

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. FHWA/TX-92/1279-1		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle AN OUTLINE OF TRANSPORTATION-RELATED REQUIREMENTS FOR COMPLIANCE WITH THE CLEAN AIR ACT AMENDMENTS OF 1990				5. Report Date February 1993	
				6. Performing Organization Code	
7. Author(s) Amy Stephenson and George B. Dresser				8. Performing Organization Report No. Research Report 1279-1	
9. Performing Organization Name and Address Texas Transportation Institute The Texas A&M University System College Station, TX 77843-3135				10. Work Unit No.	
				11. Contract or Grant No. 0-1279	
12. Sponsoring Agency Name and Address Texas Department of Transportation Transportation Planning and Programming Division P.O. Box 5051 Austin, TX 78763				13. Type of Report and Period Covered Interim: September 1991 - August 1993	
				14. Sponsoring Agency Code	
15. Supplementary Notes Research performed in cooperation with U.S. Department of Transportation and Federal Highway Administration. Research Study Title: Air Pollution Implications of Urban Transportation Investment Decisions					
16. Abstract This report lists the transportation-related requirements and submittal dates of the Clean Air Act Amendments of 1990 as they pertain to the State of Texas. Texas has four urban areas in nonattainment of federal air quality standards: Dallas-Fort Worth, Beaumont-Port Arthur, El Paso, and Houston-Galveston-Brazoria. Specific requirements for these four urban nonattainment areas are included. Guidance documents for performing required tasks and possible sanctions for failure to comply are also listed.					
17. Key Words Air Pollution, Emission Inventory, Clean Air Act Amendments, State Implementation Plan, Conformity, Nonattainment, Ozone, Carbon Monoxide, PM-10				18. Distribution Statement No Restrictions. This document is available to the public through NTIS: National Technical Information Service 5285 Port Royal Road Springfield, Virginia 22161	
19. Security Classif. (of this report) Unclassified		20. Security Classif. (of this page) Unclassified		21. No. of Pages 74	
				22. Price	

**AN OUTLINE OF TRANSPORTATION-RELATED REQUIREMENTS FOR
COMPLIANCE WITH THE CLEAN AIR ACT AMENDMENTS OF 1990**

by

Amy Stephenson
Assistant Research Specialist

and

George B. Dresser
Research Scientist

Air Pollution Implications of Urban Transportation Investment Decisions
Research Study Number 0-1279
Research Report 1279-1

Sponsored by

Texas Department of Transportation

In cooperation with
U.S. Department of Transportation
Federal Highway Administration

Texas Transportation Institute
The Texas A&M University System
College Station, Texas

February 1993

METRIC (SI*) CONVERSION FACTORS

APPROXIMATE CONVERSIONS TO SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
--------	---------------	-------------	---------	--------

LENGTH

in	Inches	2.54	centimetres	cm
ft	feet	0.3048	metres	m
yd	yards	0.914	metres	m
mi	miles	1.61	kilometres	km

AREA

in ²	square inches	645.2	centimetres squared	cm ²
ft ²	square feet	0.0929	metres squared	m ²
yd ²	square yards	0.836	metres squared	m ²
mi ²	square miles	2.59	kilometres squared	km ²
ac	acres	0.395	hectares	ha

MASS (weight)

oz	ounces	28.35	grams	g
lb	pounds	0.454	kilograms	kg
T	short tons (2000 lb)	0.907	megagrams	Mg

VOLUME

fl oz	fluid ounces	29.57	millilitres	mL
gal	gallons	3.785	litres	L
ft ³	cubic feet	0.0328	metres cubed	m ³
yd ³	cubic yards	0.0765	metres cubed	m ³

NOTE: Volumes greater than 1000 L shall be shown in m³.

TEMPERATURE (exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C
----	------------------------	----------------------------	---------------------	----

APPROXIMATE CONVERSIONS TO SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
--------	---------------	-------------	---------	--------

LENGTH

mm	millimetres	0.039	inches	in
m	metres	3.28	feet	ft
m	metres	1.09	yards	yd
km	kilometres	0.621	miles	mi

AREA

mm ²	millimetres squared	0.0016	square inches	in ²
m ²	metres squared	10.764	square feet	ft ²
km ²	kilometres squared	0.39	square miles	mi ²
ha	hectares (10 000 m ²)	2.53	acres	ac

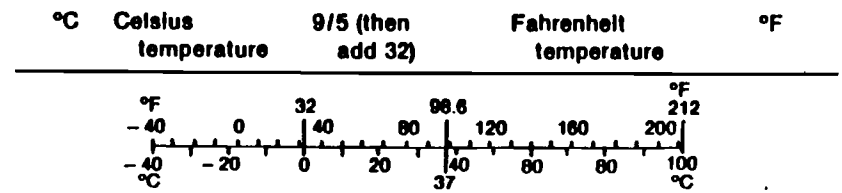
MASS (weight)

g	grams	0.0353	ounces	oz
kg	kilograms	2.205	pounds	lb
Mg	megagrams (1 000 kg)	1.103	short tons	T

VOLUME

mL	millilitres	0.034	fluid ounces	fl oz
L	litres	0.264	gallons	gal
m ³	metres cubed	35.315	cubic feet	ft ³
m ³	metres cubed	1.308	cubic yards	yd ³

TEMPERATURE (exact)



These factors conform to the requirement of FHWA Order 5190.1A.

* SI is the symbol for the International System of Measurements

IMPLEMENTATION

The information reported here lists the known federal requirements for compliance with the Clean Air Act Amendments of 1990. The basis for most of the information comes from the Environmental Protection Agency's *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. State and local agencies may find having the many regulations listed in outline form useful.

DISCLAIMER

The contents of this report reflect the views of the authors who are responsible for the opinions, findings, and conclusions presented herein. The contents do not necessarily reflect the official views or policies of the Federal Highway Administration or the Texas Department of Transportation. This report does not constitute a standard, specification, or regulation. Additionally, this report is not intended for construction, bidding, or permit purposes. Raymond A. Krammes was the Principal Investigator for the project.

TABLE OF CONTENTS

INTRODUCTION	1
URBAN NONATTAINMENT AREAS IN TEXAS	3
Ozone	3
Carbon Monoxide	3
PM-10	4
CONFORMITY	5
Interim Conformity	6
Major Conformity Actions	7
Nonattainment Areas Affected	7
EMISSION INVENTORIES	9
1990 Base Year Emission Inventory	9
1990 Adjusted Base Year Emission Inventory for the 15 Percent Rate of Progress Plan	13
Reasonable Further Progress Projection Inventories	15
Periodic Inventories	17
Modeling Inventories	18
REQUIREMENTS FOR THE EL PASO PM-10 SIP	21
Major Actions	21
Implementation Strategies	21
Sanctions	22
REQUIREMENTS FOR THE EL PASO CO SIP	23
Major Actions	23
Implementation Strategies	24
Sanctions	25
REQUIREMENTS FOR THE DALLAS-FORT WORTH O3 SIP	29
Major Actions	29
Implementation Strategies	32

Sanctions	33
REQUIREMENTS FOR THE BEAUMONT-PORT ARTHUR O3 SIP	35
Major Actions	35
Implementation Strategies	39
Sanctions	40
REQUIREMENTS FOR THE EL PASO O3 SIP	41
Major Actions	41
Implementation Strategies	45
Sanctions	46
REQUIREMENTS FOR THE HOUSTON-GALVESTON-BRAZORIA O3 SIP ..	47
Major Actions	47
Implementation Strategies	51
Sanctions	53
ACRONYMS USED	55
SUGGESTED GUIDANCE DOCUMENTS	57
REFERENCES	61

INTRODUCTION

The Clean Air Act Amendments (CAAA) of 1990 require areas designated as being in nonattainment of the National Ambient Air Quality Standards to reach attainment by certain dates, depending on their measured air quality, or design value, for a particular criteria pollutant.

Texas has four urban areas and one county area in nonattainment for various pollutants. El Paso is in nonattainment for particulate matter (PM-10), carbon monoxide (CO), and ozone (O3). The Dallas-Fort Worth, Beaumont-Port Arthur, and Houston-Galveston-Brazoria areas are in nonattainment for ozone. Collin County is in nonattainment for lead.

Transportation-related tasks of meeting the air quality goals are significant because mobile sources may account for as much as 50 percent of the ozone and 90 percent of the carbon monoxide pollution on a national scale. Lead is predominantly a stationary source problem, so this report will not deal with the requirements for Collin County.

This report contains an outline of the transportation-related requirements for emission inventories, State Implementation Plan (SIP) submittals, implementation strategies, and possible sanctions for failure to meet the requirements. Several of the sections, particularly the SIP sections, are repetitive in an effort to save the reader from an unreasonable amount of cross-referencing information between sections. A list of the acronyms used in this report and a list of suggested guidance documents are included at the end of this report.

New regulations and interpretations of the CAAA are still being issued with some frequency. As a result, the due dates and some of the requirements listed are subject to changes.

I. URBAN NONATTAINMENT AREAS IN TEXAS

All areas not meeting the National Ambient Air Quality Standards (NAAQS) in 1989 were designated as nonattainment areas. The Clean Air Act Amendments of 1990 listed specific requirements for each area based on its design value as measured in 1989.

A. Ozone

Four areas do not meet the federal air quality standard of 0.12 parts per million (ppm) over a daily maximum one-hour average. An area becomes classified as nonattainment when the standard is exceeded more than three times during a three-year period. The table below lists each of the four areas with their reported design value (which determines their classification) and the date that each area must meet the NAAQS.^{1,2}

OZONE NONATTAINMENT AREAS

Nonattainment Area	Design Value	Classification	Attainment Date
Dallas-Fort Worth	0.14 ppm	moderate	November 15, 1996
Beaumont-Port Arthur	0.16 ppm	serious	November 15, 1999
El Paso	0.17 ppm	serious	November 15, 1999
Houston-Galveston-Brazoria	0.22 ppm	severe-17	November 15, 2007

B. Carbon Monoxide

Only one area in Texas, El Paso, does not meet the NAAQS of 9 ppm over an eight-hour period. This standard is not to be exceeded more than once per year. El Paso's design value of 12.6 ppm gives it a

nonattainment classification of moderate, but it could be considered lower moderate since the CAAA have different requirements for moderate areas above 12.7 ppm. El Paso's attainment date is December 31, 1995.

C. PM-10

Again, only El Paso is in nonattainment for this pollutant. El Paso has until December 31, 1994, to meet the NAAQS of 150 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) over a 24-hour period. This standard is not to be exceeded more than once per year over a three-year period.³

II. CONFORMITY

The Clean Air Act requires the Environmental Protection Agency to publish rules for states to follow to insure conformity between federal actions and the State Implementation Plan (SIP). EPA has issued two notices of proposed rulemaking (NPRMs) on conformity. The first one, dated January 11, 1993, concerns transportation conformity; the second one, concerning general conformity, was issued March 15, 1993. Transportation conformity requires that transportation plans, programs, and projects conform to the goals of the SIP. General conformity covers all other areas of federal actions as they relate to the SIP. The final conformity rules are expected in October or November of 1993. The final rules go into effect 30 days after promulgation in the *Federal Register*. Twelve months after the final rules are published, states must submit a SIP revision containing the criteria and procedures the state will use to determine conformity. These procedures, after being published in an approved SIP, will be legally binding on the state.

Until the final conformity rules are issued, states must follow the rules laid out in the interim conformity guidance which was issued by the EPA and the U.S. Department of Transportation (USDOT) June 7, 1991, and the supplemental guidance that was issued by the Federal Highway Administration (FHWA) on July 27 and October 9, 1992.

Under interim guidance, conformity applies only to nonattainment areas and to federally funded or federally approved plans, projects, and programs. MPOs and the state Department of Transportation (DOT) are responsible for determining conformity. For transportation conformity, this requires a qualitative analysis of plans, a quantitative analysis of programs, and local CO analysis of projects.

MPOs submit conformity analyses through the state DOT to the FHWA division office, the FHWA division office sends the analyses to the regional FHWA and Federal Transit Administration (FTA) offices. FHWA/FTA send the

analyses to EPA for review (usually a 30-day period). EPA sends the analyses back to FHWA/FTA with a recommendation for approval or disapproval, and the conformity determinations are passed back down the line to the MPOs. If FHWA/FTA has not approved the conformity analyses by the time the final rule comes into effect, MPOs will have to resubmit their conformity analyses under the new guidelines. In addition, any revisions to the conformity analyses submitted after the new guidance is published must be done under the new rules.

A. Interim Conformity

In a presentation on conformity given in February 1993, Kathy Laffey of the FHWA gave the following information on transportation plans, programs, and projects.

1. Transportation plans must:
 - a. support the goals of the SIP
 - b. produce no adverse impacts on the SIP
 - c. provide expeditious implementation of Transportation Control Measures (TCMs)
 - d. contribute to emission reductions
 - e. not increase the frequency or severity of air quality violations
 - f. show qualitative rather than quantitative considerations
2. Transportation improvement programs (TIPs) must:
 - a. use the most recent planning estimates
 - b. use the most recent air quality models
 - c. estimate the emissions difference between build and no-build scenarios for 1990 and for milestone and attainment years
 - d. show that emissions under the build scenario are less than under the no-build scenario
 - e. show emissions decreasing below 1990 levels
 - f. provide for the implementation of any TCMs
3. Transportation projects must:

- a. come from a conforming plan and program, with no significant change in design concept and scope
- b. eliminate or reduce the severity and number of violations in CO nonattainment areas

B. Major Conformity Actions

1. MPOs submitted conformity analyses for long range plans (Mobility 2010 plans) in September 1991.
2. MPOs submitted conformity analyses for 1993 TIPs in September 1992.
3. MPOs will submit conformity analyses for 1994 TIPs in September 1993.
4. MPOs will submit conformity analyses for revised long-range plans in October 1993.
5. SIP revisions with adopted conformity regulations are due 12 months after the final rules are promulgated. The SIP revisions are tentatively due in November 1994.
6. MPOs will submit conformity analyses annually if the TIP is revised.

C. Nonattainment Areas Affected

1. Dallas-Fort Worth
2. Beaumont-Port Arthur
3. El Paso
4. Houston-Galveston-Brazoria

III. EMISSION INVENTORIES

Emission inventories are required for both ozone and carbon monoxide nonattainment areas. As part of the SIP, these inventories estimate total emissions by source category (i.e., biogenic sources and stationary, area, and mobile anthropogenic sources). The emission inventories provide a basis for measuring air quality and demonstrating any reductions achieved through air quality controls.

"Ozone nonattainment areas can require up to four different types of emission inventories, all of which must contain an on-road mobile source component. The base year inventory, required in all ozone nonattainment areas, provides an estimate of emissions in 1990. The adjusted base year inventory provides the 'baseline' from which emission reduction targets are calculated. Reasonable further progress (RFP) projection inventories are required to demonstrate the strategies by which the required reductions will be achieved in an area. Periodic inventories are also required to track actual emissions reductions. Base year and periodic inventories are also required in CO nonattainment areas. Detailed modeling inventories may also be needed in areas where photochemical grid modeling is required."⁴

A. 1990 Base Year Emission Inventory

The 1990 base year inventory contains estimated actual ozone season emissions. Adjusted and projected inventories and control strategies will be produced from this base year inventory. The base year inventory includes both anthropogenic and biogenic sources of volatile organic compound (VOC), nitrogen oxides (NO_x), and CO emissions for the area during the peak ozone season. It includes all stationary point sources and area sources as well as highway and nonhighway mobile sources located within the nonattainment area. In addition, stationary sources which produce 100 or more tons per year of pollutants and are located within a 25-mile-wide buffer of the designated

nonattainment area boundaries are also included. For nonattainment areas required to conduct photochemical grid modeling, emissions for the entire modeling domain are required in the base year inventory.⁵

"States that have fully completed portions of their base year inventories for 1987, 1988, or 1989 may request EPA approval to update these portions. Otherwise, States are required to prepare a completely new inventory with a 1990 base year."⁶

States are to use the EPA's MOBILE model unless they adopt California tailpipe standards, in which case they must consult their EPA Regional Office to determine which model to use because MOBILE would not correctly reflect emissions from these states in the future. Although MOBILE version 5a is scheduled to be released in March 1993, EPA will continue to accept base year inventories that were done with MOBILE5.0.

"States will also be required to develop new 1990 base year inventories for highway mobile sources to account for fleet turnover, newly opened-to-traffic highway sections resulting in changes in vehicle miles traveled (VMT) and VMT patterns, and changes in speed limits."⁷

Due to various reasons, Texas has submitted two draft base year emission inventories (a first draft and a final draft) and a final base year inventory.

1. First Draft Base Year Emission Inventory

For the first draft inventory, state of Texas was to do the following:

- a. Submit an Inventory Preparation Plan (IPP) by October 1, 1991, briefly explaining how the state intends to develop, document, and submit its inventory.⁸
- b. Texas Department of Transportation (TxDOT) and the MPOs, were to submit the draft inventory to the Texas Air Control Board (TACB) by April or June of 1992.
- c. TACB was to submit the inventory to the EPA Office of Air Quality Planning and Standards (OAQPS) and to the EPA

Regional Office (RO) by May 1992.⁹ Following the guidelines in a memo from EPA's E.L. Martinez, "Submittal Procedures for the 1990 O₃/CO SIP Emission Inventories," the state was to submit the inventory in the following formats:

- (1) A hard copy and diskette copy of the documentation
- (2) area and mobile source data submitted to the RO in AMS-PC (Area and Mobile Source-personal computer) format
- (3) Biogenic emissions data on PC-BEIS (Biogenic Emission Inventory System) diskettes
- (4) MOBILE input and output data files on diskette
- (5) SAMS (SIP Air Pollutant Inventory Management System) or AIRS (Aerometric Information Retrieval System) computer files unless the user has direct access to AIRS

d. Nonattainment Areas Affected

All four of the urban nonattainment areas must submit draft base year emission inventories (EIs). The scheduled dates for EI submissions to the TACB were gathered from a meeting of the Technical Working Group held in October 1992. The Technical Working Group consists of members from TxDOT, TACB, FHWA, MPOs, the Texas Transportation Institute (TTI), and other interested parties. The scheduled submittal dates to EPA were taken from the EPA's General Preamble to Title I.

- (1) Dallas-Fort Worth O₃ first draft EI submissions
 - (a) To TACB by April 1, 1992
 - (b) To EPA by May 1992
- (2) Beaumont-Port Arthur O₃ first draft EI submissions

- (a) To TACB by April 15, 1992
 - (b) To EPA by May 1992
 - (3) El Paso CO first draft EI submissions
 - (a) To TACB by April 1, 1992
 - (b) To EPA by May 1992
 - (4) El Paso O3 first draft EI submissions
 - (a) To TACB by April 15, 1992
 - (b) To EPA by May 1992
 - (5) Houston-Galveston-Brazoria O3 first draft EI submissions
 - (a) To TACB by June 15, 1992
 - (b) To EPA by July 1992
- 2. Second Draft Base Year Emission Inventory

The requirements for the second, or final, draft base year inventory are the same as the requirements for the first inventory. These two draft inventories were done using MOBILE4.1.

a. Major actions

TxDOT and the MPOs were to submit the inventory to the TACB by August 1992. TACB, in turn, was to submit the inventory to the EPA by November 15, 1992.

b. Nonattainment areas affected include all four of the urban areas.

- (1) Dallas-Fort Worth O3
- (2) Beaumont-Port Arthur O3
- (3) El Paso O3
- (4) El Paso CO
- (5) Houston-Galveston-Brazoria O3

3. Final 1990 Base Year Emission Inventory

While the draft inventories were done using MOBILE4.1, the final 1990 base year inventories must be done using EPA's

MOBILE5 or 5a. Other than the model version, the requirements for submittal are the same as for the draft inventories.

a. Major Actions

- (1) TxDOT and MPOs will submit the inventories to TACB by March 1, 1993.
- (2) TACB will hold public hearings (probably in June 1993).
- (3) TACB must submit the inventories to EPA by the regulatory deadline of November 15, 1993, but has agreed to submit them by September 30, 1993.

b. Nonattainment Areas Affected

- (1) Dallas-Fort Worth O3
- (2) Beaumont-Port Arthur O3
- (3) El Paso CO
- (4) El Paso O3
- (5) Houston-Galveston-Brazoria O3

B. 1990 Adjusted Base Year Emission Inventory for the 15 Percent Rate of Progress Plan

The CAAA require ozone areas to reduce VOC emissions by 15 percent by 1996. The Rate of Progress Plan, which details how each area will achieve those reductions, will be submitted as part of a SIP revision due November 15, 1993. Areas that do not reach attainment by 1996 must also submit a Post-1996 Rate of Progress Plan by November 15, 1994.

From the adjusted inventory, the 15 percent VOC reduction will be calculated. On-road emission factors must be calculated with a 1996 vehicle mix and Reid vapor pressure (RVP) inputs as required under the CAA for the nonattainment area.¹⁰ "All real, permanent, and enforceable post-1990 VOC emissions reductions are creditable toward the 15 percent requirement except for reductions resulting from the following:

- Federal motor vehicle control program (FMVCP) tailpipe or evaporative standards promulgated prior to 1990.
- Federal regulations specifying Reid vapor pressure (RVP) limits for nonattainment areas
- State regulations required under section 182(a)(2)(A) to correct deficiencies in existing reasonably available control technology (RACT) rules.
- State regulations required under section 182(a)(2)(B) to establish an inspection and maintenance (I/M) program or correct deficiencies in existing I/M programs."¹¹

As with the base year inventories, Texas will submit a draft and a final version of the adjusted base year inventory.

1. Draft Adjusted 1990 Base Year Emission Inventory
 - a. Major Actions
 - (1) TxDOT/MPOs were to submit the inventory to TACB by October 1992.
 - (2) TACB was to submit the inventory to EPA by November 15, 1992.
 - b. Nonattainment Areas Affected
 - (1) Dallas-Fort Worth O₃
 - (2) Beaumont-Port Arthur O₃
 - (3) El Paso O₃
 - (4) Houston-Galveston-Brazoria O₃
2. Final Adjusted 1990 Base Year Emission Inventory
 - a. Major Actions
 - (1) TxDOT/MPOs were to submit the inventory to TACB by March 1, 1993.
 - (2) TACB was to submit the inventory to EPA by November 15, 1993.
 - b. Nonattainment Areas Affected

- (1) Dallas-Fort Worth O3
- (2) Beaumont-Port Arthur O3
- (3) El Paso O3
- (4) Houston-Galveston-Brazoria O3

C. Reasonable Further Progress Projection Inventories

Ozone nonattainment areas must demonstrate that they are making reasonable further progress (RFP) toward the goal of reducing VOC emissions by 15 percent by 1996. In addition, the serious, severe, and extreme nonattainment areas must show further VOC reductions of 3 percent per year averaged over each three-year period past 1996 until the area's attainment date. The RFP projection inventories are used to show how the VOC reductions will be achieved.

The RFP inventories must be based on the 1990 final base year inventory prepared using the latest release of MOBILE (EPA requires the use of MOBILE version 5 or 5a for the 1990 base year inventory). The 1996 projection year inventory must show the projected 1996 emissions as well as a summary for the intermediate years (1991-1995). The post-1996 inventories must also contain summaries of the intervening three-year periods. Projection inventories must "be based on allowable emissions, activity levels, etc., where they exist as a result of statutory regulations. If activity levels are limited by regulation, then the upper limit shall be used to project emissions. If not regulated, then the current actual activity level must be multiplied by EPA-approved growth factors to calculate projected activity levels."¹² The same temperature used in the base year inventory to calculate evaporative emissions must also be used in the projection inventories.

1. Major Actions

- a. The El Paso and Beaumont-Port Arthur MPOs will prepare VMT and speed projections for TACB by May 1993.

- b. TACB will prepare the RFP inventories for El Paso and Beaumont-Port Arthur.
 - c. The Dallas-Fort Worth and Houston-Galveston-Brazoria MPOs will prepare their own RFP inventories and submit them to TACB by September 1993.
2. Nonattainment Areas Affected
- a. Dallas-Fort Worth O3
 - b. Beaumont-Port Arthur O3
 - c. El Paso O3
 - d. Houston-Galveston-Brazoria O3

The projection year inventories are due November 15, 1993 for the 1996 target year and due November 15, 1994 for all of the post-1996 projection years. One exception to the three-year period projection year rule pertains to severe-17 areas such as Houston-Galveston-Brazoria. For those areas that must reach attainment by 2007, the last projection year inventory will be calculated for 2007 instead of 2005. The table below lists each ozone nonattainment area and the due date for each target year projection inventory.

RFP PROJECTION YEAR INVENTORIES

Nonattainment Area	Projection Year			
	1996	1999	2002	2007
Dallas-Fort Worth	11/15/93	N/A	N/A	N/A
Beaumont-Port Arthur	11/15/93	11/15/94	N/A	N/A
El Paso	11/15/93	11/15/94	N/A	N/A
Houston-Galveston-Brazoria	11/15/93	11/15/94	11/15/94	11/15/94

D. Periodic Inventories

Periodic inventories are required for all ozone and carbon monoxide nonattainment areas. They are used to track emission reductions and determine if the required milestones are being met. Periodic inventories are based on actual emissions and report VOC, NO_x, and CO emissions. The requirements for compiling periodic inventories are the same as the requirements for the 1990 Base Year Inventory.

Periodic inventories are required starting the third year after submission of the base year inventory and every three years thereafter until the area is redesignated to attainment. The first periodic inventories due in 1995, report actual emissions for the 1993 time period. EPA suggests synchronizing future periodic inventories with milestone demonstrations. Milestone compliance demonstrations are required for serious and above ozone nonattainment areas to show that they are achieving their projected emissions reductions. The milestone years are the same as the projection inventory years (i.e., 1996, 1999, etc.). The second periodic inventory is due in 1998, but if done in early 1997 (by February 13, 1997) and it addresses 1996 emissions, the milestone demonstration could be based on this inventory. Otherwise, the state would have to submit an additional

emission inventory for the milestone demonstration. The future periodic inventories only affect the ozone nonattainment years, since El Paso (CO) will reach attainment by 1995.

1. Major Actions

- a. TACB will submit the first periodic inventory for carbon monoxide areas by September 30, 1995.
- b. TACB will submit the first periodic inventories for ozone areas by November 15, 1995.
- c. TACB will submit the second periodic inventories (due in 1998) by February 13, 1997, and address emissions for 1996, the first milestone demonstration year.
- d. TACB will submit future periodic inventories in synchronization with milestone demonstrations (EPA has not yet released guidance for the periodic inventories/milestone demonstrations beyond 1997).

2. Nonattainment Areas Affected

- a. Dallas-Fort Worth O₃
- b. Beaumont-Port Arthur O₃
- c. El Paso CO
- d. El Paso O₃
- e. Houston-Galveston-Brazoria O₃

E. Modeling Inventories

Modeling inventories are required for attainment demonstrations for ozone nonattainment areas. Photochemical grid modeling (Urban Airshed Modeling) is required only in areas classified as serious or above, but Dallas-Fort Worth has opted to perform Urban Airshed Modeling for their attainment demonstrations.

Modeling inventories require input from both base year and projection inventories. The Urban Airshed Model (UAM) requires

gridded, hourly emission estimates as well. Emissions must be allocated by time, speciated by pollutant, and gridded spatially. MPOs, including the North Central Texas Council of Governments (NCTCOG) and the Houston-Galveston Area Council (H-GAC), are working with TxDOT and TACB to provide data.

1. Major Actions
 - a. MPOs submit episode modeling emission inventories (4 to 5 episodes, maximum) to TACB (see dates below).
 - b. MPOs submit attainment year forecast emission inventories to TACB (see dates below).
 - c. TACB submits modeling emission inventory to EPA by November 15, 1994.
2. Nonattainment Areas Affected
 - a. Dallas-Fort Worth O₃
 - (1) Episode modeling has already been done (by NCTCOG).
 - (2) Attainment year forecast for 1996 is due March 31, 1993.
 - b. Beaumont-Port Arthur
 - (1) Episode modeling (by TxDOT) is due March 1993.
 - (2) Attainment year forecast for 1999 is due October 1993.
 - c. El Paso O₃
 - (1) Episode modeling has already been done (by TxDOT).
 - (2) Attainment year forecast for 1999 is due October 1993.
 - d. Houston-Galveston-Brazoria O₃
 - (1) Episode modeling (by H-GAC) is due April or May 1993.

- (2) Attainment year forecast for 2007 is due October 1993.

IV. REQUIREMENTS FOR THE EL PASO PM-10 SIP

Mobile sources contribute to PM-10 pollution through emissions from engine exhaust, brake and tire wear, and reentrained dust from paved and unpaved roads. El Paso is classified as a moderate PM-10 nonattainment area. The TACB, EPA, El Paso City-County Health District (EPCCHD) and Mexico's Secretariat of Urban Development and Ecology are working together to analyze and monitor PM-10 transported from Mexico over to El Paso. Most of the following information is taken from TACB's 1991 PM-10 SIP revision.

A. Major Actions

1. TACB submitted the SIP revision in November 1991.
2. No milestone demonstration is required due to the short time span between the SIP submittal (1991) and the attainment date (1994).
3. El Paso must demonstrate attainment by December 31, 1994.

B. Implementation Strategies

1. Identify and Apply Reasonably Available Control Measures

EPA requires Reasonably Available Control Measures (RACM) for non-stationary sources of fugitive dust, residential wood combustion, and prescribed burning. For mobile sources, El Paso must apply RACM for fugitive dust. The SIP must provide for the implementation of RACM by December 10, 1993.

- a. Pave all unpaved roads in the city, reducing projected 1994 emissions in this category by 0.5 percent.
- b. Enhance rules to reduce reentrained dust from paved roads, reducing projected 1994 emissions in this category by 15 percent.

C. Sanctions

Sanctions for failure to attain or failure to meet regulatory deadlines can include:

1. Limitations on new sources (applies to stationary sources)
2. Withholding of federal highway funds
3. Federal Implementation Plan (FIP)

If an area fails to submit an approved SIP, EPA is obligated to write a Federal Implementation Plan for the area within 18 to 24 months.

4. Bump up to higher classification

Although one of the sanctions includes being bumped up to a higher classification, El Paso will not be bumped up to the serious classification for failure to attain if the state can prove that it did not meet the deadline due to air quality impacts caused by another country. Dispersion modeling has indicated that El Paso will attain the standards by the attainment date if only U.S. emissions are counted.

5. See the sanctions section under the El Paso CO SIP section for more detailed information on sanctions.

V. REQUIREMENTS FOR THE EL PASO CO SIP

El Paso's air basin includes part of Ciudad Juarez, Mexico. As a result, El Paso authorities are working with the *Secretaria de Desarrollo Social* (SEDESOL) of Mexico and the U.S. EPA to develop programs and control strategies to achieve attainment over the whole El Paso-Juarez basin.

The peak CO period in El Paso occurs during the winter months, October-March. Mobile sources of CO contribute an estimated 96 percent of the emissions. Most of the information for this section comes from the 1992 El Paso CO SIP.

A. Major Actions

1. TACB submitted a SIP revision in September 1992 which contained:
 - a. The 1990 base year emission inventory
 - b. An oxygenated fuel program
 - c. A commitment to correct the existing I/M program
2. TACB must submit a new SIP revision by November 15, 1993, which contains proposed contingency CO control measures to take effect if attainment is not reached by 1995.
3. TACB must submit a periodic inventory by September 30, 1995.
4. According to the EPA's Section 187 VMT Guidance, no VMT forecast or annual reports are required because El Paso's carbon monoxide design value is under 12.7 ppm; however, El Paso must forecast VMT because it is a serious O₃ area. See Section VIII of this outline for more information on El Paso's O₃ nonattainment requirements.
5. No attainment demonstration (a modeling demonstration to show that attainment will be reached by the due date) is required because El Paso's design value is below 12.7 ppm; however, "based on requirements in Section 818 of the FCAA [Federal Clean Air Act]

Amendments, the TACB will conduct dispersion modeling in an attempt to demonstrate that El Paso will be in attainment of the CO NAAQS by December 31, 1995 based on U.S. emissions alone. As per Section 186(b)(2) of the FCAA Amendments, this attainment demonstration will be prepared in order to avoid reclassifying El Paso to a 'serious' category for CO. The effect of planned control strategies on emissions (e.g., oxygenated fuels and enhanced I/M) will be considered in the modeling."¹³

6. El Paso must demonstrate attainment by December 31, 1995.

B. Implementation Strategies

1. Establish an expanded CO Monitoring Program

Beginning in December 1990, three additional CO monitoring stations, two of which are in Juarez, Mexico, were added to the five already established in El Paso as part of a special study program.

2. Implement an Oxygenated Fuel Program

- a. Beginning in October 1991, El Paso implemented a program requiring that gasoline sold between October 1 and March 31 (the control period) have a minimum oxygen content of 2.0 percent by weight.
- b. Beginning in October 1992 and for all subsequent years, the oxygen content must be a minimum 2.7 percent by weight during the control period.
- c. The State must "ensure a proper review of the effectiveness of the program, define investigation procedures and enforcement mechanisms, and establish other support activities."¹⁴

3. Implement a corrected Inspection and Maintenance Program

- a. El Paso is required to implement a Basic I/M program because it is a moderate CO nonattainment area; however,

El Paso is also a serious O₃ nonattainment area and must, therefore, implement an Enhanced I/M program. See Section VIII of this outline for more information on El Paso's O₃ nonattainment requirements.

- b. Starting in 1994 the program will be phased in with full implementation to occur by 1996.

C. Sanctions

The following information on sanctions was taken from the CAAA (revised section 179 of the CAA) and the General Preamble to Title I. Sanctions may be applied for one of four reasons:

1. The state failed to submit a SIP or an element of a SIP, or the SIP or SIP element fails to meet the completeness criteria of section 110(k) of the Act.
2. EPA disapproves a SIP for failure to meet a required plan element.
3. The state failed to make other required submissions or the submissions are disapproved by EPA.
4. The state fails to implement a requirement from an approved SIP.

Sanctions that may be applied include:

5. Bump up to serious classification for failure to attain.

EPA has six months after the attainment date to determine if El Paso has met the NAAQS for CO; however, the EPA Administrator can adjust the deadline or El Paso could ask for an extension. If El Paso is bumped up to the serious CO classification, it must then meet all of the requirements for that classification by the applicable deadlines.

6. Withholding of highway funding.

EPA can prohibit the approval of projects and grants by the Secretary of Transportation, with the following exceptions:

- a. Projects or grants related to safety

- b. Capital programs for public transit
 - c. Construction or restrictions for passenger buses or high occupancy vehicle lanes
 - d. Planning for requirements for employers to reduce employee work-trip-related vehicle emissions
 - e. Highway ramp metering, traffic signalization, and related programs that improve traffic flow and achieve a net emission reduction
 - f. Fringe and transportation corridor parking facilities serving multiple occupancy vehicle programs or transit operations
 - g. Programs to limit or restrict vehicle use in downtown areas or other areas of emission concentration during peak hours
 - h. Programs for breakdown and accident scene management, nonrecurring congestion, and vehicle information systems, to reduce congestion and emissions
 - i. Such other transportation-related programs as the Administrator, in consultation with the Secretary of Transportation, finds would improve air quality and would not encourage single occupancy vehicle capacity
7. Withholding all or part of grants awarded by EPA in support of air pollution planning and control programs.
8. The CAAA also provide for sanctions related to stationary sources such as bans on new construction (which can include bans in attainment areas), emission offsets for new or modified sources, and others.
9. EPA must apply either the highway sanctions or the emission offset sanction within 18 months of a finding of failure on the part of the state. EPA must apply both sanctions if they find a lack of good faith on the part of the state or if no corrections have been made within 24 months of the finding.

10. Federal Implementation Plan

EPA must promulgate a Federal Implementation Plan (FIP) within two years of finding that a state has failed to make a required submittal or that the submitted SIP did not meet the minimum completeness criteria, or if EPA disapproves the SIP in whole or in part.

VI. REQUIREMENTS FOR THE DALLAS-FORT WORTH O3 SIP

The Dallas-Fort Worth area is classified as a moderate ozone nonattainment area.

A. Major Actions

1. TACB submitted a SIP revision to EPA by November 15, 1992, which contained the following:

- a. A draft 1990 base year emissions inventory

After the CAAA were passed, EPA determined that the base year inventory should go through a public hearing process; therefore, EPA required a draft submittal in 1992 and the final inventory in 1993, thus giving the states time to go through the public hearing process.

- b. A Stage II Vapor Recovery Program

The November 1992 SIP revision must require Stage II for all gas dispensing facilities that dispense more than 10,000 gallons of gas per month or 50,000 gallons per month for independent small business marketers.¹⁵

- c. A commitment to adopt a basic I/M program

This consisted of a schedule for adoption. The adoption and details of the program will be submitted in the 1993 SIP revision.

2. TACB must submit a SIP revision to EPA by November 15, 1993. The 1993 SIP revision must contain the following:

- a. The final 1990 base year emissions inventory
- b. A Rate of Progress Plan

The Rate of Progress Plan details how the nonattainment area plans to achieve the 15 percent VOC reduction requirements. "In those cases where modeling

shows that reductions greater than 15 percent are necessary to attain the standard, the area will be required to achieve those additional emission reductions."¹⁶ The state should implement additional control measures as soon as possible if reductions greater than 15 percent will be required.

The Rate of Progress Plan includes the following:

- (1) The adjusted base year inventory
- (2) The calculated 1996 target level of emissions
- (3) Emission factor adjustments

If significant changes occur in emission factors or methodologies before November 15, 1993, then states may have to adjust their base year emission inventory again to reflect these changes. If changes occur between November 15, 1993, and November 15, 1996, states will not have to readjust the base year inventory.¹⁷

- (4) creditable emission reductions

Although all emission reductions for the criteria pollutant or its precursors will aid in attainment, the following emission reductions cannot be counted toward the 15 percent required VOC reduction:

- (a) FMVCP tailpipe or evaporative standards published prior to 1990.
- (b) Federal RVP regulations published by November 15, 1990, or required under section 211(h).
- (c) State regulations required under section 182(a)(2)(A) to correct deficiencies in existing VOC RACT regulations or previously required RACT rules.

- (d) State regulations required under section 182(a)(2)(B) to correct deficiencies in existing I/M programs or previously required I/M programs.
- c. An RFP projection inventory for 1996
- d. An attainment demonstration

Although moderate ozone areas are not required to perform photochemical grid modeling, Dallas-Fort Worth has opted to use UAM modeling for the attainment demonstration; therefore, the SIP should include evidence that "grid modeling is well under way and a commitment, with schedule, to complete the modeling and submit it as a SIP revision by November 1994."¹⁸

- e. Contingency measures

The SIP must contain contingency measures to be implemented if reasonable further progress is not achieved or if the standard is not attained by the applicable date. The EPA interprets this to mean the measures should provide additional emission reductions of up to 3 percent of the emissions in the adjusted base year inventory (or such lesser percentage that will cure the identified failure) to be achieved in the year following the year in which the failure has been identified. The state has one year or less to modify its SIP if a failure occurs. Contingency measures would be implemented while the state develops and adopts measures for the next higher classification.¹⁹

- f. Commitment to an annual tracking program

The annual tracking program is intended to ensure states are meeting emission reduction milestones. "At this time, EPA intends to rely on existing reporting requirements

such as emissions statements, compliance certifications, periodic inventories, and the annual AIRS update, rather than imposing additional reporting requirements on the state."²⁰

- g. A basic I/M program
- 3. TACB must submit a revised SIP to EPA by November 15, 1994 containing the following:
 - a. An attainment demonstration based on UAM modeling
 - b. Adopted conformity regulations (if the final rule is published by November 1993.)
- 4. TACB must submit a periodic inventory to EPA by November 15, 1995.
- 5. Dallas-Fort Worth must demonstrate attainment by 1996.

B. Implementation Strategies

- 1. Stage II Vapor Recovery Program for Gasoline Pumps
 - a. This program was due to be adopted by TACB in October 1992.
 - b. Moderate areas are not required to apply Stage II recovery requirements if EPA promulgates onboard refueling control standards.
- 2. Basic Vehicle Inspection and Maintenance Program
 - a. Full implementation is required by January 1, 1994, for a decentralized program, or
 - b. Full implementation is required by July 1, 1994, for a centralized program.
 - c. Dallas-Fort Worth may opt to implement an enhanced I/M program.
- 3. Reformulated Gas Program (prohibition against selling non-reformulated gas) goes into effect January 1, 1995. Governor

Richards applied for the prohibition, and the EPA approved it in the October 8, 1992, Federal Register, p. 46316.

4. Reduce VOC emissions by 15 percent by 1996.

C. Sanctions

1. Bump up to serious classification. Dallas-Fort Worth could even be bumped up to a severe classification, based on their design value at the attainment date.
2. Withholding of highway funding
3. Withholding of EPA funding for air pollution planning and control programs
4. Federal Implementation Plan
5. See the sanctions section under the El Paso CO SIP section for more detailed information on federal sanctions.
6. In addition to these sanctions, Dallas-Fort Worth could face court suits from interested parties and could be forced to implement the contingency measures outlined in their SIP.

VII. REQUIREMENTS FOR THE BEAUMONT-PORT ARTHUR O3 SIP

The Beaumont-Port Arthur area is classified as a serious ozone nonattainment area.

A. Major Actions

1. TACB submitted a SIP revision to EPA by November 15, 1992, which contained the following:

- a. A draft 1990 base year emission inventory

After the CAAA were passed, EPA determined that the base year inventory should go through a public hearing process; therefore, EPA required a draft submittal in 1992 and the final inventory in 1993, thus giving the states time to go through the public hearing process.

- b. A Stage II Vapor Recovery Program

The November 1992 SIP revision must require Stage II for all gas dispensing facilities that dispense more than 10,000 gallons of gas per month or 50,000 gallons per month for independent small business marketers.²¹

- c. A commitment to adopt a basic I/M program

This consisted of a schedule for adoption. The adoption and details of the program will be submitted in the 1993 SIP revision. Although severe areas are generally required to adopt an enhanced I/M program, those areas with an urbanized population level below 200,000 may adopt a basic program.

- d. A commitment to adopt a clean fuel fleet program

2. TACB must submit a SIP revision to EPA by November 15, 1993. The 1993 SIP revision must contain the following:

- a. The final 1990 base year emission inventory

b. A Rate of Progress Plan

The Rate of Progress Plan details how the nonattainment area plans to achieve the 15 percent VOC reduction requirements. "In those cases where modeling shows that reductions greater than 15 percent are necessary to attain the standard, the area will be required to achieve those additional emission reductions."²² The state should implement additional control measures as soon as possible if reductions greater than 15 percent will be required.

The Rate of Progress Plan includes the following:

- (1) The adjusted base year inventory
- (2) The calculated 1996 target level of emissions
- (3) Emission factor adjustments

If significant changes occur in emission factors or methodologies before November 15, 1993, then states may have to adjust their base year emission inventory again to reflect these changes. If changes occur between November 15, 1993, and November 15, 1996, states will not have to readjust the base year inventory.²³

- (4) Creditable emission reductions

Although all emission reductions for the criteria pollutant or its precursors will aid in attainment, the following emission reductions cannot be counted toward the 15 percent required VOC reduction:

- (a) FMVCP tailpipe or evaporative standards published prior to 1990
- (b) Federal RVP regulations published by November 15, 1990, or required under section 211(h)

- (c) State regulations required under section 182(a)(2)(A) to correct deficiencies in existing VOC RACT regulations or previously required RACT rules
 - (d) State regulations required under section 182(a)(2)(B) to correct deficiencies in existing I/M programs or previously required I/M programs
- c. An RFP projection inventory for 1996
- d. An attainment demonstration

Although the attainment demonstration is not due until 1994, the 1993 SIP should include evidence that "grid modeling is well under way and a commitment, with schedule, to complete the modeling and submit it as a SIP revision by November 1994."²⁴

- e. Contingency measures

The SIP must contain contingency measures to be implemented if reasonable further progress is not achieved or if the standard is not attained by the applicable date. The EPA interprets this to mean the measures should provide additional emission reductions of up to 3 percent of the emissions in the adjusted base year inventory (or such lesser percentage that will cure the identified failure) to be achieved in the year following the year in which the failure has been identified. The state has one year or less to modify its SIP if a failure occurs. Contingency measures would be implemented while the state develops and adopts measures for the next higher classification.²⁵

- f. Commitment to an annual tracking program

The annual tracking program is intended to ensure

states are meeting emission reduction milestones. "At this time, EPA intends to rely on existing reporting requirements such as emissions statements, compliance certifications, periodic inventories, and the annual AIRS update, rather than imposing additional reporting requirements on the state."²⁶

- g. An enhanced I/M program (Beaumont-Port Arthur will implement a basic I/M program)
 - h. A clean fuel vehicle program
 - i. An enhanced monitoring program designed to improve both ambient air quality monitoring and emission monitoring
- 3. TACB must submit SIP provisions for a clean fuel fleet program for centrally fueled fleet vehicles by May 15, 1994.²⁷
 - 4. TACB must submit a SIP revision to EPA by November 15, 1994, containing the following:
 - a. An attainment demonstration
 - b. A rate of progress demonstration

This is the post-1996 Rate of Progress Plan detailing how the area plans to further reduce VOC emissions by 3 percent averaged over each three-year period past 1996. The requirements are similar to those for the 15 percent Rate of Progress Plan.

- c. An RFP projection inventory for 1999
 - d. Adopted conformity regulations (if the final rule is published by November 1993)
- 5. TACB must submit a periodic inventory to EPA by November 15, 1995. A second periodic inventory is due to EPA by February 13, 1997, if used for the milestone compliance demonstration; otherwise, the second periodic inventory is due November 15, 1998.
 - 6. TACB must submit to EPA a milestone compliance demonstration

- by November 15, 1996. See the above option of tying the milestone demonstration to a periodic inventory and submitting both in 1997.
7. TACB must submit to EPA in 1996 and every three years thereafter "a demonstration of whether current aggregate vehicle mileage, aggregate vehicle emissions, congestion levels, and other relevant parameters are consistent with those used for the area's demonstration of attainment."²⁸ If the levels projected in the attainment demonstration are exceeded, the state has 18 months to develop and submit a SIP revision which includes a TCM program.
 8. If a serious nonattainment area requires control measures that are unreasonably burdensome, EPA may allow additional time to implement long-term measures outlined in Section III.A.4(q) of the General Preamble. This is an optional method of compliance, dependent on EPA approval.
 9. Beaumont-Port Arthur must demonstrate attainment by 1999.

B. Implementation Strategies

1. Stage II Vapor Recovery Program for Gasoline Pumps
This program was due to be adopted by TACB in October 1992.
2. Basic Vehicle Inspection and Maintenance Program
 - a. Full implementation is required by January 1, 1994, for a decentralized program, or
 - b. Full implementation is required by July 1, 1994, for a centralized program.
3. Reduce VOC emissions by 15 percent by 1996
4. Clean-fuel fleet program
 - a. A certain percentage of specified fleet vehicles purchased in model year 1998 and thereafter must be clean-fuel vehicles and use clean alternative fuels when operating in the area.
 - b. The state may substitute other measures for this program if

they submitted a SIP revision by November 15, 1992, consisting of fully adopted control measures.

C. Sanctions

1. Bump up to severe classification
2. Withholding of highway funding
3. Withholding of EPA funding for air pollution planning and control programs
4. Federal Implementation Plan
5. See the sanctions section under the El Paso CO SIP section for more detailed information on federal sanctions.
6. In addition to these sanctions, Beaumont-Port Arthur could face court suits from interested parties and could be forced to implement the contingency measures outlined in their SIP.
7. For failure to meet a milestone, the state may choose one of three sanctions to be applied:
 - a. Bump up to next higher classification
 - b. Implement additional measures beyond those in the contingency plan
 - c. Adopt an economic incentive plan
8. For exceeding emissions projected in an attainment demonstration, the state must submit a SIP revision within 18 months to implement a TCM program.

VIII. REQUIREMENTS FOR THE EL PASO O3 SIP

In addition to being in nonattainment for carbon monoxide and PM-10, El Paso is classified as a serious nonattainment area.

A. Major Actions

1. TACB submitted a SIP revision to EPA by November 15, 1992, which contained the following:

- a. A draft 1990 base year emission inventory

After the CAAA were passed, EPA determined that the base year inventory should go through a public hearing process; therefore, EPA required a draft submittal in 1992 and the final inventory in 1993, thus giving the states time to go through the public hearing process.

- b. A Stage II Vapor Recovery Program

The November 1992 SIP revision must require Stage II for all gas dispensing facilities that dispense more than 10,000 gallons of gas per month or 50,000 gallons per month for independent small business marketers.²⁹

- c. A commitment to adopt an enhanced I/M program

The 1992 SIP revision included a formal commitment to the adoption and implementation of an I/M program, a schedule of program implementation milestones, etc., and all other relevant dates, including mandatory test dates.

- d. A commitment to adopt a clean fuel fleet program

2. TACB must submit a SIP revision to EPA by November 15, 1993.

The 1993 SIP revision must contain the following:

- a. The final 1990 base year emission inventory

- b. A Rate of Progress Plan

The Rate of Progress Plan details how the

nonattainment area plans to achieve the 15 percent VOC reduction requirements. "In those cases where modeling shows that reductions greater than 15 percent are necessary to attain the standard, the area will be required to achieve those additional emission reductions."³⁰ The state should implement additional control measures as soon as possible if reductions greater than 15 percent will be required.

The Rate of Progress Plan includes the following:

- (1) The adjusted base year inventory
- (2) The calculated 1996 target level of emissions
- (3) Emission factor adjustments

If significant changes occur in emission factors or methodologies before November 15, 1993, then states may have to adjust their base year emission inventory again to reflect these changes. If changes occur between November 15, 1993, and November 15, 1996, states will not have to readjust the base year inventory.³¹

- (4) Creditable emission reductions

Although all emission reductions for the criteria pollutant or its precursors will aid in attainment, the following emissions reductions cannot be counted toward the 15 percent required VOC reduction:

- (a) FMVCP tailpipe or evaporative standards published prior to 1990
- (b) Federal RVP regulations published by November 15, 1990, or required under section 211(h)
- (c) State regulations required under section 182(a)(2)(A) to correct deficiencies in existing

VOC RACT regulations or previously required RACT rules

- (d) State regulations required under section 182(a)(2)(B) to correct deficiencies in existing I/M programs or previously required I/M programs

c. An RFP projection inventory for 1996

d. An attainment demonstration

Although the attainment demonstration is not due until 1994, the 1993 SIP should include evidence that "grid modeling is well under way and a commitment, with schedule, to complete the modeling and submit it as a SIP revision by November 1994."³²

e. Contingency measures

The SIP must contain contingency measures to be implemented if reasonable further progress is not achieved or if the standard is not attained by the applicable date. The EPA interprets this to mean the measures should provide additional emission reductions of up to 3 percent of the emissions in the adjusted base year inventory (or such lesser percentage that will cure the identified failure) to be achieved in the year following the year in which the failure has been identified. The state has one year or less to modify its SIP if a failure occurs. Contingency measures would be implemented while the state develops and adopts measures for the next higher classification.³³

f. Commitment to an annual tracking program

The annual tracking program is intended to ensure states are meeting emission reduction milestones. "At this time, EPA intends to rely on existing reporting requirements

such as emissions statements, compliance certifications, periodic inventories, and the annual AIRS update, rather than imposing additional reporting requirements on the state."³⁴

g. An enhanced I/M program

The 1993 SIP revision must include all of the previous elements from the 1992 SIP, plus authorizing legislation and implementing regulations.

h. A clean fuel vehicle program

i. An enhanced monitoring program designed to improve both ambient air quality monitoring and emission monitoring

3. TACB must submit SIP provisions for a clean fuel fleet program for centrally fueled fleet vehicles by May 15, 1994.³⁵
4. TACB must submit a SIP revision to EPA by November 15, 1994, containing the following:
 - a. An attainment demonstration
 - b. A rate of progress demonstration

This is the post-1996 Rate of Progress Plan detailing how the area plans to further reduce VOC emissions by 3 percent averaged over each three-year period past 1996. The requirements are similar to those for the 15 percent Rate of Progress Plan.

- c. An RFP projection inventory for 1999
 - d. Adopted conformity regulations (If the final rule is published by November 1993)
5. TACB must submit a periodic inventory to EPA by November 15, 1995. A second periodic inventory is due to EPA by February 13, 1997, if used for the milestone compliance demonstration; otherwise, the second periodic inventory is due November 15, 1998.
6. TACB must submit to EPA a milestone compliance demonstration

by November 15, 1996. See the above option of tying the milestone demonstration to a periodic inventory and submitting both in 1997.

7. TACB must submit to EPA in 1996 and every three years thereafter "a demonstration of whether current aggregate vehicle mileage, aggregate vehicle emissions, congestion levels, and other relevant parameters are consistent with those used for the area's demonstration of attainment."³⁶ If the levels projected in the attainment demonstration are exceeded, the state has 18 months to develop and submit a SIP revision which includes a TCM program.
8. If a serious nonattainment area requires control measures that are unreasonably burdensome, EPA may allow additional time to implement long-term measures outlined in Section III.A.4(q) of the General Preamble. This is an optional method of compliance, dependent on EPA approval.
9. El Paso must demonstrate attainment by 1999.

B. Implementation Strategies

1. Stage II Vapor Recovery Program for Gasoline Pumps
This program was due to be adopted by TACB in October 1992.
2. Enhanced Vehicle Inspection and Maintenance Program
 - a. Full implementation is required by January 1, 1995.
 - (1) This includes all administrative details such as enforcement and waivers and an option to phase in high-tech testing.
 - (2) See 40 CFR Part 51, Subpart S, Section 51.373(c) of the Code of Federal Regulations for exceptions to this date.
 - b. States must submit biennial reports to EPA on emission reductions achieved under this program.³⁷
3. VOC emission reductions by 15 percent by 1996

4. Clean fuel fleet program
 - a. A certain percentage of specified fleet vehicles purchased in model year 1998 and thereafter must be clean fuel vehicles and use clean alternative fuels when operating in the area.
 - b. The State may substitute other measures for this program if they submitted a SIP revision by November 15, 1992, consisting of fully adopted control measures.

C. Sanctions

1. Bump up to severe classification
2. Withholding of highway funding
3. Withholding of EPA funding for air pollution planning and control programs
4. Federal Implementation Plan
5. See the sanctions section under the El Paso CO SIP section for more detailed information on federal sanctions.
6. In addition to these sanctions, El Paso could face court suits from interested parties and could be forced to implement the contingency measures outlined in their SIP.
7. For failure to meet a milestone, the state may choose one of three sanctions to be applied:
 - a. Bump up to next higher classification
 - b. Implement additional measures beyond those in the contingency plan
 - c. Adopt an economic incentive plan
8. For exceeding emissions projected in an attainment demonstration, the state must submit a SIP revision within 18 months to implement a TCM program.

IX. REQUIREMENTS FOR THE HOUSTON-GALVESTON-BRAZORIA O3 SIP

The Houston-Galveston-Brazoria area has been classified as a severe-17 area. They must perform all of the regulatory requirements for a severe area, but they have 17 years to achieve attainment instead of 15.

A. Major Actions

1. TACB submitted a SIP revision to EPA by November 15, 1992 which contained the following:

- a. A draft 1990 base year emissions inventory

After the CAAA were passed, EPA determined that the base year inventory should go through a public hearing process; therefore, EPA required a draft submittal in 1992 and the final inventory in 1993, thus giving the states time to go through the public hearing process.

- b. A Stage II Vapor Recovery Program

The November 1992 SIP revision must require Stage II for all gas dispensing facilities that dispense more than 10,000 gallons of gas per month or 50,000 gallons per month for independent small business marketers.³⁸

- c. A commitment to adopt an enhanced I/M program

The 1992 SIP revision included a formal commitment to the adoption and implementation of an I/M program, a schedule of program implementation milestones, etc., and all other relevant dates, including mandatory test dates.

- d. A commitment to adopt a clean fuel fleet program
- e. A commitment to identify and adopt TCMs
- f. A mandate for an Employee Commute Options Program

2. TACB must submit a SIP revision to EPA by November 15, 1993.
The 1993 SIP revision must contain the following:

- a. The final 1990 base year emission inventory
- b. A Rate of Progress Plan

The Rate of Progress Plan details how the nonattainment area plans to achieve the 15 percent VOC reduction requirements. "In those cases where modeling shows that reductions greater than 15 percent are necessary to attain the standard, the area will be required to achieve those additional emission reductions."³⁹ The state should implement additional control measures as soon as possible if reductions greater than 15 percent will be required.

The Rate of Progress Plan includes the following:

- (1) The adjusted base year inventory
- (2) The calculated 1996 target level of emissions
- (3) Emission factor adjustments

If significant changes occur in emission factors or methodologies before November 15, 1993, then states may have to adjust their base year emission inventory again to reflect these changes. If changes occur between November 15, 1993, and November 15, 1996, states will not have to readjust the base year inventory.⁴⁰

- (4) Creditable emission reductions

Although all emission reductions for the criteria pollutant or its precursors will aid in attainment, the following emission reductions cannot be counted toward the 15 percent required VOC reduction:

- (a) FMVCP tailpipe or evaporative standards published prior to 1990

- (b) Federal RVP regulations published by November 15, 1990, or required under section 211(h)
 - (c) State regulations required under section 182(a)(2)(A) to correct deficiencies in existing VOC RACT regulations or previously required RACT rules
 - (d) State regulations required under section 182(a)(2)(B) to correct deficiencies in existing I/M programs or previously required I/M programs
- c. An RFP projection inventory for 1996
- d. An attainment demonstration

Although the attainment demonstration is not due until 1994, the 1993 SIP should include evidence that "grid modeling is well under way and a commitment, with schedule, to complete the modeling and submit it as a SIP revision by November 1994."⁴¹

- e. Contingency measures

The SIP must contain contingency measures to be implemented if reasonable further progress is not achieved or if the standard is not attained by the applicable date. The EPA interprets this to mean the measures should provide additional emission reductions of up to 3 percent of the emissions in the adjusted base year inventory (or such lesser percentage that will cure the identified failure) to be achieved in the year following the year in which the failure has been identified. The state has one year or less to modify its SIP if a failure occurs. Contingency measures would be implemented while the state develops and adopts measures

for the next higher classification.⁴²

f. Commitment to an annual tracking program

The annual tracking program is intended to ensure states are meeting emission reduction milestones. "At this time, EPA intends to rely on existing reporting requirements such as emissions statements, compliance certifications, periodic inventories, and the annual AIRS update, rather than imposing additional reporting requirements on the state."⁴³

g. An enhanced I/M program

The 1993 SIP revision must include all of the previous elements from the 1992 SIP, plus authorizing legislation and implementing regulations.

h. A clean fuel vehicle program

i. An enhanced monitoring program designed to improve both ambient air quality monitoring and emissions monitoring

j. A TCM evaluation

3. TACB must submit SIP provisions for a clean fuel fleet program for centrally fueled fleet vehicles by May 15, 1994.⁴⁴

4. TACB must submit a SIP revision to EPA by November 15, 1994, containing the following:

a. An attainment demonstration

b. A rate of progress demonstration

This is the post-1996 Rate of Progress Plan detailing how the area plans to further reduce VOC emissions by 3 percent averaged over each three-year period past 1996. The requirements are similar to those for the 15 percent Rate of Progress Plan.

c. RFP projection inventories for 1999, 2002, and 2007

d. Adopted conformity regulations (if the final rule is published

by November 1993)

5. TACB must submit a periodic inventory to EPA by November 15, 1995. A second periodic inventory is due to EPA by February 13, 1997, if used for the milestone compliance demonstration; otherwise, the second periodic inventory is due November 15, 1998.
6. TACB must submit to EPA a milestone compliance demonstration by November 15, 1996. See the above option of tying the milestone demonstration to a periodic inventory and submitting both in 1997.
7. TACB must submit to EPA in 1996 and every three years thereafter "a demonstration of whether current aggregate vehicle mileage, aggregate vehicle emissions, congestion levels, and other relevant parameters are consistent with those used for the area's demonstration of attainment."⁴⁵ If the levels projected in the attainment demonstration are exceeded, the state has 18 months to develop and submit a SIP revision which includes a TCM program.
8. If a serious nonattainment area requires control measures that are unreasonably burdensome, EPA may allow additional time to implement long-term measures outlined in Section III.A.4(q) of the General Preamble. This is an optional method of compliance, dependent on EPA approval.
9. Houston-Galveston-Brazoria must demonstrate attainment by 2007.

B. Implementation Strategies

1. Stage II Vapor Recovery Program for Gasoline Pumps
This program was due to be adopted by TACB in October 1992.
2. Enhanced Vehicle Inspection and Maintenance Program
 - a. Full implementation is required by January 1, 1995.
 - (1) This includes all administrative details such as enforcement and waivers and an option to phase in high-tech testing.

- (2) See 40 CFR Part 51, Subpart S, Section 51.373(c) of the Code of Federal Regulations for exceptions to this date.
- b. States must submit biennial reports to EPA on emission reductions achieved under this program.⁴⁶
- 3. VOC emission reductions by 15 percent by 1996
- 4. Clean fuel fleet program
 - a. A certain percentage of specified fleet vehicles purchased in model year 1998 and thereafter must be clean fuel vehicles and use clean alternative fuels when operating in the area.
 - b. The state may substitute other measures for this program if they submitted a SIP revision by November 15, 1992, consisting of fully adopted control measures.
- 5. Reformulated Gas Program

A prohibition against selling non-reformulated gasoline, i.e., conventional gasoline, goes into effect January 1, 1995.
- 6. Reduction in Average Vehicle Occupancy
 - a. Section 182(d)(1)(B) of the CAA requires severe and extreme areas to implement an Employee Commute Options program (ECO), formerly called an Employer Trip Reduction program, that requires employers with 100 or more employees at one site to reduce employees' work-related vehicle trips and VMT.
 - b. A public hearing was held by TACB in June 1992.
 - c. The 1992 SIP revision mandated an ECO program.
- 7. TCMs

TCMs must be implemented to offset growth in VMT. This, in effect, acts as a cap on mobile source emissions. TCM offset provisions apply only to VOC emissions. When projecting emissions, states should use the Section 187 VMT guidance for

serious CO areas. However, use of this guidance is limited to emission projections; the reporting requirements for serious CO areas do not apply to ozone areas.⁴⁷

C. Sanctions

1. Houston-Galveston-Brazoria cannot be bumped up to the extreme classification, because that classification is reserved for Los Angeles alone; however, the new source review requirements (applies to stationary sources) for extreme areas would have to be implemented.
2. Withholding of highway funding
3. Withholding of EPA funding for air pollution planning and control programs
4. Federal Implementation Plan
5. See the sanctions section under the El Paso CO SIP section for more detailed information on federal sanctions.
6. In addition to these sanctions, Houston-Galveston-Brazoria could face court suits from interested parties and could be forced to implement the contingency measures outlined in their SIP.
7. For failure to meet a milestone, the state may choose one of three sanctions to be applied:

- a. Bump up to next higher classification

Although EPA cannot bump a severe area up to extreme for failure to attain (as per Section 181(b)(2) of the CAA), the state can *choose* to ask for a bump up under Section 182(g)(3).

- b. Implement additional measures beyond those in the contingency plan.
- c. Adopt an economic incentive plan.

In addition to one of the three above sanctions, severe areas must

apply the new source review requirements for extreme areas.

8. For exceeding emissions projected in an attainment demonstration, the state must submit a SIP revision within 18 months to implement a TCM program.
9. Major stationary sources of VOCs must pay a fee to the state for each calendar year past the attainment date until attainment is achieved.

ACRONYMS USED

AIRS	Aerometric Information Retrieval System
AMS-PC	Area and Mobile Source subsystem for the Personal Computer
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CFR	Code of Federal Regulations
CO	Carbon monoxide
DOT	Department of Transportation
ECO	Employee Commute Options
EI	Emission inventory
EPA	Environmental Protection Agency
EPCCHD	El Paso City-County Health District
FCAA	Federal Clean Air Act
FHWA	Federal Highway Administration
FIP	Federal Implementation Plan
FMVCP	Federal Motor Vehicle Control Program
H-GAC	Houston-Galveston Area Council
IPP	Inventory Preparation Plan
MPO	Metropolitan Planning Organization
$\mu\text{g}/\text{m}^3$	Micrograms per cubic meter
NAAQS	National Ambient Air Quality Standards
NCTCOG	North Central Texas Council of Governments
NO _x	Nitrogen oxides
NPRM	Notice of proposed rulemaking
PM-10	Particulate matter less than 10 micrometers in diameter
ppm	Parts per million
O ₃	Ozone
OAQPS	Office of Air Quality Planning and Standards (EPA office)
PC-BEIS	Biogenic Emission Inventory System for the Personal Computer

RACM	Reasonably Available Control Measures
RFP	Reasonable Further Progress
RO	Regional Office (EPA office)
RVP	Reid vapor pressure
SAMS	SIP Air Pollutant Inventory Management System
SEDESOL	Secretaria de Desarrollo Social (Secretary of Social Development)
SIP	State Implementation Plan
TACB	Texas Air Control Board
TCM	Transportation Control Measure
TIP	Transportation Improvement Program
TTI	Texas Transportation Institute
TxDOT	Texas Department of Transportation
UAM	Urban Airshed Model
USDOT	United States Department of Transportation
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compound

SUGGESTED GUIDANCE DOCUMENTS

URBAN NONATTAINMENT AREAS

U.S. Environmental Protection Agency. *Ozone and Carbon Monoxide Areas Designated Nonattainment*. October 26, 1991.

CONFORMITY

USEPA and U.S. Department of Transportation. *Guidance for Determining Conformity of Transportation Plans, Programs and Projects with Clean Air Act Implementation Plans During Phase 1 of the Interim Period*. June 7, 1991.

Federal Highway Administration. *Memo. Further Guidance on Conformity Determinations*. July 27, 1992.

FHWA. *Memo. Clarification of FHWA July 27, 1992, Memorandum to Regional Administrators*. October 9, 1992.

EMISSION INVENTORIES

Kersteter, Sharon. *Procedures for the Preparation of Emissions Inventories for Carbon Monoxide and Precursors of Ozone, Volume 1*. Prepared by Alliance Technologies Corp. for USEPA. May 1991.

USEPA. *Procedures for the Preparation of Emission Inventories for Carbon Monoxide and Precursors of Ozone, Volume 2: Emission Inventory Requirements for Photochemical Air Quality Simulation Models*. May 1991.

USEPA. *Emission Inventory Requirements for Ozone State Implementation Plans*. March 1991.

USEPA. *Procedures for Emission Inventory Preparation, Volume IV: Mobile Sources*. 1992.

USEPA. *User's Guide to MOBILE4.1 (Mobile Source Emission Factor Model)*. July 1991.

USEPA. *MOBILE5.0 User's Guide, Chapter 2*. December 1992.

USEPA. *MOBILE5a User's Guide, Chapter 2*. March 1993.

USEPA. *Procedures for Preparing Emissions Projections*. July 1991.

USEPA. Section 187, VMT Forecasting and Tracking Guidance. January 1992.

USEPA. *Guidance on the Adjusted Base Year Emissions Inventory and the 1996 Target for the 15 Percent Rate-of-Progress Plans*. 1992.

USEPA. *User's Guide for the Urban Airshed Model*. July 1990.

USEPA. *Emission Inventory Requirements for Carbon Monoxide State Implementation Plans*. March 1991.

USEPA. *Emission Inventory Requirements for Ozone State Implementation Plans*. March 1991.

USEPA. *Quality Review Guidelines for 1990 Base Year Emission Inventories*. September 1991.

Mobley, J. David. Memo. November 15, 1992, Deliverables for RFP and Modeling Emission Inventories. USEPA. August 7, 1992.

SIP

USEPA. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. April 1992.

USEPA. *Guidance for Growth Factors, Projections, and Control Strategies for the 15 Percent Rate-of-Progress Plans*. 1993.

USEPA. *Guidance on Preparing Enforceable Regulations and Compliance Programs for the 15 Percent Rate-of-Progress Plans*. 1993.

USEPA. *Guidance on the Relationship between the 15 Percent Rate-of-Progress Plans and Other Provisions of the Clean Air Act*. 1993.

USEPA. *Transportation Control Measures: State Implementation Guidance*. September 1990.

Calcagni, John. Memo. Processing of State Implementation Plan (SIP) Submittals. USEPA. 1992.

OTHER

USEPA. *Technical Guidance - Stage II Vapor Recovery Systems for Control of Vehicle Refueling Emissions at Gasoline Dispensing Facilities - Volume I.* November 1991.

USEPA. *Enforcement Guidance for Stage II Vehicle Refueling Control Programs.*
December 1991.

USEPA. *Transportation Control Measure Information Documents.* March 1992.

USEPA. 40 CFR Part 51, Inspection/Maintenance Program Requirements (final rule).
November 1992.

USEPA. Employee Commute Options Guidance (final rule). January 1993.

REFERENCES

1. U.S. Environmental Protection Agency. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. Sec III.A.1(a). April 1992.
2. USEPA. *Ozone and Carbon Monoxide Areas Designated Nonattainment*. October 26, 1992.
3. Texas Air Control Board. Revisions to the State Implementation Plan for Inhalable Particulate Matter (PM₁₀): 1991 PM₁₀ SIP for Moderate Area - El Paso. November 1991.
4. USEPA. *MOBILE Input Data Analysis System (MIDAS): User's Guide*. April 1993.
5. USEPA. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. Sec. III.A.2(a)(1). April 1992.
6. USEPA. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. Sec. III.A.2(a)(2). April 1992.
7. USEPA. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. Sec. III.A.2(a)(2). April 1992.
8. USEPA. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. Sec. III.A.2(a)(2). April 1992.
9. Martinez, E.L. Memo. Submittal Procedures for the 1990 O₃/CO SIP Emission Inventories. USEPA. October, n.y.
10. Mobley, J. David. Memo. "November 15, 1992 Deliverables for RFP and Modeling Emission Inventories." USEPA, August 7, 1992.
11. USEPA. *Guidance on the Adjusted Base Year Emissions Inventory and the 1996 Target for the 15 Percent Rate-of-Progress Plans*. October 1992, p. 3.
12. USEPA. *Emission Inventory Requirements for Ozone State Implementation Plans*. March 1991, p. 37.
13. Texas Air Control Board. Revisions to the State Implementation Plan (SIP) for Carbon Monoxide (CO): 1992 CO SIP for Moderate Area - El Paso. September 1992, p. 9.
14. Texas Air Control Board. Revisions to the State Implementation Plan (SIP) for Carbon Monoxide (CO): 1992 CO SIP for Moderate Area - El Paso. September

1992.

15. USEPA. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. Sec.III.A.3(g). April 1992.
16. USEPA. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. Sec.III.A.3(a). April 1992.
17. USEPA. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. Sec.III.A.3(4). April 1992.
18. USEPA. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. Sec.III.A.3(b). April 1992.
19. USEPA. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. Sec.III.A.3(c). April 1992.
20. USEPA. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. Sec.III.A.3(d). April 1992.
21. USEPA. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. Sec.III.A.3(g). April 1992.
22. USEPA. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. Sec.III.A.3(a). April 1992.
23. USEPA. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. Sec.III.A.3(4). April 1992.
24. USEPA. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. Sec.III.A.3(b). April 1992.
25. USEPA. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. Sec.III.A.3(c). April 1992.
26. USEPA. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. Sec.III.A.3(d). April 1992.
27. USEPA. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. Sec.III.A.4(k)(1). April 1992.
28. USEPA. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. Sec.III.A.4(n). April 1992.
29. USEPA. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. Sec.III.A.3(g). April 1992.

30. USEPA. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. Sec.III.A.3(a). April 1992.
31. USEPA. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. Sec.III.A.3(4). April 1992.
32. USEPA. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. Sec.III.A.3(b). April 1992.
33. USEPA. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. Sec.III.A.3(c). April 1992.
34. USEPA. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. Sec.III.A.3(d). April 1992.
35. USEPA. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. Sec.III.A.4(k)(1). April 1992.
36. USEPA. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. Sec.III.A.4(n). April 1992.
37. USEPA. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. Sec.III.A.4(j). April 1992.
38. USEPA. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. Sec.III.A.3(g). April 1992.
39. USEPA. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. Sec.III.A.3(a). April 1992.
40. USEPA. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. Sec.III.A.3(4). April 1992.
41. USEPA. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. Sec.III.A.3(b). April 1992.
42. USEPA. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. Sec.III.A.3(c). April 1992.
43. USEPA. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. Sec.III.A.3(d). April 1992.
44. USEPA. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. Sec.III.A.4(k)(1). April 1992.

45. USEPA. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. Sec.III.A.4(n). April 1992.
46. USEPA. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. Sec.III.A.4(j). April 1992.
47. USEPA. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*. Sec.III.A.5(d). April 1992.