning organizations and joint determinations of responsibilities.
January 1, 1979	Governors transmit to EPA plan revision for nonattainment areas.

APPENDIX B
SECTION 174

"PLANNING PROCEDURES"

42 USC 7504.

"Sec. 174. (a) Within six months after the enactment of the Clean Air Act Amendments of 1977, for each region in which the national primary ambient air quality standard for carbon monoxide or photochemical oxidants will not be attained by July 1, 1979, the State and elected officials of affected local governments shall jointly determine which elements of a revised implementation plan will be planned for and implemented or enforced by the State and which such elements will be planned for and implemented or enforced by local governments or regional agencies, or any combination of local governments, regional agencies, or the State. Where possible within the time required under this subsection, the implementation plan required by this part shall be prepared by an organization of elected officials of local governments designated by agreement of the local governments in an affected area, and certified by the State for this purpose. Where such an organization has not been designated by agreement within six months after the enactment of the Clean Air Act Amendments of 1977, the Governor (or, in the case of an interstate area, Governors), after consultation with elected officials of local governments, and in accordance with the determination under the first sentence of this subparagraph, shall designate an organization of elected officials of local governments in the affected area or a State agency to prepare such plan. Where feasible, such organization shall be the metropolitan planning organization designated to conduct the continuing, cooperative and comprehensive transportation planning process for the area under section 134 of title 23, United States Code, or the organization responsible for the air quality maintenance planning process under regulations implementing this section, or the organization with both responsibilities.

Consultation.

"(b) The preparation of implementation plan provisions under this part shall be coordinated with the continuing, cooperative, and comprehensive transportation planning process required under section 134 of title 23, United States Code, and the air quality maintenance planning process required under section 110, and such planning processes shall take into account the requirements of this part.

Ames, pp.
691-696.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DATE: 8 SEP 1978

SUBJECT: Questions and Answers on 1979 SIP Revisions

FROM: *G. T. Helms*
G. T. Helms, Chief
Control Programs Operations Branch

TO: See Addressees Below

Enclosed is the sixth issue of monthly questions and answers on the 1979 SIP revisions. In an effort to keep the questions and answers current, question number 11 in the May 4 issue has been modified by recent policy guidance (copy enclosed). Questions number 1 through 3 of this issue deal with the clarification of the VOC RACT requirement in oxidant nonattainment areas.

Enclosures

Addressees:

Thomas Devine, Region I
William Baker, Region II
Howard Heim, Region III
Winston Smith, Region IV
Steve Rothblatt, Region V
Jack Divita, Region VI
Art Spratlin, Region VII
Robert DeSpain, Region VIII
Wayne Blackard, Region IX
Clark Gaulding, Region X

cc: R. Campbell
R. Rhoads
D. Tyler

1. Q. Does Hawkins' August 4 memo on requirement for VOC RACT regulations mean that linear rollback and EKMA should no longer be used for the 1979 oxidant SIPs? Must detailed photochemical dispersion modeling now be done?

A. Mr. Hawkins' memo was not intended to discredit the use of less rigorous oxidant control strategy techniques such as rollback and EKMA. Further, it does not require detailed photochemical dispersion modeling in the 1979 SIPs for all large urbanized nonattainment areas. Instead, the memo was intended to provide consistency between the control requirements for urbanized and rural nonattainment areas. We believe that where conditions of uncertainty and/or lack of precision exist, it is the prudent course of action to regulate large VOC emitters in major urbanized areas to at least the same degree as similar sources in rural nonattainment areas.

2. Q. How should cutoff sizes be established in VOC regulations for large urbanized areas that get extensions beyond 1982 to attain the oxidant standard?

A. The 100-ton per year limit does not apply here. If a State chooses to include a cutoff size other than one explicitly in the CTG documents, it should reflect a consideration of the nature of sources in an individual nonattainment area. It should not be arbitrarily derived. Factors such as the magnitude of emissions and the economics of control must be considered. You are encouraged to consult with OAQPS (John Calcagni) as individual cutoff limits are established.

3. Q. For purposes of the 1979 SIP submittal, do all 11 RACT categories contained in the first round of CTGs have to be adopted for rural nonattainment oxidant SIPs?

A. Yes. RACT regulations for all 11 CTG categories must be included in the 1979 SIP for large VOC emitters (100 tons/yr potential emissions). However, practically speaking, there may not be any large point sources in certain CTG categories in some areas. A positive showing in the SIP submittal that no such size sources exist in the affected nonattainment area would obviously negate the need to require adopting of regulations for this or any other source category. Service stations can be assumed to be less than 100 tons without a detailed showing for the purposes of exempting rural areas from Stage I requirements.

4. Q. Is Appendix J an acceptable procedure for calculating percent reduction required to achieve the oxidant NAAQS?

A. Present guidance permits the use of Appendix J. However, there has been much adverse comment in the technical community regarding its adequacy; and its limitations are well known. Therefore, States should be discouraged from using Appendix J because it is not the best technique

available. States should also be advised that EPA has proposed to rescind Appendix J in its proposed revision to the NAAQS for ozone. Regional Offices should not use Appendix J in any calculations made for any urbanized area since it will not be considered appropriate after the standard is revised.

5. Q. The rollback equation accounting for transport is different in the workbook used in the "Workshop on Requirements for Nonattainment Area Plans" from the equation presented in the "Users" document. Which is correct?

A. Both are correct. The equations are algebraically the same.

6. Q. For CO SIPs, what is needed to demonstrate reasonable further progress (RFP) by 1982?

A. The requirement to demonstrate RFP will, in most areas, reflect a continuous phased implementation of transportation control measures (TCMs). These TCMs will most likely stress overall vehicle miles traveled (VMT) reductions. Also included in the RFP line would be reasonable controls for point sources (in areas which have them), reductions from the Federal motor vehicle control plan (FMVCP) and where required, I/M emission reductions for a decentralized program (1981) and for a centralized program (1982). Most CO violations are "hot spot" type problems and some evaluation of progress toward attainment should be made in these smaller areas as well as in the larger regional CO nonattainment areas.

7. Q. Must a SIP contain provisions complying with Section 172(b)(11)(A) if the State indicates that no major stationary sources will be constructed in the nonattainment areas?

A. At a minimum, the plan must contain legally enforceable procedures which require an analysis of alternative sites, sizes, production processes, and recommended control techniques prior to issuance of any permit.

8. Q. What is EPA's policy on approving SIP relaxations which impact interstate areas?

A. EPA's interim policy on approving SIP relaxations which impact interstate areas is stated in the July 26, 1978, memo from Dave Hawkins to Kathleen Camin, Regional Administrator, Region VII, regarding the Union Electric variance. EPA's policy is as follows. The relaxation cannot be approved if the NAAQS or PSD increments would be violated. Additionally, where the affected States have a specific growth/maintenance plan for the area, the SIP relaxation must not violate that plan. If neither State has a specific maintenance plan and the States involved cannot agree to the level of consumption of the growth allowance, EPA

becomes involved. In this case, it is current EPA interim policy to approve the relaxation based on dividing equally between the two States, the consumption of growth potential. That is, each State will have use of one-half the air quality difference between the NAAQS and the ambient concentration now allowed at the border. This concentration represents the air quality level which would exist if sources in the area were to emit at the level allowed by the applicable SIP. The "one-half growth allowance" concept should also apply to areas internal to the other State. That is, where an applicable source would have significant impacts well within the geographic boundaries of the other State, then that impact should also be evaluated using the "one-half growth allowance" criteria. If the relaxation would consume more than one-half of any applicable growth increment, then it will be disapproved.

9. Q. Can a Regional Office have a more stringent PSD monitoring program or ask for additional monitoring in support of a permit application than is recommended in the OAQPS guideline?

A. Yes, a Regional Office may exceed the minimum sampling requirements specified in air guidance. However, to assure some degree of regional consistency, they should have sufficient justification when additional monitoring or more frequent quality assurance tests are required from a particular source.

10. Q. When are the State reviews for plan adequacy, as required by Section 124, due for submission to the Regional Offices?

A. The results of the State reviews were due August 7, 1978.

11. Q. Has guidance been developed for implementing Section 124?

A. A draft guidance memorandum was distributed for Regional Office review on January 23, 1978. That memo reflected a very detailed review process. On July 31, 1978, a final guidance memorandum was sent to the Regional Offices; however, it did not mandate the detailed review as described in the earlier draft memo. The final memo pointed out that the earlier draft could be followed if a detailed review was necessary, but in some cases, depending on conditions within a State, a shorter, qualitative approach would suffice. For further information on what constitutes a qualitative approach, contact Roger Powell (FTS: 629-5437).



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

4 AUG 1978

OFFICE OF
AIR AND WASTE MANAGEMENT

SUBJECT: Requirement for VOC RACT Regulations in all
Oxidant Nonattainment Areas

FROM: David G. Hawkins, Assistant Administrator
for Air, Noise and Radiation (AW-443)

DK

TO: Regional Administrators
Regions I-X

This is a follow-up to Mr. Costle's February 24, 1978, memorandum entitled "Criteria for Approval of 1979 SIP Revisions", and to my recent discussions with the Regional Air and Hazardous Materials Division Directors in Houston. It is intended to clarify the 1979 SIP requirements for volatile organic compound (VOC) RACT regulations for all oxidant nonattainment areas.

The issues of long range oxidant transport and background make it difficult to develop oxidant control strategies with the degree of precision normally associated with more stable air pollutants. Further, certain of the available analytical techniques will tend to underestimate the degree of control required for attainment. The use of less rigorous analytical techniques such as rollback support 1979 SIP revisions is acceptable in areas where reasonably available control measures are scheduled for implementation. However, for the reasons stated above this technique is not acceptable as a demonstration that RACT regulations on VOC sources are not needed to attain and maintain the oxidant standard. Accordingly, for every oxidant plan which relies on the rollback technique for its control strategy demonstration, the plan must, as a minimum, include legally enforceable provisions for the control of large VOC sources (more than 100 tons/year potential emissions) for which EPA has issued a Control Technology Guideline (CTG). Plans which rely on the rollback technique and do not contain these provisions will not be approvable. The only exception to this policy is the situation in which the control agency certifies that there are no affected sources for a particular source category in the nonattainment area.

States which wish to attempt to demonstrate that the oxidant standard can be attained and maintained without adopting one or more of such RACT regulations for large VOC sources may do so but must employ more rigorous analytical techniques than the rollback method; i.e., photochemical dispersion modeling.

I ask that you proceed immediately to advise your States and to integrate this policy clarification into the ongoing SIP development process.

cc: M. Durning
J. Bernstein
Director, Air and Hazardous Materials
Division, Regions I, III-X
Director, Environmental Programs Division,
Region II



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

11 SEP 1978

OFFICE OF
AIR AND WASTE MANAGEMENT

SUBJECT: Continuity of SIP Regulations

FROM: David G. Hawkins, Assistant Administrator
for Air, Noise, and Radiation

DA

MEMO TO: Regional Administrator, Regions I - X

Pursuant to Sections 107 and 172 of the Clean Air Act, many States have had areas designated as nonattainment and will be required to submit revisions to their State Implementation Plans to provide for attainment. While many of these regulations will bring previously uncontrolled sources under the purview of control regulations, there will also be a significant degree of regulation tightening. This submittal of more stringent regulations probably will result in judicial challenges to the new regulations and requests for temporary relief, in the form of variances or delayed compliance orders, from the more onerous regulatory provisions. In these situations, it is imperative that the plan retain an enforceable regulation in order to minimize any further deterioration of air quality in nonattainment areas. In order to ensure that this deterioration does not occur, it is essential to inform affected States of the procedures to be followed in submitting and approving plan revisions.

In approving a SIP revision, EPA will provide that the emission limitation contained in the existing regulations remain in effect. New requirements imposed by the plan revision will normally be treated as being in addition to, rather than in lieu of, those imposed by existing regulations. For example, if the new regulations are judicially challenged, or if the source is granted a delayed compliance order or variance which exempts it temporarily from the provisions of the new regulations, it must comply with the pre-existing regulations. Failure to meet these pre-existing standards will subject the source to appropriate enforcement actions, including the imposition of non-compliance penalties under Section 120 of the Act.

EPA's policy should be set forth in the FEDERAL REGISTER notices proposing to approve, and approving, SIP revisions. Also, the States should be informed of this policy immediately. EPA will disapprove any SIP revision to the extent it is inconsistent with this approach.

The one major exception to this rule would be when the new regulations are "inconsistent" with those currently in effect. In this situation, the State may exempt the source from the requirements of the pre-existing regulations, provided the source demonstrates that it cannot physically meet the new regulations and continue to comply with the existing requirements. If the State expects to grant such exemptions, it must establish an appropriate exemption review mechanism in its nonattainment plan. Exemptions approved by the State must be submitted to EPA as SIP revisions to ensure that every exemption will be drawn as narrowly as possible. EPA will review these exemption requests strictly. An exemption request may be granted only when the construction or installation of the new equipment can no longer proceed while existing controls remain in operation. No request may be granted, however, if to do so would interfere with the demonstration of reasonable further progress required by the Act.

Enclosed is suggested wording for EPA's FEDERAL REGISTER notices proposing to approve, and approving, State Implementation Plan revisions.

cc: M. Durning
J. Bernstein

Enclosure

ENCLOSURE

This proposal/final action would/will replace measures in the current SIP with the new measures submitted by the State to EPA for approval. Under this proposal/action, the current emission control regulations applicable to any source would/will remain in effect until such time as the newly revised regulation becomes effective and the source achieves full compliance with its provisions. This provision applies to all revised SIP regulations, not merely those that are subjected to judicial challenge. Failure of the source to satisfy the requirements of the former regulation would/will result in appropriate enforcement actions.

REF II-1

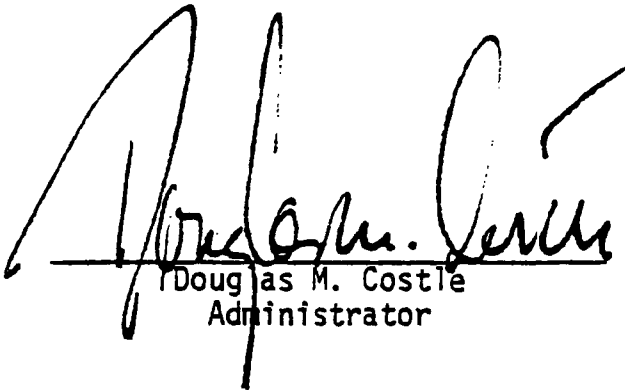
U.S. ENVIRONMENTAL PROTECTION AGENCY
AND
U.S. DEPARTMENT OF TRANSPORTATION

TRANSPORTATION-AIR QUALITY PLANNING GUIDELINES


June 1978

FOREWORD

The U.S. Environmental Protection Agency and the U.S. Department of Transportation are jointly issuing these transportation-air quality planning guidelines in response to Section 108(e) of the Clean Air Act, as amended August 1977. Section 108(e) requires EPA to consult with DOT in preparing guidelines for the development of transportation system components of State Implementation Plans for areas that are designated air quality nonattainment areas with respect to photochemical oxidants and/or carbon monoxide. EPA and DOT view these guidelines as a significant step forward in our mutual efforts to integrate our related planning processes and better meet the objectives of both agencies.



Douglas M. Costle
Administrator



Brock Adams
Secretary

PREFACE

Section 108(e) of the Clean Air Act as amended, August 1977, directs the U.S. Environmental Protection Agency in consultation with the U.S. Department of Transportation and other agencies to supplement these guidelines "from time to time." This guidance issued jointly by EPA and DOT may well be supplemented in the future as experience is gained through actual applications. These guidelines in their current form do, however, describe an acceptable process for accomplishing the continuing tasks of transportation-air quality planning and programming required by the Clean Air Act.

The Transportation-Air Quality Planning Guidelines must be adapted to the specific circumstances of each nonattainment area. Lead planning agencies along with other participating agencies and groups are encouraged to meet quickly with EPA and DOT Regional Offices to discuss detailed questions on guideline interpretation and implementation. For example, two areas that particularly require further discussion and guidance are the: (1) exact form of transportation provisions in the 1979 SIP submittal and (2) the precise scope of the alternatives analyses.

Additional guidance that will supplement these guidelines is currently being prepared to implement Section 110(a)(3)(D) of the Act. This section requires nonattainment areas demonstrating the need for a standard attainment deadline extension to 1987 to submit a public transportation improvement program. This SIP revision must establish, expand or improve public transportation to meet basic transportation needs as expeditiously as practicable. A commitment to prepare and carry out such a program must be included in the January 1, 1979 SIP submission. The additional procedural and substantive guidance will explain the analysis of transportation needs and the development of a public transportation improvement program as part of the alternatives analyses discussed in Section III. E. of these guidelines.

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ORGANIZATION OF THE GUIDELINES

Following the PREFACE which contains five subsections and the EXECUTIVE SUMMARY beginning on page vii, the Guidelines are organized into five major chapters and a separate accompanying document with 11 Appendices (A-K). The APPENDICES contain extensive supporting and reference material that while relevant is not an integral part of the guidelines.

The INTRODUCTION covers the following aspects of the guidelines: (1) Purpose, including the basic policy goal; (2) Applicability, including the primary roles of the lead agency as well as DOT and EPA Regional Offices; (3) Funding -- authorized (but not yet appropriated) and available funds; and (4) Background, including the relationship of the guidelines to the original transportation control planning process and the existing process administered by DOT.

Chapter II, SIP POLICY, summarizes and elaborates upon the transportation portions of a major EPA policy memorandum, "Criteria for Approval of 1979 SIP Revisions." This memorandum signed by the EPA Administrator on February 24, 1978 is wholly contained in Appendix B. Chapter II also provides an abbreviated checklist of the major transportation-related requirements of an acceptable 1979 SIP.

Chapter III, PROCESS, presents the procedural part of the guidelines by describing the elements of the integrated transportation-air quality planning process designed to accomplish the policy goal and SIP requirements of Chapters I and II. Chapter III defines procedures for: (1) Interagency Coordination, (2) Elected Official Involvement, (3) Public Information and Consultation, and (4) Evaluation of Alternative Strategies.

Chapter IV describes: (1) modifications to ongoing transportation planning activities required by the Clean Air Act and (2) documentation of those modifications. Chapter IV discusses the Planning Work Programs, Transportation Plan, Transportation Improvement Program, Alternatives Analysis, Consistency Determination and the SIP.

Chapter V concludes the Guidelines with a discussion of the purpose, frequency and content of progress reports.

DEVELOPMENT SCHEDULE

EPA TRANSPORTATION-AIR QUALITY PLANNING PROCESS GUIDELINES

November 28, 1977	° First Draft Circulated
November 28-29, 1977	° Review by MPO Steering Group (NARC Grant)
February 1, 1978	° End of Comment Period on First Draft
February 9, 1978	° Review by Panel of Transportation Experts
February 27, 1978	° Second Draft Circulated
March 13, 1978	° Briefing for EPA Regional Offices on Second Draft
March 14-15, 1978	° Major EPA-DOT Workshop on Second Draft (NARC Grant)
June 1978	° EPA and DOT Jointly Issue Planning Process Guidelines
Post June 1978	° Joint EPA-DOT Regional Meetings
	° Modifications of FHWA-UMTA Regulations to Reflect Guidelines

MAJOR DATES OF SIP REVISION PROCESS

February 7, 1978	◦ Jointly Determined Division of Responsibilities
	◦ Lead Planning Organization Designated by Local Officials
April 1, 1978	◦ Governor Certifies or Designates Lead Planning Organization*
January 1, 1979	◦ State Submits Revised Plan
July 30, 1980	◦ Suggested Date for Completion of Comprehensive Alternatives Analysis
July 1, 1982	◦ Second State Submittal of Revised Plan if Extension Granted
December 31, 1982	◦ Standards Attainment Deadline Where No Extension Granted
	◦ Initiation of Extensive Transportation Measures
1983 - December 31, 1987	◦ Standards Attainment Deadline Where Extension Granted

*If for example the MPO prepares the transportation portion of the SIP, then one key decision at the local level would be the interim date by which the MPO submits the transportation portion to the state so that adequate time remains to integrate this portion with the stationary source part of the SIP and meet the statutory submittal deadline of January 1, 1979.

EXECUTIVE SUMMARY

Selected Requirements of the Clean Air Act

The Clean Air Act as amended, August 1977, establishes various federal, state and local requirements aimed at the expeditious attainment of the air quality health standards. The Act requires achievement of these standards by December 31, 1982. However, for carbon monoxide (CO) and photochemical oxidants (Ox) a five-year extension to 1987 can be granted. This extension is contingent on a state demonstrating in its 1979 State Implementation Plan (SIP) that attainment is not possible by 1982 despite the implementation of all reasonable stationary and transportation control measures.

Most major urban areas with CO and Ox problems will be unable to meet the air quality health standards by 1982 through reliance on stationary source controls and federal new car standards alone. These areas therefore will be required to develop and implement such transportation strategies as mass transit improvements, preferential bus and carpool treatment, areawide carpool programs, parking management, pricing, auto-restricted zones, etc. -- which are all designed to reduce auto emissions. Revised SIPs that include programs to reduce both stationary and transportation system emissions must be submitted to EPA by January 1, 1979. (Table 1 on page 8 provides an abbreviated checklist of the major transportation-related requirements of an acceptable 1979 SIP.)

The Act emphasizes -- especially for the transportation portion of SIPs -- locally developed plans that result from: (1) extensive consultation among federal, state, regional and local agencies; (2) public education and participation; (3) elected official involvement; and (4) the documented analysis of a wide range of alternative strategies. The Act specifies that the transportation-air quality planning process be coordinated with the continuing, cooperative, and comprehensive ("3C") transportation planning process administered by the Department of Transportation.

Local governments and organizations of local elected officials are explicitly encouraged to assume greater responsibilities in the development and implementation of SIPs. The Clean Air Act indicates a preference for the certification by Governors of metropolitan planning organizations (i.e., the DOT "3C" agencies) as the lead agencies for preparing control plans in urban areas that are nonattainment with respect to CO and Ox. The Amendments of 1977 authorize new planning funds (\$75 million) to organizations of local elected officials for a two-year period and also provide for new funding sanctions for failure to develop and implement

adequate plans. It appears that approximately \$25 million may be appropriated in fiscal year 1979 to support the first year of the planning process.

The Act calls for EPA to cooperate with DOT in preparing information documents on the costs, effects and analytical techniques for selecting transportation measures and developing strategies. (Information is being prepared on an extensive array of transportation improvements, covering: public transit, traffic operations, parking management, pricing, and auto-restricted zones among others.) EPA must also consult with DOT and other officials in the development of guidelines on the basic elements of the planning process for nonattainment areas. These jointly issued transportation-air quality planning guidelines are the result of that consultation.

SIP Policy

EPA has established reasonable and achievable SIP requirements and will take a firm posture on the imposition of sanctions where the requirements are not achieved. An extension of the deadline to 1987 for standard attainment is not automatic; a demonstration of need must be made and the state must fulfill the other statutory requirements in the Act. The transportation requirements of the 1979 SIP place primary emphasis on a commitment to a continuing process.

Since reliance on stationary controls and federal new car standards alone will not enable most areas with O_x and CO problems to meet standards by 1982, additional specific measures must be included in the 1979 SIP to reduce transportation system emissions. The 1979 SIP requirements include a commitment to: (1) accelerated implementation of specific strategies (e.g., transportation improvements contained in the current or recent annual element (AE)); (2) the incremental phase-in of additional strategies (e.g., other measures contained in the transportation improvement program (TIP) that appear reasonable and effective on the basis of preliminary analysis); and (3) a schedule of activities leading to implementation of an inspection/maintenance (I/M) program by 1981 (decentralized system) or 1982 (centralized system).

However, in addition to this commitment to specific measures, the 1979 SIP submittal places, as noted above, primary emphasis on a commitment to a continuing process for the transportation planning and programming requirements. This commitment to a process should lead to the expeditious development, evaluation, selection and implementation of comprehensive transportation control strategies. The process should extensively involve the public as well as state and local elected officials. An acceptable 1979 SIP should contain these process elements: (1) identifi-

cation of tasks and responsibilities of all participating agencies; (2) a schedule for developing and analyzing ambitious, alternative packages of transportation measures; (3) verification that such an analysis is underway; (4) a schedule for adoption of package(s) of measures determined to be reasonably available; and (5) a commitment to justify any decision not to adopt difficult measures.

Transportation-Air Quality Planning Guidelines

These guidelines address the transportation-related sections of the Clean Air Act and describe an integrated transportation-air quality planning process for developing the transportation system component of SIPs for areas that are nonattainment with respect to O_3 and/or CO . The basic policy goal of this process is to reduce transportation system emissions and adverse air quality impacts while maintaining compatibility with other community goals. The guidelines build upon the existing planning process by providing specific procedures designed to result in a program of transportation strategies that provide for incremental reductions in transportation system emissions as expeditiously as practicable.

These guidelines describe an acceptable planning process intended to satisfy Clean Air Act requirements for the transportation portions of an approvable SIP. That process as outlined in these guidelines must result in the expeditious development and implementation of all reasonably available measures. Reasonably available measures are determined through an analytical, participatory and negotiatory process. Early and frequent involvement of EPA and DOT in the process will best insure the development of a SIP that meets the requirements of the Act.

These guidelines apply to all public agencies with responsibilities in planning or implementing the transportation portions of SIPs in nonattainment areas. The lead planning agency has the primary responsibility for implementing these guidelines. EPA and DOT Regional Offices are primarily responsible for monitoring the guideline implementation process. The Intermodal Planning Group (IPG) should be the federal coordinating mechanism. Modifications to these procedures by a state, regional or local agency should be closely coordinated with the Regional Offices.

The procedures outlined below are a realistic starting point and undoubtedly will be improved upon by experience gained through actual applications. The guidelines should be implemented through ongoing planning processes and flexibly applied. However, modification of guideline elements will require substitution by a comparably effective approach.

Chapter III of the Guidelines describes in detail the elements of the planning process needed to accomplish SIP requirements. The scope and intensity of planning activities undertaken should be commensurate with the size of the metropolitan area and the complexity of its transportation and air quality problems. These elements include:

- ° Interagency Coordination: The lead agency in cooperation with other participating agencies should establish a program for developing the joint responsibilities and working relationships (e.g., through interagency agreements) of all agencies and organizations involved in the process. The objective is to determine who should do what when.
- ° Involvement of Elected Officials: The lead agency should coordinate the joint development of procedures to increase the involvement of elected officials. The objective is to increase the probability of obtaining the commitment of officials to support and fund needed transportation improvements.
- ° Public Information and Consultation: The lead agency should also make a parallel effort to insure adequate public information and consultation. The public and interest groups should specifically participate in the development and analysis of alternative transportation strategies. The minimum basic elements of a public information and consultation process should include: (1) an inventory and assessment of agency programs and interest groups; (2) the joint development by agencies and groups of a program for information and participation based on the assessment.
- ° Evaluation of Alternatives: The analysis of alternatives develops information essential to local decisionmaking and federal review on the costs and effects of various actions. Alternatives should be developed and analyzed in most cases under the auspices of the metropolitan planning organizations in cooperation with federal, state and local planning, transportation, and environmental agencies, interest groups, elected officials, the public and others. For the purpose of alternatives analysis each of the transportation measures listed in the Act for which EPA will publish information documents is considered reasonably available. In evaluating the costs and effectiveness of alternatives,

the full range of potential impacts should be taken into account including not only air quality but also the locality's transportation and urban development needs, economic, social and other environmental impacts as well as feasibility of implementation.

Chapter IV deals with both modifications to ongoing planning activities required by the Clean Air Act and documentation of those modifications. Those activities include: planning work programs, the transportation plan including the transportation systems management and long range elements, TIP/AE, alternatives analysis, consistency determinations, and SIP. Chapter V discusses the content and frequency of progress reports stressing that such reports should be brief and should not substitute for the more effective mechanism of direct staff contact for demonstrating and determining progress.

TRANSPORTATION-AIR QUALITY PLANNING GUIDELINES

I. INTRODUCTION

A. Purpose

These guidelines implement Section 108(e) of the Clean Air Act as amended, August 1977.¹* Section 108(e) directs EPA to provide guidelines on the basic elements of the planning process for nonattainment areas.² This procedural guidance addresses the transportation-related sections of the Clean Air Act. These guidelines describe an integrated transportation-air quality planning process (hereafter called the integrated planning process) for developing the transportation system component of State Implementation Plans (SIPs) for areas that are designated nonattainment with respect to photochemical oxidants (Ox) and/or carbon monoxide (CO).^{3,4} EPA will subsequently provide more technical information on costs, effects and analytical techniques for selecting measures and developing strategies as required by Section 108(f).

The basic policy goal of the integrated planning process described herein is to reduce transportation system emissions and resulting adverse air quality impacts while maintaining compatibility with other community goals. The guidelines build upon the existing planning process by providing specific procedures designed to result in a program of transportation strategies that provide for incremental reductions in transportation system emissions as expeditiously as practicable.⁵ The guidelines stress continuing development and expeditious implementation of all reasonably available measures, but particularly those that can be planned and implemented by 1982 or during the following five years to 1987 as provided for in the Clean Air Act. Major long-term transportation improvements necessary for maintenance of the air quality health standards beyond 1987 also should be considered within the integrated planning process.

B. Applicability

These guidelines apply to all public agencies with responsibilities in planning or implementing the transportation portions of SIPs in nonattainment areas.⁶ (Section 174 of the Act requires: (1) designation of a lead planning organization and, (2) state and local elected officials to determine jointly the coordinated and combined responsibilities of the state, local governments and regional agencies in the SIP revision process.)⁷

*Footnotes are at the end of the guidelines beginning on page 25.

The guidelines describe an acceptable approach for accomplishing the continuing tasks of transportation-air quality planning and programming required by the Clean Air Act. These procedures are a realistic starting point. They should be improved upon by experience gained through actual applications. The guidelines build upon and should be implemented through the ongoing comprehensive planning processes. They recognize that institutional arrangements and planning procedures vary by area and, therefore, can be flexibly applied. But, while individual guideline elements need not be viewed as mandatory, the objective of each element is a necessary part of an effective process -- a process required by the Act. Therefore, modification of guideline elements will require substitution of a comparably effective approach.

The lead planning agency has the primary responsibility for implementing these guidelines. EPA and DOT Regional Offices are primarily responsible for monitoring the guideline implementation process. The Intermodal Planning Group (IPG) should be the federal coordinating mechanism. Modifications to these procedures by a state, regional or local agency should be closely coordinated with the appropriate EPA and DOT Regional Offices.

C. Funding

This section describes both authorized (but not yet appropriated) and currently available funds for conducting the transportation-air quality planning activities required by the Act. Appendix F describes funding for plan implementation and related planning.

1. Authorized Funds

Section 325 of the Act authorizes the appropriation of \$75,000,000 (available until expended) to carry out Section 175 beginning in fiscal year (FY) 1978. Section 175 directs EPA to make grants to meet the reasonable costs of plan development to any organization of local elected officials with transportation or air quality maintenance planning responsibilities recognized by the state under Section 174(a). Grants would cover 100 percent of any additional costs of developing a SIP revision for a nonattainment area for the first two fiscal years following grant receipt. Grants would supplement any other federal funds available to such organization for transportation or air quality maintenance planning. Grants could not be used for construction.

2. Available Funds

a. Section 175: Prior to the announcement of the President's urban policy, no Section 175 grant funds were included in the FY 1979 federal budget submitted to Congress. Funds to implement an EPA-DOT joint transportation-air quality planning process were, however, included as a contingency item in that budget. These funds were to be

made available when a DOT-EPA memorandum of understanding was signed. Release of these funds would require Congressional approval. However, the urban policy announced on March 27, 1978 included \$25 million in grant funds to be requested from Congress for FY 1979 for planning in nonattainment areas. As of late April the following summarizes the status of the \$25 million:

The funds will be requested for inclusion in EPA's budget under Section 175. No decision has been reached on distribution procedures -- i.e., whether EPA or DOT grant procedures will be used. The Office of Management and Budget (OMB) has not announced whether the \$25 million replaces or adds to the contingency fund for FY 1979. Congress may, of course, appropriate an amount different from that requested by the Administration. Allocation formulas and procedures are being developed.

b. Section 105: EPA has earmarked \$2 million, available under Section 105 (Control Agency Grants), for FY 1978 to assist Section 174 agencies in completing the requirements for an approvable 1979 SIP submittal. Small amounts of funds under current Section 105 grants might also be available for FY 1979.

c. DOT Funds: At the direction of the President, OMB requested integration of EPA's transportation-related air quality planning requirements into the transportation planning process administered by DOT. This integration should produce: (1) joint planning regulations to meet DOT and EPA objectives, (2) joint DOT-EPA administration of the air quality aspects of the planning process, and (3) a common, jointly administered federal funding mechanism for transportation and air quality planning.

As a follow-up to the OMB request, the Federal Highway Administration (FHWA) and Urban Mass Transportation Administration (UMTA) Administrators sent the following memorandum to their Regional Administrators (Appendix H contains the entire memorandum):

"Because of the imminence of the January 1, 1979, deadline, we are directing that the following actions be initiated promptly by the regional staffs of UMTA and FHWA:

1. The EPA should be invited to participate in the Intermodal Planning Group (IPG) so as to insure coordination of all activities pertaining to the urban transportation planning process;

2. The EPA should be consulted to determine which areas are likely to require [transportation control plans] TCPs and what the estimated magnitude of TCP effort will be in those areas;

3. For areas requiring TCPs, funds within already approved Unified Planning Work Programs (UPWPs) may be reprogramed as appropriate to support the identification and analysis of transportation control measures in coordination with the SIP revision process;

4. Air quality planning tasks in support of the SIP revision process should be given a high priority in UPWPs now being developed. Air quality planning is a national priority and must be given appropriate emphasis in the conduct of the transportation planning process;

5. The transportation improvement program (TIP)/annual element (AE) review process should be conducted with a renewed emphasis on the inclusion of projects benefiting air quality in the TIP/AE; and

6. The certification review process should be conducted with a renewed emphasis on the coordination of air quality planning and transportation planning as required by the joint regulations."

D. Background

Appendix E traces the history of EPA's transportation control program previous to the Clean Air Act Amendments of 1977. The amended Act addresses problems of the original transportation control planning process by requiring locally developed plans based on these major elements: extensive agency interaction among all governmental levels; significant involvement of local elected officials; effective public education and participation; and integration with ongoing planning processes, particularly emphasizing the DOT continuing, cooperative and comprehensive (3C) process (23 CFR 450). The amended Act also provides sanctions to insure both an effective planning process and the implementation of an approved or promulgated SIP (Sections 176 and 316). These guidelines describe the elements of an acceptable planning process intended to correct many of the earlier problems and to result in approvable SIPs for nonattainment areas.

The following sections provide additional background on the objectives and implementation of these guidelines:

1. Integration With Ongoing Planning Processes. Planning conducted under these guidelines should be integrated to the fullest extent possible with existing comprehensive transportation and air quality planning processes (including AQMP where applicable), and should include the use of common data bases, modeling applications, and coordinated planning activities among staffs of the participating agencies. This guidance builds upon and selectively expands the DOT joint planning regulations (23 CFR 450), a knowledge of which is essential to users of the guidelines (Appendix K).

Integrated DOT and EPA planning should result in a more efficient process and in products that better meet the objectives of both agencies. Related activities required by both agencies should be merged and duplication eliminated. Establishing separate and costly planning processes should be avoided.

2. A Continuing Process. Preparing the transportation portion of the SIP is not merely the one time development of short range tactics to improve air quality, but rather the entire process of regularly taking air quality needs into account in all transportation decisions. Urban areas with actual or potential violations of the national air quality standards for transportation-related pollutants should re-evaluate their transportation plans and programs on a continuing basis. If necessary, these areas should revise the transportation plan, including the transportation systems management (TSM) element, and the Transportation Improvement Program (TIP) to achieve continual incremental air quality improvements and prevent future air quality problems. Areas which violate the health standards should demonstrate continuing, expeditious progress in planning, programming and implementing measures that improve air quality. These areas may have to forego or postpone projects that would cause adverse air quality impacts and reprioritize other projects to achieve expeditious improvements in air quality.

3. Designation and Role of the Lead Agency or MPO. Where feasible the lead organization designated to conduct and/or coordinate the planning and implementation process in nonattainment areas (and thus primarily responsible for applying these guidelines) should be either the metropolitan planning organization (MPO) designated to conduct transportation planning under Section 134 of title 23, USC, or the organization responsible for the air quality maintenance planning process. Where such agencies are not so designated, their relationship with the designated lead agency and their role in such planning should be clearly identified. Also, the relationships among the lead organization, comprehensive planning agency and the A-95 clearinghouse should be identified where those agencies are not the same.

Both EPA and DOT view the role of the MPO as providing a forum for cooperative decisionmaking by principal elected officials of general purpose local government. The designation of the MPO as lead agency or the process established by these guidelines should not preclude other state, regional or local agencies from acting through this forum. In fact, Section 174 of the Clean Air Act envisions a SIP revision process involving a combination of state, regional and local agencies. Management of an efficient, effective process may require the MPO or lead agency to allocate responsibilities to other agencies with better expertise for specific tasks. The lead agency should regard the integration of the mobile and stationary components of the SIP as a joint task of great significance demanding the close cooperation of all participating agencies. Clearly, development of an approvable 1979 SIP requires a commitment on the part of all appropriate agencies with planning and/or implementation authority.

II. SIP POLICY

These transportation-air quality planning guidelines are designed to describe an acceptable planning process intended to satisfy Clean Air Act requirements for the transportation portions of an approvable SIP. Specifically, in regard to the transportation-related requirements of the 1979 SIP revision, primary emphasis is placed on a commitment to a continuing process. That process as outlined in these guidelines must result in the continuing development and expeditious implementation of all reasonably available measures necessary, together with stationary source controls, to attain the standards. Reasonably available measures are determined through an analytical, participatory and negotiatory process. Early and frequent involvement of EPA and DOT in the process will best insure the development of a SIP that meets the requirements of the Act.

Appendix B contains for reference purposes a major policy memorandum, signed by the EPA Administrator and dated February 24, 1978, "Criteria for Approval of 1979 SIP revisions." Chapter II draws upon key sections of this policy memorandum applicable to the transportation portion of SIPs.

A. Overall Summary of SIP Policy

The Clean Air Act requires the demonstration of attainment of the primary air quality standards as expeditiously as practicable, but not later than December 31, 1982. However, for CO and O_x, the Act allows up to a five-year extension if a state can demonstrate that attainment is not possible by 1982 despite the implementation of all reasonable stationary source and transportation control measures. In such cases the plan revisions must still demonstrate attainment as expeditiously as practicable but not later than December 31, 1987. An extension is not automatic; a demonstration of need must be made and the states must fulfill the other statutory requirements. EPA has established reasonable and achievable SIP requirements and will take a firm posture on the imposition of sanctions where these requirements are not achieved.

Since reliance on stationary controls and federal new car standards alone will not enable most areas with O_x and CO problems to meet standards by 1982, additional specific measures must be included in the 1979 SIP to reduce transportation system emissions. The 1979 SIP requirements include a commitment to: (1) accelerate implementation of specific strategies (e.g., transportation improvements contained in the current or recent annual element (AE)); (2) the incremental phase-in of additional strategies (e.g., other measures contained in the transportation improvement program (TIP) that appear reasonable and effective on the basis of preliminary analysis]; and (3) a schedule of activities leading to implementation of an inspection/maintenance (I/M) program by 1981 (decentralized system) or 1982 (centralized system).

However, as noted above primary emphasis is placed on a commitment to a continuing process for the transportation planning and programming requirements in the 1979 SIP submittal. This commitment to a process should lead to the expeditious development, evaluation, selection and implementation of comprehensive transportation control strategies. The process should extensively involve the public as well as state and local elected officials. In addition to the commitment to specific measures previously outlined, an acceptable 1979 SIP must contain these process elements: (1) identification of tasks and responsibilities of all participating agencies; (2) a schedule for developing and analyzing ambitious, alternative packages of transportation measures; (3) verification that such an analysis is underway; (4) a schedule for adoption of package(s) of measures determined to be reasonably available; and (5) a commitment to justify any decision not to adopt difficult measures.

DOT, Housing and Urban Development (HUD) and EPA are seeking to integrate the transportation-air quality planning and implementation required by the Clean Air Act into existing planning and programming procedures. Air quality-related transportation planning activities should be included in the UPWP required by DOT. Adopted air quality-related transportation measures should be included in the TIP/AE required by DOT. The HUD-EPA Agreement on coordinating air quality planning and HUD's Comprehensive Planning Assistance (701) Program (Appendix I) is also important. Integration of air, transportation, and comprehensive planning which incorporates growth management concerns should improve the effectiveness of air quality planning and reduce the need for future enforcement measures.

B. Specific Selected SIP Requirements

The following selected requirements draw upon the "Criteria for Approval of the 1979 SIP Revision" memorandum, apply primarily to the transportation portion of the SIP and expand summary information presented in Section A. (Again, Appendix B contains the entire memorandum.) Table 1 provides an abbreviated checklist of the major transportation-related requirements of an acceptable 1979 SIP.

1. Transportation-Related Requirements of all 1979 SIP Revisions

a. Adoption in legally enforceable form⁸ of all measures necessary to attain standards by the prescribed date. Where adoption of all such measures by 1979 is not possible (e.g., certain transportation control measures) a staged schedule for the expeditious development, adoption, submittal, and implementation of these measures should be included. Each schedule should provide for implementation of all reasonably available control measures as expeditiously as practicable. Prior to attainment, these measures must be implemented on a schedule that demonstrates annual incremental emission reductions. (See below in subsection 1c on reasonable further progress.) As part of the SIP each

Table 1Checklist of Transportation-Related Provisions¹ of the 1979 SIPA. Problem Definition

1. Definition of nonattainment area and geographic area covered by transportation control measures;
2. Accurate, comprehensive and current emissions inventory;
3. Estimation of emission reductions needed to demonstrate standard attainment by 1982 and 1987 (including emission growth projections); and
4. Determination of whether federal new car standards and proposed transportation and stationary source controls demonstrate attainment by 1982. Demonstration of need for attainment deadline extension to 1987;

B. Process

1. Designation and certification of a lead agency for nonattainment areas;
2. Identification of agency tasks and responsibilities;
3. Schedule for comprehensive alternatives analysis and demonstration that analysis is underway;
4. Schedule for adoption of reasonably available measures;
5. Commitment to justify decision not to adopt difficult, but reasonably available measures (see page 7 in the guidelines for additional information on B. 2-5);
6. Process for public, interest group, and elected official consultation and involvement in: defining transportation-air quality issues, establishing the planning process, development and analysis of alternatives (see pages 14-15);
7. Identification of estimated financial and manpower resources necessary to carry out the process described by these guidelines. A commitment to the first year of this process should be demonstrated in the UPWP;

8. Evidence that the SIP was adopted by the state after reasonable notice and public hearing;
9. Provisions for progress reporting throughout the planning and implementation period (pages 22-23);

Additional Transportation-Related Provisions for Areas
Unable to Attain by 1982

10. Schedule of activities leading to implementation of I/M (see pages 6, 10); and
11. A commitment to use (insofar as is necessary) available grants and funds to establish, expand or improve public transportation measures to meet basic transportation needs as expeditiously as practicable (page 10). (As indicated in the Preface, further guidance will be provided.)

C. Strategy Development/Implementation

1. UPWP air quality-related transportation planning tasks being performed by each agency during FY 79² (pages 19-20);
2. Emission reduction estimates for adopted measures and/or packages of measures. Rough estimates of annual emission reductions through 1987 for packages of measures currently being developed and analyzed;
3. Preliminary identification of analytical methodologies for determining air quality, travel, economic, energy, social etc. effects of plan provisions. Summary of any public comment on such methodologies (pages 18-19); and
4. Commitment to: (1) accelerate implementation of transportation improvements in current or recent AE, (2) incremental phase-in of additional reasonable measures (page 6).

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- 1 The required provisions can be loosely placed in three categories: Problem Definition, Process, Strategy Development/Implementation.
 - 2 The SIP should summarize planning activities by major categories (e.g., long term public transit improvements, TSM elements). However, as noted in the Preface, the exact form of SIP provisions should be worked out by the lead agency and DOT and EPA Regional Offices.

schedule will represent a commitment by the state to provide for attainment by the prescribed date. The schedule of key milestones should be viewed as a series of sequential, step by step commitments. For example, the initial commitment to be made in the January 1979 SIP is to the thorough analysis of alternatives. Subsequent commitments should advance measures found to be reasonable and effective through programming and implementation steps. Adequate substitutions must be made for measures determined to be ineffective or impracticable.

b. Emission reduction estimates for adopted or scheduled measures or for packages of measures where estimates for individual measures are impractical.

c. Provision for reasonable further progress toward attainment of the primary and secondary standards prior to the prescribed attainment date. "Reasonable further progress" means annual incremental reductions in total emissions (from new as well as existing sources) to provide for attainment by the prescribed date. The SIP should be designed to provide for substantial reductions in the early years with regular reduction thereafter, although the most substantial reductions from transportation sources may occur in later years due to longer planning and implementation lead times.

Demonstration of reasonable further progress requires in most areas designated nonattainment for O_3 or CO , a continuing phased implementation of transportation control measures. Reliance only on the Federal Motor Vehicle Control Program as a demonstration of reasonable further progress is not acceptable in areas unable to attain the standards by 1982.

d. Identification and quantification of: (1) growth rates for stationary and mobile sources and (2) a procedure to monitor emission growth from stationary and transportation sources to assure compliance with the amounts specified in the SIP. The growth rate identified in the SIP must be consistent with the growth rates used (or implied by) the other planning activities in the area (e.g., FWPCA Section 208 [201], HUD Section 701, FHWA Section 134).

e. Provision for annual reporting on: (1) progress toward meeting the schedules noted in (a), and (2) growth in emissions from mobile sources, minor new stationary sources, major new or modified stationary sources, and reduction in emissions from existing sources to provide for reasonable further progress as noted in (c) above. This should include an updated emission inventory.

f. Identification of estimated financial and manpower resources necessary to carry out the process described by these guidelines. A commitment to the first year of this process should be demonstrated in the UPWP.

g. Evidence of public, local government and state legislative involvement and consultation. The SIP should also identify and analyze the air quality, health, welfare, economic, energy, and social effects of the plan revisions considered and provide a summary of public comment on such analyses. The 1979 SIP may contain a preliminary evaluation with a commitment and schedule for further, more intensive and comprehensive analysis.

h. Evidence that the SIP was adopted by the state after reasonable notice and public hearing.

2. Additional Transportation-Related Requirements for CO and O_x Revisions Which Provide for Attainment of the Primary Standards Later Than 1982

For those SIP revisions which demonstrate that attainment of the primary standards for CO and/or O_x is not possible prior to December 31, 1982 despite the implementation of all reasonable emission control measures, the following must be included in the January 1, 1979 submission in addition to the general requirements listed above in subsection 1:

a. An inspection/maintenance program or a schedule endorsed and committed to by the Governor for the expeditious development, adoption, and implementation of such a program.

b. A commitment by responsible government officials to:
 (1) establish, expand, or improve public transportation measures to meet basic transportation needs as expeditiously as practicable and
 (2) use (insofar as necessary) available grants and funds, consistent with the terms of the legislation providing such grants and funds, to establish, expand, or improve public transportation measures to meet basic transportation needs. (As noted in the Preface, additional substantive and procedural guidance on this requirement will soon be issued.)

3. Pollutant Specific Requirements (CO and O_x)

The 1979 O_x SIP submissions must represent a comprehensive strategy for each nonattainment area providing for sufficient control of volatile organic compounds from stationary and mobile sources necessary to attain the oxidant standard. SIP submissions that address only selected portions of nonattainment areas are not adequate. For oxidant plan development, major urban areas are those with an urbanized population of 200,000 or greater (U.S. Bureau of Census, 1970). Although specific boundaries may be defined somewhat flexibly, the boundaries must be large enough to cover the entire urbanized⁹ area and adjacent fringe areas of development.

SIP revisions must provide for expeditious implementation of reasonably available control measures. At a minimum the following transportation measures for which EPA will publish information documents are considered, for the purpose of analysis, to be reasonably available:

1. To be published by February 1978

- a. inspection/maintenance
- b. vapor recovery
- c. improved public transit
- d. exclusive bus and carpool lanes
- e. area wide carpool programs

2. To be published by August 1978

- a. private car restrictions
- b. long range transit improvements
- c. on street parking controls
- d. park and ride and fringe parking lots
- e. pedestrian malls
- f. employer programs to encourage car and
vanpooling, mass transit, bicycling
and walking
- g. bicycle lanes and storage facilities
- h. staggered work hours (flexi-time)
- i. road pricing to discourage single occupancy
auto trips
- j. controls on extended vehicle idling
- k. traffic flow improvements
- l. alternative fuels or engines and other
fleet vehicle controls
- m. other than light duty vehicle retrofit
- n. extreme cold start emission reduction programs

The above measures (either individually or in packages) should be analyzed promptly and thoroughly. This alternatives analysis for each urban area will produce the essential information needed to determine precisely what comprehensive strategies are reasonably available. The selected strategies should then be scheduled for: (1) more detailed analysis, if necessary, (2) submittal to, and adoption by, policy boards, and (3) implementation. Because all analyses of every measure or package cannot be completed by January 1979 for inclusion in the SIP, where necessary a submitted schedule may provide for subsequent completion. (Where subsequent analyses demonstrate that certain measures may be unnecessary, ineffective or infeasible, a decision not to implement them may be justifiable. Such decisions will, however, be reviewed carefully by EPA and DOT Regional Offices.)

As described previously, annual incremental reductions in total emissions must occur to demonstrate reasonable further progress prior to attainment of the standards. Therefore, implementation activities should not be delayed until completion of the comprehensive analyses of alternative

transportation improvement packages. For example, feasibility studies and demonstration projects are often essential steps in the planning and implementation of specific measures (e.g., auto-restricted zones, specialized transit service). Where demonstration projects are appropriate, they should be scheduled for implementation prior to the end of 1980.

Planning and implementation of certain air quality-related transportation measures and strategies may be a complicated and lengthy process extending beyond 1982 in areas with severe CO or O_x problems. Implementation of even very extensive transportation measures, however, must be initiated before December 31, 1982.

Where revised SIPs justify an extension of the attainment date, the adopted transportation portion must provide:

1. Specific procedures and criteria developed by the agencies designated according to Section 174 for determining whether the transportation planning process conforms to the SIP.
2. A schedule for the expeditious implementation of already planned, reasonably available transportation measures including transportation provisions in existing SIPs and other transportation measures with demonstrable air quality benefits developed as part of the transportation process administered by DOT.
3. A program for evaluating alternative packages of transportation options covering at least those measures for which EPA will develop information documents. The analyses must identify a package of measures which will attain the emission reduction target ascribed to transportation sources in the SIP. The comprehensive analysis of alternative must be completed by July 1980 unless the lead agency can demonstrate a need for additional time.
4. A program for evaluating long range (post-1982) transportation and growth policies. Alternative growth policies and/or development patterns must be examined to determine the potential for modifying total travel demand.
5. A schedule for adoption of needed transportation control measures as expeditiously as practicable. Adopted measures must be expeditiously implemented on a continuous schedule demonstrating incremental emission reductions from 1979 to the attainment date. The reasonableness of a schedule will be determined by the nature of the existing or planned transportation system and the complexity of implementing an individual measure or package of measures.

III. PROCESS

A. Introduction

The integrated planning process described in Chapter III should accomplish the policy goals identified in the Introduction and satisfy the SIP requirements outlined in Chapter II. Again, the DOT joint planning regulations should be used in conjunction with these guidelines as the basis for all transportation-air quality activities carried out under the Clean Air Act. The scope and intensity of planning activities discussed in this chapter should be commensurate with the size of the metropolitan area and the complexity of its transportation and air quality problems. Special emphasis should be placed on the following elements of the existing planning process: public participation, involvement of elected officials, alternatives development and evaluation, and plan implementation. Numerous provisions from DOT and EPA legislation further define requirements of the transportation-air quality planning process that must be met.¹⁰

B. Interagency Coordination

The designated lead agency should first establish a program, in cooperation with other agencies identified under Section 174, for developing the joint responsibilities and working relationships of all agencies and organizations involved in the transportation-air quality planning and implementation process. The program should include:

1. Documenting roles and responsibilities of all agencies having transportation and/or air quality planning and implementation functions for the area.

2. Jointly defining necessary formal and informal working relationships among programs and agencies to achieve an integrated comprehensive planning process.

3. Jointly developing mechanisms to maintain or establish (where necessary) these working relationships, including: assessing the adequacy of informal coordination among staffs, setting up interagency advisory groups, and developing more formal interagency agreements or memoranda of understanding as needed. These mechanisms should address the following tasks as well as others the agencies find necessary:

- (a) Modifying existing institutional and technical transportation and air quality planning processes to achieve integration at and between local and regional levels.

(b) Applying criteria and procedures for evaluation and revision of projects, plans and programs to ensure their conformity with the SIP. (Criteria and procedures are being developed and will be provided subsequently.)

(c) Incorporating into the SIP major air quality-related elements of the UPWP and specific transportation control measures from the transportation plan, TSME, TIP and AE.

(d) Implementing, operating, and enforcing transportation-related elements of the SIP.

(e) Monitoring air quality and transportation trend indicators.

C. Involvement of Elected Officials

The lead agency should insure joint development of procedures, where necessary, to increase involvement of appropriate elected officials in transportation-air quality decisionmaking including:

1. Providing preliminary information to such officials regarding both the range of individual measures and packages of measures being considered that could require an implementation commitment by such officials.

2. Providing increasingly more detailed information to officials as specific transportation strategies are developed, evaluated and subjected to interagency and public consultation.

3. Obtaining the commitment from officials to support and fund the adoption and implementation of reasonably available transportation projects and programs within their areas of jurisdiction.

4. Advising officials of proposed modifications to air quality-related transportation projects and programs within their jurisdictional areas.

D. Public Information and Consultation¹¹

A parallel procedure should be developed for adequate public information and consultation on transportation, air quality and public health issues as well as the integrated planning process. Interest groups should participate in the development and analysis of alternative transportation strategies. Existing procedures for public participation should be used whenever such procedures achieve the objectives of this section. As with other SIP revision tasks the exact details of a public information

and consultation program must be worked out under the auspices of the lead agency by participating state, regional and local agencies in consultation with appropriate citizen groups. The basic elements of any program should be conducted by the agencies or interest groups best equipped to carry out the tasks effectively.

An effective public information and consultation process should include the following elements:

1. Inventory: An inventory of agency public information programs and interest groups is essential for a well managed, effective and efficient public consultation process. This inventory should cover: (1) agency information and consultation programs aimed at the public and/or elected officials, identifying duplicative tasks and those receiving inadequate attention and (2) special interest groups (e.g., environmental advocacy groups, Chambers of Commerce) and major local citizen's associations.

2. Assessment of Existing Programs: Periodically the programs and the working relationships of the agencies and groups inventoried should be jointly assessed -- for example by the lead agency and an ad hoc committee of public interest groups such as a citizen advisory committee or public counsel mechanism. Public information and consultation programs should be evaluated for: (1) reaching other agencies and interest groups; (2) informing and educating the public and elected officials about air quality, transportation, public health, and the integrated planning process; (3) responding to and acting on issues raised by the public; and (4) effectively involving the public in the transportation-air quality planning process.

3. Program Development: The public consultation program should correct deficiencies found in the assessment and cover two areas: information and participation.

Information on air quality, transportation and public health should be scaled and targeted toward appropriate agencies and interest groups. It should cover the magnitude of the air quality problem, inventory and assessment of programs and groups, integrated planning process concepts, procedural steps of that process, the alternative transportation improvements being developed and evaluated including their incidence of the costs and benefits, and so forth.

Second, mechanisms should be developed and implemented, where necessary, to allow the public and elected officials to participate in all phases of the integrated planning process. For example, where such mechanisms do not exist or are determined ineffective, the process could be revised to include: (1) a Citizen Advisory Committee reflecting a representative

cross section of interest groups, (2) a Technical Advisory Committee that includes representatives of the Citizen Advisory Committee and staff from state and local environmental and transportation agencies, and (3) procedures to allow timely and effective exchanges between these two committees, agency policy committees, and elected officials.

E. Evaluation of Alternative Strategies

Alternatives analysis systematically develops and evaluates a wide range of transportation actions, individually and in combination. Alternatives analysis develops information on costs and effects of various actions for local decisionmaking and federal review. The periodic reassessment of transportation plans and programs provides both the occasion and opportunity for alternatives analysis. Appendix G summarizes pertinent DOT and EPA legislation requiring alternatives analysis, along with selected information supplementing the following subsections.

1. Assignment of Responsibility

MPOs should in most cases take lead responsibility for overseeing the implementation of these guidelines on evaluating alternatives because of their central role in the urban transportation planning process administered by DOT. These alternatives analysis guidelines should of course be applied by the MPO in cooperation with federal, state, and local planning, transportation, and environmental agencies, public interest groups, elected officials, and others. Detailed institutional arrangements and assignments of responsibility should be tailored to the particular situation in each metropolitan nonattainment area.

2. Agency, Elected Official and Public Consultation

Other agencies, local elected officials and the public should participate in developing transportation-air quality strategies. Information should be made available on the alternatives being considered and their likely effects, both beneficial and adverse. Interested and affected participants should be given the opportunity to express their views early enough in -- and throughout -- the study process to influence both the course of studies and implementation decisions.

3. Generation of Alternatives

Areas that will not attain the standards by 1982 and that currently have an EPA-approved or promulgated transportation control plan (TCP) as part of their SIP should first evaluate measures in the TCP. Implemented TCP measures should be noted, while those not yet implemented

should be reviewed and their current status indicated (e.g., study underway, project programmed for implementation, stalled for lack of funds, not considered, studied and rejected). Measures determined ineffective or infeasible or whose impacts are highly deleterious may be dropped from the TCP if the action is supported by properly documented analysis. Any suspension or elimination of an existing SIP provision must be included in the January 1979 submittal.

In areas where new transportation control measures are needed, transportation agencies should identify those that appear potentially capable of contributing to air quality improvements consistent with other community goals. The measures should span a broad range of inter-related air quality and community effects so that further analysis can reveal trade-offs and possibilities for packaging the measures into strategies. Measures or groups of measures identified at this stage should be ones that appear to be worthy of further analysis and should not exclude ambitious measures that could be controversial. (EPA will subsequently be providing guidance on packaging transportation measures as part of the information documents required by Section 108(f).) To insure that ambitious packages of measures are analyzed and considered for implementation, one of the alternative packages should include a mix of transportation measures that would either:

a. Achieve the emission reduction target assigned to transportation sources (according to Section 174 procedures and after consultation with EPA) needed to attain ambient air quality standards for CO and O_x by 1987. This target should reflect expected pollutant decreases from the federal motor vehicle control program, non-transportation source controls, and vehicle inspection/maintenance program. Or,

b. Reduce transportation CO and HC emissions by a percentage jointly determined (according to Section 174 procedures and after consultation with EPA) to represent the most expeditious progress toward attainment that can ambitiously be accomplished by 1987 (e.g., one such target could be a 15-20 percent reduction).¹² This emission reduction is in addition to reductions achieved through the federal motor vehicle control program and an inspection/maintenance program.

4. Analysis of Alternatives

a. Analysis Considerations: Consistent with DOT's joint planning regulations, the detail and resources used to develop and evaluate transportation alternatives should be commensurate with the magnitude and geographic extent of the air quality problems facing each nonattainment area. Areas with severe and persistent air quality problems should make a major effort toward finding solutions, while areas with less extensive or shorter term problems may find a lower level of effort sufficient. Regionwide air quality problems (e.g., high O_x levels) will

require investigation of regionwide strategies; more localized air quality problems (e.g., high CO concentrations) may also require regionwide solutions but in some cases may only require sub-area studies and corrective strategies.

The level of detail of analysis also should reflect the planning horizon of the actions under consideration. Approximate, or "sketch planning," analysis is appropriate for the long range plan because long range projections are sufficiently uncertain that additional detail may provide only marginally better information. More detailed analysis should be carried out on the projects and packages of projects contained in the TIP. The planning analyses should primarily focus on the Congressionally mandated deadlines of 1982 and 1987.

Simplified analysis techniques should be used initially to assess the impacts of alternative measures and strategies, followed by more detailed analysis on those strategies that survive this initial screening. The information produced -- including the incidence of social, economic and environmental impacts -- should clarify the critical issues of choice available to involved communities and should point out the trade-offs among alternatives.

Key assumptions made in the analysis (e.g., choice and sensitivity of demand models, trip assignment techniques, network speeds, meteorology, emission factors) should be fully documented. In some cases, real-life variations from such assumptions may alter significantly the course of implementation or may invalidate projections upon which plans are based. Under changed conditions, the desirability and feasibility of certain measures may change significantly. For this reason, alternatives analysis should explore the sensitivity of key impact predictions and project choices to key assumptions and parameters. For example, where alternative population and land use projections result in significantly different estimates of travel demand, it is important to examine how alternative demand estimates affect the proposed system performance and point to alternative mixes of transportation measures. Where sensitivity analyses identify significant differences in air quality under varying assumed conditions, procedures for monitoring those conditions and updating plans and programs in accordance with observed conditions should be developed.

b. Criteria for Evaluation of Alternatives: In evaluating the costs and effectiveness of alternatives, all potential impacts should be taken into account. This includes not only air quality but also implementation feasibility as well as transportation and urban development needs, economic, social and other environmental impacts. Measures that create serious hardships obviously should not be selected simply because they appear to improve air quality. For each alternative package of

measures or strategy the following factors should be considered at least qualitatively, but also quantitatively where data and methodologies are available.

(1) Air quality: regional and local impacts by pollutant; other environmental impacts;

(2) Energy consumption: fuel consumed by each alternative;

(3) Effects on the community: employment and employment patterns; retail sales and other business activity indicators; effects on the tax base; changes in land use patterns; impacts on regional development; urban development plans; property acquisition requirements; neighborhood disruption and displacement; and compatibility with community goals;

(4) Financial analysis: funding sources and uses (e.g., matching requirements, opportunities foregone);

(5) Economic analysis: present and future capital and operating costs;

(6) Economic impacts: present and future indirect costs and benefits, including incidence of costs and benefits by:

- ° public and private sector
- ° income group
- ° geographic area
- ° social group;

(7) Travel impacts: changes in auto usage, vehicle-miles of travel, modal split, travel time, level of service and accessibility, convenience, volume of travellers by: mode, origin-destination, time-of-day, and trip purpose;

(8) Political feasibility: required public and elected official support, new legislation, promotional efforts, successful applications elsewhere, potential controversy;

(9) Institutional feasibility: assessment of need for new agency authority, special interagency agreements, extensive cooperation among agencies, dependence on other actions for successful implementation; and

(10) Other factors considered important by the local community.

IV. MODIFICATION AND DOCUMENTATION OF EXISTING PLANNING ACTIVITIES

A. Introduction

This chapter describes: (1) modifications to ongoing transportation planning activities required by the Clean Air Act and (2) documentation of those modifications. The modifications and documentation require minimal alteration of existing procedures and reporting requirements.

B. Planning Work Programs

1. General

Proposed transportation planning work required under the Clean Air Act should be included as part of the UPWP currently prepared by MPOs in response to DOT requirements (23 CFR § 450, Subpart A). This should be accomplished by all nonattainment areas that establish planning procedures in accordance with Section 174 of the Act, regardless of whether the MPO is the certified lead agency or whether any Section 175 funding is provided.

2. Prospectus

The UPWP prospectus should be modified to: (a) summarize the integrated planning process including discussion of the important air quality-related transportation issues facing the area; and (b) describe the interrelationships of the functional responsibilities of participating planning and operating agencies, including air quality agencies.

3. Unified Planning Work Program

The UPWP should describe all air quality-related transportation planning activities anticipated within the area regardless of funding source. Work funded under Section 175 of the Clean Air Act should be described in the UPWP format prescribed by the Intermodal Planning Group (IPG) or in a modified version agreed upon by EPA and the IPG.

C. Transportation Plan

1. Development of the short-range or transportation system management element (TSME) of the transportation plan should consider measures which will quickly reduce transportation system emissions including traffic engineering, public transportation, regulatory, pricing, management, operational and other TSM improvements.

2. Development of the long-range element of the transportation plan should consider new transportation policies and facilities and/or major changes in existing facilities with long-range potential for reducing transportation-related emissions and contributing to attainment and maintenance of the ambient health standards.

3. All short-range (TSM) and long-range measures in Section 108(f) of the Act are, for the purpose of analysis, reasonably available. They should be specifically considered in the analysis and development of alternative TSMEs and long-range elements.

D. Transportation Improvement Program (TIP)

The TIP, including the annual element, should identify from the TSM and long-range elements of the transportation plan improvements that produce incremental emission reductions and air quality improvements. These improvements should expeditiously advance toward implementation during the program period consistent with SIP planning and programming schedules. Priorities assigned to transportation improvements should be consistent with the requirements of Section 176(d) of the Clean Air Act (i.e., federal agencies conducting or supporting programs with air quality-related transportation consequences shall give priority, consistent with other statutory requirements, to the implementation of measures in approved or promulgated plans under Section 110 of the Clean Air Act).

E. Documentation of Alternatives Analysis

The MPO or lead planning agency should coordinate the development of a working reference document describing the methods and results of alternatives analysis. This work document should use and supplement, as necessary, technical reports required by the DOT joint regulations. While the entire alternatives analysis document will not normally be submitted with EPA's periodic progress reports (Chapter V), it should be kept updated and available for review at all times by other agencies and the public. This document plays a key role in the integrated planning process as the basic resource for the joint determination by participants that all reasonable measures are being implemented as expeditiously as practicable.

The document should: (1) describe the alternative measures and packages of measures selected for preliminary analysis; (2) provide reasons for rejection or selection of alternatives for more detailed analysis. (The initial list of alternative measures shall include all those listed in Section 108(f) of the Clean Air Act.); (3) describe the effects considered in both the preliminary and more detailed alternatives analysis (e.g.,

air quality, travel, economic effects -- see Section III E.4.b) and the methodology used in estimating these effects; (4) summarize results of the alternatives analysis to date; and (5) explain why alternatives were finally rejected or selected for implementation.

F. Consistency Determination Documentation

Procedures established to satisfy FHWA requirements for determining consistency of areawide transportation plans with SIPs (required under 23 USC 109(j)) should be used to respond to the transportation-related requirements of the Clean Air Act. Documentation of annual consistency determinations should continue to be provided to EPA according to existing procedures. This documentation can be used to: (1) demonstrate that all reasonable measures are being implemented as expeditiously as practicable (in accordance with Section 172(b)(2)), (2) demonstrate reasonable further progress (§ 172(b)(3)), and (3) assure conformity (§ 176(c)). EPA will consider the consistency determination along with the nonattainment plan provisions submitted in response to Section 172(b) in assessing SIP progress.

G. SIP

The required 1979, 1982 and subsequent SIP revisions should include major air quality-related work elements of the UPWP and specific transportation control measures from the transportation plan, TSME, TIP and AE. Chapter II above outlines the transportation-related contents of an approvable 1979 SIP. Appendix B contains the complete, more detailed description of the elements of an approvable 1979 SIP.

V. PROGRESS REPORTS

A. Introduction

EPA will require periodic reports to: (1) monitor and assess progress in developing and implementing the transportation-related provisions of the Clean Air Act; (2) develop uniform review criteria for assessing SIP progress; and (3) develop information for decisions on: (a) planning funds allocation, (b) conformity and consistency determinations, and (c) imposition of Section 176 sanctions. The reporting requirements described below are designed to minimize time spent on documenting and reviewing routine activities, allowing staffs to concentrate on identifying and resolving significant problems. These reports should not substitute for the more effective mechanism of direct staff contact for demonstrating and determining progress.

Although progress reports will normally be expected every six months, alternative arrangements are possible by agreement between the lead agency and the EPA Regional Office. Existing reports and reporting procedures should be used to comply with Clean Air Act requirements; i.e., wherever a progress report of similar format and content is currently prepared for another agency and/or program, such a report may be modified as necessary to satisfy EPA requirements.

B. Content

The progress report should briefly summarize the status of the air quality-related elements of the: (1) UPWP, (2) transportation plan (including TSME), (3) TIP, and (4) annual elements of the TIP for both the current and preceeding year.¹³ Specific elements of the progress reports for each nonattainment area should be worked out individually with the EPA Regional Office. An acceptable report should include, but need not be limited to, the following:

1. UPWP

The status of major air quality-related work elements (including but not limited to alternatives analysis, procedures for interagency coordination, involvement of elected officials, public information and consultation), covering: (a) brief summary (two or three sentences) and percentage of work accomplished to date; (b) description of outstanding issues and problems, if any, that may alter scope or completion times; and (c) program contact person responsible for each work element.

2. Transportation Plan

The status of each major air quality-related portion of the transportation plan.

3. TIP

The status of each major air quality-related transportation improvement listed in the annual elements of both the current TIP and that of the previous year, including but not necessarily limited to EIS status, funding commitment, and implementation status.

C. Annual Report

The Annual Report required by the "Criteria for Approval of 1979 SIP Revisions" (p. 14, Appendix B) shall describe: (1) progress toward meeting SIP schedules for development and implementation of transportation control measures, (2) contribution of transportation source controls to the incremental emission reductions required for standard attainment, (3) growth of mobile sources, and (4) an updated mobile source emission inventory. The Annual Report should be based upon and may incorporate appropriate parts of the progress reports described above.

Footnotes

- 1 42 USC 7401 et seq. hereafter referred to as "The Act" or "The Clean Air Act."
- 2 Section 108(e) requires publication of guidelines for the planning process assisted under Section 175 of Part D, Plan Requirements for Nonattainment Areas. The Guidelines must include information on:
 1. methods to identify and evaluate alternative planning and control activities (this information is principally contained in Chapter III (Process) of the guidelines);
 2. methods of reviewing plans on a regular basis as conditions change or new information is presented (Chapters III (Process), IV (Documentation), V (Progress Reports));
 3. identification of funds and other resources necessary to implement the plan, including interagency agreements on providing such funds and resources (Chapter I and Appendix F, Identification of Funds to Implement the Plan);
 4. methods to assure participation by the public in all phases of the planning process (Chapter III (Process)); and
 5. such other methods as the Administrator determines necessary to carry out a continuous planning process.
- 3 Appendix A is a summary of the transportation-related sections of the Clean Air Act.
- 4 Appendix C illustrates how the transportation-air quality planning process could fit into the entire SIP revision process.
- 5 Sections 171(1), 172(B)(2)(3).
- 6 EPA identified nonattainment areas in a press release on February 23, 1978 and also in the March 3, 1978 Federal Register.
- 7 EPA and DOT jointly issued Section 174 guidelines in December 1977. This guidance concerns designation of lead planning organizations for nonattainment areas and determination of agency responsibilities. By April 1, 1978, the Governors of all states with nonattainment areas must transmit to EPA a certification of the lead planning organization and a joint determination of agency responsibilities for those areas.

- 8 Written evidence that the state, the general purpose local government or governments, or a regional agency designated by general purpose local governments for such purpose, have adopted by statute, regulation, ordinance or other legally enforceable document the necessary requirements and schedules and timetables for compliance and are committed to implement and enforce the appropriate elements of the SIP. The relevant organizations shall provide evidence that the legally enforceable attainment measures and the "criteria, standards and implementing procedures necessary for effectively guiding and controlling major decisions as to where growth shall and shall not take place," prepared by state and local governments in compliance with Section 701 of the Housing Act of 1954, as amended, are fully coordinated in the attainment and maintenance of the NAAQS.
- 9 As defined by the U.S. Bureau of Census, urbanized areas generally include core cities plus any closely settled suburban areas.
- 10 The transportation-air quality planning process should:
 - (1) Consider social, economic, energy, transportation, air quality, and other environmental effects, in support of the requirements of 23 USC 109(h), Sections 5(h)(2) and 15 of the UMT Act (49 USC 1604(h)(2) and 1610) and Sections 108(f)(2)(C) and 172(b)(9) of the Clean Air Act (42 USC 7408(f)(2)(C) and 7502(b)(9)).
 - (2) Be coordinated with transportation planning pursuant to 23 USC 134, 49 USC 1607(a) and 23 USC 450.120, 109(F) and 307(c) in support of the requirements of Section 174(b) of the Clean Air Act (42 USC 7504(b)).
 - (3) Ensure public, local government and state legislatures involvement in support of the requirements of Sections 172(b)(9), 121, and 127 of the Clean Air Act (42 USC 7502(b)(9), 7421, and 7427).
- 11 Section 172(b)(9) of the Clean Air Act specifies that 1979 SIP revisions shall:

evidence public ... involvement and consultation in accordance with Section 174 (relating to planning procedures) and include ... a summary of public comment on [the] analysis [of the effects of plan provisions]

Section 127, Public Notification, requires SIPs to contain effective measures for public notification of air quality standard violations:

to advise the public of the health hazards associated with such pollution, and to enhance public awareness of the measures which can be taken to prevent such standards from being exceeded and the ways in which the public can participate in regulatory and other efforts to improve air quality.

Most specifically, Section 108(e)(4) directs that the transportation planning guidelines shall include information on:

methods to assure participation by the public in all phases of the planning process.

Finally, the DOT joint planning regulations (CFR 450.120) specify that the urban transportation planning process shall "include provisions to ensure involvement of the public."

- 12 The selection of an ambitious emission reduction target such as 15-20% is necessary to insure that a sufficient range of measures is adequately evaluated. Certain ambitious and possibly controversial classes of measures (e.g., parking management, pricing, auto limitation) should be included when evaluating alternatives to meet ambitious targets. A priori rejection of these measures is not acceptable. All agencies engaged in the SIP revision process in each urban area should jointly decide for that urban area a specific, ambitious emission reduction target for the purpose of developing and analyzing alternative transportation strategies. The 15-20% figure is not meant to be an arbitrary selection of an achievable emission reduction for all urban areas, but rather is one example of such a target.
- 13 Progress reports are expected to be brief, but complete (e.g., not exceeding 6 to 12 pages). Longer reports may be necessary in non-attainment areas requiring extensive air quality-related transportation activities.

REF 11-1

ENVIRONMENTAL PROTECTION AGENCY
APPENDICES
TO
TRANSPORTATION-AIR QUALITY PLANNING GUIDELINES

June 1978

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APPENDIX A

TRANSPORTATION-RELATED PROVISIONS IN THE CLEAN AIR ACT AMENDMENTS OF 1977

I. Introduction

This Appendix contains a general summary and description of the provisions of the Clean Air Act that primarily concern or most directly affect the transportation-air quality planning process.

These sections include:

- ° § 108: AIR QUALITY CRITERIA AND CONTROL TECHNIQUES (§ 108(e): Planning Process Guidelines, § 108(f): Information Documents)
- ° § 110: IMPLEMENTATION PLANS
- ° § 121: CONSULTATION
- ° § 172: NONATTAINMENT PLAN PROVISIONS
- ° § 174: PLANNING PROCEDURES
- ° § 175: EPA GRANTS
- ° § 176: LIMITATIONS ON CERTAIN FEDERAL ASSISTANCE

The statutory authority for: requiring transportation controls, the transportation planning guidelines and the information documents on control techniques is contained in the following sections of the Act:

Section 110(a)(2) of the Clean Air Act enumerates the requirements for state implementation plans. This section specifies that:

....The Administrator shall approve such plan....if he determines that...(B) it includes...such other measures as may be necessary to insure attainment and maintenance of such primary or secondary standards including but not limited to, transportation controls....

Section 108(e) specifies that the guidelines should include information on:

"(1) methods to identify and evaluate alternative planning and control activities;

- (2) methods of reviewing plans on a regular basis as conditions change or new information is presented;
- (3) identification of funds and other resources necessary to implement the plan, including interagency agreements on providing such funds and resources;
- (4) methods to assure participation by the public in all phases of the planning process; and
- (5) such other methods as the Administrator determines necessary to carry out a continuous planning process."

Section 174(b) requires the preparation of implementation plan provisions for nonattainment areas to be coordinated with the continuing, cooperative and comprehensive transportation planning process required under Section 134 of title 23, USC, and the air quality maintenance planning process required under Section 110 of the Clean Air Act (42 USC 7410).

Finally, Section 108(f) directs the Administrator to publish information documents on processes, procedures and methods to control pollution and explicitly identifies a broad range of transportation projects and system management measures to be included in the information documents.

The amendments significantly expand the requirements and procedures for developing and implementing transportation measures as part of State Implementation Plans (SIPs). Specifically, the Act:

- (1) establishes new plan submittal and attainment deadlines (§ 172(a)),
- (2) requires the development of information documents and process guidelines (§ 108(e),(f)),
- (3) Specifies a planning process that includes extensive consultation among agencies, the public and local elected officials along with coordination with related planning (§ 121, § 174),
- (4) requires nonattainment plans to document consultation and contain a commitment to implement (§ 172(b)),
- (5) authorizes new planning funds (§ 175),
- (6) provides for new funding sanctions for failure to develop and implement adequate plans (§ 176).

II. Plan Deadlines and Criteria

The new requirements of the Act are intended to insure state submission of SIP revisions adequate to attain and maintain the air quality standards for the auto-related pollutants. Any nonattainment area for carbon monoxide and photochemical oxidants must submit a SIP revision by January 1, 1979 that: (1) provides for the implementation of all reasonably available control measures as expeditiously as practicable (§ 172(b)(2)) and (2) demonstrates attainment of the air quality standard not later than December 31, 1982 (§ 172(a)(1)).

If a state demonstrates in the 1979 SIP submittal that attainment of the carbon monoxide and oxidant standard is not possible despite the implementation of all reasonably available measures, EPA may grant

an extension beyond December 31, 1982 to provide for attainment as expeditiously as practicable but not later than December 31, 1987. In cases where such a demonstration is made, the 1979 SIP submission must:

- (1) establish a program of alternatives analysis prior to issuance of permits for construction or modification of major emitting facilities,
- (2) establish a specific schedule for implementing a vehicle inspection and maintenance program and
- (3) identify all other measures necessary to provide for attainment not later than December 31, 1987.

Also according to § 110(a)(3)(D), 1979 SIP submittals that demonstrate attainment beyond December 31, 1982 shall be revised by July 1, 1979 to include written evidence on comprehensive measures listed in § 110(c)(5)(B) that:

- (i) establish, expand, or improve public transportation measures to meet basic transportation needs, as expeditiously as is practicable; and
- (ii) implement transportation control measures necessary to attain and maintain national ambient air quality standards.

The revised plan shall, for the purpose of implementing such comprehensive public transportation measures, include requirements to use (insofar as is necessary) federal grants, state or local funds, or any combination of such grants and funds as may be consistent with the terms of the legislation providing such grants and funds. (EPA is currently developing guidelines on the minimum elements of the public transportation plan SIP revision.)

Section 110(c)(5) also allows states to eliminate existing TCP bridge toll requirements on bridges located entirely within a city. If bridge tolls are eliminated, the Governor must certify that a plan will be submitted by August 7, 1978, which satisfies the requirements of Section 110(c)(5)(B). The public transportation plan submitted in August must at least compensate for the air quality and mass transit benefits which were reasonably expected to be achieved from use of the eliminated tolls.

Other measures in existing plans may be suspended until January 1, 1979, under Section 110(c)(4) of the Act, including requirements for retrofits on non-commercial vehicles, gas rationing provisions and on-street parking restrictions. A suspension will not be granted unless the state agrees to prepare, adopt and submit a plan revision by January 1, 1979, which meets the requirements of the Administrator.

Section 110(a)(5)(A) also prohibits the Administrator from requiring states to include indirect source review (ISR) programs in their SIPs. Further, EPA may not promulgate ISR regulations except for federally-assisted highways, airports and other major federally-assisted or operated indirect sources (§ 110(a)(5)(B)). Any ISR program in an existing SIP may be suspended or revoked if, in all respects except attainment and maintenance of the air quality standards, the plan meets the requirements of § 110(a); and with respect to attainment and maintenance, the state is preparing in good faith a plan revision to meet

the requirements of Part D by January 1, 1979, for all nonattainment areas [s 110(a)(5)(A)(iii); 43 FR 10708 (March 15, 1978)].

Finally, those states that demonstrate a need in the 1979 SIP submittal for a deadline extension to 1987 must submit a SIP revision before July 1, 1982 that contains enforceable measures to assure attainment no later than December 31, 1987.

III. Planning Process

The Act emphasizes locally developed plans resulting from extensive consultation among agencies (§ 121, § 174), public education and participation (§ 127, § 172(b)(9)), elected official involvement and the documented analysis of a wide range of alternative measures and strategies (§ 172(b)(9)). The Act specifies that the transportation-air quality planning process be coordinated with the continuing, cooperative, and comprehensive ("3C") transportation planning process administered by DOT (§ 174(b)).

Local governments and organizations of local elected officials are explicitly encouraged to assume greater responsibilities in the development, implementation and enforcement of SIPs (§ 121, § 174(a)). Section 174(a) specifically states that "where possible" nonattainment plans

... shall be prepared by an organization of elected officials of local governments designated by agreement of the local governments in an affected area and certified by the State for this purpose.

This section gives specific preference to designation of metropolitan planning organizations or the agencies responsible for air quality maintenance planning. EPA has established April 1, 1978 as the deadline by which states submit: (1) a list of designated agencies, their boundaries,

responsibilities, and a brief discussion of the Governor's designation or certification decision.

The Act also directs EPA to consult with DOT, HUD and state and local officials in the development of planning process guidelines (§ 108(e)). Furthermore, the Act calls for EPA to cooperate with DOT in the preparation of information documents on a wide range of transportation measures including: mass transit improvements, carpool programs, exclusive bus lanes, parking management, employer-incentive programs, work schedule changes, selected auto restrictions, road user charges and bicycle lanes and facilities (§ 108(f)).

IV. EPA Grants

Section 175 directs EPA to award grants to cover 100 percent of the additional costs of nonattainment plan development to organizations of local elected officials with transportation or air quality maintenance planning responsibilities and certified by the state in accordance with Section § 174(a). Section 325 authorizes \$75 million to be appropriated beginning in fiscal year 1978 for this purpose.

V. Sanctions

Section 176 provides for limitations on certain federal assistance as follows:

1. Plan Submittal. Where the Administrator finds that the Governor has failed to submit an adequate plan which considers the nonattainment plan provisions specified in Section 172, EPA is prohibited from approving projects or awarding grants authorized by the Clean Air Act.

Similarly, the Secretary of Transportation is prohibited from approving projects or awarding grants under title 23² (§ 176(a)).

2. Plan Implementation. In areas where the state, local government(s), or designated regional agency fails to implement any requirement of an approved or promulgated plan under Section 110, the Administrator is prohibited from making grants under the Clean Air Act (§ 176(b)).
3. Plan Conformity. No federal department or agency shall support or approve any activity that does not conform to a plan approved or promulgated under Section 110. No metropolitan planning organization designated under 23 USC 134 shall approve any project, program or plan that does not conform with a plan approved or promulgated under Section 110. The assurance of conformity shall be the affirmative responsibility of the head of such department or agency (§ 176(c)).
4. Priority to Implementation of Plan Provisions. Federal agencies and departments conducting or supporting programs with air quality-related transportation consequences shall give priority, consistent with statutory requirements, to the implementation of measures in approved or promulgated plans under Section 110 (§ 176(d)).

Footnotes

- 1 Or make reasonable efforts toward submitting an adequate plan.
- 2 Safety, mass transit and other transportation projects with air quality benefits are not affected.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

OFFICE OF
AIR AND WASTE MANAGEMENT

FEB 24 1978

SUBJECT: Criteria for Approval of 1979 SIP Revisions

FROM: The Administrator (A-100) *[Signature]*

TO: Regional Administrators, I-X

The attachment to this memo summarizes the elements which a 1979 State Implementation Plan (SIP) revision for a non-attainment area must contain in order to be approved by EPA as meeting the requirements of Part D of the Clean Air Act.

In summary, the Act requires the demonstration of attainment of the air quality standards (primary and secondary) as expeditiously as practicable, but in the case of national primary standards not later than December 31, 1982. However, for carbon monoxide (CO) and oxidants (Ox), if the State can demonstrate attainment is not possible by 1982 despite the implementation of all reasonable stationary source and transportation control measures, the Act provides for up to a five-year extension. In those cases the plan revisions must demonstrate attainment as expeditiously as practicable but no later than December 31, 1987. The extension is not automatic; a demonstration of need must be made and the State must fulfill the other statutory requirements.

It is the intent of the Agency to establish reasonable and achievable goals for SIP submissions and to take a firm posture on the imposition of sanctions where the reasonable goals are not achieved. Accordingly, while the policy requires a commitment to many specific strategies in the 1979 submissions (e.g., RACT on stationary sources, inspection/maintenance programs where attainment for carbon monoxide or oxidants extends beyond 1982, other reasonable transportation control measures, etc.) the memo also requires (for carbon monoxide and oxidants) a commitment to a continuing process. This process must be one which extensively involves the public as well as State and local elected officials and which ambitiously pursues a wide range of alternatives.

Since reliance on stationary controls and Federal new car standards alone will not enable most areas with oxidant and carbon monoxide problems to attain these standards by 1982, each Regional Office will need to put particular emphasis on additional measures to reduce transportation system emissions. The process committed to in the 1979 plan submission must lead to the expeditious selection and implementation of comprehensive transportation control measures. In judging the adequacy of the 1979 plan submission for the transportation sector, each Regional Administrator should ensure that ambitious alternatives (as described in the draft "Transportation Planning Guidelines" which have been circulated) will be analyzed.

The Department of Transportation (DOT), Housing and Urban Development (HUD) and EPA are seeking to integrate the transportation/air quality planning and implementation required by the Clean Air Act into existing planning and programming procedures. The air planning activities should be included in the Unified Work Program required by DOT and the adopted transportation measures should be included in the Transportation Improvement Program required by DOT. In complying with the Clean Air Act requirements, the Regions should also keep in mind the requirements of the HUD-EPA Agreement which provides for coordination of air quality planning and planning assisted under the HUD Comprehensive Planning Assistance (701) Program. Integration of air and transportation planning with comprehensive planning which incorporates growth management concerns should improve the effectiveness of air quality planning and could reduce the need for enforcement measures in the future.

States will be provided some discretion regarding the amount of emissions growth to be accommodated within the SIP. EPA generally will not question the growth rates desired by the State so long as reasonable further progress is demonstrated and there is a demonstration of attainment by the statutory deadline (1982 or 1987). However, the growth rate identified in the SIP must be consistent with growth rates used (or implied by) other planning programs in the area (e.g., FWPCA §208, 201, HUD §701, FHWA §134).

You should note that there are other SIP revisions which are not discussed in the attachment but which are required by the 1977 Amendments. These include:

1. Section 128 (relating to State boards)
2. Section 126 (relating to interstate pollution)
3. Section 127 (relating to public notification)
4. Part C (relating to prevention of significant deterioration)
5. Section 110(a)(2)(K) (relating to permit fees)
6. Section 123 (relating to stack heights for existing source in other than non-attainment areas)
7. Section 121 (relating to consultation)

Although incorporation of these provisions is required by the law, failure to achieve final approval by July 1, 1979 does not trigger the new source prohibition of Section 110(a)(2)(I).

It is important to emphasize to the States that all current SIP requirements remain in effect despite the development of the 1979 revisions. Any suspension or discontinuance of an existing SIP provision must be submitted for EPA approval. This should be done as part of the revision submitted in January 1979. Exceptions to this procedure may be found in certain new provisions of §110 relating to reduction of on-street parking, bridge tolls, and other measures.

The development of the January 1979 SIPs to meet the minimum requirements of the Clean Air Act Amendments of 1977 is a complex and demanding program. It will require the commitment of significant resources on the part of the air programs staff of the Regional Office to ensure that the States develop and submit a comprehensive and approvable plan. We are working with your staff to develop the necessary guidance and follow-up programs which will assist your office and the State to carry out this very difficult but important part of the overall air program.

Criteria for Approval of 1979 State Implementation Plan Revisions for Non-Attainment Areas

Purpose

The purpose of this document is to define the criteria by which State Implementation Plan (SIP) revisions for non-attainment areas required by the Clean Air Act Amendments of 1977 (the Act) will be approved. These revisions are to be submitted to EPA by January 1, 1979.

Categories of SIP Revisions

SIP revisions submitted by January 1, 1979 can be divided into two categories:

1. Those which provide for attainment of the Primary Ambient Air Quality Standards (primary standards) for all criteria pollutants on or before December 31, 1982.
2. Those which provide for attainment of the primary standards for sulfur dioxide, nitrogen oxides, and particulate matter on or before December 31, 1982 but show that despite the implementation of all reasonable transportation and stationary source emission control measures attainment of the primary standards for carbon monoxide and/or oxidants cannot be achieved until after this date. In these cases, the revisions must demonstrate attainment as expeditiously as practicable but no later than December 31, 1987.

In order for an adequate SIP revision to fall into the second category, the State has an affirmative responsibility to demonstrate to the satisfaction of EPA that attainment of the primary carbon monoxide and/or oxidants standards is not possible in an area prior to December 31, 1982.

It should be noted that SIP revisions of either category should also provide for attainment of Secondary Ambient Air Quality Standards (secondary standards) as expeditiously as practicable although there is no specific deadline contained in the Act.

General Requirements of All 1979 SIP Revisions

Each 1979 SIP revision must contain the following:

1. A definition of the geographic areas for which control strategies have been or will be developed. Consideration should be given to the practical benefits of defining areas which correspond whenever possible to those substate districts established pursuant to Part IV, Attachment A of OMB Circular No. A-95.

2. An accurate, comprehensive, and current (1977 calendar year) inventory of existing emissions.

3. A determination of the level of control needed to demonstrate attainment by 1982 (including growth). This demonstration should be made by the application of modeling techniques as set forth in EPA's Guideline on Air Quality Models. For oxidants, any legitimate modeling technique (e.g., those referenced in "Use, Limitation and Technical Basis of Procedures for Quantifying Relationships Between Photochemical Oxidants and Precursors." EPA 450/2-77-021a. November 1977) can be used. Consideration of background and transport for oxidants should generally be in accordance with the procedures documented in "Procedures for Quantifying Relationships Between Photochemical Oxidants and Precursors." In developing photochemical oxidant control strategies for a particular area, states may assume at a minimum that the standard will be attained in adjacent states.

If a state can demonstrate that the level of control necessary for attainment of the primary standards for carbon monoxide and/or oxidant is not possible by 1982 despite the application of all reasonable measures, an extension past 1982 (but not beyond 1987) is authorized.

4. Adoption in legally enforceable form¹ of all measures necessary to provide for attainment by the prescribed date or, where adoption of all such measures by 1979 is not possible, (e.g., certain transportation control measures, and certain measures to control the oxides of nitrogen and total suspended particulate) a schedule for expeditious development, adoption, submittal, and implementation of these measures. The situations in which adoption of measures may be scheduled after 1979 are discussed in the pollutant specific sections of this document. Each schedule must provide for implementation of all reasonably available control measures as expeditiously as practicable. During the period prior to attainment, these measures must be implemented rapidly enough to provide at a minimum for reasonable further progress (see discussion

¹Written evidence that the State, the general purpose local government or governments, or a regional agency designated by general purpose local governments for such purpose, have adopted by statute, regulation, ordinance or other legally enforceable document, the necessary requirements and schedules and timetables for compliance, and are committed to implement and enforce the appropriate elements of the plan. The relevant organizations shall provide evidence that the legally enforceable attainment measures and the "criteria, standards and implementing procedures necessary for effectively guiding and controlling major decisions as to where growth shall and shall not take place," prepared by State and local governments in compliance with Section 701 of the Housing Act of 1954, as amended, are fully coordinated in the attainment and maintenance of the NAAQS.

below). Each schedule will be considered part of the applicable implementation plan and thus will represent a commitment on the part of the State to meet the key milestones set forth in the submitted schedule.

5. Emission reduction estimates for each adopted or scheduled control measure or for related groups of control measures where estimates for individual measures are impractical. It is recognized that reduction estimates may change as measures are more fully analyzed and implemented. As such estimates change, appropriate responses will be required to insure that the plan remains adequate to provide for attainment and for reasonable further progress.

6. Provision for reasonable further progress toward attainment of the primary and secondary standards in the period prior to the prescribed date for attainment. Reasonable further progress is defined as annual incremental reductions in total emissions (emissions from new as well as existing sources) to provide for attainment by the prescribed date. The plan shall provide for substantial reductions in the early years with regular reductions thereafter.

Reasonable further progress will be determined for each area by dividing the total emission reductions required to attain the applicable standard by the number of years between 1979 and the date projected for attainment (not later than 1987). This is represented graphically by a straight line drawn from the emissions inventory submitted in 1979 to the allowable emissions on the attainment date. However, EPA recognizes that some measures cannot result in immediate emission reduction. Therefore, if a State can show that some lag in emissions reduction is necessary, a SIP will be acceptable even though reductions sufficient to produce decreases at the "straight-line rate" are not achieved for a year or two after 1979. This lag in achieving the "straight-line rate" for emissions reduction is to be accepted only to accommodate the time required for compliance with the first set of regulations adopted on or before January 1, 1979, if immediate compliance is not possible. It does not authorize delays in adoption of control requirements.

The requirement to demonstrate reasonable further progress will, in most areas designated non-attainment for oxidant or carbon monoxide, necessitate a continuous, phased implementation of transportation control measures. In areas where attainment of all primary ambient standards by 1982 is not possible EPA will not accept mere reliance on the Federal Motor Vehicle Control Program by itself as a demonstration of reasonable further progress.

In determining "reasonable further progress", those emission reductions obtained from compliance between August 7, 1977, and December 31, 1979, with (1) SIP revisions that have been submitted after August 7, 1977, and (2) regulations which were approved by the Agency prior to the enactment of the 1977 Clean Air Amendments, can be treated as having been achieved during 1979. There should be an assurance, however, that these are real emission reductions and not just "paper" ones.

7. An identification and quantification of an emissions growth increment which will be allowed to result from the construction and operation of major new or modified stationary sources within the area for which the plan has been developed. Alternatively, an emissions offset regulation can be adopted to provide for major new source growth.

The growth rates established by states for mobile sources and new minor stationary sources should also be specified, and in combination with the growth associated with major new or modified stationary sources will be accepted so long as they do not jeopardize the reasonable further progress test and attainment by the prescribed date. However, the growth rate identified in the SIP must be consistent with the growth rates used (or implied by) the other planning programs in the area (e.g., FWPCA Section 208 [201], HUD Section 701, FHWA Section 134). A system for monitoring the emission growth rates from major and minor new stationary sources and from transportation sources and assuring that they do not exceed the specified amounts must also be provided for in the revision.

8. Provision for annual reporting on the progress toward meeting the schedules summarized in (4) above as well as growth of mobile sources, minor new stationary sources, major new or modified stationary sources, and reduction in emissions from existing sources to provide for reasonable further progress as in (6) above. This should include an updated emission inventory.

9. A requirement that permits be issued for the construction and operation of new or modified major sources in accordance with Section 173 and 110(a)(2)(D).

10. An identification of and commitment to the financial and manpower resources necessary to carry out the plan. The commitment should be made at the highest executive level having responsibility for SIP or that portion of it and having authority to hire new employees. This commitment should include written evidence that the State, the general purpose local government or governments, and all state, local or regional agencies have included appropriate provision in their respective budgets and intend to continue to do so in future years for which budgets have not yet been finalized, to the extent necessary.

11. Evidence of public, local government, and state legislative involvement and consultation. It shall also include an identification and brief analysis of the air quality, health, welfare, economic, energy, and social effects of the plan revisions and of the alternatives considered by the State, and a summary of the public comment on such analysis.

12. Evidence that the SIP was adopted by the state after reasonable notice and public hearing.

Additional Requirements for Carbon Monoxide and Oxidant SIP Revisions which Provide for Attainment of the Primary Standards Later than 1982

For those SIP revisions which demonstrate that attainment of the primary standards for carbon monoxide and/or oxidants is not possible in an area prior to December 31, 1982 despite the implementation of all reasonable emission control measures the following items must be included in the January 1, 1979 submission in addition to all the general requirements listed above:

1. A program which requires prior to issuance of any permit for construction or modification of a major emitting facility an analysis of alternative sites, sizes, production processes, and environmental control techniques for such proposed source which demonstrates that benefits of the proposed source significantly outweigh the environmental and social cost imposed as a result of its location, construction, or modification.

2. An inspection/maintenance program or a schedule endorsed by and committed to by the Governor for the development, adoption, and implementation of such a program as expeditiously as practicable. Where the necessary legal authority does not currently exist, it must be obtained by June 30, 1979. Limited exceptions to the requirement to obtain legal authority by June 30, 1979 may be possible if the state can demonstrate that (a) there was insufficient opportunity to conduct necessary technical analyses and/or (b) the legislature has had no opportunity to consider any necessary enabling legislation for inspection/maintenance between enactment of the 1977 Amendments to the Act and June 30, 1979. In addition, where a legislature has adequate opportunity to adopt enabling legislation before January 1, 1979, the Regional Administrator should require submission of such legal authority by January 1, 1979. In no case can the schedule submitted provide for obtaining legal authority later than July 1, 1980.

Actual implementation of the inspection/maintenance program must proceed as expeditiously as practicable. EPA considers two and one half years from the time of legislative adoption to be the maximum time required to implement a centralized inspection/maintenance program and one and one half years to implement a decentralized program. In no case may implementation of the program, i.e., mandatory inspection and mandatory repair of failed vehicles be delayed beyond 1982 in the case of a centralized program (either state lanes or contractor lanes) or beyond 1981 in the case of a decentralized (private garage) system.

3. A commitment by the responsible government official or officials to establish, expand, or improve public transportation measures to meet basic transportation needs as expeditiously as is practicable.*

4. A commitment to use insofar as is necessary Federal grants, state or local funds, or any combination of such grants and funds as may be consistent with the terms of the legislation providing such grants and funds, for the purpose of establishing, expanding or improving public transportation measures to meet basic transportation needs.

Note that HUD has prepared guidelines for local development codes and ordinances to provide special requirements for areas which for significant periods of time may exceed the primary standards. These guidelines specify criteria for new construction operation of buildings which minimize pollutant concentrations to ensure a healthy indoor and outdoor environment. States are encouraged to adopt such measures as part of the SIP.

Pollutant Specific Requirements

Sulfur Dioxide

Specifically, with regard to item (4) of the General Requirements, the January 1979 plan revisions dealing with sulfur dioxide must contain all the necessary emission limitations and legally enforceable provisions to provide for attainment by no later than December 31, 1982 (i.e., schedules for the development, adoption, and submittal of regulations will not be acceptable).

*Written evidence on comprehensive public transportation measures must be submitted in a SIP revision by July 1, 1979.

Nitrogen Oxides

For NO_x , the January 1979 plan must contain all the necessary emission limitations and the legally enforceable procedures, or as a minimum, the appropriate schedules to adopt and submit the emission limitations and legally enforceable procedures which provide for implementation so that standards will be attained by no later than December 31, 1982. EPA is currently evaluating the need for a short term NO_2 standard and expects to promulgate such a standard during 1978. If such a standard for air quality is promulgated, a new and separate SIP revision will be required for this pollutant.

Particulate Matter

The January 1979 plan revisions dealing with particulate matter must contain all the necessary emission limitations and legally enforceable procedures for traditional sources. These emission limitations and enforceable procedures must provide for the control of fugitive emissions, where necessary, as well as stack emissions from these stationary sources. Where control of non-traditional sources (e.g., urban fugitive dust, resuspension, construction, etc.) is necessary for attainment, the plan shall contain an assessment of the impact of these sources and a commitment on the part of the state to adopt appropriate control measures. This commitment shall take the form of a schedule to develop, submit, and implement the legally enforceable procedures, and programs for controlling non-traditional particulate matter sources. These schedules must include milestones for evaluating progress and provide for attainment of the primary standards by no later than December 31, 1982, and attainment of the secondary standards as expeditiously as practicable. States should initiate the necessary studies and demonstration projects for controlling the non-traditional sources as soon as possible.

Carbon Monoxide and Oxidant

An adequate SIP for oxidant is one which provides for sufficient control of volatile organic compounds (VOC) from stationary and mobile sources to provide for attainment of the oxidant standard. Accordingly, the 1979 plan revision must set forth the necessary emission limitations and schedules to obtain sufficient control of VOC emissions in all non-attainment areas. They must be directed toward reducing the peak concentrations within the major urbanized areas to demonstrate attainment as expeditiously as practicable but in no case later than December 31, 1987... This should also solve the rural oxidant problem by minimizing VOC emissions and more importantly oxidants that may be transported from urban to rural areas. The 1979 submission must represent a comprehensive strategy or plan for each non-attainment area; plan submissions that address only selected portions of non-attainment are not adequate.

For the purpose of oxidant plan development, major urban areas are those with an urbanized population of 200,000 or greater (U.S. Bureau of Census, 1970). A certain degree of flexibility will be allowed in defining the specific boundaries of the urban area. However, the areas must be large enough to cover the entire urbanized² area and adjacent fringe areas of development. For non-attainment urban areas, the highest pollutant concentration for the entire area must be used in determining the necessary level of control. Additionally, uniform modeling techniques must be used throughout the non-attainment urban area. These requirements apply to interstate as well as intrastate areas.

Adequate plans must provide for the adoption of reasonably available control measures for stationary and mobile sources.

For stationary sources, the 1979 oxidant plan submissions for major urban areas must include, as a minimum, legally enforceable regulations to reflect the application of reasonably available control technology (RACT)³ to those stationary sources for which EPA has published a Control Techniques Guideline (CTG) by January 1978, and provide for the adoption and submittal of additional legally enforceable RACT regulations on an annual basis beginning in January 1980, for those CTGs that have been published by January of the preceeding year.

For rural non-attainment areas, the Ox plan must provide the necessary legally enforceable procedures for the control of large HC sources (more than 100 ton/year potential emissions) for which EPA has issued a CTG by January 1978, and to adopt and submit additional legally enforceable procedures on an annual basis beginning in January 1980, after publication of subsequent CTGs as set forth above.

For mobile sources in urbanized area (population 200,000) SIPs must provide for expeditious implementation of reasonably available control measures. Each of the measures for which EPA will publish information documents during 1978 is a reasonably available control measure. These measures are listed on the following page:

²As defined by the U.S. Bureau of Census, urbanized area generally include core cities plus any closely settled suburban areas.

³While it is recognized that RACT will be determined on a case-by-case basis, the criteria for SIP approval rely heavily upon the information contained in the CTG. Deviations from the use of the CTG must be adequately documented.

1. To be published by February 1978

- a. inspection/maintenance
- b. vapor recovery
- c. improved public transit
- d. exclusive bus and carpool lanes
- e. area wide carpool programs

2. To be published by August 1978

- a. private car restrictions
- b. long range transit improvements
- c. on street parking controls
- d. park and ride and fringe parking lots
- e. pedestrian malls
- f. employer programs to encourage car and van pooling, mass transit, bicycling and walking
- g. bicycle lanes and storage facilities
- h. staggered work hours
- i. road pricing to discourage single occupancy auto trips
- j. controls on extended vehicle idling
- k. traffic flow improvements
- l. alternative fuels or engines and other fleet vehicle controls
- m. other than light duty vehicle retrofit
- n. extreme cold start emission reduction programs

The above measures (either individually or combined into packages of measures) should be analyzed promptly and thoroughly and scheduled for expeditious implementation. EPA recognizes that not all analyses of every measure can be completed by January 1979 and, where necessary, schedules may provide for the completion of analyses after January 1, 1979 as discussed below. (If analysis after January 1979 demonstrates that certain measures would be unnecessary or ineffective, a decision not to implement such measures may be justifiable. However, decisions not to implement measures will have to be carefully reviewed to avoid broad rejections of measures based on conclusory assertions of infeasibility.)

As described previously, annual incremental reductions in total emissions must occur in order to achieve reasonable further progress during the period prior to attainment of the standards. Therefore, not all transportation measure implementation activities should wait until the comprehensive analyses of control measures are completed. Demonstration studies are important and should accompany or precede

full scale implementation of the comprehensive strategy. It is EPA's policy that each area will be required to schedule a representative selection of reasonable transportation measures (as listed above) for implementation at least on a pilot or demonstration basis prior to the end of 1980.

Every effort must be made to integrate the air quality related transportation plan and implementation required by the Clean Air Act into planning and programming procedures administered by DOT. EPA will publish "Transportation Planning Guidelines" which will, if followed carefully, insure that an adequate transportation planning process exists.

EPA recognizes that the planning and implementation of very extensive air quality related transportation measures can be a complicated and lengthy process, and in areas with severe carbon monoxide or oxidant problems, completion of some of the adopted measures may extend beyond 1982. Implementation of even these very extensive transportation measures, however, must be initiated before December 31, 1982.

In the case of plan revisions that make the requisite showing to justify an extension of the date for attainment, the portion of the 1979 plan submittal for transportation measures must:

1. Contain procedures and criteria adopted into the SIP by which it can be determined whether the outputs of the DOT Transportation planning process conform to the SIP.
2. Provide for the expeditious implementation of currently planned reasonable transportation control measures. This includes reasonable but unimplemented transportation measures in existing SIPs and transportation controls with demonstrable air quality benefits developed as part of the transportation process funded by DOT.
3. Present a program for evaluating a range of alternative packages of transportation options that includes, as a minimum, those measures listed above for which EPA will develop information documents. The analyses must identify a package of transportation control measures to attain the emission reduction target ascribed to it in the SIP.
4. Provide for the evaluation of long range (post-1982) transportation and growth policies. Alternative growth policies and/or development patterns must be examined to determine the potential for modifying total travel demand. One of the growth alternatives evaluated should be that prepared in response to Section 701 of the Housing Act of 1954, as amended.

5. Include a schedule for analysis and adoption of transportation control measures as expeditiously as practicable. The comprehensive analysis of alternatives (item 2 above) must be completed by July 1980 unless the designated planning agency can demonstrate that analysis of individual components (e.g., long range transit improvements) may require additional time. Adopted measures must be implemented as expeditiously as practicable and on a continuous schedule that demonstrates reasonable further progress from 1979 to the attainment date. Determinations of the reasonableness of a schedule will be based on the nature of the existing or planned transportation system and the complexity of implementation of an individual measure.

Additional Carbon Monoxide and Oxidant Monitoring Requirements

It is EPA's policy to require that all SIPs which provide for attainment of the oxidant standard after December 31, 1982, must contain commitments to implement a complete oxidant monitoring program in major urbanized areas in order to adequately characterize the nature and extent of the problem and to measure the effectiveness of the control strategy for oxidants. The 1979 plan submittal must provide for a schedule to conduct such CO monitoring as necessary to correct any deficiencies as identified by the Regional Office.

SIPs for Unclassified Areas Redesignated Non-Attainment

With respect to unclassified areas which are later found to be non-attainment areas the state will be required to submit a plan within nine months of the non-attainment determination. During plan development, the state will be required to implement the offset policy for that area. However, it should be noted that in many cases, because of previous plan revisions or adoption of previous control regulations, the baseline for offsets will be more restrictive and thus offsets may be more difficult to obtain. For oxidants, state-wide regulatory development (for at least all sources greater than 100 tons/year), however, would permit the state to utilize the regulations developed for the entire state as the applicable plan for the newly designated non-attainment area. This would normally constitute an approvable SIP per the above criteria and could essentially accommodate the proposed growth within the previously submitted state plan and not require offsets once the area is designated as non-attainment.

APPENDIX C

SIP REVISION PROCESS

Appendix C provides one general illustration of how the transportation portion of the implementation plan could be developed and implemented within the context of the entire SIP revision process. In this illustration (see Figure 1) the MPO has been assigned the responsibility for the transportation portion of the SIP, while other agency responsibilities are as shown in 5d-f. (The acronyms are defined at the end of the Appendix.)

Explanatory Notes for Flow Chart

1. Blocks # 1-4 concern scoping the problem. Blocks # 5-6 concern the development of a control strategy.

2. All tasks are to be performed in accordance with the planning procedures jointly determined by the state and local elected officials as specified in Section 174 of the Clean Air Act, as amended August 1977. Section 174 indicates that elements of a revised implementation plan should be planned, implemented, and enforced by either the state, local governments or regional agencies or some combination of the three. This cooperative approach will probably require some involvement by all appropriate agencies in each task, although a single lead agency may be assigned to specific tasks (e.g., see tasks 5a-c). Tasks 5 and 6 will require full participation by all key agencies.

3. Task 1: The Emissions Inventory will be periodically revised as new and more accurate information becomes available for stationary and mobile sources.

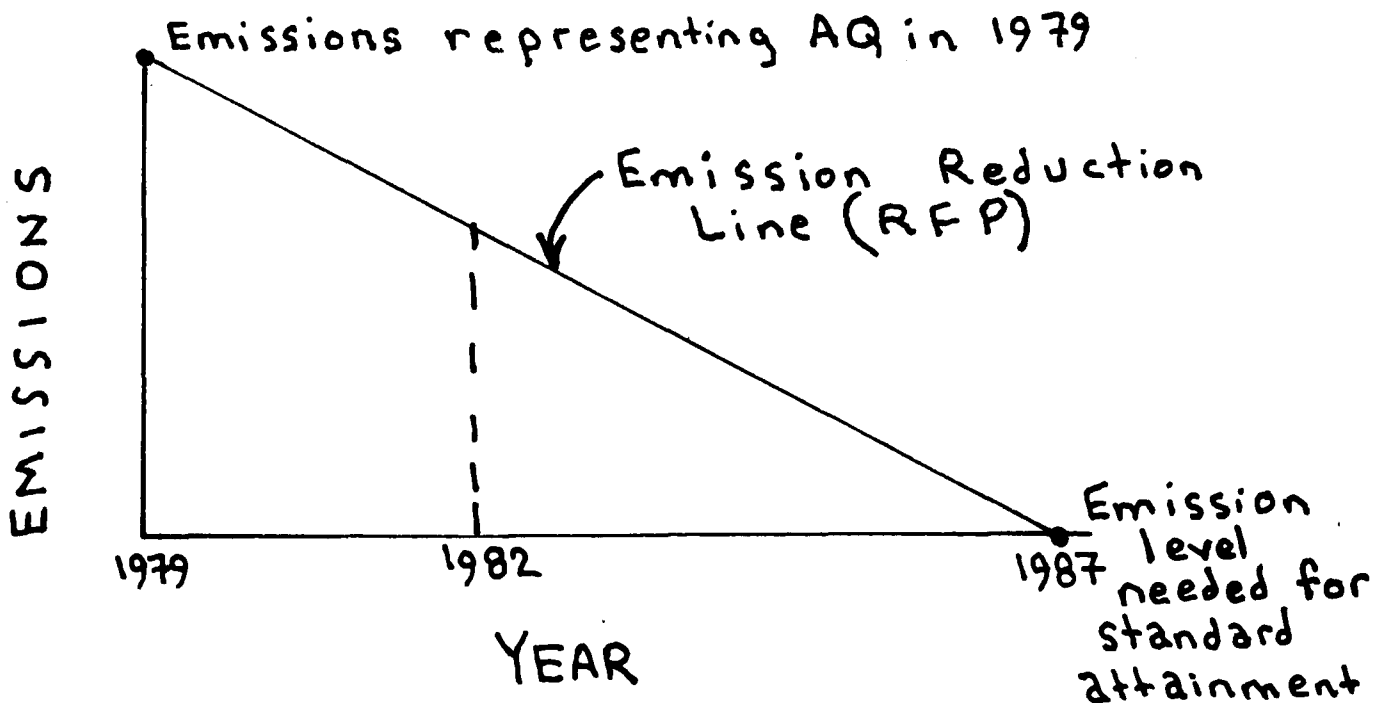
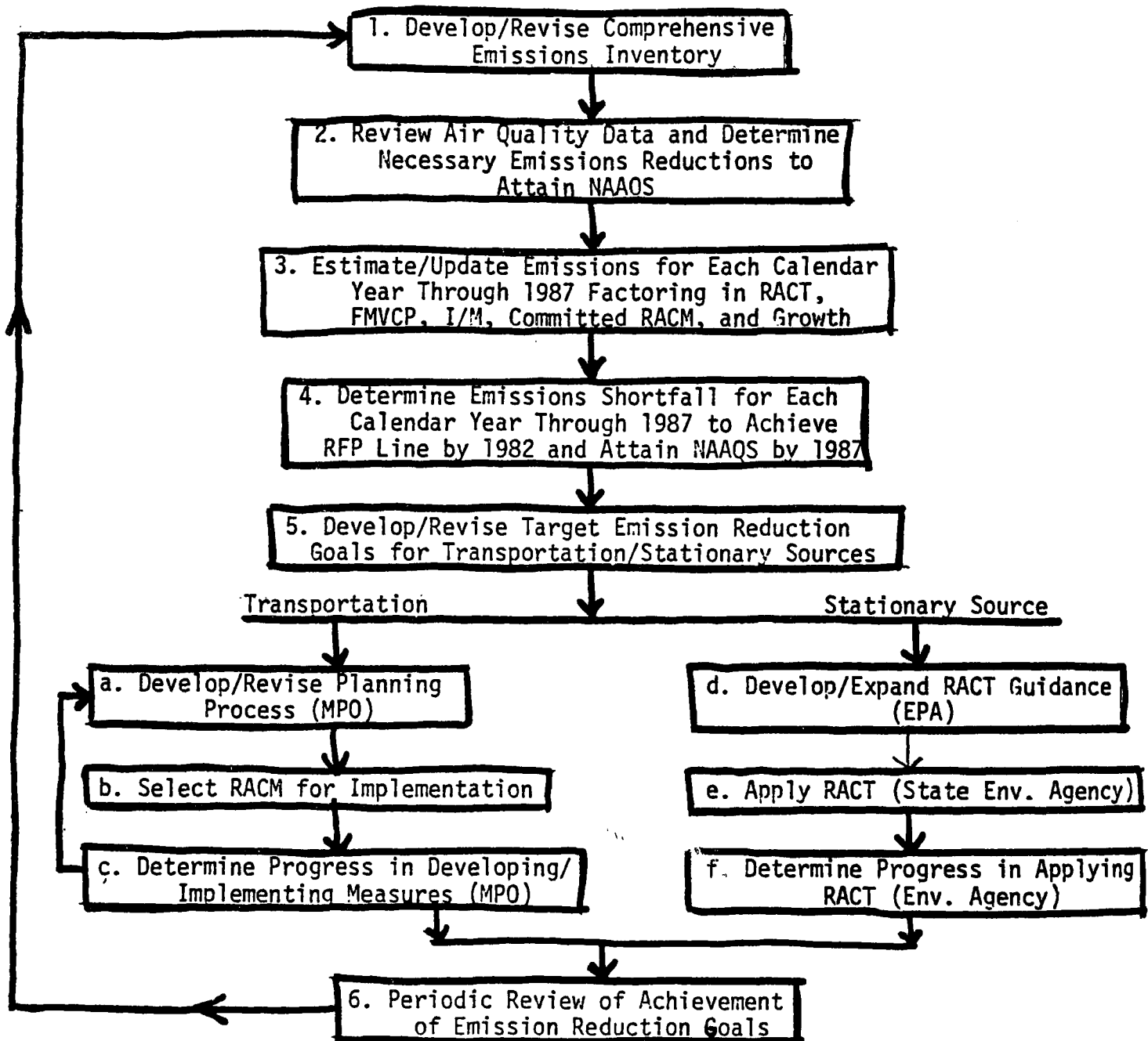


FIGURE 1
FLOW CHART FOR DEVELOPMENT/REVISION
OF 1979 SIP TO ATTAIN NAAQS BY 1987



4. Task 2: In the crudest, most straight-forward approach the gross magnitude of emission reductions for standard attainment can be roughly determined with air quality and emission data using the simple roll-back technique. The emission reduction line in the graph on page 23 is shown to be straight for simplicity's sake only. The line represents emission reductions from both stationary and mobile source controls and in actuality will not, of course, be straight. The general slope and shape of the line will -- especially for transportation controls -- be other than straight due to, among other factors, the non-linear hydrocarbon (emission)-oxidant (air quality) relationship and the implementation lag times (e.g., substantial emission reductions from transportation sources is likely to occur in later years closer to 1987 because of longer planning and implementation lead times). The graph on page 23 actually represents an emission reduction schedule that is jointly negotiated, reviewed, and periodically revised (e.g., in Tasks 5 and 6).

The graph can be used to communicate fundamental Agency policy concepts if the difficulties and uncertainties of drawing such a line are temporarily set aside. For example, by 1982 emissions should be reduced -- and air quality improved -- sufficient to reach the emission reduction line. (This allows the necessary lead time for the application of RACT and the implementation of certain RACM.) From 1982 to 1987 the line represents reasonable further progress (RFP) (the annual incremental emission reductions called for in Section 171). If an area is below the line after 1982 additional growth of major stationary sources is permitted. If an area is on or above the line, growth will only be permitted as part of the Agency offset policy.

5. Task 3 will show the annual decrease in emissions between 1979 and 1987 that will result from certain (hard) control strategies.

6. Task 4 will show the additional emission reduction required from other stationary and mobile sources (to be achieved from the future application of RACT and the implementation of RACM).

7. Task 5 produces an estimate of emission reduction goals achievable through future RACT and RACM (soft strategies) jointly determined by all appropriate agencies identified in accordance with Section 174. This estimate is one of the major decisions to be made in the SIP revision process.

8. Task 5a: The 1979 SIP submission must contain a well-defined, functioning planning process complete with interagency agreements, memoranda of understanding, etc.

9. Task 5b: The 1979 submission should contain evidence that certain measures currently in the TIP are being implemented as rapidly as possible. However, because of planning and lead times it is expected that the majority of transportation RACM will be selected and implemented after 1979.

10. Task 5c and the feedback arrow to 5a acknowledges that implementation progress will be highly dependent on the adequacy of the planning process (i.e., RACM is largely a question of public and political acceptability whereas RACT is more of a technological and economic determination).

11. Task 5d indicates that future control progress with other stationary sources will be determined by EPA's schedule for promulgating RACT documents.

12. Task 6 is another critical joint decision that should be made at least annually by all participating agencies, followed by another run through all the tasks as part of the continuous SIP revision process.

Definition of Acronyms
(from top to bottom in Figure 1)

SIP	= State Implementation Plan
NAAQS	= National Ambient Air Quality Standard
RACT	= Reasonable Available Control Technology (applied to stationary sources)
FMVCP	= Federal Motor Vehicle Control Program
I/M	= Inspection and Maintenance program for in-use vehicles
RACM	= Reasonably Available Control Measure (generally applied to transportation measures)
RFP	= Reasonable Further Progress: annual incremental emission reductions
MPO	= Metropolitan Planning Organization

APPENDIX D

DEFINITIONS

1. "Clean Air Act, as amended August 1977 (CAAA)": The Clean Air Act as amended by the Clean Air Act Amendments of 1977, P.L. 95-95, 91 Stat. 685, 42 USC 7401 et seq (formerly 42 USC 1857 et seq).

2. "State Implementation Plan (SIP)": The plan which each state is required to develop under Section 110 of the Clean Air Act. If the state fails to submit an approvable plan, EPA is required to promulgate one for the state. The SIP must provide for the attainment and maintenance of the established air quality standards within the time frames set forth in the Act.

3. "Approvable SIP": A SIP which satisfies the requirements outlined by the Administrator of EPA in a memorandum dated February 24, 1978.

4. "Air Quality Maintenance Plan (AQMP)": The plan required in areas where, based on current emission inventory and the projected growth rate, national ambient air quality standards will be exceeded over a 10-year period. The AQMP is usually required to assure attainment as well as maintenance of the air quality standards, and thus must contain control strategies to ensure that projected emissions are compatible with attainment and maintenance of the national standards.

5. "Transportation Control Plan (TCP)": That portion of the SIP which describes the transportation-air quality planning process and the transportation system measures applicable to each area.

6. "Transportation Control Measure (TCM)": Any measure directed toward reducing emissions of air pollutants from transportation sources, such as, reducing vehicle use, changing traffic flow patterns, decreasing emissions from in-use motor vehicles, or altering existing modal split patterns (see 40 CFR § 51.1).

7. "Reasonably Available Control Measure (RACM)": The determination of reasonably available measures will be made on a case-by-case basis through the existing transportation policy decision apparatus by all agencies identified according to § 174 of the CAAA. This determination results from an analytical, participatory and negotiatory process that involves both EPA and DOT. The transportation measures listed in § 108(f) of the Clean Air Act, as amended, provide an initial list of measures that are considered reasonably available for the purpose of analysis. The applicability, scale and speed of implementation of specific measures and strategies for specific areas will vary. The reasonableness of a measure will generally depend on the severity of the pollution problem, other available alternative means of attaining or maintaining air quality standards and the social and economic impact of the measure.

8. "174 Planning Organization": The organization designated under § 174 of the CAAA to conduct or coordinate the planning process and eligible for assistance under § 175 of the CAAA.

9. "Short Term Measures": Those transportation measures with the potential of reducing transportation system emissions which can be developed and implemented by 1982.

10. "Longer Term Transportation Improvements": Those transportation measures which may be necessary for attainment and maintenance of the air quality health standards beyond 1982.

11. "Attainment": For any pollutant, the status of an area which has met the national ambient air quality standard for such pollutant.

12. "Nonattainment": For any pollutant, the status of an area which is shown by monitored data or which is calculated by air quality modeling to exceed any national ambient air quality standard for such pollutant (see § 171(2) of the CAAA, 42 USC 7501 (2)).

13. "Emission Inventory": The comprehensive, accurate, current inventory of actual emissions taking into account the implementation of strategies in the transportation plan and program, so that the need for additional reductions to assure attainment may be assessed, as required in § 172(b)(4) of the CAAA.

14. "Incremental Progress in Reducing Emissions from the Transportation System": The requirement that the transportation-related portion of the SIP show progress toward attainment and/or maintenance of the air quality standard. "Incremental Progress": demonstration of which will initially be based on progress made in developing, programming and implementing measures to reduce emissions, and later will be based on progress in actually reducing emissions.

15. "Conformity" (as related to transportation): A determination under § 176(c) of the CAAA that DOT has assured that transportation plans and programs in an area conform to the transportation-related requirements of the SIP.

16. "Consistency": The requirement in 42 USC 109(j) that proposed transportation plans and projects be consistent with the approved SIP.

17. "Public Participation and Education; Interagency Consultation": The process of effectively involving citizens, local elected officials and state officials and legislators in air quality related planning, programming and decisionmaking.

18. "Metropolitan Planning Organization (MPO)": That organization designated by the Governor as being responsible, together with the state, for urban transportation planning under the Federal-Aid Highway Act (23 USC § 101 et seq) and the Urban Mass Transportation Act (49 USC 1601 et seq). This organization is the forum for cooperative decisionmaking by principal elected officials of general purpose local governments (see 23 CFR § 450.104(b)).

19. "Unified Planning Work Program (UPWP)": The document that must be developed by the MPO under 23 CFR § 450.112(a) and satisfy the requirements of 23 CFR § 450.114(c). The UPWP describes all urban transportation-related planning activities within the area during the next 1- or 2-year period, regardless of funding sources and documents work to be performed with planning assistance under Section 9 of the UMT Act (49 USC 1607a) and 23 USC 104(f) and 307(c).

20. "Modified UPWP": The UPWP currently prepared for an area by the MPO in response to DOT requirements which has been modified to include transportation-related air quality planning activities in response to CAAA requirements.

21. "Prospectus": That part of the UPWP which summarizes the planning program and generally describes the status and anticipated accomplishments of each element, the procedures to be used in carrying out each element and the functional responsibilities of each participating agency (see 23 CFR § 450.114(b)).

22. "Regional Transportation Plan (RTP)": The plan that must be developed under the DOT urban transportation planning process to satisfy the requirements of 23 CFR § 450.116. The RTP includes a transportation systems management element and a long range element and must be consistent with the area's comprehensive long-range land use plan and overall social, economic, environmental, system performance and energy conservation goals and objectives.

23. "Transportation Systems Management Element (TSME)": That part of the RTP which provides for the short-range transportation needs of the urbanized area, not including new transportation facilities or major changes in existing facilities (see 23 CFR § 450.116(b)).

24. "Long-Range Element (LRE)": That part of the RTP which must identify new transportation policies and facilities or major changes in existing facilities (see 23 CFR § 450.116(c)).

25. "Transportation Improvement Plan (TIP)": A staged multi-year program of transportation improvements including an annual element listing transportation improvement projects proposed for implementation during the first program year (see 23 CFR § 450.304(b)).

26. "Annual Element (AE)": A list of transportation improvement projects proposed for implementation during the first program year of the TIP (see 23 CFR § 450.304(b)).

27. "Intermodal Planning Group (IPG)": A group composed of representatives of all DOT administrations, and other agency representatives on an ad hoc basis, which serves as a forum for coordinating transportation planning programs funded individually by the different DOT administrations. In all regions EPA is represented by an ad hoc member, and HUD and state agencies are represented in some regions. The IPG has no decisionmaking power.

28. "Highway Planning and Research Funds (HPR Funds)": Funds apportioned to the states under 23 USC § 104 and made available under 23 USC § 307 for expenditure on request by the state for statewide planning, urban planning and highway-related research. The amount available is a 1 and 1/2 percent deduction from sums apportioned to any state for all federal-aid systems under 23 USC § 104. The funds may be used only for planning and research.

29. "Planning Funds (PL Funds)": Funds apportioned to the states under 23 USC § 104 and made available through the states to MPOs for carrying out 23 USC 134. The funds may be used to establish and maintain a continuing, comprehensive and cooperative (3C) process in urban areas with more than 50,000 population. The amount of funds available are based upon 1/2 percent of funds to be apportioned to all states for federal-aid systems. This amount is then apportioned to the states as a ratio of urbanized area population.

30. "Planning and Research Funds (PR Funds)": Construction funds which may be used for planning and research, or demonstration projects in connection with highway-related research. The amount of funds is limited to 1/2 percent of sums apportioned for federal-aid primary, secondary and urban systems.

APPENDIX E

BACKGROUND INFORMATION OF EPA'S TRANSPORTATION CONTROL PROGRAM

Under the Clean Air Act, as amended in 1970, each state was required to develop a State Implementation Plan (SIP) that provided for the attainment and maintenance of the established air quality standards within the time frames set forth in the Act. If a state failed to submit an approvable plan, EPA was required to promulgate one. Controls on stationary sources and the federal new car emission control program went a long way toward achieving the air quality standards. However, despite the substantial emission reductions from these controls, many areas were in need of further controls if the standards were to be attained and maintained.* Recognizing this need for further controls, the Act (Section 110(a)(2)(B)) specifically required the use of transportation control measures where necessary. As a result of a suit filed by the Natural Resources Defense Council (NRDC v. EPA, 475 F.2d 968), the U.S. Court of Appeals for the District of Columbia Circuit ordered the Administrator to require submission of complete implementation plans (including transportation control measures) during 1973.

The extremely tight time constraints imposed by the Court took their toll on the quality of transportation control plans that were produced. Some states decided that it was impossible to produce a plan

*This was true in many cases even assuming all cars on the road were actually meeting the original statutory standards. However, this assumption was contingent on having the necessary inspection and maintenance programs to ensure that in-use performance matched the capability demonstrated in certification.

within the time limit because of manpower and funding shortages, leaving EPA with the responsibility of preparing and promulgating the plans. Other states submitted only partial plans, again leaving EPA with the responsibility of promulgating additional measures as necessary for attainment. Overall, the effect of the Court decision was to require extremely rapid adoption and implementation of some very substantial, and in some cases -- potentially disruptive -- changes in urban transportation systems for which the public and the political process were largely unprepared and about which they were largely uninformed. By December 1973, EPA had approved or promulgated transportation control measures in all the then demonstrably deficient areas. (Originally 31 urban areas required transportation control plans. Many other areas were strongly suspected to have similar air quality problems, but adequate monitoring data was not available in 1973.)

The transportation control measures can be divided into classes of measures that reduce in-use automobile emission rates (emissions per mile) and classes of measures that both reduce vehicle usage and promote transit. The former class includes inspection/maintenance and vehicle retrofit programs. The latter includes transit improvement, carpooling, and selected restrictions on the use of automobiles. These latter measures are identified in Section 108(f) of the Clean Air Act and are similar to the Transportation System Management (TSM) measures identified by the Department of Transportation in their joint planning regulations (23 USC 450).

In developing the original plans for reducing emissions from the transportation system, emphasis was placed on controlling the in-use automobile emissions (27 areas required inspection/maintenance). Measures to reduce auto trips were used where in-use controls were not sufficient. In the case of hydrocarbons the Agency first examined additional stationary source controls before either type of mobile source control was used. The promulgation of gasoline marketing vapor recovery regulations is an example.

The implementation phase since December 1973, was a mix of successes and failures. Some metropolitan areas made good faith efforts to adopt and implement transportation control measures. However, there have also been unsuccessful examples. There are various reasons for this failure to implement transportation control measures. First, information on the effectiveness, costs, and implementability of transportation options in 1973 was limited. Time did not allow for the investigation of social and economic effects on a case-by-case basis.

In addition, experience was lacking at all levels of government to plan and implement effective measures. Due to the time restrictions, many of the transportation control requirements could not be adapted to the existing institutional framework, to ongoing planning schedules and processes, and to agency budget cycles. Also the 1977 time deadline for achieving health related national air quality standards did not allow credit for long-range measures such as mass transit improvements. Consequently, both the alternatives considered and the effects analyzed were

limited. Perhaps the greatest deficiency was the lack of inter-governmental coordination and citizen participation. A considerable amount of the opposition to the plans centered not so much on the measures but rather on the manner in which the measures were developed and imposed.

APPENDIX F

FUNDING

IDENTIFICATION OF FUNDS TO IMPLEMENT THE PLAN AND TO CONDUCT RELATED PLANNING(a) FHWA

The United States Code, Title 23 provides funds for transportation improvements in a number of categories identified by highway system. In addition, funds for planning and research programs are provided which could be used to plan for and implement transportation control measures. These funds are apportioned under Section 104 or made available for expenditure on planning and research activities under Section 307.

(1) Construction

Funds that are available for project development and construction in urbanized areas which could be used to implement certain transportation control measures include:

- ° Federal-Aid Primary
- ° Federal-Aid Interstate
- ° Federal-Aid Urban

These funds are available for use statewide and are not specifically earmarked for use in urbanized areas. One exception is the portion of urban system funds that are attributable to urbanized areas of 200,000 population or more.

Funds also are available for special categories of improvement, such as control of outdoor advertising, control of junkyards, special bridge replacement, priority primary routes, pavement marking demonstration, projects for high-hazard locations, elimination of roadside obstacles, highways crossing federal projects, bicycle transportation and pedestrian walkways and safer off-system roads. Most of these funds are for special purposes and are not generally applicable to transportation control measures.

(2) Planning

Funds commonly referred to as PL funds are apportioned to states under Section 104(f) and made available through the states to metropolitan planning organizations (MPOs) for carrying out the provisions of Section 134,

Transportation planning in certain urban areas:

- ° To establish and maintain a continuing, comprehensive, and cooperative (3C) planning process in urbanized areas (urban areas with more than 50,000 population).
- ° Funds are based on one-half percent of funds to be apportioned to all states for federal-aid systems. This amount is then apportioned to the states as a ratio of urbanized area population, except that no state receives less than one-half percent of the total apportionment.

(3) Planning and Research

Funds commonly referred to as HPR and PR funds are made available for expenditure on request by the state for statewide planning, urban planning, and highway-related research.

- ° Amount of HPR funds available is a 1-1/2 percent deduction from sums apportioned to any state for all federal-aid systems under Section 104.
- ° Since the HPR funds are used for statewide planning, research, and to satisfy certain planning data reporting requirements of the FHWA, the amounts available for urban planning are limited. These funds, however, are to be used only for planning and research.
- ° PR funds are construction funds which may be used for planning and research. These funds may also be used for demonstration projects in connection with highway-related research. The amount of funds is limited to one-half percent of sums apportioned for federal-aid primary, secondary, and urban systems.

(b) UMTA

(1) Construction

Section 3: Federal Financial Assistance

- ° Assists states and local agencies in financing
(1) the acquisition, construction, reconstruction,
and improvement of facilities and equipment for use
in mass transportation service in urban areas and in
coordinating such service with highway and other
transportation in such areas, and (2) the establishment
and organization of public and quasi-public transit
corridor development corporations or entities.
- ° Eligible facilities and equipment include buses and
other rolling stock and real property including land
(but not public highways) within the entire zone
affected by the construction and operation of transit
improvements, including station sites, needed for any
efficient and coordinated mass transportation system.
- ° Up to one-half of any financial assistance provided
under this Act (other than Section 5) may be used
for the payment of operating expenses incurred in
connection with the provision of mass transit service
in an urban area.

Section 5

- ° For use in urbanized areas.
- ° Funds available for construction of mass transportation
facilities (with construction covering a broad range
of activities).

- ° The federal share available for construction under this section is 80 percent.
- ° The federal share available for operating subsidies is 50 percent.
- ° Funds made available on the basis of a formula under which urbanized areas will be entitled to receive an amount equal to:
 - (a) one-half the total amount apportioned X the ratio which the population of the urbanized area bears to the total population of all the urbanized areas in all the states
 - (b) one-half the total amount so apportioned X a ratio for that urbanized area determined on the basis of population weighted by a density factor
- ° To obtain these funds, the recipient must certify that public hearings have been conducted and must submit a report indicating the consideration given to the economic, social, environmental and other effects of the proposed project.

(2) Planning

Section 9: Grants for Technical Studies

- ° Available to states and local governments for the planning, engineering, designing, and evaluation of urban mass transportation projects or for other

technical studies to be included in a program for a coordinated urban transportation system as a part of the comprehensively planned development of the urban area.

° Activities which qualify for funding include:

- (1) studies relating to management, operations, capital requirements, and economic feasibility;
- (2) preparation of engineering and architectural surveys, plans and specifications;
- (3) evaluation of previously funded projects; and
- (4) other related activities in preparation for the construction, acquisition, or improved operation of mass transportation systems, facilities, and equipment.

(3) Other

Section 6: Research, Development and Demonstration Projects

- ° The Secretary may contract or provide grants for RD&D in all phases of urban mass transportation.

(c) HUD

Transportation control planning activities are eligible to receive HUD funding under § 701 grant program (§ 701 of Housing Act of 1954, 40 USC 461, as amended by the Housing and Community Development

Act of 1974, 42 USC 5301 et seq; 24 CFR Part 600). However, the availability of funds for transportation planning is limited. While \$57 million is available for land use and housing planning (\$21.5 million is available to A-95 metropolitan planning agencies), most areas exhaust their allotment satisfying HUD directives. If any funds remain after required planning activities have been performed, a local decision could be made to use remaining funds for transportation planning.

APPENDIX G

SUPPLEMENTARY INFORMATION ON THE EVALUATION OF ALTERNATIVES

1. Legal Mandate

Section 172(b)(9) of the Clean Air Act, as amended 1977, specifies that the plan for nonattainment areas shall include:

... an identification and analysis of the air quality, health, welfare, economic, energy and social effects of the plan provisions ... and of alternatives considered by the state.

(Section 129(c) of the Clean Air Act Amendments of 1977 (Pub. L. No. 95-95, 91 Stat. 750-51) indicates that this plan shall be submitted by January 1, 1979.) In addition, Section 108(f) requires the preparation of information on a wide range of alternative transportation measures, including an assessment of "the relative effectiveness, ... potential effect on transportation systems and the provision of transportation services, ... and the environmental, energy and economic impacts."

The joint planning regulations issued by FHWA and UMTA on September 17, 1975 (23 CFR 450) specifically call for alternative analyses:

The urban transportation planning process shall ... include:

- (ii) An evaluation of alternative transportation systems management improvements ...
- (iv) Analysis of alternative transportation investments to meet areawide needs for new transportation facilities.

The joint regulations further state that energy conservation, air quality improvement, and increased social and environmental amenities are purposes of the transportation systems management requirement. The regulations also specify "the urban transportation planning process

shall: (1) Provide for the consideration of social, economic and environmental effects ... (2) Be coordinated with air quality planning conducted pursuant to 42 USC 1857 (Clean Air Act)."

The DOT regulations direct urban areas in developing the TSM element to consider a wide range of options. The Appendix to the regulation presents a lengthy list of measures which are suggested for consideration. The categories of measures include: traffic operations improvements; preferential treatment for high occupancy vehicles; provision for pedestrians and bicycles; management and control of parking; changes in work schedules, fares and tolls; reduced vehicle use incentives; transit service improvements; and transit management improvements. Significantly, the Appendix also contains the following guidance in an "Actions to be considered" section:

... While the feasibility of and need for individual actions may differ with the size of an urbanized area or the extent of congestion all categories of actions should be considered. It is expected that some actions in each category will be appropriate for any urbanized area.

2. Scope of Analysis

Effective transportation planning requires analysis not only of individual transportation measures but also of different options for implementing measures and of overall transportation strategies, or packages of measures. Because the feasibility and effectiveness of certain measures may be influenced by the presence or absence of certain other transportation activities in a particular sub-area or corridor, studies of combinations of measures may be appropriate in some cases.

For example, an urban area might combine studies of park and ride facilities and transit circulator service with an auto-restricted zone study. In addition, the areawide effects of proposed transportation programs on factors such as oxidant concentrations often must be assessed. Thus, depending on local circumstances and the pollutant to be controlled the alternatives that are analyzed might consist of individual measures, combinations of measures applicable to certain corridors or sub-regional areas, or entire transportation programs.

3. Assignment of Responsibility

The detailed institutional arrangements and assignments of responsibility in the analysis of alternatives should be tailored to the particular conditions in each metropolitan area. For example, a number of the measures to be considered in TSM and transportation control planning traditionally have been the responsibility of various operating agencies -- city planning departments, transit authorities, traffic divisions, county transportation commissions, and enforcement agencies. In many urban areas, these organizations will continue to play the major role in the generation of alternatives, assessment of their impacts and feasibility, and implementation. In these areas the MPO may wish to coordinate study efforts, perform special supplementary studies and areawide analyses, and integrate the recommendations of the local agencies into a TSM plan and a TIP. In some urban areas, the MPOs may wish to develop additional capabilities to conduct its own short range planning and analysis.

UNITED STATES GOVERNMENT

DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

Memorandum

SUBJECT: ACTION - Integration of Air Quality Requirements into the Transportation Planning Process

DATE: 1 FEB 1978
In reply refer to: HHP-23
UTP-21

FROM: Federal Highway Administrator
Urban Mass Transportation Administrator

TO: Regional Federal Highway Administrators, Regions 1-10
Urban Mass Transportation Administration Regional Directors, Regions I-X

The Clean Air Act Amendments of 1977 were signed into law by the President on August 7, 1977. These Amendments require State and local governments to develop revisions to State Implementation Plans (SIP)s, for all areas where national ambient air quality standards have not been attained, by January 1, 1979. In most major urbanized areas of the country, the revised SIPs will require transportation controls, i.e., strategies designed to reduce emissions from transportation-related sources by means of structural and operational changes in the transportation system.

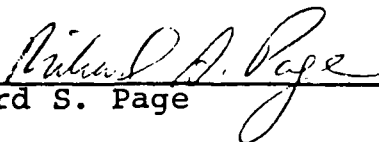
The Office of Management and Budget has directed DOT and EPA to integrate and fund air quality planning within DOT's transportation planning process. The DOT and EPA are, therefore, negotiating an agreement linking air quality and transportation planning; meanwhile, criteria for transportation control plans (TCP) and SIP revisions are being prepared with the intent of prompt joint DOT-EPA issuance of transportation regulations and guidelines by February 9, 1978.

Because of the imminence of the January 1, 1979, deadline, we are directing that the following actions be initiated promptly by the regional staffs of UMTA and FHWA:

1. The EPA should be invited to participate in the Intermodal Planning Group (IPG) so as to insure coordination of all activities pertaining to the urban transportation planning process;
2. The EPA should be consulted to determine which areas are likely to require TCPs and what the estimated magnitude of TCP effort will be in those areas;

- 3. For areas requiring TCPs, funds within already approved Unified Planning Work Programs (UPWPs) may be reprogramed as appropriate to support the identification and analysis of transportation control measures in coordination with the SIP revision process;
4. Air quality planning tasks in support of the SIP revision process should be given a high priority in UPWPs now being developed. Air quality planning is a national priority and must be given appropriate emphasis in the conduct of the transportation planning process;
5. The transportation improvement program (TIP)/annual element (AE) review process should be conducted with a renewed emphasis on the inclusion of projects benefiting air quality in the TIP/AE; and
6. The certification review process should be conducted with a renewed emphasis on the coordination of air quality planning and transportation planning as required by the joint regulations.

The President has requested the establishment of a single Federal mechanism to integrate transportation and air quality planning. We are confident that through the mutual commitment of FHWA and UMTA, we can meet this goal. Regional Administrators and Directors should furnish their respective modal administrators with a progress summary on each of the six items in their periodic reports (in UMTA, the Biweekly Highlights Report to the Administrator) beginning with the March 1978 report.


Richard S. Page


William M. Cox

APPENDIX I

INTERAGENCY AGREEMENT

BETWEEN

THE DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

THE ENVIRONMENTAL PROTECTION AGENCY

I. PURPOSE:

This Interagency Agreement has been developed to: (1) coordinate the planning and management activities of the two signatory agencies, the Department of Housing and Urban Development (HUD) and the Environmental Protection Agency (EPA) in accordance with the Administration's objectives; (2) encourage interagency cooperation and coordination of planning between local levels of government; (3) ensure that any land use policies and control strategies undertaken for air quality improvement are developed and implemented within a broader framework of comprehensive planning and management; and (4) ensure that comprehensive planning and management reflects the constraints attendant in attaining and maintaining the National Ambient Air Quality Standards (NAAQS) and in preventing significant deterioration of air quality.

II. PROGRAMS INVOLVED:

The following programs are involved:

Comprehensive Planning Assistance Program (Section 701) of the Housing Act of 1954, as amended;

State Implementation Plan (SIP) Program of the Clean Air Act, as amended.

III. PROVISIONS

1. To the extent that resources are available, the HUD 701 land use element shall provide basic land use planning including: (1) long and short term policies regarding where growth should and should not take place; (2) the type, intensity and timing of growth; (3) studies, criteria, standards and implementing procedures necessary for effectively guiding and controlling major decisions as to the location of growth; and should include, as an objective, policies and management programs which contribute to the attainment and maintenance of NAAQS and to the prevention of significant deterioration of air quality.

To the extent that resources are available, any evaluation of potential land use measures performed under section 110 of the Clean Air Act shall analyze land use/air quality relationships to determine what revisions could be made to existing or proposed land use plans, policies, and regulations in order to reduce or prevent air pollution from stationary and mobile sources.

2. In those geographic areas where land use elements are to be developed pursuant to the Comprehensive Planning Assistance Program and where land use related provisions are to be added to a SIP, HUD and EPA shall encourage through appropriate guidelines that units of government and planning agencies involved in the two processes consult in the process of developing their work programs so that: (1) there is no duplication of effort; (2) completed land use elements and SIP provisions are consistent; and (3) the objectives of both the Comprehensive Planning Assistance and the SIP development programs are achieved.

3. The OMB Circular A-95 Clearinghouse procedures shall be used for review of SIP land use provisions by State and areawide 701 recipients. The 701 land use element will be reviewed by air quality planning and management agencies prior to submission to HUD. Criteria to assist the Clearinghouses in making this review will be developed. The principle intent of the review and comment is to allow interested parties to point out potential inconsistencies between the SIP and the land use element for further consideration by the appropriate planning agencies. Neither HUD nor EPA will approve a land use element or a land use related provision of a SIP, respectively, unless such an opportunity for review is granted.

4. In activities funded under the Comprehensive Planning Assistance Program, grant recipients shall, as a condition of continued eligibility for funding (1) incorporate any land use related measures identified in the SIP as necessary for the attainment and maintenance of the NAAQS as performance criteria, and (2) reflect any State or Federal programs for prevention of significant deterioration of air quality.

5. EPA will encourage the designation and continuous substantive involvement of qualified State and areawide comprehensive planning agencies in (1) the development of land use related SIP provisions and (2) State or Federal programs for prevention of significant deterioration of air quality.

6. All HUD 701 recipients and EPA or State designated agencies responsible for the SIP development will be actively encouraged to use common data bases, common analytic techniques and consistent criteria in their planning activities and to adopt compatible work programs and implementation strategies.

8. HUD and EPA regional or field offices will develop lines of communication and effective means to jointly address issues, problems or disputes that may impede the timely and effective implementation of either the HUD 701 land use elements or the land use related portions of the SIP. Where these impediments are the result of planning assisted or required by a Federal agency, the HUD and EPA field offices will invite representatives of interested Federal, State, areawide and local agencies to review the situation and whenever possible remove the impediments.

9. Existing coordination mechanisms such as the A-95 Clearinghouse procedures and the Federal Regional Councils will be used to the extent that they prove capable of meeting the objectives of this agreement.

10. HUD and EPA will develop such procedures as may be required to implement the above provisions. These will be developed in accordance with Executive Orders and regulations governing both programs and will require joint approval prior to issuance.

SUMMARY OF SELECTED EPA GUIDELINES AND REGULATIONS RELATED
TO THE TRANSPORTATION REQUIREMENTS OF THE CLEAN AIR ACT

- Guideline:** "Clean Air Act Section 174 Guidelines" issued jointly by the Environmental Protection Agency and the Department of Transportation.
- Purpose:** To implement Section 174 of the amended Clean Air Act which requires (1) that state and local governments jointly determine responsibilities for developing, implementing and enforcing plans for areas where national ambient air quality standards for carbon monoxide and photochemical oxidants have not been attained and (2) that a lead planning organization be designated to coordinate plan development for such areas. State and local responsibilities must be jointly determined and lead plan development organizations nominated by local governments by February 7, 1978. Governors must certify by April 1, 1978, a lead organization nominated by local officials for plan development or must designate an alternative organization.
- Status:** Issued December 14, 1977.
- Guideline:** "Criteria for Approval of 1979 SIP Revisions." Memorandum from the EPA Administrator to all Regional Administrators.
- Purpose:** To implement subpart D of the amended Clean Air Act which sets forth the requirements for revising a state implementation plan (SIP) for any area for which national ambient air quality standards have not been attained. The SIP revisions must be submitted by states to the Environmental Protection Agency by January 1, 1979, and must provide for attainment of standards no later than December 31, 1982. If a state is able to demonstrate that attainment of the standards for carbon monoxide and photochemical oxidants is not possible by 1982, an extension of the attainment deadline up to December 31, 1987, is possible. The guidelines summarize the elements of an approvable 1979 SIP that must be included in order to avoid imposition of sanctions provided for in the Act.
- Status:** Issued February 24, 1978.
- Regulation:** Establishment of a process for consultation with general purpose local governments, organizations of local elected officials and federal land managers.

- Purpose:** To implement the requirements of Section 121 of the amended Clean Air Act which requires states to provide a satisfactory process of consultation for provisions of state implementation plans dealing with (1) transportation controls, air quality maintenance and new source review; (2) control measures for nonattainment areas; and (3) measures for prevention of significant deterioration of air quality. The consultation process requirement is applicable to all implementation plan revisions for the three categories listed that are adopted after August 7, 1978. The consultation processes established by states must be in accordance with regulations promulgated by the Environmental Protection Agency. The Act requires regulations to be promulgated, after notice and opportunity for public hearing, by February 7, 1978.
- Status:** Drafts of the Environmental Protection Agency regulation have undergone extensive review and will be proposed in the Federal Register in March 1978.
- Guideline:** Information documents for transportation control measures.
- Purpose:** To implement Section 108(f) of the amended Clean Air Act which requires the Administrator of the Environmental Protection Agency to publish, in cooperation with the Secretary of the Department of Transportation, information about processes, procedures and methods to reduce transportation-related air pollution. The information must include assessments of (1) the relative effectiveness of such processes, procedures and methods; (2) the potential effects on transportation systems and on the provision of transportation services; and (3) environmental, energy and economic effects. Information about programs for vehicle inspection and maintenance, control of vapor emissions from fuel transfer and storage and from solvent operations, improved public transit, exclusive bus and carpool lanes and areawide carpool programs must be published by February 7, 1978. Information on a number of other programs including long-range transit improvement, control of on-street parking, construction of park-and-ride facilities, staggered work hours and road user charges must be published by August 7, 1978.
- Status:** Information documents covering vehicle inspection and maintenance, control of vapor emissions from fuel transfer and storage, improved public transit, exclusive bus and carpool lanes and areawide carpool programs have been drafted and sent to the Department of Transportation for review. Contracts to develop the additional information documents to be available by August 7, 1978, are under development.

WEDNESDAY, SEPTEMBER 17, 1975

PART II:**DEPARTMENT OF
TRANSPORTATION****Federal Highway
Administration****Urban Mass Transportation
Administration****TRANSPORTATION
IMPROVEMENT
PROGRAM****federal register**

RULES AND REGULATIONS

42976

Title 23—Highways

CHAPTER I—FEDERAL HIGHWAY ADMINISTRATION, DEPARTMENT OF TRANSPORTATION

PART 450—PLANNING ASSISTANCE AND STANDARDS

Urban Transportation Planning

The purpose of this document is to issue final regulations implementing certain provisions of title 23, U.S.C., and the Urban Mass Transportation Act of 1964, as amended, 49 U.S.C. 1601, et seq. (UMT Act), governing urban transportation planning under the Federal Highway Administration and the Urban Mass Transportation Administration programs.

In the November 8, 1974, edition of the *FEDERAL REGISTER* (39 FR 39660), the Federal Highway Administration (FHWA) and the Urban Mass Transportation Administration (UMTA) published a notice of proposed rulemaking (the "notice") to add a new Part 450, Subpart A, to 23 CFR, Chapter I, and a new Part 613, Subpart B, to 49 CFR, Chapter VI.

The public was invited to participate in this rulemaking through submission of written comments. Over 120 interested groups and individuals provided comments, including the House Committee on Public Works and Transportation, the Senate Committee on Public Works, the American Public Transit Association, the American Association of State Highway and Transportation Officials, State departments of transportation, cities, and a number of metropolitan planning organizations. In arriving at the final regulations set forth below, FHWA and UMTA have given consideration to all comments received in response to the notice of proposed rulemaking insofar as they related to matters within the scope of that notice. Review of the comments received indicated the desirability of making changes in the regulations as originally proposed. In view of the interest expressed in these regulations, except for editorial revisions, those sections of these final regulations which have been revised or were the subject of major interest are discussed in this commentary.

Since the publication of the notice of these proposed rules, Congress has enacted the National Mass Transportation Assistance Act of 1974 (Pub. L. 93-503, 88 Stat. 1565), which amended the UMT Act to add among other matters a new formula grant program under which both capital and operating assistance may be provided, and to make the "3-C" planning process described in 23 U.S.C. 134 applicable to all UMTA-assisted capital and operating projects. While the enactment of Pub. L. 93-503 did require some modification of these regulations, these changes were essentially technical in nature, and, where made, do not represent any overall substantive change except for the addition of the Transportation Systems Management (TSM) element (discussed *infra*).

In response to the notice, some concern was expressed that the role of the

Metropolitan Planning Organization (MPO) in the planning and programming process tended to impinge on State and local authority. It was intended that the MPO provide a forum for cooperative decisionmaking by principal elected officials of general purpose local government; accordingly, the definition of the MPO has been modified to clarify this intent. It is not intended to preclude the State and publicly owned operators from acting through this forum.

A few comments addressed the Governor's designation of these organizations. The Department recognizes that institutional arrangements are at different stages of evolution in the various urbanized areas; accordingly, considerable flexibility will be afforded by FHWA and UMTA in the administration of § 450.106. We note in this connection that while it is encouraged, nothing in the regulations requires that the MPO and the A-95 agency be the same. Further, designations made under § 450.106 may be changed when appropriate, consistent with the provisions of that section.

A number of comments on the geographic scope of the urban transportation planning process indicated concern that the regulation could be interpreted to encourage coverage of rural areas. The intent is that the planning process extend to urban and urbanizing areas; consistent with that intent, the regulation has been revised to allow each urbanized area maximum flexibility in determining the geographic scope of the urban transportation planning process.

Several comments were directed to the failure of § 450.112 to reflect the tripartite nature of the planning process, i.e., the involvement in the process of State government, local government, and publicly owned operators of mass transportation services as specified in the section on "Agreements." For this reason, § 450.112 has been revised to stipulate that the MPO, in cooperation with the State and with publicly owned operators of mass transportation services, is responsible for carrying out the urban transportation planning process.

Section 450.116 has been revised to provide greater detail regarding the components of the transportation plan. The transportation plan includes the TSM and the long-range elements. The TSM element was initially referenced in § 450.120 of the proposed regulation. It is designed to meet the short-range transportation needs of urban areas through efficient use of existing facilities. A joint issuance appended to these regulations provides additional advisory information on the scope and objectives of the TSM element.

Notice is given that the inclusion in the Transportation Improvement Program (TIP) of projects recommended from the TSM element will be a condition of UMTA program approvals. The TSM element and the programming for its implementation in the TIP supports the requirement to improve the efficiency of mass transportation service pursuant to section 5(d)(2) of the UMT Act (49 U.S.C. 1604(d)(2)) and is deemed to be

the program of actions referred to in the expression of intent described in Section F of the Capital and Operating Assistance Formula Grants and the Interim Guidelines and Procedures (40 FR 2534, January 13, 1975).

The target date envisioned for the development of the TSM element and the programming for its implementation is March 30, 1976.

Section 450.120 of the regulation has been reorganized to group the general planning activities, first, and the activities of a technical nature, second. In response to comments and to statutory requirements, planning process elements were added to cover energy conservation, consideration of existing private mass transportation services, coordination with air quality planning and with planning for the transportation needs of the elderly and handicapped.

A number of comments addressed the criteria for Federal determinations under the "Certification" section. In response, § 450.122 has been simplified to indicate that certification will be based on compliance with the requirements in this subpart and that the determination will be made by UMTA and FHWA acting jointly. The certification determination is a Federal evaluation of the planning process.

A further clarification in § 450.122 pertains to the lapsing of certification. The Department intends that a negative planning finding be a deliberate determination and not the result of an administrative oversight. Accordingly, the planning certification will remain in effect until a new determination is made.

These regulations unify the individual planning requirements of FHWA and UMTA and supersede the following operating procedures: FHWA Policy and Procedure Memorandums 50-9 and 50-11, Instructional Memorandums 50-3-71 and 50-4-68; Sections D and F of the Capital and Operating Assistance Formula Grants; Interim Guidelines and Procedures (40 FR 2534, January 13, 1975); and the Urban Mass Transportation Planning Requirements Guide as contained in Appendix 2 of the UMTA External Operating Manual (UMTA Order 1000.2, dated August 22, 1972).

In consideration of the foregoing, and under the authority of 23 U.S.C. 104(f)(3), 134, and 315, and sections 3, 4(a), and 5 of the UMT Act (49 U.S.C. 1602, 1603(a), and 1604), and the delegation of authority by the Secretary of Transportation at 49 CFR 1.48(b) and 1.50(f), Chapter I of title 23 and Chapter VI of title 49 of the Code of Federal Regulations are hereby amended by adding a new Part 450, Subpart A as set forth below.

Effective date: These regulations take effect on October 17, 1975.

Issued on: September 11, 1975.

L. P. LAMM,

Executive Director,
Federal Highway Administration.

ROBERT E. PATRICELLI,
Urban Mass Transportation
Administrator.

RULES AND REGULATIONS

42977

Subpart A of Part 450 is added as set forth below:

Subpart A—Urban Transportation Planning

Sec.	
450.100	Purpose.
450.102	Applicability.
450.104	Definitions.
450.106	Metropolitan Planning Organization: designation.
450.108	Metropolitan Planning Organization: agreements.
450.110	Metropolitan Planning Organization: geographic scope.
450.112	Metropolitan Planning Organization: responsibilities.
450.114	Urban transportation planning process: planning work programs.
450.116	Urban transportation planning process: transportation plan.
450.118	Urban transportation planning process: transportation improvement program.
450.120	Urban transportation planning process: elements.
450.122	Urban transportation planning process: certification.

Appendix: Advisory Information on Development of Transportation Systems Management Elements.

AUTHORITY: 23 U.S.C. 104(f)(3), 134, and 315; Sections 3, 4(a), and 5 of the Urban Mass Transportation Act of 1964, as amended, (UMT Act) (49 U.S.C. 1602, 1603(a), and 1604); and 49 CFR 1.48(b) and 1.50(f).

Subpart A—Urban Transportation Planning

§ 450.100 Purpose.

The purpose of this subpart is to implement 23 U.S.C. 134, and Sections 3(a)(2), 4(a), 5(g)(1), and 5(l) of the Urban Mass Transportation Act of 1964, as amended, (49 U.S.C. 1602(a)(2), 1603(a), and 1604(g)(1) and (l)), which require that each urbanized area, as a condition to the receipt of Federal capital or operating assistance, have a continuing, cooperative, and comprehensive transportation planning process that results in plans and programs consistent with the comprehensively planned development of the urbanized area.

§ 450.102 Applicability.

The provisions of this subpart are applicable to the transportation planning process in urbanized areas. Certification under this subpart shall be a prerequisite for program approvals in urbanized areas pursuant to 23 U.S.C. 105(d) and 134(a), section 5(g) of the UMT Act (49 U.S.C. 1604(g)), and Subpart C of this part.

§ 450.101 Definitions.

(a) Except as otherwise provided, terms defined in 23 U.S.C. 101(a) are used in this subpart as so defined.

(b) As used in this subpart:

"Governor" means the Governor of any one of the fifty States, and includes the Mayor of the District of Columbia.

"Metropolitan Planning Organization (MPO)" means that organization designated by the Governor as being responsible, together with the State, for carrying out the provisions of 23 U.S.C. 134, as provided in 23 U.S.C. 104(f)(3), and capable of meeting the requirements of sections 3(a)(2) and (e)(1), 4(a), and 5(g)(1) and (l) of the UMT Act (49

U.S.C. 1602(a)(2) and (e)(1), 1603(a), and 1604(g)(1) and (l)). This organization is the forum for cooperative decisionmaking by principal elected officials of general purpose local government.

§ 450.106 Metropolitan Planning Organization: designations.

(a) The Governor of each State shall designate the Metropolitan Planning Organization (MPO). To the extent possible, only one MPO shall be designated for each urbanized area or group of contiguous urbanized areas.

(b) Funds authorized by 23 U.S.C. 104(f) shall be made available by the State to the MPO, as required by 23 U.S.C. 104(f)(3). To the extent possible, the MPO shall be eligible to receive planning funds authorized by section 9 of the UMT Act of 1964, as amended, (49 U.S.C. 1607a).

(c) To the extent possible, the MPO designated by the Governor shall be established under specific State legislation, State enabling legislation, or by Interstate compact, with authority to carry out metropolitan transportation planning, and should perform the functions required by the Office of Management and Budget (OMB) Circular A-95 "Evaluation, Review, Coordination of Federal Assistance Programs and Projects" November 13, 1973, as amended.

(d) Principal elected officials of general purpose local government within the jurisdiction of the MPO shall have adequate representation on the MPO.

(e) Nothing herein shall be deemed to prohibit the MPO from utilizing, through contractual agreements, the staff resources of other local agencies to carry out selected elements of the planning process.

(f) An MPO designated under the provisions of this section shall remain designated until the Governor designates another MPO under the provisions of this section.

§ 450.108 Metropolitan Planning Organization: agreements.

(a) The responsibilities for cooperatively carrying out transportation planning and programing shall be clearly identified in an agreement or memorandum of understanding between the State and the MPO.

(b) Where the MPO is different from the A-95 agency, there shall be an agreement between the two organizations which prescribes the means by which their activities will be coordinated, as required by Part IV of OMB Circular A-95. This agreement shall specify how transportation planning and programing will be part of the comprehensively planned development of the urbanized area.

(c) There shall be an agreement between the MPO and publicly owned operators of mass transportation services which specifies cooperative procedures for carrying out transportation planning and programing as required by this subpart.

(d) To the extent possible, there shall be one cooperative agreement contain-

ing the understandings required by this section among the State, MPO, publicly owned operators of mass transportation services and, where necessary, the A-95 agency.

§ 450.110 Metropolitan Planning Organization: geographic scope.

The transportation planning process shall, as a minimum, cover the urbanized area and the area likely to be urbanized in the period covered by the long-range element of the transportation plan described in § 450.116 of this subpart.

§ 450.112 Metropolitan Planning Organization: responsibilities.

(a) The MPO in cooperation with the State, and in cooperation with publicly owned operators of mass transportation services, shall be responsible for carrying out the urban transportation planning process specified in § 450.120 and shall develop the planning work programs, transportation plan, and transportation improvement program specified in §§ 450.114 through 450.118 of this subpart. The MPO shall be the forum for cooperative decisionmaking by principal elected officials of general purpose local government.

(b) The MPO shall annually endorse the plans and programs required by §§ 450.114 through 450.118 of this subpart.

§ 450.114 Urban transportation planning process: planning work programs.

(a) The urban transportation planning process shall include the development of a prospectus and a unified planning work program.

(b) The prospectus shall establish a multiyear framework within which the unified planning work program is accomplished and shall include:

(1) A summary of the planning program including discussion of the important transportation issues facing the area;

(2) A general description of the status and anticipated accomplishments of each of the elements specified in § 450.120 of this subpart;

(3) A description of the procedures to be used in carrying out each element specified in § 450.120 of this subpart;

(4) A description of the functional responsibilities of each participating agency; and

(5) Copies of agreements specified in § 450.108 of this subpart.

(c) The unified planning work program shall: (1) Annually describe all urban transportation and transportation-related planning activities anticipated within the area during the next 1- or 2-year period regardless of funding sources; and (2) Document work to be performed with planning assistance provided under section 9 of the UMT Act (49 U.S.C. 1607a) and 23 U.S.C. 104(f) and 307(c).

(d) The prospectus and the unified planning work program may be combined in a single document. Arrange-

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ments may be made to further combine these documents with work program requirements of other Federal sources of physical planning funds (e.g., Department of Housing and Urban Development, Environmental Protection Agency, and Department of the Interior).

§ 450.116 Urban transportation planning process: transportation plan.

(a) The urban transportation planning process shall include the development of a transportation plan consisting of a transportation systems management element and a long-range element. The transportation plan shall be reviewed annually to confirm its validity and its consistency with current transportation and land use conditions.

(b) The transportation systems management element of the transportation plan shall:

(1) Provide for the short-range transportation needs of the urbanized area by making efficient use of existing transportation resources and providing for the movement of people in an efficient manner; and

(2) Identify traffic engineering, public transportation, regulatory, pricing, management, operational and other improvements to the existing urban transportation system not including new transportation facilities or major changes in existing facilities.

(c) The long-range element of the transportation plan shall:

(1) Provide for the long-range transportation needs of the urbanized area; and

(2) Identify new transportation policies and transportation facilities or major changes in existing facilities by location and modes to be implemented.

(d) The transportation plan shall be consistent with the area's comprehensive long-range land use plan, urban development objectives, and the area's overall social, economic, environmental, system performance and energy conservation goals and objectives.

§ 450.118 Urban transportation planning process: transportation improvement program.

(a) The urban transportation planning process shall include development of a transportation improvement program including an annual element as prescribed in Subpart C of this part.

(b) The program shall be a staged multiyear program of transportation improvement projects consistent with the transportation plan developed under § 450.116 of this subpart.

§ 450.120 Urban transportation planning process: elements.

(a) The urban transportation planning process shall:

(1) Provide for the consideration of social, economic, and environmental effects, in support of the requirements of 23 U.S.C. 109(h), and sections 5(h) (2) and 14 of the UMT Act (49 U.S.C. 1604 (h) (2) and 1610);

(2) Be coordinated with air quality planning conducted pursuant to 42 U.S.C. 1857 (Clean Air Act);

(3) Include provisions to ensure involvement of the public;

(4) Be consistent with Title VI of the Civil Rights Act of 1964 and the Title VI assurance executed by each State under 23 U.S.C. 324 and 29 U.S.C. 794, which ensure that no person shall on the grounds of race, color, sex, national origin, or physical handicap be excluded from participation in, be denied benefits of, or be otherwise subjected to discrimination under any program receiving Federal assistance from the Department of Transportation;

(5) Include special efforts to plan public mass transportation facilities and services that can effectively be utilized by elderly and handicapped persons pursuant to section 16 of the UMT Act (49 U.S.C. 1612) and section 165(b) of the Federal-Aid Highway Act of 1973, as amended;

(6) Provide for the consideration of energy conservation;

(7) Include consideration of existing private mass transportation services; and

(8) Include the following technical activities to the degree appropriate for the size of the metropolitan area and the complexity of its transportation problems:

(i) An analysis of existing conditions of travel, transportation facilities, and systems management;

(ii) An evaluation of alternative transportation systems management improvements to make more efficient use of existing transportation resources and the development of the transportation systems management element of the transportation plan.

(iii) Projections of urban area economic, demographic, and land use activities consistent with urban development goals and the development of potential transportation demands based on these levels of activity;

(iv) Analysis of alternative transportation investments to meet areawide needs for new transportation facilities and the development of the long-range element of the transportation plan;

(v) Refinement of the transportation plan through the conduct of corridor, transit technology, and staging studies; and subarea, feasibility, location, legislative, fiscal, functional classification, and institutional studies;

(vi) Monitoring and reporting of urban development and transportation indicators and a regular program of reappraisal of the transportation plan; and

(vii) Implementation programing which merges the results of plan refinement of the long-range element and the improvements recommended in the transportation systems management element of the transportation plan to produce a transportation improvement program as specified in Subpart C of this part.

(b) The urban transportation planning process shall include preparation of technical reports to assure documentation of the development, refinement, and reappraisal of the transportation plan.

§ 450.122 Urban transportation planning process: certification.

(a) The Federal Highway and Urban Mass Transportation Administrators jointly will review and evaluate annually the transportation planning process in each urbanized area to determine if the process meets the requirements of this subpart.

(b) If, upon the review and evaluation conducted under paragraph (a) of this section, the Administrators jointly determine that the transportation planning process in an urbanized area meets or substantially meets the requirements of this subpart, they may take one of the following actions, as appropriate:

(1) Certify the transportation planning process; or

(2) Certify the transportation planning process subject to one of the following conditions:

(i) That certain specified corrective actions be taken; or

(ii) That the process is a basis for approval of only those categories of programs or projects that the Administrators may jointly determine and that certain specified corrective actions be taken.

(c) The State and the MPO shall be notified of the actions taken under paragraph (b) of this section.

(d) A certification under paragraph (b) of this section will remain in effect until a new certification determination is made.

APPENDIX

ADVISORY INFORMATION ON DEVELOPMENT OF TRANSPORTATION SYSTEMS MANAGEMENT ELEMENTS UNDER UMTA AND FHWA JOINT REGULATIONS, 23 CFR PART 450, SUBPARTS A AND C, AND 49 CFR PART 613, SUBPARTS A AND B

1. *Purpose.* The preamble to the National Mass Transportation Assistance Act of 1974 states that efficient, economical and convenient mass transportation is a vital public service essential to the health and welfare of urban areas. The resources provided by the Act are intended to assist communities in preserving and revitalizing their mass transit systems. An essential part of this goal is to improve the efficiency of transit service—not only to achieve greater economies of operation, but also to help contribute to the wider national objectives of energy conservation, improved air quality, and increased social and environmental amenity. The 1974 Act provides additional resources to enable localities to improve the efficiency of transit operations.

Similarly, Section 135 of title 23 declares it to be in the national interest that there should be a continuing program within urban areas "designed to reduce traffic congestion and to facilitate the flow of traffic." Improvements which "directly facilitate and control traffic flow" are made eligible projects for Urban Extension and Urban System funds.

Pursuant to the planning requirements established for urbanized areas in title 23 and the Urban Mass Transportation Act of 1964, as amended, UMTA and FHWA have jointly issued regulations (23 CFR Part 450 and 49 CFR Part 613) that require the urban transportation planning process to develop (1) a Plan containing a Transportation System Management (TSM) element, and (2) a Transportation Improvement Program (TIP) for each urbanized area.

The purposes of these supplementary guidelines is to jointly provide additional definitions and explanation of the intent and scope of the Transportation Systems Management requirements specified in the joint

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planning regulations. Each Administration (i.e., UMTA and FHWA) will be using its own regulations or policy mechanisms to specify further conditions in order to meet their requirements for approval of programs or projects under their jurisdiction.

2. *Introduction.* Automobiles, public transit, taxis, pedestrians, and bicycles should be considered as elements of one single urban transportation system. The objective of urban transportation system management is to coordinate these individual elements through operating, regulatory and service policies so as to achieve maximum efficiency and productivity for the system as a whole.

Controlling the flow of traffic, influencing the volume, pattern and mix of traffic, and giving priority to buses and other high-occupancy vehicles may be the single most effective set of measures to improve the efficiency and productivity of both mass transportation service and the entire urban transportation system. However, other actions can also be effective. Mass transit efficiency can be increased through internal management actions, such as more flexible routing, dispatching and scheduling of transit vehicles. Urban transportation system efficiency can be increased by the provision of para-transit services, incentives for carpools, and greater off-peak use of transportation facilities. Conflicts between pedestrians and vehicles can be reduced by developing explicit and coordinated policy to balance competing claims on street space. Economic or other disincentives can be introduced to discourage low-occupancy auto use, reduce traffic in congested areas, and persuade commuters to shift to mass transit; the quality of public transit service can be improved to compensate for any reductions in auto accessibility.

3. *Planning requirement.* The UMTA and FHWA do not intend to prescribe efficiency standards or the particular measures that an urbanized area must adopt to meet the requirement to develop a Transportation Systems Management element. Formulation of an overall policy strategy, assessment of candidate measures, and selection, programming and implementation of actions are clearly a local responsibility to be carried out as part of continuing transportation planning and implementation process. In accordance with the joint regulations, the Metropolitan Planning Organization (MPO) in each urbanized area in cooperation with the State and in cooperation with publicly-owned operators of mass transportation services is responsible for the development and periodic updating of the Transportation Systems Management element.

The plan should set forth the underlying goals and policy objectives and the strategy selected to accomplish them. Since the plan will have official status as a product of the areawide planning process, once it is endorsed by the MPO, it should represent agreement on the part of those agencies identified as responsible for carrying out each action. The programming for implementation of Transportation Systems Management projects in the annual element of the Transportation Improvement Program represents a commitment for carrying out each action.

4. *Actions to be considered.* The following major categories of action should be considered for inclusion in the Transportation Systems Management element. While the feasibility of and need for individual actions may differ with the size of an urbanized area or the extent of its congestion, all categories of actions should be considered. It is expected that some actions in each category will be appropriate for any urbanized area.

a. *Actions to ensure the efficient use of existing road space through:*

(1) Traffic operations improvements to manage and control the flow of motor vehicles, such as:

- Channelization of traffic
- One-way streets
- Better signalization and progressive timing of traffic signals
- Computerized traffic control
- Metering access to freeways
- Reversible traffic lanes
- Other traffic engineering improvements

(2) Preferential treatment for transit and other high-occupancy vehicles, such as:

- Reserved or preferential lanes on freeways and city streets
- Exclusive lanes to bypass congested points
- Exclusive lanes at toll plazas with provision for no-stop toll collection
- Conversion of selected downtown streets to exclusive bus use
- Exclusive access ramps to freeways
- Bus preemption of traffic signals
- Strict enforcement of reserved transit rights-of-way
- Special turning lanes or exemption of buses from turning restrictions

(3) Appropriate provision for pedestrians and bicycles, such as:

- Bicycle paths and exclusive lanes
- Pedestrian malls and other means of separating pedestrian and vehicular traffic
- Secure and convenient storage areas for bicycles
- Other bicycle facilitation measures

(4) Management and control of parking through:

- Elimination of on-street parking, especially during peak periods
- Regulation of the number and price of public and private parking spaces
- Favoring parking by short-term users over all-day commuters
- Provision of fringe and transportation corridor parking to facilitate transfer to transit and other high-occupancy vehicles
- Strict enforcement of parking restrictions

(5) Changes in work schedules, fare structure and automobile tolls to reduce peak-period travel and to encourage off-peak use of transportation facilities and transit services, such as:

- Staggered work hours
- Flexible work hours
- Reduced transit fares for off-peak transit users

- Increased peak-hour commuter tolls on bridges and access routes to the city

b. *Actions to reduce vehicle use in congested areas through:*

- Encouragement of carpooling and other forms of ride sharing
- Diversions, exclusion and metering of automobile access to specific areas
- Area licenses, parking surcharges and other forms of congestion pricing

- Establishment of car-free zones and closure of selected streets to vehicular traffic or to through traffic

- Restrictions on downtown truck delivery during peak hours

c. *Actions to improve transit service, through:*

- Provision of better collection, distribution and internal circulation services (including route-deviation and demand-responsive services) within low-density areas

- Greater flexibility and responsiveness in routing, scheduling and dispatching of transit vehicles

- Provision of express bus services in coordination with local collection and distribution services

- Provision of extensive park-and-ride services from fringe and transportation corridor parking areas

- Provision of shuttle transit services from CBD fringe parking areas to downtown activity centers

- Encouragement of jitneys and other flexible paratransit services and their integration in the metropolitan public transportation system.

- Simplified fare collection systems and policies

- Provision of shelters and other passenger amenities

- Better passenger information systems and services

d. *Actions to increase internal transit management efficiency, such as:*

- Improve marketing

- Developing cost accounting and other management tools to improve decisionmaking

- Establishing maintenance policies that assure greater equipment reliability

- Using surveillance and communications technology to develop real time monitoring and control capability

5. *Planning assistance.* Development of the program is an eligible activity for inclusion in the Unified Work Program for transportation planning in any urbanized area. It can be assisted with UMTA and FHWA planning funds. In addition, Management Improvement planning studies can be included in the Unified Work Program or funded by special UMTA grants. Some localities may wish to propose amendments to ongoing work programs in order to accelerate development of the Plan. Such requests will be given priority consideration. It is expected that there will be relatively continuous work activity relating to this requirement; some feasibility studies will take longer than others, some actions will become feasible only after others have been defined, completed actions will have to be evaluated, and the program must be periodically updated as the effects of other developments influence the feasibility of various actions.

6. *Technical Assistance.* Substantial amounts of technical material are available concerning possible strategies and the actions that should be considered for inclusion in local programs. Further research and a number of demonstrations are underway which can be expected to contribute additional data to assist in evaluating the feasibility and planning the implementation of some actions. The FHWA and UMTA intend to maintain surveillance over these developments and provide timely and useful documentation to assist localities in meeting this requirement.

7. *Implementation Assistance.* Implementation of actions in the local program may be eligible for assistance with UMTA Sections 3 and 5 funds and Federal-aid highway funds (Urban Systems, Urban Extension, Primary and Interstate).

[FR Doc. 75-24696 Filed 9-16-75; 8:45 am]

PART 450—PLANNING ASSISTANCE AND STANDARDS

Transportation Improvement Program

The purpose of this document is to issue final regulations which implement certain provisions of title 23, U.S.C., and the Urban Mass Transportation Act of 1964, as amended, 49 U.S.C. 1601, et seq. (UMT Act), governing the planning and programming of urban transportation improvements under the Federal Highway Administration and Urban Mass Transportation Administration programs. • • • • •

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(1) 23 U.S.C. 104(b)(6) (urban systems projects);

(2) 23 U.S.C. 103(e)(4) (Interstate substitution projects);

(3) Sections 3 and 5 of the Urban Mass Transportation Act of 1964, as amended (UMT Act) (49 U.S.C. 1602 and 1604-UMTA capital and operating assistance projects);

(4) 23 U.S.C. 104(b)(3) (projects on urban extensions of primary and secondary systems), except as provided in this subpart;

(5) 23 U.S.C. 104(b)(5) (projects on the Interstate System) except as provided in this subpart.

(b) Projects under paragraphs (a) (4) and (5) of this section, which are included in the highway safety improvement program, may be excluded from the transportation improvement program at the option of the State.

§ 150.301 Definitions.

(a) Except as otherwise provided, terms defined in 23 U.S.C. 101(a) are used in this subpart as so defined.

(b) As used herein:

"Annual element" means a list of transportation improvement projects proposed for implementation during the first program year.

"Governor" means the Governor of any one of the fifty States, and includes the Mayor of the District of Columbia.

"Highway safety improvement program" means a program prepared by the State pursuant to 23 CFR, Part 655, Subpart E.

"Interstate substitution projects" means projects funded under 23 U.S.C. 103(e)(4) (Withdrawal of Interstate segments and substitution of nonhighway public mass transportation projects).

"Interstate System projects" means projects funded under 23 U.S.C. 104(b)(5).

"Metropolitan Planning Organization" means that organization designated by the Governor as being responsible, together with the State, for carrying out the provisions of 23 U.S.C. 134, as provided in 23 U.S.C. 104(f)(3), and capable of meeting the requirements of Sections 3(a)(2) and (e)(1), and 4(a), and 5(g)(1) and (l) of the UMT Act (49 U.S.C. 1602(a)(2) and (e)(1), 1603(a) and 1604(g)(1) and (l)). This organization is the forum for cooperative decisionmaking by principal elected officials of general purpose local government.

"Transportation Improvement Program" means a staged multiyear program of transportation improvements including an annual element.

§ 150.306 Transportation improvement program: general.

(a) The transportation improvement program shall be developed and updated annually under the direction of the Metropolitan Planning Organization (MPO) in cooperation with:

(1) State and local officials;

(2) Regional and local transit operators;

(3) Recipients authorized under section 5(b)(2) or (3) of the UMT Act (49 U.S.C. 1604(b)) (2) or (3); and

(4) Other affected transportation and regional planning and implementing agencies.

(b) The transportation improvement program shall consist of improvement recommended from the transportation systems management and long-range elements of the transportation plan developed under § 450.116 of this part.

(c) The program shall cover a period of not less than 3 years, but may at local discretion cover up to 5 or more years.

§ 150.308 Transportation improvement program: content.

The transportation improvement program shall:

(a) Identify transportation improvements recommended for advancement during the program period;

(b) Indicate the area's priorities;

(c) Group improvements of similar urgency and anticipated staging into appropriate staging periods;

(d) Include realistic estimates of total costs and revenues for the program period; and

(e) Include a discussion of how improvements recommended from the long-range element and the transportation systems management element prepared pursuant to § 450.116 of this part were merged into the program.

§ 150.310 Annual element: project initiation.

Federally funded projects shall be initiated for inclusion in the annual element at all stages in the development of the transportation improvement for which program action is proposed. These projects shall be initiated as follows:

(a) Proposed urban system highway projects shall be initiated by local officials in whose jurisdiction the project is located.

(b) Proposed urban system nonhighway public mass transportation projects and Interstate substitution nonhighway public mass transportation projects shall be initiated by principal elected officials of general purpose local governments in consultation with local transit operating officials or by local transit operating officials.

(c) Proposed UMTA section 3 projects (49 U.S.C. 1602) shall be initiated by recipients authorized under section 5(b)(2) or (3) of the UMT Act (49 U.S.C. 1604(b)(2) or (3)), by local transit operating officials, or by principal elected officials of general purpose local governments in cooperation with local transit operating officials.

(d) Proposed UMTA section 5 projects (49 U.S.C. 1604) shall be initiated by recipients authorized under section 5(b)(2) or (3) of the UMT Act (49 U.S.C. 1604(b)(2) or (3)). Nothing in this subsection is intended to prohibit or discourage the initiation by such recipients of projects recommended by local transit operating officials or by principal elected officials of general purpose local governments in cooperation with local transit operating officials.

(e) Proposed urban extension and Interstate System projects shall be initiated by the State highway agency.

In consideration of the foregoing, and under the authority of 23 U.S.C. 105, 134(a), and 135(b), and sections 3, 4(a) and 5 of the UMT Act (49 U.S.C. 1602, 1603(a), 1604), and the delegation of authority by the Secretary of Transportation at 49 CFR 1.48(b) and 1.50(f), Chapter I of Title 23 of the Code of Federal Regulations is amended by adding a new Part 450, Subpart C.

Effective date: These regulations take effect on October 17, 1975.

Issued on: September 11, 1975.

L. P. LAMM,
Executive Director,
Federal Highway Administration.

ROBERT E. PATRICELLI,
Urban Mass Transportation
Administrator.

Subpart C of Part 450 is added to read as follows:

Subpart C—Transportation Improvement Program

Sec.	Purpose.
450.300	Purpose.
450.302	Applicability.
450.304	Definitions.
450.306	Transportation Improvement Program: general.
450.308	Transportation Improvement Program: content.
450.310	Annual element: project initiation.
450.312	Annual element: content.
450.314	Annual element: modification.
450.316	Action required by Metropolitan Planning Organization.
450.318	Selection of projects for implementation.
450.320	Program approval.

AUTHORITY: 23 U.S.C. 105, 134(a), and 135(b); sections 3, 4(a), and 5 of the Urban Mass Transportation Act of 1964, as amended, (49 U.S.C. 1602, 1603(a), and 1604); and 49 CFR 1.48(b) and 1.50(f)

Subpart C—Transportation Improvement Program

§ 150.300 Purpose.

The purpose of these regulations is to establish guidelines for the development, content, and processing of a cooperatively developed transportation improvement program in urbanized areas and to prescribe guidelines for the selection by implementing agencies of annual programs of projects to be advanced in urbanized areas.

§ 150.302 Applicability.

(a) After January 1, 1976, the regulations in this subpart shall be applicable to projects in or serving urbanized areas with funds made available under:

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§ 450.312 Annual element: content.

(a) Except as provided in § 450.302 (b) of this subpart, the annual element shall contain:

(1) Projects initiated under § 450.310 and endorsed under § 450.316 of this subpart; and

(2) For informational purposes, all nonfederally funded projects recommended from the transportation systems management element.

(b) With respect to each project under paragraph (a) of this section the annual element shall include:

(1) Sufficient descriptive material (i.e., type of work, termini, length, etc.) to identify the project;

(2) Estimated total cost and the amount of Federal funds proposed to be obligated during the program year;

(3) Proposed source of Federal and non-Federal funds; and

(4) Identification of the recipient and State and local agencies responsible for carrying out the project.

(c) Projects proposed for Federal support that are not considered by the State and MPO to be of appropriate scale for individual inclusion in the annual element may be grouped by functional classification, geographic area, and work type.

(d) The annual element shall be reasonably consistent with the amount of Federal funds expected to be available to the area. Federal funds that have been allocated to the area pursuant to 23 U.S.C. 150 shall be identified.

(e) The total Federal share of projects included in the annual element and proposed for funding under section 5 of the UMT Act (49 U.S.C. 1604) may not exceed a proportioned section 5 funds available to the urbanized area during the program year.

§ 450.314 Annual element: modification.

The annual element may be modified at any time consistent with the procedures established in this subpart for its development.

§ 450.316 Action required by the Metropolitan Planning Organization.

(a) The transportation improvement program, including the annual element, shall be endorsed annually by the MPO.

(b) The MPO shall submit the transportation improvement program including the annual element:

(1) To the Governor and the Urban Mass Transportation Administrator; and

(2) Through the State to the Federal Highway Administrator.

§ 450.318 Selection of projects for implementation.

(a) The projects proposed to be implemented with Federal assistance under sections 3 and 5 of the UMT Act (49 U.S.C. 1602 and 1604) shall be those contained in the annual element of the transportation improvement program submitted by the MPO to the Urban Mass Transportation Administrator.

(b) Upon receipt of the transportation improvement program, the State shall include in the statewide program of projects required under 23 U.S.C. 105:

(1) Those projects drawn from the annual element and proposed to be implemented with Federal assistance under 23 U.S.C. 104(b)(6) (Federal-aid urban system) and 103(e)(4) (Withdrawal of Interstate segments and substitution of public mass transportation projects), in which it concurs; provided, however, that in any case where the State does not concur in a nonhighway public mass transportation project, a statement describing the reasons for the nonconurrence shall accompany the statewide program of projects; and

(2) Those projects drawn from the annual element and proposed to be implemented with Federal assistance under 23 U.S.C. 104(b)(3) (Extensions of the Federal-aid primary and secondary systems in urbanized areas) and 23 U.S.C. 104(b)(5) (Interstate System projects in urbanized areas); and

(3) Those projects not drawn from the annual element that are proposed to be implemented with Federal assistance under 23 U.S.C. 104(b)(3) (projects on urban extensions of primary and secondary systems) and 23 U.S.C. 104(b)(5) (projects on the Interstate System) provided that:

(i) Such project or projects were initiated pursuant to § 450.310(e) of this subpart; and

(ii) Such project or projects are for highway transportation improvements for which there has been a Federal authorization to acquire right-of-way or Federal approval of physical construction or implementation where right-of-way acquisition was not previously federally funded.

(c) For each project under paragraph (b)(3) of this section a statement shall accompany the statewide program of projects which shall:

(1) Include the views of the MPO; and

(2) Indicate how the requirements of 23 U.S.C. 134(a) have been met.

(d) The preparation and endorsement of the transportation improvement program and the selection of projects in accordance with these regulations will meet the requirements of 23 U.S.C. 105 (d), 23 U.S.C. 134(a), and section 5(g)(2) of the UMT Act (49 U.S.C. 1604(g)(2)).

(e) The State shall notify the MPO of actions taken under paragraph (b) of this section.

§ 450.320 Program approval.

(a) Upon the determination by the Federal Highway Administrator and the Urban Mass Transportation Administrator that the transportation improvement program or portion thereof is in conformance with this subpart and that the area is under planning certification, programs of projects selected for implementation under § 450.318 of this subpart, will be considered for approval as follows:

(1) Federal-aid urban system projects included in the statewide program of

projects under 23 U.S.C. 105 will be approved by:

(i) The Federal Highway Administrator with respect to highway projects;

(ii) The Urban Mass Transportation Administrator with respect to nonhighway public mass transportation projects; and

(iii) The Federal Highway Administrator and the Urban Mass Transportation Administrator jointly in any case where the statewide program of projects submitted pursuant to 23 U.S.C. 105 does not include all Federal-aid urban system nonhighway public mass transportation projects contained in the annual element.

(2) Interstate substitution nonhighway public mass transportation projects included in the statewide program of projects under 23 U.S.C. 105 will be approved by the Urban Mass Transportation Administrator.

(3) Projects proposed to be implemented under sections 3 and 5 of the UMT Act (49 U.S.C. 1602 and 1604) included in the annual element of the transportation improvement program will be approved by the Urban Mass Transportation Administrator after considering any comments received from the Governor within 30 days of the submittal required by § 450.316(b)(1) of this subpart.

(4) Federal-aid urban extension and Interstate projects included in the statewide program of projects under 23 U.S.C. 105 will be approved by the Federal Highway Administrator.

(b) Approvals by the Federal Highway Administrator or joint approvals by the Federal Highway Administrator and Urban Mass Transportation Administrator will be in accordance with the provisions of this subpart and with 23 CFR 630, Subpart A. Approvals granted under this section will constitute:

(1) The approval required under 23 U.S.C. 105; and

(2) A finding that the program is based on a continuing, comprehensive planning process carried on cooperatively by the States and local communities in accordance with the provisions of 23 U.S.C. 134.

(c) Approvals by the Urban Mass Transportation Administrator will be in accordance with the provisions of this subpart and with other applicable provisions of 49 CFR 613, Subpart B. These approvals will constitute:

(1) The approval required under section 5(g)(2) of the UMT Act (49 U.S.C. 1604(g)(2));

(2) A finding that the projects are based on a continuing comprehensive transportation planning process carried on in accordance with the provisions of sections 3(a)(2) or 5(g)(1) of the UMT Act (49 U.S.C. 1602(a)(2) or 1604(g)(1)), as applicable; and

(3) A finding that the projects are needed to carry out a program for a unified or officially coordinated urban transportation system in accordance with the provisions of sections 4(a) or 5(1) of the UMT Act (49 U.S.C. 1603(a) or 1604(1)), as applicable.

[FR Doc.75-24697 Filed 9-16-75; 8:45 am]

RULES AND REGULATIONS

Title 49—Transportation

CHAPTER VI—URBAN MASS TRANSPORTATION ADMINISTRATION, DEPARTMENT OF TRANSPORTATION

PART 613—PLANNING ASSISTANCE AND STANDARDS

Urban Transportation Planning

The purpose of this document is to issue final regulations implementing certain provisions of Title 23, United States Code, and the Urban Mass Transportation Act of 1964, as amended (49 U.S.C. 1601, et seq.), which govern urban transportation planning under the Federal Highway Administration (FHWA) and Urban Mass Transportation Administration (UMTA) programs.

In the November 8, 1974, edition of the *FEDERAL REGISTER* (39 FR 39660), FHWA and UMTA published a notice of proposed rulemaking to add a new Part 450, Subpart A, to 23 CFR, Chapter I, and a new Part 613, Subpart B, to 49 CFR, Chapter VI.

The final regulations are published in full under 23 CFR, Part 450, Subpart A. The purpose of the regulations published below is to incorporate 23 CFR, Part 450, Subpart A, into 49 CFR, Part 613, Subpart A. The original notice indicated that the Urban Transportation Planning regulations under 23 CFR, Part 450, Subpart A, were to be incorporated into 49 CFR, Part 613, Subpart B. For reasons of continuity, these regulations are published as being incorporated into 49 CFR, Part 613, Subpart A rather than Subpart B.

The preamble to the joint FHWA/UMTA regulations, Title 23, CFR Part 450, Subpart A, published at page 42976 of this edition of the *FEDERAL REGISTER* and to be incorporated by reference in 49 CFR, Part 613, Subpart A, is hereby incorporated as the preamble for the following regulations.

Pursuant to Sections 3, 4(a), and 5 of the Urban Mass Transportation Act of 1964, as amended (49 U.S.C. 1602, 1603(a) and 1604), and 23 U.S.C. 104(f)(3), 134, and 315, and the delegation of authority by the Secretary at 49 CFR 1.48(b) and 1.50(f), Chapter VI of Title 49 of the Code of Federal Regulations is amended by adding a new Subchapter B, Part 613, Subpart A, as set forth below.

Effective date: These regulations take effect on October 17, 1975.

Issued on: September 11, 1975.

L. P. LAMM,
Executive Director,
Federal Highway Administration.
ROBERT E. PATRICELLI,
Urban Mass Transportation
Administrator.

Subpart A of Part 613 is added as set forth below:

Subpart A—Urban Transportation Planning

Sec.

613.100 Urban transportation planning.

AUTHORITY: 23 U.S.C. 104(f)(3), 134, and 315; §§ 3, 4(a), and 5 of the Urban Mass Transportation Act of 1964, as amended (49

U.S.C. 1602, 1603(a), and 1604); 49 CFR §§ 1.48(b) and 1.50(f).

Subpart A—Urban Transportation Planning

§ 613.100 Urban transportation planning.

The urban transportation planning regulations implementing 23 U.S.C. 134 and sections 3, 4(a), and 5(g)(1) and (l) of the Urban Mass Transportation Act of 1964, as amended (49 U.S.C. 1602, 1603(a) and 1604(g)(1) and (l)), which require comprehensive planning of transportation improvements which are set forth in 23 CFR Part 450, Subpart A, are incorporated into this subpart.

[FR Doc.75-24698 Filed 9-16-75;8:45 am]

PART 613—PLANNING ASSISTANCE AND STANDARDS

Transportation Improvement Program

The purpose of this document is to issue final regulations which implement certain provisions of title 23, United States Code, and the Urban Mass Transportation Act of 1964, as amended, 49 U.S.C. 1601, et seq., governing the planning and programming of urban transportation improvements under the Federal Highway Administration (FHWA) and Urban Mass Transportation Administration (UMTA) programs.

In the November 8, 1974, edition of the *FEDERAL REGISTER* (39 FR 39665), FHWA and UMTA published a notice of proposed rulemaking to add a new Part 450, Subpart C, to 23 CFR, Chapter I, and a new Part 613, Subpart A, to 49 CFR, Chapter VI.

The final regulations are published in full under 23 CFR, Part 450, Subpart C. The purpose of these regulations, published below, is to incorporate 23 CFR, Part 450, Subpart C, into 49 CFR, Part 613, Subpart B, and to set forth certain additional requirements applicable to the UMTA administered program. The original notice indicated that the Transportation Improvement Program regulations under 23 CFR, Part 450, Subpart C, were to be incorporated into 49 CFR, Part 613, Subpart A. For reasons of continuity, these regulations are published as being incorporated into 49 CFR, Part 613, Subpart B rather than Subpart A.

The preamble to the joint FHWA-UMTA regulations, Title 23 CFR, Part 450, Subpart C, published at page 42976 of this edition of the *FEDERAL REGISTER*, and to be incorporated by reference in 49 CFR Part 613, Subpart B, is hereby incorporated as the preamble for the following regulations.

Pursuant to sections 3, 4(a) and 5 of the Urban Mass Transportation Act of 1964, as amended (49 U.S.C. 1602, 1603(a), and 1604) and 23 U.S.C. 105, 134(a), and 135(b), and the delegation of authority by the Secretary at 49 CFR 1.48(b) and 1.50(f), Chapter VI of Title 49 of the Code of Federal Regulations, is hereby amended by adding a new Subchapter B, Part 613, Subpart B, as set forth below.

Effective date: These regulations take effect on October 17, 1975.

Issued on: September 11, 1975.

ROBERT E. PATRICELLI,
Urban Mass
Transportation Administrator.

L. P. LAMM,
Executive Director,
Federal Highway Administration.

Subpart B of Part 613 is added as set forth below:

Subpart B—Transportation Improvement Program

Sec.

613.200 Transportation Improvement Program.

613.202 Additional criteria for urban mass transportation Administrator's approvals under 23 CFR 450.320.

AUTHORITY: 23 U.S.C. 105, 134(a), and 135(b); §§ 3, 4(a), and 5 of the Urban Mass Transportation Act of 1964, as amended (49 U.S.C. 1602, 1603(a), and 1604); and §§ 49 CFR 1.48(b) and 1.50(f).

Subpart B—Transportation Improvement Program

§ 613.200 Transportation Improvement Program.

The transportation improvement program regulations establishing guidelines for the development, content, and processing of a cooperatively developed transportation improvement program in urbanized areas and also prescribing guidelines for the selection, by implementing agencies, of annual programs of projects to be advanced in urbanized areas which are set forth in 23 CFR Part 450, Subpart C, are incorporated into this subpart.

§ 613.202 Additional criteria for urban mass transportation Administrator's approvals under 23 CFR 450.320.

(a) This section establishes certain additional criteria to be considered by the Urban Mass Transportation Administrator in his program approval pursuant to 23 CFR 450.320(a)(3) for all projects proposed for implementation with Federal assistance under sections 3 and 5 of the Urban Mass Transportation Act of 1964, as amended (23 U.S.C. 1602 and 1604), in urbanized areas having a population of 200,000 or more.

(b) After March 30, 1976, the Urban Mass Transportation Administrator will grant program approval for projects under paragraph (a) of this section only after he has determined that:

(i) The transportation plan developed pursuant to 23 CFR 450.116 contains a Transportation System Management (TSM) element; and

(ii) The annual element of the transportation improvement program developed pursuant to 23 CFR 450.118 contains projects drawn from the TSM element.

(c) After March 30, 1977, the Urban Mass Transportation Administrator will grant program approval for projects under paragraph (a) of this section only after he has determined that reasonable progress has been demonstrated in implementing previously programmed projects.

[FR Doc.75-24699 Filed 9-16-75;8:45 am]

MEMORANDUM OF UNDERSTANDING
BETWEEN
THE DEPARTMENT OF TRANSPORTATION
AND
THE ENVIRONMENTAL PROTECTION AGENCY
REGARDING
THE INTEGRATION OF TRANSPORTATION AND AIR QUALITY PLANNING

I. Introduction

The Clean Air Act Amendments of 1977 were signed into law by the President on August 7, 1977. These Amendments require state and local governments to develop for all areas where national ambient air quality standards have not been attained, revisions to state implementation plans (SIPs). The revised SIPs must be submitted by the state to the Environmental Protection Agency (EPA) by January 1, 1979. These revised plans must provide for attainment of the national ambient air quality standards by 1982 or, in the case of areas with severe photochemical oxidant or carbon monoxide problems, not later than 1987. The revised plans must also provide for incremental reductions in emissions ("reasonable further progress") between the time the plans are submitted and the attainment deadline.

In many major urbanized areas of the country the revised SIPs will require transportation controls, i.e. strategies designed to reduce emissions from transportation-related sources by means of structural and operational changes in the transportation system. A mechanism is required that will enable state and local governments to: (1) develop a wide range of alternative transportation control strategies, (2) analyze the air quality and other impacts of the strategies, and (3) select among the alternatives in a timely and informed manner.

Federal transportation planning requirements in urbanized areas are implemented by the Department of Transportation (DOT) through a joint delegation of authority to the Federal Highway Administration (FHWA) and the Urban Mass Transportation Administration (UMTA). The FHWA and UMTA provide funds to states and local governments to plan, develop, and improve transportation systems and services. In urbanized areas improvements are implemented according to a continuing, comprehensive, and cooperative transportation planning process carried out pursuant to FHWA/UMTA joint regulations. It

is in this context that "DOT" is utilized in this document. In order to effectively achieve the objectives of the 1977 Clean Air Act Amendments, the DOT and Environmental Protection Agency (EPA) agree that the transportation-related air quality planning requirements of EPA will be integrated with the transportation planning process administered by the DOT. Closer integration of the planning requirements of DOT and EPA will ensure the timely consideration of air quality concerns and will reduce potentially duplicative, overlapping, and inconsistent activities at the state and local level. DOT administers other planning programs through other administrations (e.g. FAA and FRA) which have lesser impact on air quality but may be subject to future discussion.

II. Purpose

This Memorandum of Understanding, developed pursuant to the President's request, is designed (1) to establish certain principles which DOT and EPA agree to follow in the preparation of more detailed regulations and administrative procedures required to achieve the objective of integrating the air quality and transportation planning processes; (2) to identify specific areas of agreement with regard to the joint administration of the air quality aspects of the planning process.

III. Principles that Will Guide the Integration of the Air Quality and Transportation Planning Processes

- A. The reduction of air pollution is an important national goal and must be among the highest priorities of the transportation planning process in areas not meeting primary Air Quality Standards. However, the transportation planning process must also consider other national and local objectives such as mobility, safety, energy conservation, urban economic development, full employment and orderly metropolitan growth.
- B. It is the affirmative responsibility of federal, state and local agencies involved in funding or conducting transportation planning and implementation to ensure that evaluation of an adequate range of alternative transportation control strategies is conducted in order to furnish local, state and federal officials with an adequate basis on which to reach informed decisions.
- C. Any transportation planning activities conducted pursuant to this agreement must continue to provide for an adequate process of consultations with and involvement of the general purpose local government, responsible state agencies and the public as called for in the joint UMTA/FHWA Urban Transportation Planning regulations.

- D. It is the objective of the activities undertaken pursuant to this agreement to contribute to the maximum extent feasible, in combination, with other emission reduction measures, to a reduction of emissions necessary to meet the prescribed air quality standards.

IV. Joint Administration of the Air Quality Aspects of the Urban Transportation Planning Process

The Department of Transportation and Environmental Protection Agency agree to modify existing procedures concerning the administration of the urban transportation and air quality planning processes in nonattainment areas as follows:

1. DOT and EPA regional/division offices will have the opportunity for joint review of and concurrence in the Unified Work Program (UWP) required pursuant to paragraph 450.114 of the Joint Planning Regulations (23 CFR 450), to ensure that adequate air quality planning tasks are included in the planning programs. Any disagreements at the regional level shall be referred to the DOT Secretary for resolution. Before making his final decision on the UWP, the Secretary will consult with the EPA Administrator and will notify EPA of the disposition of its comments, with appropriate supporting materials. In addition, where an MPO has failed, without adequate reason to carry out the analysis or other activities committed in its Unified Work Program, DOT will prescribe conditions which will require specified remedial actions to be taken in order to correct the identified failure in the Unified Work Program. DOT and EPA will develop in the near future a document identifying appropriate categories of remedial actions.

2. DOT and EPA regional/division offices will have the opportunity for joint review of transportation plans (including TSM elements) in nonattainment areas required pursuant to paragraph 450.116 of the Joint Planning Regulations, to ensure that air quality considerations are adequately addressed. DOT and EPA will consult with the planning agency on how air quality related planning deficiencies will be corrected. DOT will also explicitly consider EPA comments in taking subsequent actions on program approvals and will notify EPA of the disposition of its comments, with appropriate supporting materials.

3. DOT and EPA regional/division offices will have the opportunity for joint review in connection with the annual planning certification required pursuant to paragraph 450.122 of the Joint Planning Regulations, on the adequacy of the planning process to address air quality considerations. DOT and EPA will consult with the planning agency on how air quality related planning deficiencies will be corrected. DOT will also explicitly consider EPA comments in making any certification decisions and will notify EPA of the disposition of its comments, with appropriate supporting material.

4. DOT and EPA regional/division offices will have the opportunity for joint review of the Transportation Improvement Program (TIP) and its annual element required pursuant to paragraph 450.118 of the Joint Planning Regulations for consistency with the air quality elements of the transportation plan and/or the SIP. DOT will explicitly consider EPA's comments in program approvals, and will notify EPA of its disposition of the comments. If EPA disagrees with the disposition of its comments, the procedures for resolution set forth in Addendum 1 to this memorandum will be followed.

5. DOT and EPA regional/division offices will have the opportunity for joint review of the revised SIPs, for compliance with the objectives of statutes administered by DOT (e.g., Title 23 USC and the Urban Mass Transportation Act) to provide for mobility and for safe and efficient transportation. EPA will explicitly consider DOT comments in approving or disapproving SIP revisions, and will notify DOT of its disposition of the comments, with appropriate supporting materials. If DOT disagrees with the disposition of its comments, the procedures for resolution set forth in Addendum 2 to this memorandum will be followed.

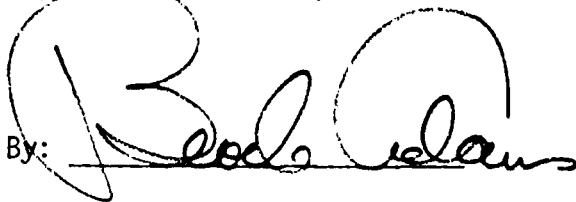
6. DOT and EPA agree to work toward greater coordination in the administration of their respective grants for local planning activities by including these grants in the UWP, to ensure that such grants support effectively the related objectives of both agencies while avoiding duplication and overlapping planning activities.

DOT and EPA will take appropriate steps to alter their existing internal procedures and to issue a joint appendix to the existing transportation planning regulations to implement the above understandings.

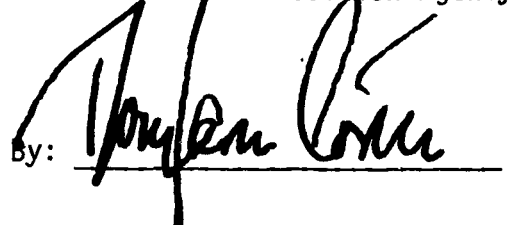
DOT and EPA agree to consult one another in the development of criteria and procedures required by Section 176 of the Clean Air Act, including insuring that all major capital improvement projects are consistent with the SIP.

Signed in Washington, D.C. this 14th day of June, 1978.

Department of Transportation

By: 

Environmental Protection Agency

By: 

ADDENDUM 1

If the EPA Regional Administrator disagrees with the disposition of his comments by DOT, he will so notify the DOT Regional/Division Administrator within seven days. In such a case, the DOT Regional/Division Administrator will not approve the element or elements of the TIP in disagreement until so advised by headquarters.

Within 30 days after the EPA Regional Administrator notifies DOT of his disagreement, the EPA Administrator will notify the Secretary of Transportation if the EPA Administrator disagrees with the DOT field staff disposition of EPA comments, and the reason for the EPA Administrator's disagreement.

If such notification is received within 30 days, the Secretary of Transportation will carefully consider the EPA Administrator's views and in the event of disagreement will notify the EPA Administrator of the disposition of his comments, with appropriate supporting materials before making his decision.

ADDENDUM 2

If the DOT Regional/Division Administrator disagrees with the disposition of his comments by EPA, he will so notify the EPA Regional Administrator within seven days. In such a case, the EPA Regional Administrator will not approve the SIP until so advised by headquarters.

Within 30 days after the DOT Regional/Division Administrator notifies EPA of his disagreement, the Secretary of Transportation will notify the EPA Administrator if the Secretary of Transportation disagrees with the EPA field staff disposition of DOT comments, and the reason for the Secretary's disagreement.

If such notification is received within 30 days, the EPA Administrator will carefully consider the Secretary of Transportation's views and in the event of disagreement will notify the Secretary of the disposition of his comments, with appropriate supporting materials before making his decision.



REF III-1

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
ANN ARBOR, MICHIGAN 48105

JUL 17 1978

OFFICE OF
AIR AND WATER PROGRAMS

SUBJECT: Inspection/Maintenance Policy

FROM: David G. Hawkins, Assistant Administrator
for Air and Waste Management

MEMO TO: Regional Administrators, Regions I - X

As you know, the Clean Air Act Amendments of 1977 set forth specific requirements for the implementation of motor vehicle inspection/maintenance (I/M) programs. Attached is a policy paper indicating what EPA will consider a minimally acceptable program wherever I/M is required by the Act. It should aid your efforts to provide for adequate I/M submissions for the State Implementation Plan (SIP) revisions of January 1, 1979. Please continue to contact me if problems in I/M implementation develop.

cc: Air and Hazardous Materials Division
Directors, Regions I, III - X
Environmental Programs Division Director,
Region II
Air Programs Branch Chiefs, Regions I - X

Policy for the Development and Implementation of
Inspection/Maintenance Programs

The Clean Air Act Amendments of 1977 provide new direction for the development and implementation of motor vehicle inspection/maintenance (I/M) programs. If states are not able to demonstrate attainment of the standards for oxidant (Ox) or carbon monoxide (CO) by December 31, 1982, a specific schedule for the implementation of I/M must be included in the State Implementation Plan (SIP) revisions of January 1, 1979 for the plan to meet the requirements of Section 172. The general requirements for the I/M programs are set out in a February 24, 1978 memorandum from the EPA Administrator to the Regional Administrators (reprinted in the Federal Register on May 19, 1978, 43 F.R. 21673). The requirements, for these programs, are explained in more detail below.

A. I/M SIP Revision Development and the January 1, 1979, Submittal

In producing an I/M SIP revision, the states should provide for:

1. an analysis of the benefits and costs of the program;
2. a public information effort;
3. a legislative proposal; and
4. a schedule for I/M implementation.

A copy of suggested steps for development of the SIP revision is attached (Attachment 1). Before the January 1, 1979 submittal, the SIP revision must be adopted by the state air pollution control board or agency head as appropriate. As a part of the SIP revision submittal itself, there must be a commitment by the Governor to implement the I/M program according to the schedule submitted.*

*Sections 172(b)(7) and (10) provide that the plan revisions required for nonattainment areas shall --

(7) identify and commit the financial and manpower resources necessary to carry out the plan provisions required by this subsection; [Emphasis added]

and shall --

(10) include written evidence that the state, the general purpose local government or governments, or a regional agency designated by general purpose local governments for such purpose, have adopted by statute, regulation, ordinance, or other legally enforceable document, the necessary requirements and schedule and timetables for compliance, and are committed to implement and enforce the appropriate elements of the plan; [Emphasis added]

These plan elements should be prepared in accordance with the guidance on pages 186-188 of the Compilation of Presentations prepared by EPA's Office of Air Quality Planning and Standards (OAQPS) for the "Workshops on Requirements for Nonattainment Area Plans" February -March 1978 (pages 218-220 in the April 1978 edition).

B. The I/M Implementation Schedule

The specific items listed below must be included as a part of the States' I/M implementation schedules with specified dates for implementation of each item. The stringency planned for the program and other factors affecting the potential for emission reductions should also be indicated. Additional items if necessary because of local factors may be required by USEPA Regional Offices.

1. Initiation (or continuation) of public information program including publicizing the I/M program in the media, meeting and speaking with affected interest groups, etc.
2. Preparation of a draft legislative package and submittal of legislation package to legislature if additional legislative authority is needed.
3. Certification of adequate legal authority by appropriate state official.
4. Initial notification of garages explaining program and schedule of implementation.*
5. Development and issuance of RFPs.*
6. Award to contractor(s).*
7. Initiation of construction of facilities.*
8. Completion of construction of facilities.*
9. Adoption of procedures and guidelines for testing and quality control including emission analyzer requirements (and licensing requirements for private garages, if applicable*).
10. Notification of and explanation to garages of actions in step 9.*

11. Completion of equipment purchase and delivery of equipment.
12. Development and adoption of cutpoints.
13. Initiation of hiring and training of inspectors or licensing of garages.*
14. Initiation of introductory program (voluntary maintenance with either voluntary or mandatory inspection) if not previously initiated.
15. Initiation of mechanics training and/or information program.
16. Initiation of mandatory inspection.
17. Initiation of mandatory repair for failed vehicles.

If certification of adequate legal authority occurs after January 1979, the States may modify previous commitments to implement and enforce the elements of the schedule to conform to the legal authority.** These modifications will be approved by the EPA Regional Offices and must be consistent with the Administrator's February 24, 1978, policy memorandum. The documents should be submitted to the EPA Regional Offices for inclusion in the SIP revisions already submitted by January 1, 1979. Any necessary adjustments to the schedule may be made at this time but must be approved by the EPA Regional Offices.

C. Authority to Implement I/M

Normally, adequate legal authority to implement a SIP revision must exist for a revision to be approved. Where a legislature has had adequate opportunity to adopt enabling legislation before January 1, 1979, the Regional Administrator should require certification that adequate legal authority exists for I/M implementation by January 1, 1979. However, for many states there will be insufficient opportunity to obtain adequate legal authority before their legislatures meet in early 1979. Therefore, a certification of legal authority for the implementation of I/M in these states must be made no later than June 30, 1979. An extension to July 1, 1980, is possible, but only when the state can demonstrate that (a) there was insufficient opportunity to conduct necessary technical analyses and/or (b) the legislature has had no opportunity to consider any necessary enabling legislation for inspection/ maintenance between enactment of the 1977 Amendments to the Act and June 30, 1979. Certification of adequate legal authority, or other evidence that legal authority has been adopted, must be submitted to the EPA Regional Offices to be included in the SIP revision already submitted. Failure to submit evidence of legal authority by the appropriate deadline will constitute a failure to submit an essential element of the SIP, under Sections 110(a)(2)(I) and 176(a) of the Act.

*Dependent on type of system chosen (state-run centralized, contractor centralized, or decentralized).

**See footnote on page 1.

Prior to the respective deadlines for initiating mandatory inspection and mandatory repair of failed vehicles, the state, local government, or regional agency should adopt whatever legally enforceable requirements are necessary to ensure that vehicles are not used unless they comply with the inspection/maintenance requirements. Written evidence of adoption of these requirements should be submitted to the EPA Regional Offices, to be included in the SIP revision already submitted by January 1, 1979.*

D. I/M Implementation Deadlines

Implementation of I/M "as expeditiously as practicable" shall be defined as implementation of mandatory repair for failed vehicles no later than two and a half years after passage of needed legislation or certification of adequate legal authority for new centralized systems and one and a half years after legislation or certification for decentralized systems or for centralized systems which are adding emission inspections to safety inspections. For the normal legislation deadline of June 30, 1979, new centralized programs must start by December 31, 1981, and all others must start by December 31, 1980. For the case of the latest possible legislation date, July 1, 1980, this means that a new centralized program must start by December 31, 1982, while all other programs must start by December 31, 1981. Where I/M can be implemented more expeditiously, it must be. Each state implementation schedule must be looked at individually to determine if it is as expeditious as practicable. Implementation dates ordered by courts, if earlier than these dates, take precedence.

E. Geographic Coverage

I/M should focus on metropolitan areas and should include the entire urbanized area and adjacent fringe areas of development. Boundaries of the area affected may be adjusted if an equivalent emission reduction is achieved. For urbanized areas of 200,000 population or greater which need I/M to obtain an extension of the 1982 attainment date, full mandatory I/M must be implemented by the deadlines indicated above. Statewide programs are encouraged, especially for those states which are small and highly urbanized.

It should be emphasized that all nonattainment areas must have SIPs which are adequate to attain and maintain the National Ambient Air Quality Standards (NAAQS) by 1982 or by no later than 1987 should an acceptable nonattainment demonstration be made. For areas under 200,000, EPA will not at this time automatically require I/M schedules in 1979 as a condition for SIP approval or an extension. However, areas under 200,000 still have to attain and maintain NAAQS as expeditiously as practicable, and I/M is encouraged as a means of helping to provide for an adequate SIP. EPA will review the need for I/M in areas under 200,000 after the 1979 SIP revisions are submitted, and will consider additional requirements at that time.

*See footnote on page 1.

F. Emission Reductions Required for I/M

I/M programs must produce at least a 25 percent reduction in light duty vehicle (LDV) exhaust emissions of hydrocarbons and a 25 percent reduction in LDV emissions of carbon monoxide by December 31, 1987, compared to what emissions would be without I/M on the basis of the most recent motor vehicle emission factors. However, the choices of stringency factor to be used and other actions affecting the potential for emission reduction should be made by the states. States should of course be encouraged to develop programs which produce more emission reduction when possible. The final revision to Appendix N (40 C.F.R., Part 51) when promulgated (along with its minimum program requirements) should be used to determine if the program described in the implementation schedule will meet the minimum 25 percent CO/25 percent HC criterion. Should a program not need to be this stringent to attain and maintain the NAAQS by 1982, the I/M program need be only as stringent as needed to assure conformity with NAAQS. Should a state want to emphasize control of one particular pollutant at the expense of the other, the plan for such an I/M program must be submitted to the appropriate EPA Regional Office for approval.

G. Minimum Program Requirements

In addition to the emission reduction requirement above, all I/M programs must:

1. provide for regular periodic inspections of all vehicles for which emission reductions are claimed;*
2. provide for maintenance and retesting of failed vehicles to provide for compliance with applicable emission standards;
3. prohibit registration or provide some equally effective mechanism to prevent vehicles which do not comply with the applicable exhaust emission requirements from operating on public roads;
4. provide for quality control regulations and procedures for the inspection system including:

*Random roadside checks, while a useful addition to an I/M program, are not an acceptable substitute for regular periodic inspections.

-6-

- a. minimum specifications for emission analyzers
 - b. required calibrations of all types on analyzers and
 - c. minimum record keeping;
5. provide for either a mechanics training program or a program to inform the public of service establishments with approved emission analyzers; and
 6. inform the public of the reason for the I/M program plus the locations and hours of inspection stations.

Decentralized systems must also comply with the following requirements.

1. All official inspection facilities must be licensed. Provisions for the licensing of inspection facilities must insure that the facility has obtained, prior to licensing, analytical instrumentation which has been approved for use by the appropriate state, local, or regional government agency. A representative of the facility must have received instructions in the proper use of the instruments and in vehicle testing methods and must have demonstrated proficiency in these methods. The facility must agree to maintain records and to submit to inspection of the facility. The appropriate government agency must have provisions for penalties for facilities which fail to follow prescribed procedures and for misconduct.
2. Records required to be maintained should include the description (make, year, license number, etc.) of each vehicle inspected, and its emissions test results. Records must also be maintained on the calibration of testing equipment.
3. Summaries of these inspection records should be submitted on a periodic basis to the governing agency for auditing.
4. The governing agency should inspect each facility periodically to check the facilities' records, check the calibration of the testing equipment and observe that proper test procedures are followed.
5. The governing agency should have an effective program of unannounced/unscheduled inspections both as a routine measure and as a complaint investigation measure. It is also recommended that such inspections be used to check the correlation of instrument readings among inspection facilities.

6. The governing agency should operate a "referee" station where vehicle owners may obtain a valid test to compare to a test from a licensed station. At least one "referee" station must be present in each I/M metropolitan area.

Attachment 1
Suggested I/M Milestones

1. Complete plan for preparing and implementing I/M SIP revision including:
 - a. technical analysis
 - b. public information program
 - c. development of necessary legislation
 - d. development of I/M implementation schedule.
2. Complete technical analysis including:
 - a. emission reduction benefits
 - b. fuel economy benefits
 - c. costs.
3. Complete elements of a continuing public information program including:
 - a. further publicity concerning oxidant (and/or carbon monoxide) episodes
 - b. meeting with and speaking to affected interest groups (including the public and public officials)
 - c. news releases.
4. Complete development of legislative proposals.
5. Complete development of I/M implementation schedule.
6. Receive approval of I/M, including implementation schedule, from air pollution control board or agency head as applicable and introduce into state legislature.
7. Submit SIP revision for I/M, including implementation schedule, to EPA (due no later than January 1, 1979).
8. Obtain legal authority needed to implement I/M (required by July 1, 1979, with some exceptions allowed until July 1, 1980).

QUESTIONS AND ANSWERS CONCERNING THE BASIS FOR THE AGENCY'S
POSITION ON CONTROLLING HYDROCARBONS TO REDUCE OXIDANT

Office of Air Quality Planning and Standards
Monitoring and Data Analysis Division
Research Triangle Park, North Carolina 27711
September, 1978

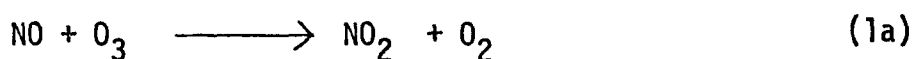
The Environmental Protection Agency is sometimes asked what the basis is for the strategy of controlling organic emissions to reduce ambient levels of photochemical oxidant. Recently, concern about the strategy has been voiced by State/local air pollution agencies and others in light of a report prepared for the Manufacturing Chemists Association.* This report concludes that existing ambient air quality data do not necessarily support the hypothesis that reducing hydrocarbon emissions reduces ambient ozone levels. The Agency believes that convincing evidence exists that reducing hydrocarbons will reduce ambient concentrations of ozone. This position rests primarily upon experimental and theoretical studies which have clearly established a physical cause-effect relationship between organic pollutants and ozone in the presence of oxides of nitrogen. In addition, there are a limited number of areas having ambient air quality and emission estimates over sufficiently long periods of record which tend to confirm the theory of smog formation. Following is a series of questions and answers pertaining to the strategy of controlling organic emissions to reduce ambient levels of ozone. The questions/answers first discuss the theoretical and experimental basis for control of organic emissions. Next, the issue of oxidant transport and its impact on control strategies is referred to. Third, the uses and difficulties of trend analyses are mentioned. Finally, statistically significant associations of downward trends in ozone with precursor trends are presented. The answers to the questions posed are intentionally concise.

* Radian Corporation, Examination of Ozone Levels and Hydrocarbon Emissions Reduction, Final Report DCN 77-100-151-04 submitted to the Manufacturing Chemists Association, (November 1977).

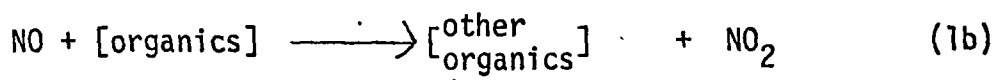
As such, they cannot go into the detail required for complete understanding of the State of the Art. Lists of references pertaining to each major subject area are enclosed. These may be pursued by the interested reader.

1. What roles are organic pollutants and oxides of nitrogen believed to play in formation of ozone?

Synthesis of ozone (O_3) is formed through several reactions involving oxides of nitrogen (NO_x), organic pollutants and sunlight. Most anthropogenic sources emit NO_x as nitric oxide (NO). NO is then oxidized by ambient ozone or organic species to form nitrogen dioxide (NO_2).



or



NO_2 is next photolyzed by sunlight to form more NO and atomic oxygen (O).



The atomic oxygen then reacts with abundant atmospheric oxygen (O_2) to form ozone.



Reactions (1) - (3), some of which produce ozone, others of which destroy ozone, are all very fast. The result is a chemical equilibrium which is established among O_3 , NO_2 and NO:

$$[O_3] = k \frac{[NO_2]}{[NO]} \quad (4)$$

where k = a constant value reflecting reaction rate constants and sunlight intensity.

Equation (4) is sometimes called the "photostationary state." It can be seen from Equation (4) that anything which increases NO_2 concentrations and/or decreases NO concentrations, increases O_3 . Reaction (1b) is more effective than reaction (1a) in converting NO to NO_2 because:

- (a) other organic species which may also convert NO to NO₂ are formed, and
- (b) ozone is not destroyed as it is in reaction (1a).

Summarizing the previous discussion, organic pollutants are important precursors of O₃ because they cause the equilibrium among NO₂, NO and O₃ to be shifted towards higher NO₂ and O₃ and lower NO. The role of NO_x is more ambiguous. Near sources of NO it diminishes O₃ levels. Further downwind, more of the NO is converted to NO₂ which, in turn, reacts with sunlight to form ozone.

2. What observations exist to support the roles of organic pollutants and oxides of nitrogen in the formation of ozone?

The roles of organics and NO_x in ozone formation have been studied extensively in smog chambers. A smog chamber is a transparent container which can be as large as a room. The usual experimental procedure is to inject known amounts of organic and NO_x precursors into the chamber and then irradiate the mixture with artificial lights or sunlight. Measurements are then made of ozone and other compounds which are formed during the ensuing chemical reactions. Chemical kinetics models (mechanisms) are then hypothesized to explain the observed behavior of pollutants in smog chamber experiments. By altering only the initial concentration of organic pollutants or of NO_x and repeating chamber experiments a number of times, the sensitivity of maximum ozone concentrations to organics and NO_x concentrations can be observed. Using either kinetics models or chamber data directly, one can plot maximum hourly ozone as a function of precursor concentrations, as shown by the ozone isopleths in Figure 1. For a variety of different chambers and kinetics models employing different assumptions, ozone isopleths have an essentially similar shape to the L-shape shown in Figure 1. It can be seen from Figure 1, that the effectiveness of organic or NO_x controls depends on the relative amounts of organics or NO_x available to react to form ozone. For example, maximum ozone concentrations are much more sensitive to organic controls if the NMHC/NO_x ratio is low than if

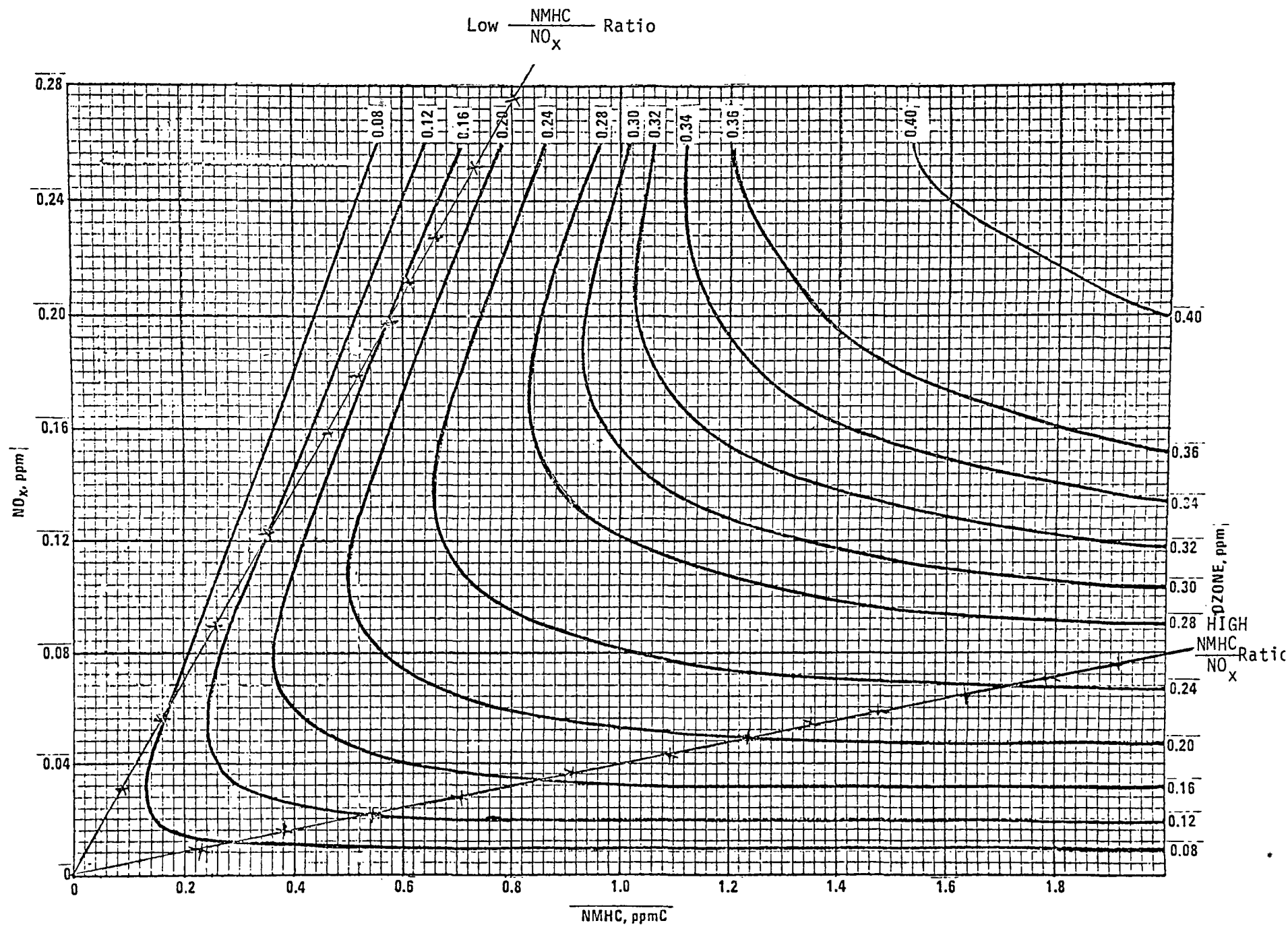


FIGURE 1. Example set of maximum hourly ozone isopleths expressed as a function of ambient organic and NO_x precursors.

this ratio is high. Thus, if NMHC/NO_x ratios are less than about 15-20:1, smog chamber experiments and kinetics models suggest controlling VOC emissions should be an effective strategy for reducing ozone. The lower the ratio, the more effective such a strategy is likely to be. Examination of available NMHC and NO_x data suggests that most cities experience ratios in the order of 6-12:1. If isopleths generated by kinetics models (typified by Figure 1) are considered in conjunction with meteorological changes, the next step in sophistication is reached--photochemical dispersion models. Much work has been conducted in developing photochemical dispersion models in the past few years. Extensive efforts are currently underway to validate these models. However, limited comparisons which have been undertaken in Denver and San Francisco have produced reasonably good agreement with observed ozone data. Simulations with these models suggest that controlling organic pollutants will reduce both maximum concentrations of ozone and areawide exposure to ozone. The results obtained thus far with simulations of NO_x controls are ambiguous. These results suggest that controlling NO_x will increase ozone near sources of NO, but that this effect becomes less pronounced as one proceeds downwind. There is good reason to believe that if one were to proceed downwind still further, a beneficial impact would be observed for NO_x control. In addition to the previously discussed theory, Sunday-weekday comparisons of ozone concentrations in the northeast suggest this is the case.

3. How is long range transport likely to affect previously described Organic-NO_x-Ozone relationships?

Long range (overnight) transport of significantly high (>.08 ppm) concentrations of ozone has been well established in the northeastern quadrant of the nation under some circumstances. Although measurements of rural organic and NO_x precursor concentrations are very much lower than those measured in urban areas, it is conceivable that non-negligible amounts of precursors may occasionally be transported over long distances as well. The understanding of the role of precursors transported overnight is hindered by the fact that their significance may depend on the ability of very low concentrations of NO₂ to remain or be reformed in the atmosphere. Because

the concentrations involved are so low, the usefulness of smog chamber experiments to shed light on this process is a center of controversy. Only a limited number of overnight chamber simulations have been run to date. These suggest that organic emission controls may be less effective in reducing the second day's maximum ozone concentration (in the absence of fresh precursor emissions on the second day). Although the applicability of kinetics models is less certain in the absence of confirmatory chamber data, these models may be useful in addressing the question of how previously described ozone-precursor relationships are affected by long range transport. Studies conducted by EPA to date suggest that ozone transported from upwind of a city exerts a greater impact on maximum ozone downwind of the city than do transported upwind precursors. This impact appears to be only about 50 percent or less of what one might at first expect. For example, if .12 ppm O_3 were transported from upwind, the impact on maximum ozone downwind of a city might only be about .06 ppm. Because measured data suggest that fresh urban precursors greatly exceed transported precursors, fresh precursors overwhelm those transported from afar. Hence, the impact of transported precursors in major urban areas is probably relatively small.

The problem of organic- NO_x - O_3 relationships in rural areas is not sufficiently resolved. [High NMHC/ NO_x ratios in such areas together with some NO_x plume data which suggest the possibility of O_3 buildup far downwind provide hints that the ability of new O_3 to be generated in rural areas is limited by the amount of available NO_x]. Kinetics model simulations and limited smog chamber data suggest that urban control programs based upon VOC reductions which reduce O_3 immediately downwind of urban areas will have some, less dramatic beneficial impact on O_3 in rural areas further downwind.

4. How should observed trends in ambient air quality data be used to assess the effectiveness of control programs for ozone?

In utilizing trend data, it is desirable to keep all variables besides emissions constant so that changes in O_3 which result can be more readily attributed to the changes in emissions. In practice, of course, this is

impossible to do. Nevertheless, for trend analysis to be most meaningful, one should strive to meet the following ground rules:

- (a) comparisons should be made at identical locations;
- (b) identical or similar measurement procedures, instrument configurations and quality assurance checks should be employed;
- (c) similar dates of observation should be compared to remove seasonal bias in the data;
- (d) enough days should be included from each year to reduce bias which may be introduced by weather system patterns;
- (e) enough years should be considered so that the importance of meteorological bias can be discounted;
- (f) similar configurations of sources should exist near the monitoring location during each year.

Because the need to adhere to point (e) may cause the most frustration to State and local agencies trying to document the effectiveness of previously implemented controls, this point will be elaborated upon. A number of statistical studies which have attempted to explain the variance in day to day fluctuations in maximum O_3 concentrations have found that a much greater portion of the variance is explained by changes in meteorological parameters. Thus, despite the fact that fairly substantial differences in emissions may be possible when the wind blows in different directions, the impact of changes in emissions is overwhelmed by more significant changes in meteorology. Hence, when one attempts to compare fairly small changes in emissions, which may occur over a 2-3 year period of record, to changes in ambient ozone levels, the effect of the emission changes may be obliterated by unfavorable changes in meteorology. It had been generally believed by EPA that at least a five year period of record may be needed to discern a trend in air quality attributable to changes in emissions. A recent review of ozone trend data conducted for EPA in areas having long period of record suggest that periods as long as eight years may be required. Thus,

while efforts are underway within EPA to develop procedures for "normalizing trends" for differing meteorology during short periods of record, at the present time trend analysis is only useful in a limited number of areas.

5. Do ambient air quality trend data exist which suggest that reducing organic emissions will lead to reductions in ambient O_3 /oxidant levels?

Statistically significant downward trends in ambient oxidant levels have been observed in two urban areas: the Los Angeles Basin and the San Francisco Bay area. Statistically significant relationships between organic emission reductions and oxidant levels appear to exist in these two areas. In addition, significant downward trends have been observed in highest oxidant concentrations and in the frequency with which the .08 ppm Federal standard for oxidants is exceeded at central city CAMP sites in 5 of 6 cities over a 10-year period of record. Tables 1 and 2 show the trends observed at the CAMP sites. The downward trends are likely attributable to reductions in organic emissions as well as increases in NO emissions near each site.

Table 3 is derived from a recent report prepared by the California Institute of Technology on oxidant and precursor trends observed in the South Coast Air Basin (i.e., the Los Angeles area) over a 9-year period. The air quality trends (i.e., rows 3 and 4) represent composite trends for all sites within each of the indicated counties. Note that trends in organic emissions (row 1) are generally down and oxidant (row 3) are generally down, whereas trends in NO_x emissions and ambient NO_2 are generally up. Figure 2 depicts countywide organic and NO_x emission trends for each county and ambient oxidant trends at individual sites in the basin. Note the spatial distribution of trends. Downward oxidant trends are most dramatic in Los Angeles County where the bulk of the organic emission reductions have occurred and where the relative increase in NO_x is less. At counties on the downwind (i.e., eastern) edge of the basin (i.e., Riverside and San Bernardino), oxidant has remained about the same or gone up. These observations are consistent with the decreases in organic emissions and the increase in ambient NO_2 observed throughout the basin.

TABLE 1

Comparisons of Average Highest and 2nd Highest Annual 1 Hr
Maximum Oxidant for Three Year Intervals 1964-66 & 1971-73

<u>Site</u>	<u>Average 1964-66 Values</u>		<u>Average 1971-73 Values</u>		<u>% Change</u>	
	<u>Highest</u>	<u>2d High</u>	<u>Highest</u>	<u>2d High</u>	<u>Highest</u>	<u>2d High</u>
Chicago	0.125	0.11	0.125	0.11	0	0
Cincinnati	0.175	0.13	0.14	0.11	-20	-15
Denver	0.215 ^a	0.185 ^a	0.165 ^b	0.12 ^b	-23	-36
Philadelphia	0.24	0.205	0.12 ^c	0.115 ^c	-50	-44
St. Louis	0.205	0.145	0.135	0.11	-34	-24
Washington, D.C.	0.17	0.145	0.145 ^c	0.135 ^c	-14	-7

^a1965-1967^b1970, 1972, 1973^c1970, 1971, 1973

Reference: Altshuller, A. P., "Evaluation of Oxidant Results at CAMP Sites in the United States",
JAPCA 25 (Jan 1975) pp. 19-24.

TABLE 2


Comparisons of Total Number of (Observed) Days that Oxidant
Concentration Fell in Intervals Above 0.08 ppm for Three-Year
Intervals 1971-73 and 1964-66

<u>Site</u>	<u>1964-1966</u>		<u>1971-1973</u>		<u>% Change</u>	
	<u>0.085- 0.12 ppm</u>	<u>0.125 ppm & above</u>	<u>0.085- 0.12 ppm</u>	<u>0.125 ppm & above</u>	<u>0.085 ppm- 0.12 ppm</u>	<u>0.125 ppm & above</u>
Chicago	9	2	14	2	+36	0
Cincinnati	59	19	37	6	-37	-68
Denver	72	39	34	9	-53	-77
Philadelphia	80	35	21	2	-74	-94
St. Louis	85	12	14	4	-84	-67
Washington, D. C.	87	14	42	4	-52	-71

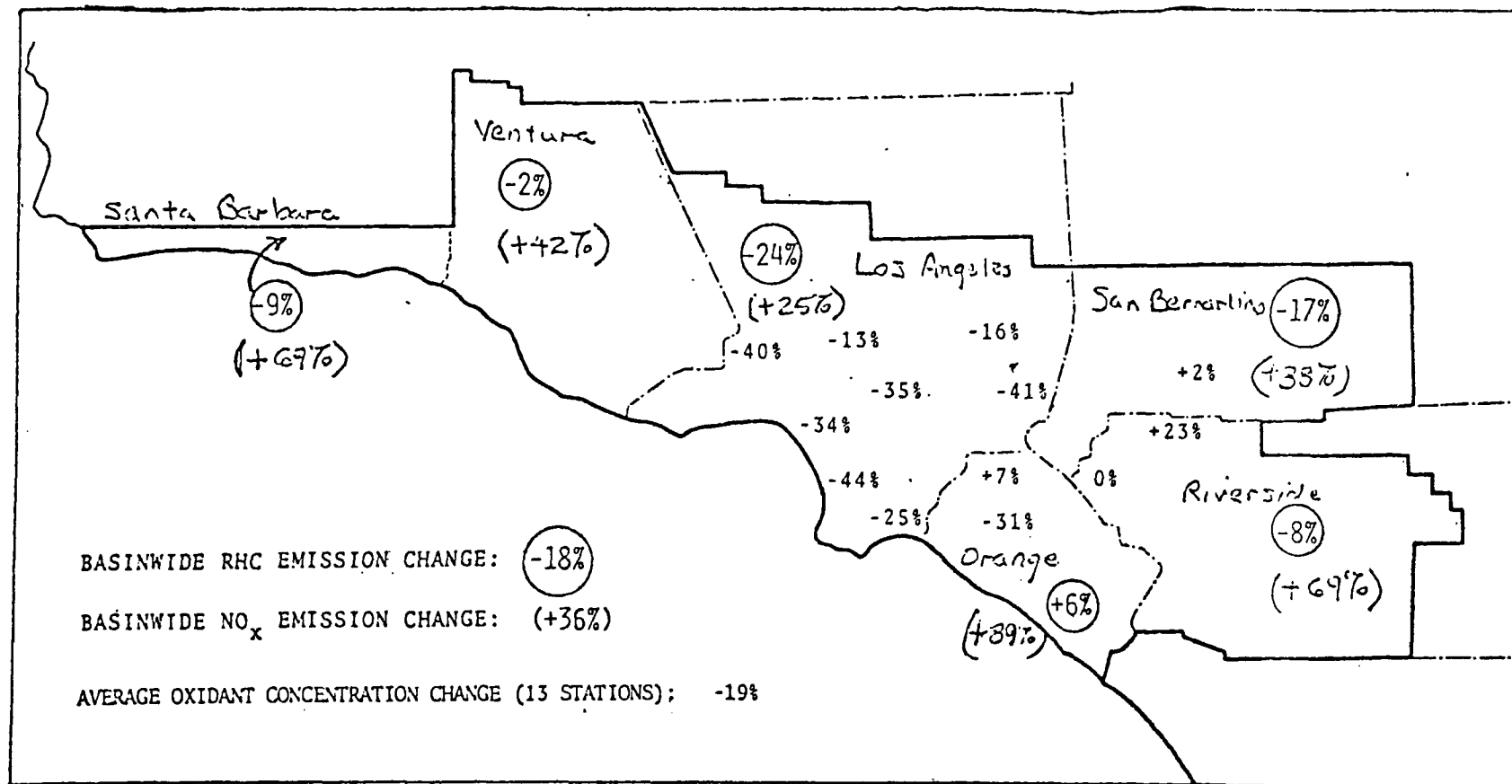
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Reference: Altshuller, A. P., "Evaluation of Oxidant Results at CAMP Sites in the United States",
JAPCA 25 (Jan. 1975) pp. 19-24.

TABLE 3 -- Emission and Air Quality Trends in the
South Coast Air Basin, 1966 - 1974¹

County	Prevailing Wind Direction 						Basin-wide Average
	Santa Barbara	Ventura	Los Angeles	Orange	Riverside	San Bernardino	
% Change in RHC Emissions	-9%	-2%	-24%	+6%	-8%	-17%	-18%
% Change in NO _x Emissions	+69%	+42%	+25%	+89%	+69%	+38%	+36%
% Change in County-wide Oxidant (# of Stations)	No data	No data	-31% (8 sites)	-12%* (2 sites)	+12% (2 sites)	+2% (1 site)	-19% (13 sites)
% Change in County-wide NO ₂ (# of stations)	No data	No data	+19% (8 sites)	+93% (2 sites)	No data	+47% (1 site)	+35% (11 sites)
% of Basin Population (1970)	2.6	3.7	68.7	13.9	4.5	6.7	

*One site reported an increase of +7%, the other a decrease of -31%.



TRENDS IN RHC EMISSIONS AND OXIDANT AIR QUALITY, 1965-1974

Figure 2

Table 4 depicts trends observed over a 13-year period of record at representative monitoring sites in counties within the San Francisco Bay Area Air Basin. Note that over this long period of record, the trend in oxidant concentrations is downward at all sites. The data at San Jose serve to illustrate why it is a good idea to study the effect of emission controls over a long period of record. If one only had data for 1972-74 at San Jose, he would be led to conclude (falsely) that emission controls exercised over this period have led to a deterioration in oxidant levels. As discussed earlier, it is likely that emission changes exercised over such a short period are overwhelmed by other, unrelated factors.

6. What are the implications of a recent report, "Examination of Ozone Levels and Hydrocarbon Emissions Reduction", which has been prepared for the Manufacturing Chemists Association?

This study was divided into three phases. In the first phase, trends in ambient ozone were compared with estimated organic emission reductions in five cities. The period of record was a short one--two, or at most, three years. In some of the cities, observed oxidant levels increased while in others observed levels remained about the same. The authors of the study conclude that existing data did not necessarily support the hypothesis that reducing hydrocarbon emissions reduces ambient ozone levels. However, they also conclude that there are not sufficient amounts of good quality data with which to draw more definite conclusions. For the reasons discussed in the responses to questions 4 and 5, a review of trends over a 2-3 year period is likely to be an exercise in futility. This is because more significant changes in meteorology occur from year to year. One of the cities reviewed in the MCA report is Houston, Texas. Houston is of particular interest because large reductions in organic emissions are claimed over the period studied for the MCA and the city experiences very high ozone concentrations. Despite the 20-30 percent reduction in organic emissions claimed over the period of record, ambient non-methane hydrocarbon (NMHC) concentrations

TABLE 4

AVERAGE HIGH-HOUR OXIDANT CONCENTRATIONS FOR DAYS WITH COMPARABLE TEMPERATURE AND INVERSION CONDITIONS. (APRIL THROUGH OCTOBER OXIDANT SMOG SEASONS, 1962-1974)
(Source: Information Bulletin 3-25-75: A Study of Oxidant Concentration Trends: Technical Services Division, Bay Area Air Pollution Control District.)

Monitoring Station	Average High-Hour Oxidant Concentration (KI parts per million)													13-yr	Oxidant Trend Direction	
	'62	'63	'64	'65	'66	'67	'68	'69	'70	'71	'72	'73	'74		(1970-74 only)	All Data
San Francisco	.14	.12	.15	.09	.08	.08	.05	.04	.07	.05	.03	.04	.05	.08	-	-
San Leandro	.13	.16	.19	.19	.14	.12	.11	.12	.12	.11	.10	.11	.10	.13	-	-
San Jose	.11	.17	.14	.16	.11	.13	.13	.13	.12	.08	.10	.11	.16	.13	+	-
Redwood City	.13	.10	.10	.14	.10	.09	.08	.09	.08	.07	.08	.07	.07	.09	-	-
Walnut Creek	.10	.11	.10	.11	.10	.13	.10	.13	.09	.09	.09	.08	.08	.10	-	-
San Rafael	.08	.09	.07	.08	.07	.07	.06	.07	.08	.07	.05	.05	.06	.07	-	-
BAAPCD Average*	.12	.12	.13	.13	.10	.10	.09	.10	.09	.08	.08	.08	.09	.10	-	-
Livermore**	--	--	--	--	--	.13	.18	.18	.13	.11	.09	.12	.13	.13	+	-

* For benchmark stations above, with 13 years of record.

** Station with 8 years of record.

increased at one of two sites in the city. Further, there is some question about whether a significant fraction of the claimed emission decrease occurred before or at the beginning of the period of record for reported ozone observations. Ozone trends obviously would not reflect such changes even if there were no complications introduced by meteorology, monitor location and other extraneous factors. Interpretation of the trends is, however, further complicated by more adverse meteorology which occurred during the latter portion of the study (1976).

The second phase of the study for MCA reviewed levels of NMHC and NO, NO₂ and NO_x which occurred during periods of high ozone. In some cases ozone increased as observed NMHC and/or NO_x went up. In other cases there were no obvious relationships. It is generally difficult to draw any conclusions from observations of this sort, because much of the variability in ozone concentrations has been eliminated before the analysis is even begun. Hence, the changes in ozone levels one is asked to explain are generally small and the number of possible explanations are still large. The authors conclude that precursor-ozone relationships cannot be readily derived without also considering meteorological changes. Other studies described in previous responses would certainly support this conclusion.

The third and final phase of the study for MCA attempted to relate high ozone levels to the passage of weather fronts (by inference implicating stratospheric intrusion). The authors found that ozone decreases with the passage of a weather front and then increases again several days later. Such observations are consistent with those in earlier studies conducted for EPA. These observations do not provide support for the hypothesis that stratospheric intrusion is a significant factor leading to widespread high concentrations of ozone which have been reported in certain parts of the country.

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DATE: 28 APR 1978

SUBJECT: Development of Regulations for HC RACT from CTG's

FROM: Walter C. Barber, Director *WB*
Office of Air Quality Planning and Standards

TO: Robert Duprey, Director
Air & Hazardous Materials Division, EPA Region V

The Control Techniques Guideline documents were published to aid in developing RACT-type regulations for sources of volatile organics. It appears that they are being interpreted too narrowly and that regulations based on the CTG's documents are using only the presumptive emission number and neglecting to include the qualification that this number may be either too restrictive or too lenient for some facilities. The CTG documents contain the statement "It must be cautioned that the limits reported in this Preface are based on capabilities and problems which are general to the industry, but may not be applicable to every plant". This caveat was noted in the memo on implementation of RACT for HC sources from Dave Hawkins to all R.A.'s on February 2, 1978 "Where economics or other circumstances justify regulatory requirements less stringent than those contained within the CTG's, such justification should be clearly documented in the SIP submittal."

Tough presumptive numbers were selected assuming that they did not have to be achievable or reasonable for every source. If the presumptive CTG number is used verbatim in a regulation, there should be a provision or a procedure to allow relaxation after a case-by-case demonstration of infeasibility, (technical or economic) either during the proposal period or as a later SIP revision.

The example RACT-type regulations for VOC that CCA did for Region V use the presumptive CTG numbers as absolutes. You should consider adding the appropriate general provision or noting in the package that a form of a variance procedure is needed if the limitation in the example regulations are to be applicable to all sources.

cc: D. Goodwin
J. Calagni
D. Rhoads
R. Wilson
M. James
Air & Hazardous Materials Division Directors (Regions I-IV, VI-X)
✓ Regional Air Branch Chiefs (Regions I-X)

STATIONARY SOURCES OF VOLATILE ORGANIC COMPOUNDS
AND SCHEDULE FOR APPLICABLE CONTROL TECHNIQUES GUIDELINES^{1/}

SOURCE CATEGORY	NATIONWIDE EMISSIONS, 1,000 metric tons/yr	FINAL REPORT DATE
Petroleum Refinery Fugitive Emissions (Leaks)	150	Enclosed
Surface Coating of Miscellaneous Metal Parts and Products	200	Enclosed
Vegetable Oil Processing	70	Enclosed
Factory Surface Coating of Flatwood Paneling	50	Enclosed
Large Appliance Manufacture	35	1977
Magnet Wire Insulation	10	1977
Gasoline Bulk Plants	150	1977
Metal Furniture Manufacture	100	1977
Petroleum Liquid Storage, Fixed Roof Tanks	700	1977
Degreasing	700	1977
Bulk Gasoline Terminals	250	1977
Petroleum Refinery Vacuum Systems, Wastewater Separators and Process Unit Turnarounds	700	1977
Cutback Asphalt Paving	700	1977
Surface Coating of Automobiles, Cans, Metal Coils, Paper, and Fabric Products	900	1977
Service Stations, Stage I	400	Control technology information has been widely distributed, available on request. ^{2/}
Pharmaceutical Manufacture	50	December, 1978
Rubber Products Manufacture	150	December, 1978
Graphic Arts (Printing)	400	December, 1978
Service Stations, Stage II	500	December, 1978
Petroleum Liquid Storage, Floating Roof Tanks	150	December, 1978

SOURCE CATEGORY	NATIONWIDE EMISSIONS, 1,000 metric tons/yr	FINAL REPORT DATE
Organic Chemical Manufacture		
Process Streams	450	December, 1978
Fugitive (Leaks)	600	December, 1978
Dry Cleaning	250	December, 1978
Architectural and Miscellaneous Coatings	300	December, 1978
Ship and Barge Transport of Gasoline and Crude Oil	60	June, 1979
Wood Furniture Manufacture	200	June, 1979
Organic Chemical Manufacture		
Waste Disposal	150	June, 1979
Storage and Handling	300	June, 1979
Natural Gas and Crude Oil Production	200	Screening studies underway
Natural Gas and Natural Gasoline Plants	150	Screening studies being initiated
Adhesives	200	Not yet scheduled
Other Industrial Surface Coatings	300	Not yet scheduled
Auto Refinishing	150	Not yet scheduled
Other Solvent Usage	3,000	Source strengths of major categories being confirmed before initiating CTG analysis.
Metals Manufacture	4,000	None planned
Other Manufacturing		
Fuel Combustion		
Forest, Agricultural and Other Open Burning		
Solid Waste Disposal		
TOTAL STATIONARY SOURCES	16,700,000 metric tons per year	
TOTAL TRANSPORTATION SOURCES	10,600,000 metric tons per year	

- 1/ This inventory was developed from national production and consumption information using average emission factors. The technique necessarily requires assumptions that cannot be confirmed in every case. We anticipate that the figures will change as better information is developed and generalized categories such as "other solvent usage" are more clearly defined.
- 2/ "Design Criteria for Stage I Vapor Control Systems Gasoline Service Stations," U. S. Environmental Protection Agency, November, 1975, and "A Study of Vapor Control Methods for Gasoline Marketing Operations: Volume I - Industry Survey and Control Techniques," U. S. Environmental Protection Agency, EPA-450/3-75-046a, April, 1975.

FRIDAY, JULY 8, 1977

PART III



ENVIRONMENTAL PROTECTION AGENCY



AIR QUALITY

**Recommended Policy on Control of
Volatile Organic Compounds**

ENVIRONMENTAL PROTECTION AGENCY

[FRL 729-5]

AIR QUALITY

Recommended Policy on Control of Volatile Organic Compounds

PURPOSE

The purpose of this notice is to recommend a policy for States to follow on the control of volatile organic compounds (VOC), which are a constituent in the formation of photochemical oxidants (smog). This notice does not place any requirements on States; State Implementation Plan (SIP) provisions which offer reasonable alternatives to this policy will be approvable. However, this policy will be followed by EPA whenever it is required to draft State Implementation Plans for the control of photochemical oxidants.

BACKGROUND

Photochemical oxidants result from sunlight acting on volatile organic compounds (VOC) and oxides of nitrogen. Some VOC, by their nature, start to form oxidant after only a short period of irradiation in the atmosphere. Other VOC may undergo irradiation for a longer period before they yield measurable oxidant.

In its guidance to States for the preparation, adoption, and submittal of State Implementation Plans published in 1971, the Environmental Protection Agency emphasized reduction of total organic compound emissions, rather than substitution. (See 40 CFR Part 51, Appendix B.) However, in Appendix B, EPA stated that substitution of one compound for another might be useful where it would result in a clearly evident decrease in reactivity and thus tend to reduce photochemical oxidant formation. Subsequently, many State Implementation Plans were promulgated with solvent substitution provisions similar to Rule 66 of the Los Angeles County Air Pollution Control District. These regulations allowed exemptions for many organic solvents which have now been shown to generate significant photochemical oxidant.

On January 29, 1976, EPA published its "Policy Statement on Use of the Concept of Photochemical Reactivity of Organic Compounds in State Implementation Plans for Oxidant Control." The notice of availability of this document appeared in the FEDERAL REGISTER on February 5, 1976 (41 FR 5350).

The 1976 policy statement emphasized that the reactivity concept was useful as an interim measure only, and would not be considered a reduction in organic emissions for purposes of estimating attainment of the ambient air quality standard for oxidants. The document also included the following statement:

Although the substitution portions of Rule 66 and similar rules represent a workable and acceptable program at the present time, better substitution regulations can be developed, based on current knowledge of re-

activity and industrial capability. EPA in collaboration with State and industry representatives will formulate in 1976 an improved rule for national use.

SUMMARY

Analysis of available data and information show that very few volatile organic compounds are of such low photochemical reactivity that they can be ignored in oxidant control programs. For this reason, EPA's recommended policy reiterates the need for positive reduction techniques (such as the reduction of volatile organic compounds in surface coatings, process changes, and the use of control equipment) rather than the substitution of compounds of low (slow) reactivity in the place of more highly (fast) reactive compounds. There are three reasons for this. First, many of the VOC that previously have been designated as having low reactivity are now known to be moderately or highly reactive in urban atmospheres. Second, even compounds that are presently known to have low reactivity can form appreciable amounts of oxidant under multiday stagnation conditions such as occur during summer in many areas. Third, some compounds of low or negligible reactivity may have other deleterious effects.

Of the small number of VOC which have only negligible photochemical reactivity, several (benzene, acetonitrile, chloroform, carbon tetrachloride, ethylene dichloride, ethylene dibromide, and methylene chloride) have been identified or implicated as being carcinogenic, mutagenic, or teratogenic. An additional compound, benzaldehyde, while producing no appreciable ozone, nevertheless, forms a strong eye irritant under irradiation. In view of these circumstances, it would be inappropriate for EPA to encourage or support increased utilization of these compounds. Therefore, they are not recommended for exclusion from control. Only the four compounds listed in Table 1 are recommended for exclusion from SIP regulations and, therefore, it is not necessary that they be inventoried or controlled. In determining reductions required to meet oxidant NAAQS, these VOC should not be included in the base line nor should reductions in their emission be credited toward achievement of the NAAQS.

It is recognized that the two halogenated compounds listed in Table 1 (methyl chloroform and Freon 113) may cause deterioration of the earth's ultraviolet radiation shield since they are nearly unreactive in the lower atmosphere and all contain appreciable fractions of chlorine. The Agency has reached conclusions on the effects of only the fully halogenated chlorofluoroalkanes. The Agency on May 13, 1977 (42 FR 24542), proposed rules under the Toxic Substances Control Act (TSCA) to prohibit the nonessential use of fully halogenated chlorofluoroalkanes as aerosol propellants. The restrictions were applied to all members of this class, including Freon 113, since they are potential substitutes for Freon 11, Freon 12,

Freon 114, and Freon 115, which are currently used as aerosol propellants. The Agency is planning to investigate control systems and substitutes for nonpropellant uses under TSCA, as announced on May 13. Methyl chloroform is not a fully halogenated chlorofluoroalkane. Rather, it is among the chlorine-containing compounds for which the Agency has not completed its analysis; EPA has not yet concluded whether it is or is not a threat to the stratospheric ozone. Therefore, it has been placed on this list as an acceptable exempt compound. As new information becomes available on these compounds, EPA will reconsider the recommendation.

The volatile organic compounds listed in Table 2, while more photochemically reactive than those in Table 1, nevertheless do not contribute large quantities of oxidant under many atmospheric conditions.

TABLE 1.—Volatile Organic Compounds of Negligible Photochemical Reactivity That Should Be Exempt From Regulation Under State Implementation Plans

Methane
Ethane
1,1,1-Trichloroethane (Methyl Chloroform)¹
Trichlorotrifluoroethane (Freon 113)¹

¹ These compounds have been implicated as having deleterious effects on stratospheric ozone and, therefore, may be subject to future controls.

TABLE 2.—Volatile Organic Compounds of Low Photochemical Reactivity

Propane
Acetone
Methyl Ethyl Ketone
Methanol
Isopropanol
Methyl Benzoate
Tertiary Alkyl Alcohols
Methyl Acetate
Phenyl Acetate
Ethyl Amines
Acetylene
N, N-dimethyl formamide

Only during multiday stagnations do Table 2 VOC yield significant oxidants. Therefore, if resources are limited or if the sources are located in areas where prolonged atmospheric stagnations are uncommon, priority should be given to controlling more reactive VOC first and Table 2 organics later. Table 2 VOC are to be included in base line emission inventories and reductions in them will be credited toward achievement of the NAAQS. Reasonably available control technology should be applied to significant sources of Table 2 VOC where necessary to attain the NAAQS for oxidants. New sources of these compounds will also be subject to new source review requirements.

Perchloroethylene, the principal solvent employed in the dry cleaning industry, is also of low reactivity, comparable to VOC listed in Table 2. It was not included in Table 2 because of reported adverse health effects. Uses, environmental distribution, and effects of perchloroethylene currently are being studied intensively by occupational health authorities. Perchloroethylene currently are being studied investigations may have major impact on

industrial users. In designing control regulations for perchloroethylene sources, particularly dry cleaners, consideration should be given to these findings as well as industry requirements and the cost of applying controls. Available control technology is highly cost effective for large perchloroethylene dry cleaning operations. However, for coin-operated and small dry cleaners, the same equipment would represent a heavy economic burden.

As part of its continuing program, EPA will review new information relative to the photochemical reactivity, toxicity, or effects on stratospheric ozone of volatile organic compounds. Where appropriate, additions or deletions will be made to the lists of VOC in Tables 1 and 2.

DISCUSSION

Most air pollution control regulations applicable to stationary sources of VOC in the United States are patterned after Rule 66 of the Los Angeles County Air Pollution Control District (presently Regulation 442 of the Southern California Air Pollution Control District). Rule 66 and similar regulations incorporate two basic strategies to reduce ambient oxidant levels, i.e., positive VOC reduction and selective solvent substitution based on photochemical reactivity. Positive reduction schemes such as incineration, absorption, and the use of low-solvent coatings are acknowledged means of reducing ambient oxidant levels; they should be retained in future VOC control programs. In contrast, the utility of solvent substitution strategies has been questioned as more information on photochemical reactivity has emerged.

EPA acknowledged the shortcomings of solvent substitution based on Rule 66 reactivity criteria in a 1976 policy statement (41 FR 5350). Findings were cited which indicated that almost all VOC eventually react in the atmosphere to form some oxidant. Concurrently, EPA initiated an investigation to consider implications of revising the solvent substitution aspects of Rule 66. Three separate forms were conducted with representatives of State and local air pollution control agencies, university professors, and industrial representatives with knowledge and expertise in the fields of atmospheric chemistry and industrial solvent applications. In addition, numerous discussions were held with acknowledged experts in the field. Topics of particular concern were:

Whether Rule 66 substitution criteria could be revised consistent with available reactivity data and yet be compatible with industrial processes and with product requirements.

Whether some compounds are of sufficiently low reactivity that they are not oxidant precursors and can be exempted from control under State Implementation Plans.

Whether the imposition of reactivity restrictions in addition to positive emission reductions will delay the development or implementation of promising technologies, particularly the use of water-borne and high-solids surface coatings.

Investigation showed that:

1. Solvent substitution based on Rule 66 has been directionally correct in the aggregate and probably effects some reductions in peak oxidant levels. However, because of the relatively high reactivity of most of the substituted solvents, the reduction is small compared to that which can be accomplished with positive reduction techniques. Revision of Rule 66 consistent with current knowledge of reactivity would eliminate the solvent substitution option for most sources in which substitution is new employed. Many of the organic solvents which have been categorized as having low photochemical reactivity are, in fact, moderately or highly reactive; they yield significant oxidant when subjected to irradiation in smog chambers designed to simulate the urban atmosphere.

2. A few VOC yield only negligible ozone when irradiated in smog chambers under both urban and rural conditions. Experiments conducted to date indicate that only methane and ethane, a group of halogenated paraffins, and three other organics—benzene, benzaldehyde, and acetonitrile—can be so classified. These compounds react very slowly yielding little ozone during the first few days following their release to the atmosphere. Available data suggest that none of the listed compounds contribute significant oxidant even during extended irradiation under multiday stagnation conditions.

The broad group "halogenated paraffins" includes important industrial solvents, most of which are chlorinated methanes and ethanes and chlorofluoroethanes. They find use as metal cleaning and dry cleaning solvents and as paint removers. Halogenated paraffins also serve as building blocks in the manufacture of other halogenated organics; these processes do not necessarily release significant VOC to the atmosphere.

3. Besides focusing on VOC of negligible reactivity, smog chamber studies show that a few additional VOC generate oxidant at a relatively slow rate. Under favorable atmospheric conditions, these VOC releases may not form oxidant until they have been transported substantial distances and become greatly diluted. However, under multiday stagnation conditions such as occur during summer in many areas of the middle and eastern United States, there is the potential for these organics to undergo appreciable conversion to oxidant. The more important VOC in this category are acetone, methyl ethyl ketone, perchloroethylene, methanol, isopropanol, and propane. All except propane are industrial solvents. The latter, a gas under normal conditions, is associated principally with crude oil and liquefied petroleum gas operations.

4. The vast number of volatile organic compounds—particularly nonhalogenated VOC—yield appreciable ozone when irradiated in the presence of oxides of nitrogen. While there are measurable variations in their rates of ozone formation, all are significantly more reactive than VOC listed in Table 2. Quickly reactive VOC include almost all aliphatic

and aromatic solvents, alcohols, ketones, glycols, and ethers.

5. Low photochemical reactivity is not synonymous with low biological activity. Some of the negligible or slowly reactive compounds have adverse effects on human health. Benzene, acetonitrile, carbon tetrachloride, chloroform, perchloroethylene, ethylene dichloride, ethylene dibromide, and methylene chloride have been implicated as being carcinogens, teratogens, or mutagens. In addition, benzaldehyde, which produces no appreciable ozone, nevertheless forms a strong eye irritant under irradiation. While their use might reduce ambient oxidant levels, it would be unwise to encourage their uncontrolled release. Additional halogenated organics are being investigated for possible toxicity.

Most of the related health information available at this time concerns acute toxicity. Threshold limit values (TLV's) have been developed for many VOC. They are appropriate for the healthy, adult work force exposed eight hours a day, five days a week. Experts suggest that more stringent levels should be established for the general population. Hazards represented by chronic and subchronic exposure are much more difficult to quantify than acute toxicity. Adverse health effects of the VOC cited above are generally recognized although not completely quantified. Chlorinated solvents currently are under intensive study.

6. Some VOC are of such low photochemical reactivity that they persist in the atmosphere for several years, eventually migrating to the stratosphere where they are suspected of reacting and destroying ozone. Since stratospheric ozone is the principal absorber of ultraviolet (UV) light, the depletion could lead to an increase in UV penetration with a resultant worldwide increase in skin cancer. The only in-depth analysis of this potential problem has focused on the chlorofluoromethanes (CFM), Freon 11 and Freon 12, because of their known stability and widespread use in aerosol containers. A report of the National Academy of Sciences concerning environmental effects of CFM's concluded that:

... selective regulation of CFM uses and releases is almost certain to be necessary at some time and to some extent of completeness.

In response to the report of the National Academy of Sciences and other studies, EPA on May 13, 1977 (42 FR 24542), proposed rules to prohibit nonessential use of fully halogenated chlorofluoroalkanes as aerosol propellants. The restrictions were applied to all members of this class including Freon 113 since they are potential substitutes for Freon 11, Freon 12, Freon 114, and Freon 115 which are currently used as aerosol propellants.

Other stable halogenated solvents which are released in volumes comparable to the chlorofluoroalkanes also are suspected of depleting the earth's UV shield. Of major concern is the wide-

NOTICES

spread substitution of methyl chloroform (1,1,1 trichloroethane) for the photochemically reactive degreasing solvent trichloroethylene. Such substitution under Rule 66 generation regulations has already influenced industrial degreasing operations to the extent that methyl chloroform production has surpassed that of trichloroethylene in the United States. Any regulation in the area will have a marked effect on the production and atmospheric emissions of both solvents. Endorsing methyl chloroform substitution would increase emissions, particularly in industrial States that have not, heretofore, implemented Rule 66. On the other hand, disallowing methyl chloroform as a substitute or banning it altogether would significantly increase emissions of trichloroethylene even if degreasers were controlled to the limits of available technology. Presently, technology is only able to reduce emissions by approximately 50 percent. In metropolitan areas which have already implemented Rule 66, a return to trichloroethylene would have an adverse effect on ambient oxidant levels. In addition to being highly reactive, trichloroethylene has been implicated as a carcinogen.

Alternatives to the above-cited choices would be (1) development and application of highly efficient degreaser control systems and (2) replacement with an

intermediate solvent which is neither reactive nor detrimental to the upper atmosphere. Major revisions would be needed to degreaser designs to improve vapor capture above the current best level. Anticipated design changes could add materially to degreaser costs. No alternative solvent is clearly acceptable from the standpoints of photochemical oxidant and stratospheric ozone depletion. Neither methylene chloride nor trichlorotrifluoroethane are reactive, but, like methyl chloroform, are suspected of causing damage to the stratospheric ozone layer. In addition, methylene chloride is a suspect mutagen. Perchloroethylene, the principal dry cleaning solvent, does not present a hazard to the stratosphere but has been implicated as being a carcinogen and also reacts slowly in the atmosphere to form oxidant.

7. Organic solvents of low or negligible photochemical reactivity have only limited use in many industries. Most are chlorinated organics that find principal applications as cleaners for metals and fabrics. A few nonhalogenated VOC such as acetone, methyl ethyl ketone, and isopropanol are of low reactivity but these can't possibly satisfy all the myriad needs of the paint, plastics, pharmaceutical, or many other industries. While users of reactive VOC usually can employ effective control equipment to recover or

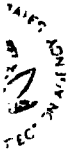
destroy VOC emissions, they seldom have the option of applying reactivity considerations in choosing solvents. Applying reactivity restrictions to the surface coating industry would be especially disadvantageous since it would greatly inhibit the development of low-solvent coatings; essentially all of the organic solvents used to constitute high-solids coatings and water-borne coatings are, in fact, highly reactive.

8. It is recognized that smog chamber studies conducted to date are incomplete because many organic compounds have not been examined and it has been impossible to duplicate all atmospheric situations. For example, there has been only limited examination of oxidant formation under relatively high ratios of VOC to NO_x (30:1 and greater), comparable to rural conditions. Any policy on photochemical reactivity necessarily has to be open to revision as new information is developed which may show specific organic compounds to be more or less photochemically reactive than indicated by current data.

Dated: June 29, 1977.

EDWARD F. TUERK,
Acting Assistant Administrator
for Air and Waste Management.

[FR Doc.77-19385 Filed 7-7-77; 8:45 am]



REF VI-7

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUL 28 1976

OFFICE OF
AIR AND WASTE MANAGEMENT

SUBJECT: Seasonal Operation of Natural
Gas-Fired Afterburners

MEMO TO: Regional Administrators

It has been estimated that the use of afterburners for control of air pollutants required 0.4 percent of the total 22 trillion cubic feet of natural gas consumed in 1975 in the U.S.. While not a high percentage, this is a substantial amount of natural gas--equivalent, for example, to the annual amount required to heat 62,000 homes in Washington, D.C.

Many of these afterburners are required solely to reduce emissions of hydrocarbons to control ambient oxidant levels. However, results from both statistical analyses of ambient data and smog chamber tests show that oxidants do not readily form at temperatures below about 59°F. Thus, in many parts of the U.S., the operation of afterburners required for oxidant control may not be needed during the winter months. This fact and the expectation that natural gas will be in short supply during the coming winter support an EPA policy of allowing states to permit natural gas-fired afterburners to be shut down during the coming winter season provided there is reasonable assurance that this action will not jeopardize the attainment or maintenance of the oxidant standard. The situation in future winters should be evaluated in light of then-existing circumstances.

The policy applies to gas-fired afterburners installed to control hydrocarbon emissions for the purpose of reducing ambient oxidant concentration. It does not apply to flares (which do not use gas as an auxiliary fuel), hydrocarbons vented to boilers, afterburners operated principally for odor control, or afterburners operated to control toxic substances. Some afterburners which control hydrocarbon emissions also control, either primarily or secondarily, the emissions of carbon monoxide and particulate matter. The seasonal shutoff of some of these also could be permitted if neither the attainment nor the maintenance of the ambient standards for those pollutants is jeopardized.

Measurements of oxidant air quality indicate that ambient concentrations diminish substantially in many northern areas during the winter; northern urban areas in which summertime oxidant concentrations often exceed the national standard by large amounts experience greatly reduced

concentrations during the winter season. This observed seasonal phenomenon is consistent with the theory of oxidant formation; high ambient temperatures and strong sunlight assist in the production of oxidants from a complex photochemical reaction involving hydrocarbons and nitrogen oxides.

A recent analysis of oxidant air quality data and meteorological data* identifies areas of the country which, during specified months, experience low oxidant concentrations. This analysis shows a high correlation between maximum daily temperatures and maximum hourly oxidant concentrations, with concentrations above the national standard becoming highly improbable when maximum daily temperatures are consistently below 59°F. The analysis suggests that the maximum daily temperature can be used as a reasonably reliable indicator of the potential for oxidant formation and supports a policy which would permit seasonal use of natural gas-fired afterburners in many areas.

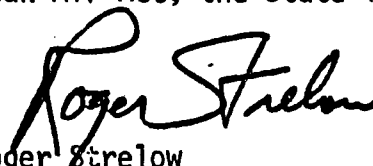
Figure 1 is a map of the U.S. on which study results are summarized. It shows general areas (or zones) in which seasonal shutoff of natural gas-fired afterburners could be considered. However, it is important to note that local conditions may obviate seasonal control even though shutdown otherwise may appear to be acceptable. If, for example, winter-time oxidant concentrations in a particular area are in violation of the ambient standard, or the concentrations are sufficiently high that afterburner shutdown could create violations, you should neither encourage nor allow seasonal afterburner operation even though the area is in a theoretically acceptable zone.

A policy to seasonally control afterburners can only be implemented through the SIP process -- by establishing new oxidant SIPs or by revising existing SIPs. Of course, the enforceability of the policy must be carefully considered in reviewing each specific regulation. The approval of SIP changes to permit seasonal afterburner operation need not require detailed, time-consuming analyses of air quality impacts if the seasonal shutdown time period is consistent with the zones delineated in Figure 1, and if existing air quality data shows no past violations in the month during which the afterburners will be shutdown. The attached staff study, supported by air quality data where available, normally should be adequate technical support for a decision to approve the seasonal operation of afterburners in a given location. If an occasional high oxidant concentration has been noted during the winter months but the gas savings to be achieved by afterburner shutoff appears to warrant favorable consideration

*See attached OAQPS "Staff Study: Oxidant Air Quality and Meteorology," dated February 6, 1976.

of a variance request, a short trial period to test the impact on oxidant concentrations may be suggested. If it is found that ambient violations persist or are exacerbated, the trial program must be terminated.

It is recommended that you notify those state agencies in your Region which may be eligible to implement this program that EPA supports a policy which would permit sources to shut off afterburners during cold weather months this year when oxidant concentrations are below the ambient standard. In discussing this policy with state agency personnel, it is important to emphasize that the policy pertains only to oxidant control strategy and that EPA is not encouraging a wide-spread increase in hydrocarbon emissions. Moreover you must make it clear that, consistent with s116 of the Clean Air Act, the state is not required in any way to relax its strategy.



Roger Strelow
Assistant Administrator
for Air and Waste Management

Enclosure

cc: Stan Legro
William Frick

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REF VI-10

DATE: 24 AUG 1978

SUBJECT: Clarification of EPA Policy on Emissions of Methyl Chloroform

FROM: Walter C. Barber, Director 
Office of Air Quality Planning and Standards (MD-10)

TO: Regional Administrator, Regions I-X

The purpose of this memo is to clarify EPA's position with regard to State and Federal regulation of emissions of methyl chloroform (1,1,1, trichloroethane). On July 8, 1977, EPA published the present "Recommended Policy on Control of Volatile Organic Compounds" (42 FR 35314). This policy exempts methyl chloroform from inventory requirements and regulations to meet the national ambient air quality standard for photochemical oxidants. However, the policy indicated that methyl chloroform had been implicated as having deleterious effects on stratospheric ozone and therefore may be subject to future controls. Nevertheless, the policy seems to be encouraging a shift to the uncontrolled use of methyl chloroform in place of trichloroethylene and other regulated solvents in metal degreasing operations.

We have been advised by the Office of Toxic Substances that methyl chloroform should be considered potentially harmful to the ozone layer and that they are performing the necessary evaluations and assessments prior to pursuing further regulatory initiatives. Hence, its use in an uncontrolled fashion should not be encouraged. Accordingly, OAQPS has begun the necessary actions to propose removal of methyl chloroform from the list of exempt volatile organic compounds (VOC). However, we do not expect this action to be completed before the State Implementation Plans for photochemical oxidants are to be submitted. In addition, I have directed that the new source performance standards to be proposed for solvent metal cleaning operations, as well as any other solvent uses, require positive control of all VOC emissions including methyl chloroform.

I recognize that many States are well along in the preparation of their regulatory packages and inventories. In order not to change the existing guidance at this late date, I am requesting that you advise your State directors that, although we will not disapprove a State oxidant SIP submittal which exempts methyl chloroform from control, we are very concerned with the environmental risks associated with wide scale substitution to methyl chloroform; and that the uncontrolled use of methyl chloroform as an approved means for compliance should be avoided wherever possible.

cc: Director, Air & Hazardous Materials Division, Regions I, III-X
Director, Environmental Programs Division, Regions II
Chief, Air Branch, Regions I-X
Steven D. Jellinek, Office of Toxic Substances
Warren Muir, Office of Toxic Substances

DRAFT

OZONE AND OTHER PHOTOCHEMICAL OXIDANTS

Final Report (Draft)

August 1978

By: Richard H. Thuillier, Senior Research Meteorologist
Atmospheric Sciences Laboratory

Prepared for:

U.S. Environmental Protection Agency
Research Triangle Park, North Carolina 27711

Attn: Mr. Norm Dunfee
Pollutant Strategies Branch
SASD, MD-12

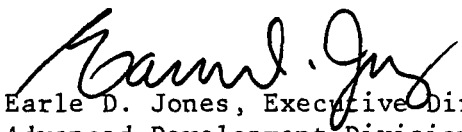
Contract No. EPA-68-02-2835
Work Assignment No. 9

SRI Project 6780

Approved:



R.T.H. Collis, Director
Atmospheric Sciences Laboratory



Earle D. Jones, Executive Director
Advanced Development Division



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PREFACE

Under provisions of the Federal Clean Air Act, the U.S. Environmental Protection Agency (EPA) has issued National Ambient Air Quality Standards (NAAQS). These standards specify the maximum amounts of air pollutants to which the general public may safely be exposed in the interest of health and welfare. When the NAAQS are found to be violated in any location, the Clean Air Act requires that steps be taken to bring the air in that location into compliance with standards by a specified date. Under the Clean Air Act Amendments of 1977, local governments are empowered and encouraged to participate fully in air-quality planning for their areas.

Ozone is an air pollutant for which NAAQS have been issued by the EPA. Frequent and widespread violations have been recorded and extensive remedial measures will be required. Current efforts to mobilize the nation to solve the problem have been hampered by the complexity of the issues and controversy regarding appropriate solutions.

To summarize and clarify the issues, the EPA Office of Air Quality Planning and Standards has prepared this document under contract. This summary attempts to provide the local decisionmaker and other interested persons with an understanding sufficient for informed consideration of evolving issues and arguments related to oxidant pollution and its control.

Source material listed in the bibliography should be consulted by persons desiring a treatment of the issues in greater depth.

I INTRODUCTION

By the Clean Air Act Amendments of 1970, Congress gave EPA the responsibility for setting air-quality standards. As an outgrowth of studies relating photochemical oxidants to health effects and damage to plant and materials, EPA in 1971 issued a standard for photochemical oxidants. This standard was set at 0.08 parts of oxidant per million parts of air as a one-hour average not to be exceeded more than once in any given year. Subsequent reevaluation led EPA in June of 1978 to propose a revised primary standard to apply only to the most abundant oxidant, ozone, as a one-hour average concentration of 0.10 ppm not to be exceeded more than an average of once per year. The proposed secondary, welfare related standard is 0.08 ppm.

The Clean Air Act Amendments of 1977 require that the states make steps to achieve the standard by 1987 at the latest, and by 1982 where feasible. Because ozone pollution is substantial, widespread, and harmful to both health and welfare, extensive measures will be required to eliminate violations of the standard. The states are required to hold public hearing to receive comments on the issues before submitting to EPA their plans to implement appropriate measures. To further participation in the public hearing process, this document has been prepared to inform local decisionmakers and the interested public on the issues related to the nature and control of ozone pollution in the United States.

II DEFINITIONS, EFFECTS, AND STANDARDS

A. What are Photochemical Oxidants?

The term "oxidants" describes a complex group of compounds found in the ambient air. The term "photochemical" indicates that much of these particular oxidants are formed in the air by chemical reactions requiring the presence of sunlight. Oxidants in the ambient air were first associated with undesirable effects on human health and welfare three decades ago, when they were found to be major constituents of southern California "smog." Since that time, much more has been learned about the photochemical oxidants and their effects on public health, vegetation, certain ecosystems, and materials. Ozone--the most abundant oxidant--has been singled out for special concern from a public health and welfare standpoint.

B. Are Oxidants Harmful?

Numerous studies have been undertaken over the last three decades to determine how harmful the oxidants are to public health and welfare. The results are detailed in the EPA publication Air Quality Criteria for Ozone and Other Photochemical Oxidants.^{*} It should be noted that with synergistic effects of ozone and other air contaminants, there has not been a sufficient study to understand this relationship. The following is a summary of the most significant effects.

^{*}EPA-600/8-78-004 (April 1978) An earlier edition was published in 1971, at the time the original NAAQS was adopted.

Public Health

- o The mechanical function of the lung is affected by exposure to ozone for periods on the order of two hours. The effect is pronounced at concentrations of 0.37 ppm or more; evident but less pronounced at concentrations from 0.25 to 0.37 ppm, and in some subjects this effect occurs at concentrations in the range of 0.15 to 0.25 ppm.
- o Asthma attacks occur more often when ambient concentrations of ozone reach 0.20 ppm for a one-hour period. For some asthmatics and other sensitive people, there is a likelihood of effect at concentrations from 0.15 to 0.20 ppm.
- o Ozone exposures in the range of 0.15 to 0.25 ppm for an hour or so increase the risk of cough, chest discomfort, headache, and eye irritation.
- o There is evidence of impairment of physical performance (athletic performance) at ozone concentrations as low as 0.15 ppm.
- o Vigorous exercise is likely to increase the risk of health effects from ozone.
- o Existing evidence shows no consistent relationship between ozone exposures and mortality rates.
- o No convincing evidence is yet available relating either short-term or long-term ozone exposure to chronic health effects.

Public Welfare

- o Ozone cause visible injury to a variety of plant species.
- o Ozone reduce the yields of citrus, cotton, potatoes, soybeans, wheat, spinach, and other sensitive crops.
- o Concentrations of ozone as low as 0.1 ppm for a one-hour exposure and 0.04 ppm for a four-hour exposure will affect some vegetation.
- o Ozone affect entire ecosystems, as evidence by damage to mixed conifer forests in California, reduction in the fruit and seed diet of small mammals, and alterations in species composition and wildlife habitat.
- o Ozone accelerates the deterioration of rubber, textile dyes and fibres, and certain paints and coatings.
- o Both health and welfare effects have severe economic impacts, which can be measured in terms of monetary losses totalling hundreds of millions of dollars each year.

C. How Clean Should the Air Be?

Under the provisions of the Clean Air Act, EPA is charged with the establishment of standards for the cleanliness (quality) of the ambient air. "Ambient air" means the outdoor air to which the general public, structures, plants, and animals are exposed. A standard is a combination of the amount of pollutant in the air and the length of exposure permitted as a maximum in the interest of public health and welfare. Standards are established by the EPA after consideration of effects and application of an adequate margin of safety. Separate standards are authorized by the Clean Air Act for protection of public health (primary standards) and for protection of public welfare (secondary standards).

On 30 April 1971 the EPA published a primary (and secondary) standard for photochemical oxidants of 0.08 ppm as a one-hour average not to be exceeded more than once in any given year. The human health effect category of most concern is aggravation of chronic lung disease and the basic work documenting the effect is the Schoettlin and Landau asthma study. This was a key study in determining the level of the existing standard. Based on a reevaluation of this study, the current criteria document attributes an increase in asthmatic attacks to a level of 0.25 ppm and not 0.10 ppm as presumed when the existing standard was promulgated. On 22 June 1978, the EPA proposed a new one-hour average primary standard of 0.10 ppm for ozone alone, not to be exceeded more than one time per year on the average. The secondary standard remains at 0.08 ppm. This proposed standard anticipates a few excesses in some years, balanced by years with no excesses at all to give an average of one excess or less per year. Because ozone constitutes the bulk of oxidants in the air and has been associated with most of the

health effects previously ascribed to total oxidant, ozone is proposed to replace total oxidants as the pollutant of concern. Ozone can also be measured more reliably than the other oxidants.

Because of the specific importance of ozone, the probability of a revised standard, and the confusion attending the alternate use of the terms "oxidant" and "ozone," the term "ozone" is used exclusively throughout the remainder of this document.

III THE OZONE PROBLEM

A. Where Does Ozone Come From?

Unlike many other pollutants, ozone is not introduced directly to the air by man or nature, but forms in the air by chemical reaction. The compounds called "precursors," that eventually react to form ozone may be natural constituents of the atmosphere (as are oxygen and nitrogen), may be introduced directly as pollutants, or may be formed (as is ozone itself) by chemical reaction.

High in the upper atmosphere, large amounts of ozone are produced by sunlight from the oxygen present in the air. Near the ground, ozone is produced primarily from man-made compounds. While many different compounds are involved, two basic precursor classes control the ozone production process: volatile organic compounds (VOC) and oxides of nitrogen (NO_x).

VOC enters the air from a variety of human activities, among them fossil fuel combustion (primarily in auto exhaust), chemical processing, fuel storage and handling and solvent usage (such as painting or degreasing). VOC also enter the air from natural sources, such as biological decay and the vegetative growth process. Oxides of nitrogen, a component in the photochemical process, is primarily emitted to the atmosphere from the burning of fossil fuels.

B. Which Sources Contribute Most to Ozone Problems?

Because the air moves readily from one location to another, the air we breathe at a given place and time will contain ozone from natural as well as man-made sources. Measurements have shown, however, that ozone concentrations

in and near large urban centers where man-made sources predominate, are frequently far greater than concentrations in remote locations unaffected by human activity. These measurements; coupled with a variety of theoretical studies, point to human activity--especially that concentrated in large urban centers--as the source of primary concern. Control of emissions of ozone precursors associated with human activity will be instrumental in achieving the ozone standard throughout the United States.

C. How Does the Weather Affect Ozone Pollution?

Ultraviolet radiation from sunlight is required for the photochemical process. Ozone episodes therefore occur typically on sunny days in spring, summer, and fall, when the sun is high enough to provide sufficient ultraviolet radiation. On cloudy days and during the winter months, ozone levels rarely exceed the federal standard. Sluggish air movement aids in ozone production by allowing air parcels to remain longer over the source areas and permitting large amounts of precursors to accumulate and ozone to form. Temperature inversions (i.e., layers of warm air several hundred meters above the cooler air nearer the ground) frequently trap the pollutants near the ground. Warm temperatures have always been associated with ozone episodes, although the precise role of temperature in ozone production has not been adequately defined.

D. How Serious is the Ozone Problem in the United States?

Measurements indicate that ozone levels in violation of the standard occur in virtually every part of the United States. Ozone problems have been found in rural as well as urban areas. The highest concentrations of ozone are usually found a few miles downwind from large urban centers,

which are the principal source areas. The ozone standard is exceeded frequently in and near these urban centers, as often as 100 or more days per year in some locations, and concentrations exceeding as 0.2 ppm are not uncommon and as high as 0.5 ppm can occur at times in a few communities. The seriousness of the problem is highlighted by the fact that violations of the ozone standard have been detected in virtually every area where measurements have been taken, with the exception of a few predominantly rural locations.

IV OZONE AND THE LAW

A. What is Required?

Under the Clean Air Act, states must submit to EPA State Implementation Plans (SIPs), detailing approaches toward attainment and maintenance of all air-quality standards. In areas where the ozone standard has not yet been attained (nonattainment areas), SIPs must be revised to include control strategies which provides for attainment of standards by December 31, 1982. In areas where the attainment of standards cannot be demonstrated by implementing reasonably available control measures the deadline can be extended (up to 5 years) until 1987. Implementation planning for nonattainment areas must be completed in time for submittal of SIP revisions to EPA by January 1, 1979.

B. Who is Responsible?

While the EPA bears ultimate responsibility for enforcing requirements of the Clean Air Act, the law provides for maximum participation of state and local governments in the formulation and implementation of plans and strategies aimed at achieving the air-quality standard for ozone. Each state must provide for implementation, maintenance, and enforcement of primary and secondary air-quality standards in designated areas. Since many control measures for ozone reduction will strongly affect local jurisdictions, the Act provides that attainment plans be prepared, where possible, by an organization of elected officials of local governments in the affected areas certified by the state for this purpose. Otherwise, a state agency must prepare the plans. The plan must demonstrate that necessary requirements,

timetables, and compliance schedules have been adopted through submittal of a legally enforceable document and that the agency or organization identified in the plan as being responsible for carrying out the plan are committed to the implementation and enforcement of appropriate plan elements. Attainment plans must be developed with the continuing cooperative, and comprehensive transportation planning process mandated by federal law and with the general air-quality maintenance planning process of the SIP. Attainment planning requires a coordinated effort and includes local agencies responsible for transportation and maintenance planning. In carrying out any requirements of the Act that bear upon the prerogatives of local government, the states must provide a satisfactory process of consultation with general-purpose local governments and designated organizations of their elected officials.

C. What are the Penalties for Noncompliance?

One of the principal penalties attached to inadequate planning for nonattainment areas has to do with the construction or modification of major stationary sources, such as industrial facilities. After June 30, 1979, no such construction or modification that contributes to violations of NAAQS may take place in a nonattainment area unless an adequate plan for attainment exists. In addition, inadequate implementation planning in nonattainment areas precludes the approval of projects and grants for transportation or air quality authorized under the United States Code, other than for safety, mass transit, or transportation improvement related to air-quality improvement or maintenance.

EPA is required to enforce any requirement of a State Implementation Plan when it is determined that the state has failed to enforce the plan effectively. Enforcement against a source may take the form of an order to

comply or a civil action. Persons violating or refusing to comply with any order of the EPA Administrator or violating requirements of an applicable implementation plan during a period of federally assumed enforcement can be subject to a civil penalty of not more than \$25,000 per day of violation, or to permanent or temporary injunction, or both.

V APPROACHES TO CONTROL

A. What Can Be Done?

As discussed earlier, the ozone problem results primarily from chemical reaction of man-made VOC and NO_x . It is logical, that the control of ozone precursors generated by human activity, particularly in large urban centers, is necessary to achieve reductions in ambient ozone levels.

Laboratory studies suggest that control of VOC is an effective approach to lowering ozone levels in urban areas and their immediate environs. Significant downtrends in ozone pollution have been recorded in the Los Angeles Basin and the San Francisco Bay Area, where VOC control programs have been underway for some time. Studies suggest that control of NO_x may not be as effective in reducing ozone in urban areas. Because of the demonstrated effectiveness of VOC control, the current EPA strategy for reducing of the oxidant problem in urban areas is focused primarily on VOC control, however programs such as the FMVCP reduce emission of both VOC and NO_x . Recent research, has indicated that rural areas may also suffer from ozone pollution and that urban pollutants--ozone as well as its precursors--can travel considerable distances at relatively high concentrations. Because the chemical composition of rural air differs from that of urban areas, NO_x control may be more effective in controlling rural ozone problems. For this reason, NO_x control has received greater attention in recent years both for rural areas and for urban areas affecting rural areas through transport.

On the whole, studies indicate that a more effective program for reducing urban ozone concentrations should emphasize the control of VOC. Current strategy favors a vigorous control program for VOC but a cautious

approach to control of NO_x beyond that required to attain the ambient air quality standard for nitrogen dioxide. Additional emphasis on NO_x control may be required, however, at a later date.

B. What Measures are Appropriate?

State Implementation Plans for areas which have not attained the NAAQS for ozone, must contain limitations on the amount of ozone precursors that enter the air and timetables for compliance with such limitations. Other measures must be contained, as necessary, including (as a minimum) transportation controls, inspection and maintenance plans for autos for cities greater than 200,000 population when a state has requested an extension beyond 1982, and preconstruction review of direct sources of air pollution. State Implementation Plans may (but are not required to) contain provisions for land use controls, preconstruction review of indirect* sources of air pollutants, and other such measures as may be appropriate.

c. How Much Control Will be Necessary?

Maximum ozone levels in and around major urban centers are typically two to three times the federal ambient standard. Assuming a direct proportion between VOC and ozone reductions, VOC emissions in these areas will have to be reduced to one-half to one-third of their current values. This represents a conservative estimate, since studies have indicated that reductions in VOC yield less than proportional reductions in ozone concentration. When

*An indirect source is a facility such as a parking lot that tends to increase air pollution from mobile sources (e.g., cars).

ozone contribution from natural sources (including vegetation and particularly upper atmospheric ozone intrusion) is considered, which amounts to approximately 0.04 ppm, an even greater reduction in the contribution from man-made activities may be required.

Methods for estimating required degree of control have been and are continuing to be developed. Although no single currently available model is satisfactory in every respect, evidence from a variety of modeling techniques indicates a substantial control requirement in many areas. Research is continuing at EPA to develop improved models to aid in determining the most effective approaches to ozone control.

D. How Should Controls be Applied?

Most urban and many rural areas now have ozone concentrations greater than the national standard. Since attainment of the ozone standard will be costly, there is an obvious and justifiable interest in achieving the most equitable distribution of the burden and the most efficient application of the control program. One of the most sensitive issues at present concerns the division of responsibility for control when a portion of a local ozone problem results from pollutants transported from nonlocal source areas. This is especially sensitive in those parts of the United States where transported pollutants from urban centers in close proximity accumulate under stagnant weather conditions to form a regional "blanket" of background ozone.

At present it is difficult to partition responsibility for ozone control. Considering, however, the degree of control that will be required to attain the standard, it is reasonable, until more information is at hand, for everyone to exert maximum effort toward local control of VOC

emissions. Cooperative efforts in implementation planning among the States should minimize any gross inequities.

E. Who Should be Involved?

The ozone problem is one that affects every citizen: Very few urban locations are free of ozone pollution and none are free of sources of pollution which cause ozone and virtually everyone is subject to the health and welfare effects. Because ozone is a regionwide problem with a full spectrum of sources and causes, everyone will bear some portion the great cost for ozone control. For these reasons, everyone should involve themselves in the solution of the ozone problem by keeping well informed and cooperating fully in the planning and implementation phases of the solution process.