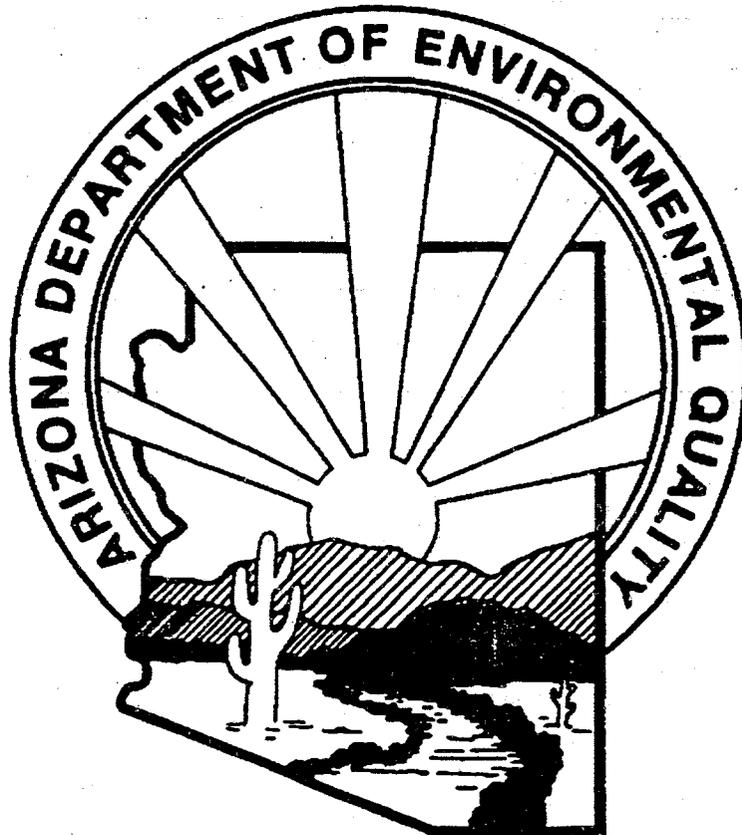


FINAL

STATE IMPLEMENTATION PLAN
for the
DOUGLAS PM₁₀ NONATTAINMENT AREA



Prepared by

Office of Air Quality
Arizona Department of Environmental Quality
Phoenix, Arizona 85012

ADEQ/SIP

FINAL STATE IMPLEMENTATION PLAN
FOR THE DOUGLAS PM₁₀ NONATTAINMENT AREA

April, 1993

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EXECUTIVE SUMMARY

Regulatory Background

In accordance with the mandates of Sections 108 and 109 of the 1977 Clean Air Act, the Environmental Protection Agency (EPA) promulgated revised National Ambient Air Quality Standards (NAAQS) for particulate matter in July 1987. The new standards apply to particulates of 10 microns¹ or less in diameter (PM₁₀) and supersede the previous Total Suspended Particulates (TSP) standards.

Section 110 of the 1977 Clean Air Act requires states to develop or revise their State Implementation Plans (SIPs) to provide for implementation, maintenance and enforcement of the new PM₁₀ NAAQS. Section 101 of the 1990 Clean Air Act amended Section 110 to strengthen the requirements for SIPs. This document satisfies this requirement for the Douglas area. Exceedances of the PM₁₀ standards were documented in the nonattainment area since 1989. These exceedances count as violations of both the 24-hour standard and the annual mean standard.

Upon the adoption of the 1990 Clean Air Act Amendments (CAA), all areas where violations of the PM₁₀ NAAQS were recorded were designated as moderate nonattainment areas for PM₁₀. Consequently, the Douglas area is a moderate nonattainment area for PM₁₀.

In view of the nonattainment status of the Douglas area, this document accomplishes the following:

1. Describes the process in assessing PM₁₀ pollution in the Douglas area; and
2. Documents which control strategies are being implemented to control PM₁₀ emissions in the nonattainment area.

Description of the Douglas Nonattainment Area

The Douglas Nonattainment Area is in southeastern Arizona in Cochise County on the international border with Mexico. It includes the City of Douglas, the community of Pirtleville and an unincorporated portion of Cochise County. The nonattainment area is described by the following townships and ranges: T23S, R27-28E and T24S, R27-28E (see Figure 1.1 in Chapter 1).

Douglas is located on the U.S.-Mexico border with Agua Prieta, Sonora, Mexico. It is estimated that approximately 92,000 people currently live astride the international border in these two communities, with approximately 13,000 being on the U.S. side.

¹ One micron is one millionth of a meter, or 0.0004 inches.

A PM₁₀ emission inventory of Douglas and Agua Prieta developed by Engineering-Science, Inc. in October 1987 confirmed common observations that PM₁₀ emissions in Agua Prieta exceed emissions in Douglas and therefore contribute to the PM₁₀ problem in the Douglas area. Although this state implementation plan does not propose a means to correct the trans-boundary PM₁₀ problem, it does document the reasonably available control measures currently being implemented by various governmental agencies in the nonattainment area (in the U.S.).

Monitoring and Modeling for the Douglas PM₁₀ SIP

PM₁₀ monitoring at the Douglas City Park began in March 1985. Readings for annual average concentrations have ranged from 33 $\mu\text{g}/\text{m}^3$ to 63 $\mu\text{g}/\text{m}^3$. There have been five exceedances of the 24-hour PM₁₀ standard of 150 $\mu\text{g}/\text{m}^3$; values range from 159 - 233 $\mu\text{g}/\text{m}^3$.

The city park monitor is located in a central location in Douglas and is considered to be generally representative of public exposure to PM₁₀.

A special PM₁₀ study was conducted for the Douglas area from February 23, 1989 to May 27, 1989 to determine temporal and spatial variation of PM₁₀. Special attention was given to the possible transport of PM₁₀ emissions from Mexico to the Douglas area.

The single permanent PM₁₀ monitor at the Douglas City Park was supplemented by two temporary samplers; one was located in Douglas near the U.S./Mexico border and the other sampler was operated in a near-field background setting outside Douglas, at the Cochise County Fairgrounds. Wind instruments were also operated at the border sampler site and a time lapse camera was used to photograph the border area from the roof of a downtown Douglas hotel. Higher concentrations occur near the U.S./Mexico border because of greater PM₁₀ emissions in the adjacent town of Agua Prieta.

A PM₁₀ emissions inventory was assembled for the Douglas nonattainment area by Engineering-Science Inc. under an EPA contract, in October, 1987. The inventory's weaknesses include assumptions about emission factors, the inappropriate use of surrogate data from other areas of the State and the lack of emission characteristics in Agua Prieta. For the purposes of this SIP, the first two deficiencies were rectified by the Arizona Department of Environmental Quality (ADEQ).

The study disclosed that emissions from unpaved roads, alleys, and parking lots account for a majority of the PM₁₀ totals, followed by agricultural activities, reentrained fugitive emissions from paved streets and roads, wind blown dust and wood burning.

Although the inventory does not adequately address emissions from Agua Prieta ancestral evidence suggestions that almost all of the unpaved road emissions come from Agua Prieta. Agua Prieta has few paved streets. Also, the only agricultural portion of the Planning Area is in Mexico, to the west of Agua Prieta.

Engineering Science's emissions inventory for the Douglas/Agua Prieta Planning Area indicate that forty (40) percent of the pollution sources are on the American side of the border, consequently sixty (60) percent of the PM_{10} sources are on the Mexican side.

The study by Engineering Science concluded that paving, curbing and vegetating or paving adjacent areas would reduce unpaved road, alley and parking lot emissions by an estimated 90.0%. Additional curbing and paving or vegetating of adjacent areas and a program of street washing may reduce paved street emissions by as much as 60.0%.

The 1990 Clean Air Act requires that a state implementation plan for an international border area demonstrate that attainment and maintenance of the PM_{10} national ambient air quality standards by the Federally mandated attainment date of December 31, 1994 if not for emissions emanating outside of the United States. The ADEQ feels that strategies undertaken on the American side of the planning area will be enough to make this demonstration, given the transboundary problem. However, it is expected that violators of the PM_{10} NAAQS will continue because of the absence of control of PM_{10} emissions in Mexico.

Control Measures

Fugitive dust emissions are dependent upon several factors such as the size of the source, emission rate and control efficiency. The Environmental Protection Agency has developed a list of fugitive dust control strategies.

The complete list of EPA defined reasonably available control measures (RACMs) were evaluated in SIP. The control measures currently being implemented in the nonattainment area are listed in Table 1.

ADEQ has worked closely with the Cochise County Department of Environmental Quality, Cochise County Department of Public Works, Cochise County Department of Land Use and Zoning, City of Douglas Department of Public Works, U.S. Customs Service, U.S. General Services Administration, U.S. Immigration and Naturalization Service and the Arizona Department of Transportation. The ADEQ will continue to participate in the coordination of intergovernmental efforts.

Table 1
Control Strategies Implemented in the Douglas
Nonattainment Area since May, 1989

<u>Control Measure</u>	<u>Responsible Agencies</u>
Control of Open Burning	City of Douglas
Curbing Streets	City of Douglas; Cochise County
Dust Control for Material Storage Piles	Arizona Depart of Transportation
Four Additional Lanes at POE Facility	U.S. General Services Administration/U.S. Customs Service
Landscaping International Border Ditch	U.S. General Services Administration/U.S. Customs Service
Landscaping Natural Drainage Feature	U.S. General Services Administration/U.S. Customs Service
Paving Unpaved Parking Lots	City of Douglas
Paving Unpaved Roads	City of Douglas; Cochise Cnty; ADOT
Traffic Reduction Plans for	U.S. Immigration and Naturalization Service
Ventilation of Primary Lanes	U.S. General Services Administration/U.S. Customs Service
Water Misting System	U.S. General Services Administration/U.S. Customs Service

This plan commits ADEQ to insure the implementation of the control strategies by the City of Douglas, Cochise County, ADOT and several federal agencies in the nonattainment area.

1.0 INTRODUCTION

1.1 Purpose and Organization

This document describes the nonattainment area, identifies PM₁₀ sources in the nonattainment area and describes strategies to

control these emissions in order to achieve and maintain the PM₁₀ NAAQS in this area. This document also contains information concerning the development of PM₁₀ emission inventories, ambient air quality data and control strategies to bring the nonattainment area into compliance with the 1990 Clean Air Act Amendments.

This SIP accomplishes the following:

1. Characterization and assessment of ambient air quality and sources of PM₁₀ emissions contributing to violations, including expanded ambient air monitoring programs, development of inventories of sources of PM₁₀ emissions and chemical analysis of the particulate matter; and
2. Documentation of the control strategies being implemented in the nonattainment area.

The remaining sections in this chapter are organized as follows:

- Section 1.2 Contains information concerning the regulatory background of the Clean Air Act and the PM₁₀ NAAQS;
- Section 1.3 Describes the Douglas nonattainment area; climate, topography, population and, economy status of;
- Section 1.4 Details the general SIP approach; and
- Section 1.5 Outlines the plan's contents for chapters 2-14.

Appendices provide administrative and, technical documentation, and public participation. The appendices are organized into four categories:

- APPENDIX A Documentation of Reasonably Available Control Measure Implementation
- APPENDIX B Applicable Arizona State Rule Provisions
- APPENDIX C Technical Support Documentation and
- APPENDIX D Public Comments and Responsiveness Summary.

1.2 Regulatory Background

The 1977 amendments to the Clean Air Act (CAA) require the EPA at five year intervals to review and, if appropriate, revise the criteria on which each National Ambient Air Quality Standard (NAAQS) is based. In response to these requirements, the EPA reviewed the criteria upon which the particulate matter NAAQS were based, including information on health and welfare effects that had become available since the original criteria document was prepared

in 1969. The Criteria Document was revised and reissued on March 20, 1983.

Consideration of the information in the revised criteria document resulted in EPA revising the NAAQS for particulate matter. Prior to this action, the original particulate matter NAAQS included the size range of particles collected by the hi-volume sampler and was referred to as total suspended particulates (TSP). The revised primary (health) and secondary (welfare) standards for particulates focused on a different, health-based size range than the old TSP based standard.

A new reference method for the collection and monitoring of these fine particles was developed. The particles collected by the new monitors are nominally below 10 microns, hence the term PM_{10} . The size range defined by the collection characteristics of the new ambient reference method has a 50% collection efficiency (D50) at 10 microns.

Final rulemaking did not occur until July 1, 1987 and the new standard became effective on July 31, 1987 (52 FR 24634). The final rulemaking included the following changes to the particulate NAAQS:

1. Replacement of TSP as the indicator for particulate matter for the ambient standards with a new indicator that includes only those particles with an aerodynamic diameter less than or equal to a nominal 10 microns (PM_{10});
2. Replacement of the 24-hour primary TSP standard of 260 micrograms per cubic meter ($260 \mu\text{g}/\text{m}^3$) with a 24-hour PM_{10} standard of $150 \mu\text{g}/\text{m}^3$ with no more than one expected exceedance per year;
3. Replacement of the annual primary TSP standard ($75 \mu\text{g}/\text{m}^3$) with a PM_{10} standard of $50 \mu\text{g}/\text{m}^3$, annual arithmetic mean; and
4. Replacement of the secondary TSP standards with 24-hour and annual PM_{10} standards that are identical in all respects to the primary standards.

The EPA published the PM_{10} SIP Development Guideline Document (EPA, 1986) describing these changes, the procedure for PM_{10} groupings for planning and the criteria for each type of planning area.

As a result of the lack or the unavailability of PM_{10} data, the EPA developed a procedure for estimating the probability of nonattainment of PM_{10} NAAQS, using TSP or PM_{10} data. Based on the probability of exceeding PM_{10} standards (24-hour and annual), EPA designated three types of areas:

1. Group I areas (95 percent or higher probability);
2. Group II areas (20 percent to 95 percent probability or insufficient data to make a determination); and
3. Group III areas (less than 20 percent probability).

Prior to the Clean Air Act Amendments of 1990, all PM₁₀ areas nationwide were categorized by these three designations.

In an attempt to definitively classify PM₁₀ areas as being in attainment or nonattainment, the CAAA redesignated the three types of areas. By operation of law, all Group I PM₁₀ areas and Group II areas where violations occurred were designated as nonattainment for PM₁₀, all other Group II areas as unclassifiable and Group III areas as attainment for PM₁₀. All former Group I areas were initially designated as moderate areas by operation of law by the CAAA. Figure 1.0 depicts PM₁₀ nonattainment areas within the State of Arizona.

Section 189 of the CAAA requires the State to submit a plan for all moderate PM₁₀ nonattainment areas to the EPA by November 15, 1991. ADEQ failed to meet this deadline, but the CAAA gives states 18 months after official notification from EPA to address SIP deficiencies. When the final plan is submitted, it must include:

1. A permit program providing that permits meeting the requirements of Section 173 are required for the construction and operation of new and modified stationary sources of PM₁₀ (due November 15, 1992);
2. A demonstration, including air quality modeling, that the plan will provide for attainment by December 31, 1994 or a demonstration that attainment by that date is impracticable; and, finally
3. Provisions to insure that reasonably available control measures (RACMs) for the control of PM₁₀ will be implemented no later than December 10, 1993.

1.3 Study Area Definition

A general description of the Douglas nonattainment area is provided and includes a discussion of the geographical location, climatic conditions of the nonattainment area and other relevant socioeconomic information for the twin cities of Douglas/Agua Prieta.

1.3.1 Topography

Douglas is located on the Mexico border 117 miles southeast of Tucson (see Figure 1.0) at an elevation of nearly 4,000 feet. Located toward the upper end of the Sulphur Springs Valley, the immediate terrain is flat, but ringed from east to south to west by mountains.

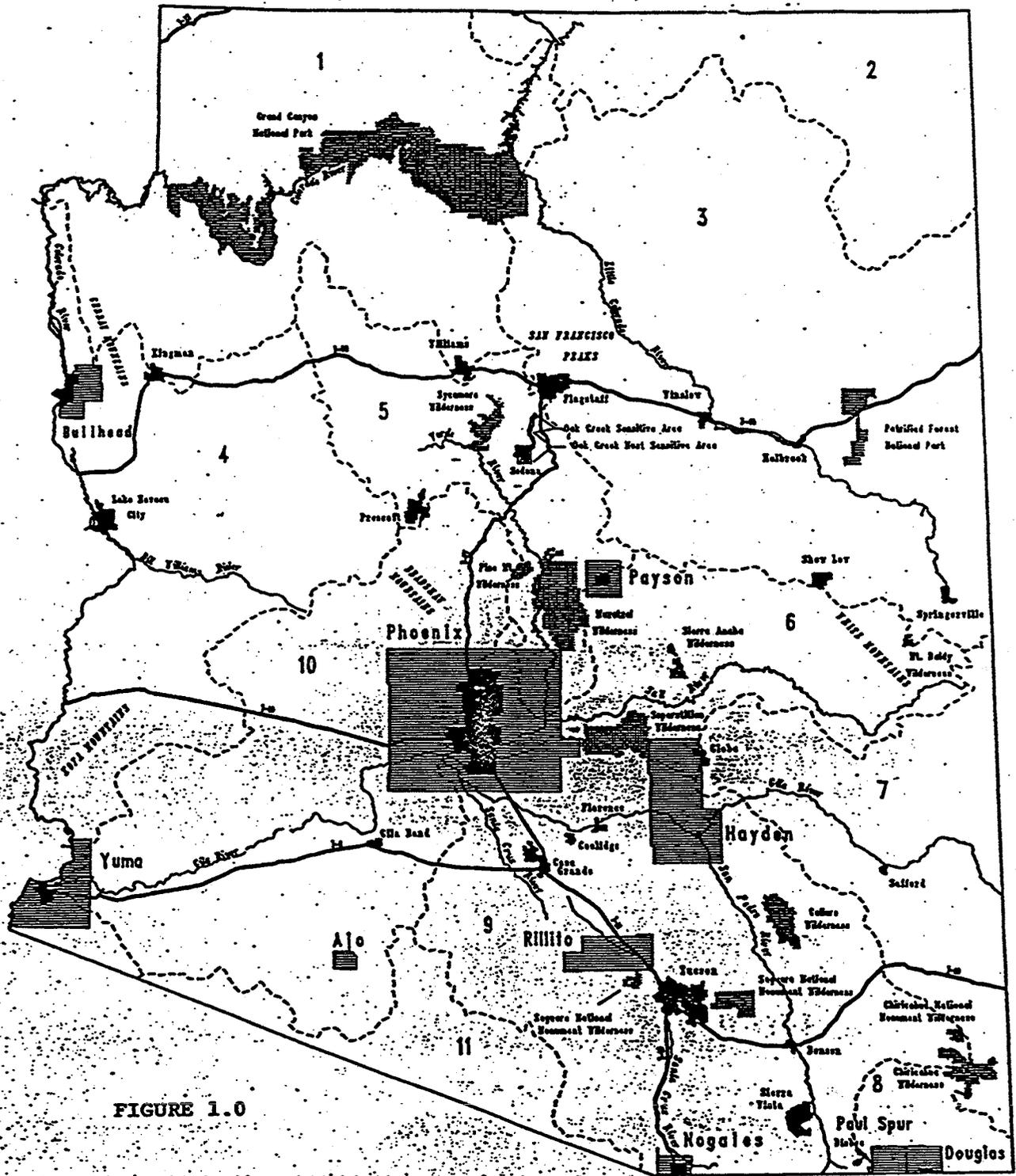


FIGURE 1.0

Arizona PM₁₀ Non-Attainment Areas

Produced by Advanced Resource Technology Program
University of Arizona

Commissioned by Arizona Department
of Environmental Quality

This map is not an official designation of nonattainment areas, and the Department
of Environmental Quality acknowledges that it may contain errors.

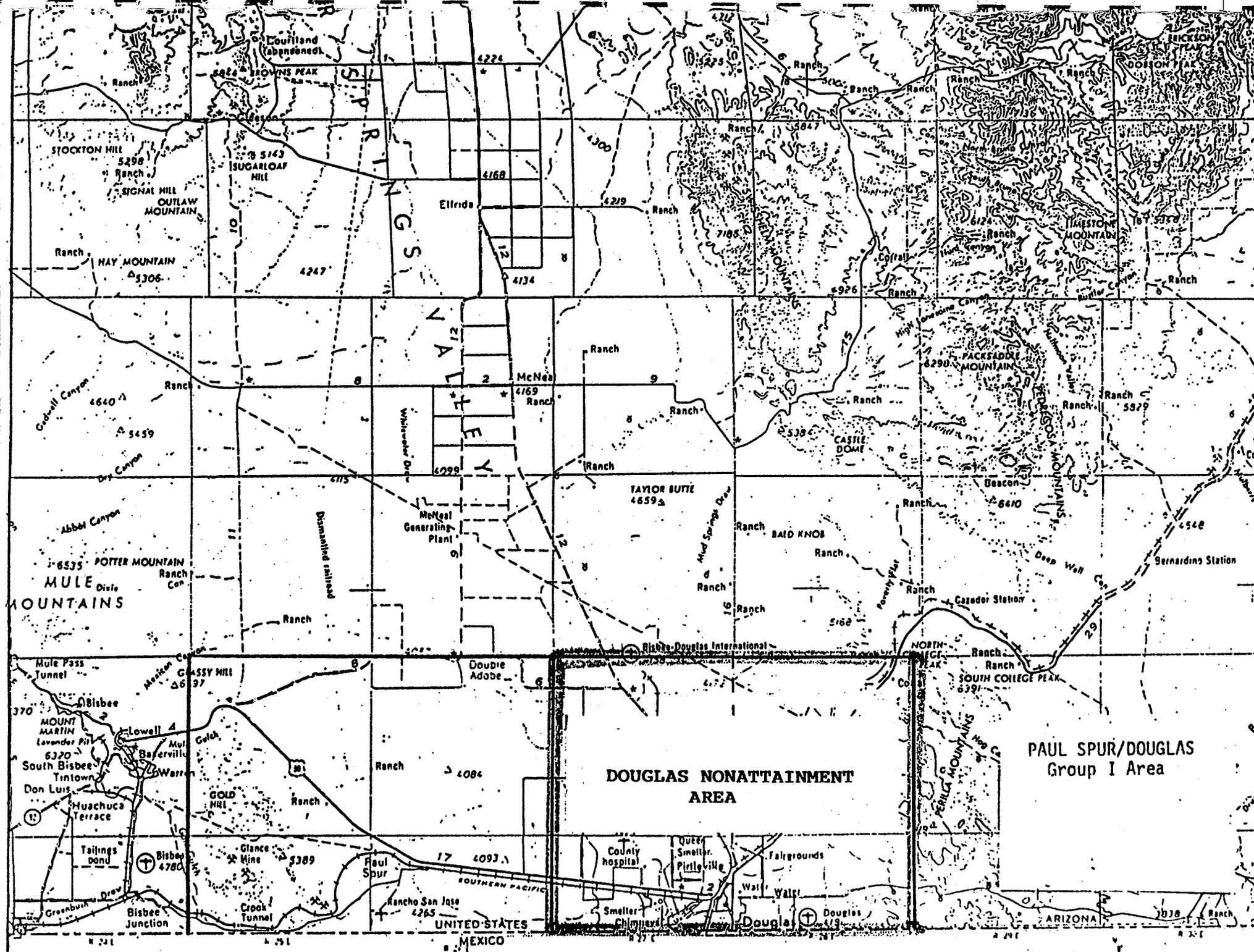


April 1992

- Airsheds
- Non-Attainment Areas
- Mandatory Class I Areas
- Urbanized Areas
- Oak Creek Sensitive Areas

0 20 40

Approximate Scale in Miles



SPUR
DOUGLAS

PAUL SPUR
DOUGLAS

DOUGLAS NONATTAINMENT
AREA

PAUL SPUR/DOUGLAS
Group I Area

STOCKTON HILL
5298
Ranch

SIGNAL HILL
OUTLAW MOUNTAIN

SUGARLOAF HILL
5143

Elfrida

Ranch

MAY MOUNTAIN
5306

4134

6640
5459

McNea
4769
Ranch

TAYLOR BUTTE
4659

CASTLE DOME

PACKSADDLE MOUNTAIN
6290

Ranch

POTTER MOUNTAIN
6535
Ranch

Metall
Generating
Plant

BAID KNOB
Ranch

Beacon
6410

Mule Pass
Tunnel

GASSY HILL
4697

Double
Adobe

Bisbee Douglas International

NORTH
PEAK

SOUTH COLLEGE PEAK
6391

MOUNT
MARTIN
6370

GOLD
MINE

Ranch

4084

DOUGLAS NONATTAINMENT
AREA

PAUL SPUR/DOUGLAS
Group I Area

South Bisbee
Tintown

GOLD
MINE

Glance
Mine
5389

Raul
Spur

4093

County
hospital

Smelter
Pirillaville

Fairgrounds

Don Luis

GOLD
MINE

Crook
Tunnel

Rancho San Jato
4265

Smelter
Chiliville

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Pirillaville

Douglas

Huachuca
Terrace

GOLD
MINE

Crook
Tunnel

Rancho San Jato
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Tailings
Dome

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EPA initially determined that the Douglas nonattainment area should coincide with the public land survey system and defined the area as containing the following townships (Figure 1.1):

T 23 S, R 27-28 E T 24 S, R 27-28 E.

1.3.2 Climatology and Meteorology

The climatological and meteorological conditions of the nonattainment area are dominated by basin and range topography and its elevation. The area is classified as an upland region of the Sonoran Desert. The average daily maximum is 79.2° F., based on a 30 year average of meteorological data (see Table 1.0). The highest monthly daily maximum temperature occurs (93.9°) in June and July and the lowest monthly daily minimum temperature (28.6° F) occurs in January.

Table 1.0 reveals that the yearly average total rainfall for the Douglas area is 13.05 inches based on a 30 year average. There is a definite seasonal pattern in its distribution. The majority of this precipitation falls during the monsoon season (July, August and September), when warm moist air penetrates Arizona from the Gulf of Mexico. The area receives just over nine inches during this time. The most precipitation is received in July and August when the area receives an average of 4.56 inches and 3.37 inches, respectively. In the driest month of the year, May, the area receives an average of only 0.14 inches of rain.

Table 1.0
Climatological Data for Douglas, AZ

<u>Month</u>	<u>Average Temperature (°F)</u>		<u>Precipitation</u>	
	<u>Daily Max.</u>	<u>Daily Min.</u>	<u>Average Total (Inches)</u>	<u>1986* Actual (Inches)</u>
January	63.6	28.6	0.65	0.69
February	66.3	31.5	0.58	0.12
March	71.4	35.5	0.30	0.54
April	78.5	41.1	0.21	0.03
May	86.6	48.2	0.14	0.20
June	93.9	57.3	0.34	0.93
July	93.9	64.3	4.56	4.33
August	91.5	62.0	3.37	5.03
September	87.8	56.5	1.26	1.00
October	82.4	43.2	0.23	0.34
November	72.4	35.7	0.31	0.82
<u>December</u>	<u>62.9</u>	<u>29.1</u>	<u>1.10</u>	<u>2.42</u>
Year	79.2	44.4	13.05	16.45

*Official weather station in Douglas
Average Total Snow, Sleet and Hail Annually: Trace
Base on a thirty year average
SOURCE: Arizona Department of Commerce

The predominant winds in the nonattainment area blow from the south and southeast. Diurnal wind patterns favor a northerly flow of air, especially in the morning. Knowledge of air flow patterns and dispersion processes are extremely important when analyzing air pollution levels. Meteorological transport processes, such as dispersion, must be considered when examining the spatial and temporal separations between the emission sources and the areas of high ambient concentrations to accurately assess air quality conditions.

1.3.3 Population

The population data for the Douglas area were compiled from U.S. Census data and data developed by the Population Statistics Unit of the Arizona Department of Economic Security (ADES).

In 1980, the census placed the City of Douglas with 13,058 residents. Cochise County had a population 85,686. The ADES projections put the total county population at 86,632 for 1980, or 1.1 percent over the actual census population. ADES did not make projections for the City of Douglas for that year.

The 1990 census count places Douglas with 12,822 people. In that same year, Cochise County had a population of 97,624. For the City of Douglas, this was a decrease of 236 people or 1.8 percent since 1980. The population of Cochise County increase by 11,938 people or 13.9 percent during the same time.

ADES has made projections for Cochise County for the 1990 decade (see Table 1.1). Cochise County is projected to have 112,200 residents in 1993. This amounts to a projected 14.9 percent increase over the 1990 census figure. However, the Douglas area is not expected to grow nearly as fast as the rest of the county.

Table 1.1

Projected Population for Cochise County, Arizona, 1991-2000

Year:	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
Population Estimate:	107,200	109,500	112,200	115,400	118,400
	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>
	121,400	124,500	127,700	131,000	134,200

SOURCE: Arizona Department of Economic Security

Accurate population data for Agua Prieta, Mexico are not obtainable, but local unofficial estimates place the current population at over 80,000.

1.3.4 Land Use and Economy

The townsite of Douglas was originally an annual round-up ground for area ranches. Agriculture and ranching are still important components of the area's economy. The community of Douglas was founded in 1901 to serve as a copper smelter site and was incorporated in 1905.

Douglas is a major gateway to northern, central Mexico given its location on the U.S.-Mexico border. Consequently, international commerce is an important facet of the local economy. Manufacturing accounts for twenty-four percent of the Douglas area employment. Garments, electronic manufacturers, food processing firms, food packing and printing industries are located in the Douglas area.

Of the fifteen manufacturing plants in Douglas and twenty-six plants in Agua Prieta, Mexico, many operate under the twin plant concept. The twin plant operations have had a direct effect on the population of Agua Prieta. In thirty years, the population has increased from 18,000 to over 80,000, greatly increasing retail sales in Douglas. Trade and service sectors currently account for 47% of employment, serving shoppers from Agua Prieta and other parts of Mexico. Valley National Bank estimates that 35% of the income from the twin plant operations in Agua Prieta is spent in Douglas.

Accurate population data for Agua Prieta, Mexico are not obtainable, but local unofficial estimates place the current population at over 80,000. The town lacks the basic urban services an infrastructure for a community of its population.

The implications of projected higher growth rates in the 1990 decade are proportionally higher regional vehicle miles traveled and higher particulate emissions loading in the nonattainment area. Consequently, the entire nonattainment area would benefit from control strategies from this source.

The international lure of shopping and sightseeing in "Old Mexico" and its location on U.S. Route 80 near several outdoor recreation areas have made tourism and retirement significant to the economy of Douglas.

1.4 General SIP Approach

This plan meets the following requirements listed in the EPA Guideline Document:

1. Air quality data;
2. An inventory of the sources contributing to the problem;
3. Documentation that the PM₁₀ emissions in Douglas are not a major contributor;
4. Evaluation of EPA defined fugitive dust, residential wood combustion and prescribed burning control measures with respect to the Douglas nonattainment area;
5. Determine which control measures are reasonably available in the nonattainment area;
6. Commitment to implement these measures; and
7. Steps necessary to ensure the NAAQS are not violated in the future.

1.5 Plan Contents

Chapter 2 of this SIP describes the monitoring protocol, air quality data bases used to analyze emission sources and their impacts on ambient air quality. These data bases include PM₁₀ concentrations, chemical constituents of particulates captured by PM₁₀ samplers and meteorological data.

Chapter 3 describes the initial compilation of the PM₁₀ source inventory for the Douglas nonattainment area and the revision of the inventory by the State.

Chapter 4 describes the air quality design value for the nonattainment area and the reconciliation of the ambient monitoring data and the PM₁₀ source inventory.

Chapter 5 describes the control measures deemed reasonably available by the City of Douglas, Cochise County, the Arizona Department of Environmental Quality and Federal agencies. This chapter documents the control measures and the agencies responsible for the implementation of the measures.

Chapter 6 discloses the strategy that the State will follow in developing a contingency plan if the control strategies in Chapter 5 fail to maintain the PM₁₀ NAAQS.

Chapter 7 describes the State's preconstruction review program and status.

Chapter 8 contains the State's commitment to maintain the PM₁₀ NAAQS in the nonattainment area and the recourse the State will follow if the standards are not maintained.

Chapter 9 discloses the conformity procedure conducted by the Arizona Department of Transportation (ADOT) for the Douglas nonattainment area.

Chapter 10 contains the State's commitment to report sources subject to emissions reporting under 40 CFR 51.321-322.

Chapter 11 highlights the State's air pollution emergency episode plan.

Chapter 12 contains the State's commitment to conduct ambient PM₁₀ sampling as required by 40 CFR Part 58.

Chapter 13 commits the State to an annual review of the state and local ambient monitoring system in the nonattainment area.

Chapter 14 is the summary chapter of the SIP.

Chapter 15 lists the references used in the completion of this state implementation plan.

2.0 DATA BASE DEVELOPMENT

The primary goal of PM₁₀ monitoring in the Douglas/Agua Prieta area was to collect the necessary data to develop a SIP to insure the nonattainment area attains the PM₁₀ standard and remains in compliance with the primary PM₁₀ NAAQS. Toward that goal, the study had two specific objectives:

1. To fulfill the regulatory requirements of daily PM₁₀ monitoring due to the Group I ranking of the Douglas area and
2. To determine the relative contributions of various particulate matter emission sources in the region towards the observed PM₁₀ concentration in the nonattainment area.

2.1 Existing Air Quality Data

The historical ambient air monitoring data collected in the Douglas/Agua Prieta area determined the nonattainment status and the original classification of the region as a Group I area. PM₁₀ monitoring began at the Douglas City Park in March 1985. The annual average concentration has exceeded the 50 µg/m³ standard each year from 1985 to 1989 with values ranging from 55 in 1989 to 62 in 1985. There have been four (4) exceedances of the 24-hour PM₁₀ standard of 150 µg/m³: values range from 159-233 µg/m³, all occurring on winter days. These data are presented in table 2.0.

Table 2.0

Historical PM₁₀ Data for the Douglas Nonattainment Area

<u>Year</u>	<u>Mean</u>	<u>24-Hour Maximum</u>	<u>24-Hour 2nd-Hi</u>	<u>Number of Samples</u>
1985	62 ³	148	138	23
1986	59 ²	163	142	47
1987	57 ²	220	166	56
1988	57 ²	117	115	55
1989	55 ^{2,3}	159	128	44
1990	38 ³	133	113	44
1991	39	233	100	55
1992	40	138	109	57

- 1 24-hour average standard is 150 µg/m³
- 2 Exceeds annual average standard of 50 µg/m³
- 3 Not enough data to calculate valid annual average

The city park monitor is located in a central location in the Douglas community and is considered to be generally representative

of public exposure to PM_{10} in Douglas. It is commonly understood that higher concentrations occur near the U.S./Mexico border because of greater PM_{10} emissions in the adjacent town of Agua Prieta.

It should be noted that typical PM_{10} /TSP ratios in Arizona average about 0.5. The secondary TSP standard is $150 \mu\text{g}/\text{m}^3$ for a 24-hour average and is considered a good indicator of nuisance dust levels. In four years of PM_{10} monitoring in Douglas, about one fourth of the samples collected were $75 \mu\text{g}/\text{m}^3$ or greater. By applying the PM_{10} /TSP ratio to these data, it can be inferred that on one day out of four nuisance dust levels prevail in Douglas. These concentrations rank among the highest in the State and are about equal to the concentrations prevailing in the Phoenix metro area.

2.1.1 Intensive Field Sampling

An intensive sampling study was conducted from February 23, 1989 to May 27, 1989. The purpose of this study was to determine the temporal and spatial variation of PM_{10} in the Douglas area with special attention to possible transport of PM_{10} emissions from Mexico to the Douglas area.

The single permanent PM_{10} monitor at the Douglas City Park was supplemented by two temporary samplers; one was located in Douglas near the U.S./Mexico border and the other sampler was operated in a near-field background setting outside Douglas at the Cochise County Fairgrounds. Wind instruments were also operated at the Border sampler site and a time lapse camera was used to photograph the border area from the roof of a downtown Douglas hotel.

Wind measurements and time-lapse photographs (daytime only) were continuous. PM_{10} samples were collected every third day with alternate runs occurring on the national every 6th day schedule. In order to better assess the border flux of PM_{10} , two samples were collected at each site on run days. One sample was collected from 9 p.m. - 10 a.m., corresponding to wind drainage from the north into Mexico. The other was collected from 10 a.m. - 3 p.m. when air flow is typically from the south.

Anderson GMW 241 Dichotomous samplers were used at each PM_{10} site to facilitate interpretation of the ambient PM_{10} measurements. Dichotomous PM_{10} samplers, know as "dichots", separate the PM_{10} particles into fine and coarse size modes; fine particles have 0 - 2.5 microns mean aerodynamic diameter; coarse are in the 2.5 - 10 micron size range. Mechanically produced particulates are predominantly in the coarse mode while combustion and chemically produced aerosols are in the fine mode. Thus the data from dichot collections can be used to roughly apportion sources based on the course/fine relationship. More refined interpretations are also possible by subjecting the dichot filters to X-ray florescence

analysis to obtain about 45 chemical elements. Data from such analyses can be input to EPA's Chemical Mass Balance model which statistically relates the chemical arrays in air samples with profiles of PM₁₀ emission sources.

2.2 Meteorological Measurements

Temperature data were not measured and compiled for the nonattainment area; consequently, the only meteorological measurements are wind data. These data are presented below.

2.2.1 Wind Data

Table 2.1 contains a summary of wind direction and wind speed for Douglas for the time period of January, 1969 to June, 1972. During this period, the greatest relative frequency of occurrence was from the north at 15.6%. The next highest relative frequency was from the south at 9.2%. The average wind speed for the study period was 5.2 miles per hour.

Table 2.1

**Summary of Wind Direction/Wind Speed Data
Douglas, Arizona
January, 22, 1969 - June 23, 1972**

<u>Direction</u>	<u>Relative Frequency of Occurrence (%)</u>	<u>Average Speed (MPH)</u>
N	15.58	2.75
NNE	3.58	2.67
NE	5.95	3.21
ENE	3.43	7.57
E	6.72	7.33
ESE	1.66	4.75
SE	2.96	4.57
SSE	2.44	4.69
S	9.16	6.53
SSW	5.98	7.47
SW	6.73	8.37
WSW	5.05	8.55
W	8.38	7.55
WNW	2.14	4.32
NW	8.81	3.82
NNW	7.44	2.95
Total	100.00	Average 5.19

2.3 Intensive Field Sampling

2.3.1 Purpose

An intensive sampling study was conducted from February 23, 1989 to May 27, 1989. The purpose was to determine the temporal and spatial variation of PM_{10} in the Douglas area with special attention to possible transport of PM_{10} emissions from Mexico to the Douglas area.

2.3.2 Monitoring Locations

The single permanent PM_{10} monitor at the Douglas City Park was supplemented by two (2) temporary samplers; one was located in Douglas near the U.S./Mexico border and the other sampler was operated in a near-field background setting outside Douglas at the Cochise County Fairgrounds. Wind instruments were also operated at the Border sampler site and a time lapse camera was used to photograph the border area from the roof of a downtown Douglas hotel.

2.3.3 Monitoring Schedule

Wind measurements and photographs (daytime only) were continuous. PM_{10} samples were collected every third day with alternate runs occurring on the National every 6th day schedule. In order to better assess the border flux of PM_{10} , two samples were collected at each site on run days. One sample was collected from 9 p.m. to 10 a.m. corresponding to wind drainage from the North into Mexico, the other was collected from 10 a.m. to 3 p.m. when air flow is typically from the south.

2.3.4 PM_{10} Equipment

Anderson GMW 241 Dichotomous samplers were used at each PM_{10} site to facilitate interpretation of the ambient PM_{10} measurements. Dichotomous PM_{10} samplers, known as "dichots", separate the PM_{10} particles into fine and coarse size modes; fine particles are 0-2.5 microns mean aerodynamic diameter coarse are particulates in the 2.5 - 10 micron size range. Mechanically produced particulates are predominantly in the coarse mode while combustion and chemically produced aerosols are in the fine mode. Thus the sources based on the course/fine relationship. More refined interpretations are also possible by subjecting the dichot filters to x-ray florescence analysis to obtain about 45 chemical elements. Data from such analyses can be input to EPA's Chemical Mass Balance model which statistically relates the chemical arrays in air samples with profiles of PM_{10} emission sources.

2.3.5 Intensive Study Conclusions

The influence of the Douglas/Agua Prieta PM₁₀ emissions can be generally seen in the data summarized in Table 2.1. PM₁₀ concentrations at the Border sampler averaged twice those at the fairgrounds about 2 1/2 miles away. The highest concentration at all sites occurred during the midday samples on March 25, 1989. Wind from the south increased suddenly near the beginning of this sample period, wind speed averaged 22 MPH with gusts over 30 MPH. Similar high concentrations were measured at all three samplers significantly higher concentrations presumably due to its proximity to PM₁₀ emissions in Agua Prieta.

Notwithstanding the high level of transport from the Mexican side of the planning area, the ADEQ feels that it can demonstrate attainment of the PM₁₀ NAAQS if not for emissions from outside of the United States.

Table 2.2

PM₁₀ Concentrations ($\mu\text{g}/\text{m}^3$) - Douglas Intensive Study

Site	Avg	N	24-hr Hi/2nd Hi	Avg	N	24-hr Hi/2nd Hi
City Park	46	30	77/74	62	30	370/172
Border	68	26	167/115	75	24	325/315
Fair-grounds	29	28	55/53	34	29	264/64

3.0 PM10 EMISSION INVENTORY

3.1 EPA Study

As a result of the expected promulgation of the PM₁₀ NAAQS in 1987, EPA hired the firm Engineering-Science, Inc. of Pasadena, California to compile a source inventory for the Douglas-Agua Prieta area. The study area contained portions of four townships in Arizona and portions of two equivalent townships in Mexico. Each township was assigned a grid ID number (see Figure 3.0); townships containing the bulk of the population in the Douglas-Agua Prieta planning area were subdivided into square mile sections, with each section identified by its legal section number.

The inventory estimates that wood burning contributes 2.3% of the total annual PM_{10} . A survey should be done to determine the types and quantities of wood burned in both Douglas and Agua Prieta. The annual calculation in the inventory is based on annual average heating degree days in Phoenix, AZ (1442) instead of Douglas (2596). Annual calculations based on the local climate will show increased wood burning emissions. Obviously emissions from this category could be a much larger portion of total emissions in a localized situation and overall on a cold winter day. Thus an appropriate 24-hour wood smoke inventory value is also needed.

In addition, the homes in areas where squatters have erected houses the Mexican portion of the planning area generally lack utilities and other urban services. There may be a heavy reliance on wood and other combustibles for both heat and cooking.

4.0 AIR QUALITY DESIGN VALUE

4.1 Design Value Determination

Procedures in the following documents were used in the calculation of the design value for the Douglas nonattainment area:

Guideline on the Identification and Use of Air Quality Data Affected by Exception Events, EPA-450/4-86-007, July 1986.

Code of Federal Regulations, Title 40, Part 50, Appendix K.

Guideline for the Interpretation and Use of Air Quality Data Standards, EPA-450/4-79-003, OAQS No. 1.2-108, January, 1979.

PM₁₀ SIP Development Guideline, EPA-450/2-86-001, June 1987.

PM₁₀ data was derived from Douglas City Park monitoring network.

4.1.1 Discussion

For the period of 1989 and 1990, the yearly averages were invalid due to insufficient number of samples. The 24-hour design value based on the lookup table procedures was 233 $\mu\text{g}/\text{m}^3$ compared with 241 $\mu\text{g}/\text{m}^3$ from the fitting of data to a frequency distribution (see Figure 4.0)

4.1.2 Conclusions

Analysis of PM₁₀ data for Douglas indicates an annual design value of 44 $\mu\text{g}/\text{m}^3$ and a 24-hour design value of 241 $\mu\text{g}/\text{m}^3$. These design values were based on data from the period of January 1989 through December 1991. The PM₁₀ design value could be considerably higher if it were based on the intensive study at the Pool Site, which is closer to the border. These data were calculated on partial day sampling.

4.1.3 Design Value and PM10 Source Inventory Reconciliation

For the Douglas PM₁₀ SIP database period (1989-1991) the following statistics are provided:

Annual Design Value - 44 ug/m^3

24-Hour Design Value - 233 ug/m^3 (Look-up table/max.value)

Annual Value Without Mexican Emissions - 28 ug/m^3

24-Hour Value Without Mexican Emissions - 102 ug/m³

Corrections for Mexican Emissions were calculated as follows:

Annual Value Without Mexican Emissions =
[(Design value - Background) x Emission Fraction] + Background
or [(44 - 18) x 0.4] + 18 = 28

24-Hour Value Without Mexican Emissions =
or [(233 - 14) x 0.4] + 14 = 102

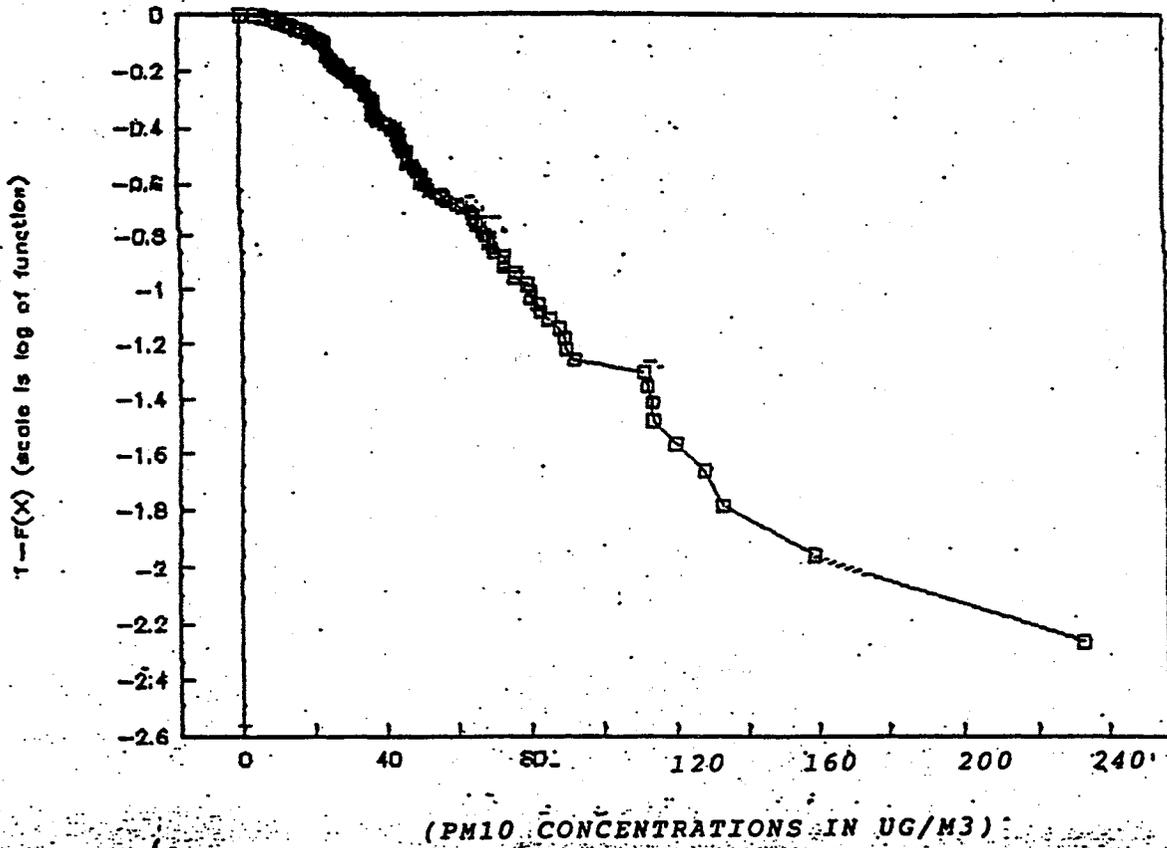
The 24-Hour background value, 14 ug/m³, was measured at Organ Pipe CNM on October 21, 1991, the design day for Douglas.

4.2 Monitoring and Modeling for the Douglas PM₁₀ SIP

PM₁₀ monitoring at the Douglas City Park began in March 1985. Readings for annual average concentrations have ranged from 33 µg/m³ to 63 µg/m³. There have been five exceedances of the 24-hour PM₁₀ standard of 150 µg/m³; exceedance values range from 159 - 233 µg/m³.

The city park monitor is located in a central location in Douglas and is considered to be generally representative of public exposure to PM₁₀.

DOUGLAS CITY PARK
PM10 Data Extrapolation



DESIGN VALUE ESTIMATE DOUGLAS CITY PARK MONITOR
USING DATA FOR JANUARY, 1989 THROUGH DECEMBER,
1991

5.0 CONTROL STRATEGIES

EPA requires that all reasonably available control measures (RACMs) for fugitive dust, residential wood combustion and prescribed burning be listed in the SIP. Once they have been listed, a determination of the applicability of the RACMs to the nonattainment area is then made. The guidelines state that if it can be shown that one or more measures are unreasonable because emissions from the sources affected are insignificant, those measures may be excluded from further consideration as they would not represent RACMs for that area.

If additional measures are identified by the State or through public comment to be available in a particular circumstance, those measures should be added to the list of available measures for the area.

5.1 RACM Evaluation

The PM₁₀ emissions inventory for the Douglas nonattainment area has shown that emissions from the sources that would be controlled by the following EPA fugitive dust RACMs are negligible or nonexistent (refer to Table 3.0, Chapter 3). Consequently, they do not substantially contribute to ambient PM₁₀ concentrations:

- i) Require dust control plans for construction or land clearing projects;
- ii) Require haul trucks to be covered;
- iii) Provide for traffic rerouting or rapid clean up of temporary (and not readily preventable) sources of dust on paved roads (water erosion runoff, mud/dirt carryout areas, material spills);
- iv) Prohibit permanent unpaved haul roads and parking or staging areas at commercial, municipal or industrial facilities;
- v) Limit use of recreational vehicles on open land (e.g., confine operations to specific areas, require use permits, outright ban);
- vi) Provide for storm water drainage to prevent water erosion onto paved roads;
- vii) Require revegetation, chemical stabilization, or other abatement of wind erodible soil, including lands subjected to water mining, abandoned farms and abandoned construction sites; and
- viii) Rely upon the soil conservation requirements (e.g., conservation plans, conservation reserve) of the

Food Security Act to reduce emissions from agricultural operations.

In addition to the aforementioned, all RACMs that fall under residential wood combustion and prescribed burning categories are deemed not reasonably available based on monitoring and the PM₁₀ source inventory.

The following fugitive dust RACM is deemed not reasonably available given the climatic conditions of the nonattainment area:

- i) Require improved material specification for and reduction of usage of skid control sand or salt (e.g., require use of coarse, nonfriable material during snow and ice season).

In analyzing the EPA defined RACMs, the following control strategies are being currently implemented and, consequently, deemed reasonably available in the Douglas nonattainment area:

Fugitive Dust Control Measures

- i) Pave, vegetate or chemically stabilize access points where unpaved traffic surfaces adjoin paved roads;
- ii) Develop traffic reduction plans for unpaved roads. Use of low speed limits or other mechanisms to encourage use of other paved roads;
- iii) Require curbing and pave or stabilize (chemically or with vegetation) shoulders of paved roads;
- iv) Pave or chemically stabilize unpaved roads;
- v) Pave, vegetate or chemically stabilized unpaved parking areas;
- vi) Require dust control measures for material storage piles;
- vii) Utilize a water misting system for mobile sources at Port of Entry; and
- viii) Add additional traffic lanes at Port of Entry facility to reduce vehicle idling time.

The control measures adopted either singularly or jointly are effective in controlling PM₁₀ emissions in the nonattainment area. The City of Douglas, Cochise County, State and Federal agencies are all involved in the implementation of the control measures; each entity was given credit for the control measure(s) it is implementing (see Appendix A).

5.2 Control Measures

5.2.1 Unpaved Roads

Emissions from unpaved roads occur as a result of mechanical disturbance from traffic traveling over the road surface and from wind blown dust. This measure is intended to prevent emissions by paving roads.

Emission inventory data for 1987 for the nonattainment area indicate that unpaved roads fugitive PM₁₀ emissions amounted to 1379.3 tons. According to the revised emissions inventory, unpaved roads were responsible for approximately 93.0% of the fugitive dust emissions within the nonattainment area. A substantial reduction in fugitive dust has been achieved in this category.

Emissions from this source have been controlled by the conversion of unpaved roads to paved roads and the installation of a new electronic sensing system by the U. S. Immigration and Naturalization Service to reduce dragging requirements along the U.S./Mexico border.

5.2.2 Unpaved Parking Lots

Emissions from unpaved parking lots occur as a result of wind action across the open area and mechanical disturbance from vehicle traffic. Any measure applied to this category of emissions is intended to prevent emissions by using pavement, vegetation or chemical palliatives to stabilize the open surface.

According to the PM₁₀ source inventory, this category is responsible for approximately 0.4% of the total PM₁₀ emissions.

Within the City of Douglas, three parking lots have been paved since May, 1989. The total surface of the paved areas amounts to 157,600 square feet. In addition to the parking lots, 6 basketball courts have also been treated for an additional 50,400 square feet of treated area.

The U.S. Immigration and Naturalization Service in Douglas has paved its parking lot. Many vehicles per day use this parking lot on average.

5.2.3 Material Storage Piles

Material piles are currently maintained by ADOT. They consist of small gravel and rock and, therefore, do not generate excessive emissions of fugitive dust. ADOT policy is to water material piles two days prior to use.

5.2.4 Water Misting System

Efforts to reduce PM₁₀ emissions from this source have been

implemented by the U.S. General Services Administration and the U.S. Customs Service at the port of entry facility in Douglas. To reduce fugitive dust from vehicles at the port, the GSA installed a water misting system in 1990. This system sprays water mist above the inspection lanes at the POE and is intended to precipitate vehicle exhaust emissions and to suppress re-entrained dust from vehicles passing through the POE.

5.2.5 Additional Lanes at the Port of Entry Facility

U.S. General Services Administration has initiated a construction project to expand the port of entry facility. The expansion is scheduled for completion by September, 1993 and will provide separate lanes for truck inspections and will increase the total number of vehicle lanes from three to seven. The additional lanes are expected to reduce the average delay per vehicle from approximately 20 minutes to approximately 3 minutes. This reduction in average delay, will, in turn, reduce the amount of exhaust and brake wear emissions as the number of stops and starts and vehicle idle time are reduced. This is most significant for reducing diesel truck emissions.

5.2.6 Landscaping International Border Ditch and Arroyo

U.S. General Services Administration has initiated two other projects which are helping to reduce PM_{10} levels in the Douglas area. The first is the landscaping and maintenance of the international border ditch west of the port of entry facility. Service personnel have noted that landscaping the ditch has appreciably lowered the dust levels from this source.

Similar to the preceding project, the U.S. General Services Administration has landscaped and is currently maintaining a natural arroyo which originates in Mexico and extends into the nonattainment area. Service personnel have noted that landscaping the arroyo has appreciably lowered the dust levels associated with this feature.

Table 5.0 summarizes the RACMs currently implemented on the American side of the nonattainment area.

Table 5

**Control Strategies Implemented in the Douglas
Nonattainment Area since May, 1989**

<u>Control Measure</u>	<u>Responsible Agencies</u>
Control of Open Burning	City of Douglas
Curbing Streets	City of Douglas; Cochise County
Dust Control for Material Storage Piles	Arizona Depart of Transpor- tation
Four Additional Lanes at POE Facility	U.S. General Services Admini- stration/U.S. Customs Service
Landscaping International Border Ditch	U.S. General Services Admini- stration/U.S. Customs Service
Landscaping Natural Drain- age Feature	U.S. General Services Admini- stration/U.S. Customs Service
Paving Unpaved Parking Lots	City of Douglas
Paving Unpaved Roads	City of Douglas; Cochise Cnty ADOT
Traffic Reduction Plans for	U.S. Immigration and Naturali- zation Service
Ventilation of Primary Lanes	U.S. General Services Administration/U.S. Customs Service
Water Misting System	U.S. General Services Admini- stration/U.S. Customs Service

6.0 CONTINGENCY PLAN

The State commits to reevaluate this SIP and implement additional control measures in the event that:

a new source of PM₁₀ emissions is established in the Douglas nonattainment area and ADEQ believes there is a probability that the additional emissions will result in a violation of the PM₁₀ NAAQS.

In the event of a violation of PM₁₀ standards or as a part of establishing that the standards have not been achieved, the State and local jurisdictions also commit to seeking EPA's active assistance in determining what, if any, contribution to the PM₁₀ problem is the responsibility of those over whom there is no local authority. Specifically, it will be necessary to ascertain the level of dust emissions into the airshed from across the international border.

7.0 PRECONSTRUCTION REVIEW

All new sources and modifications to existing sources in Arizona are subject to state requirements for preconstruction review and permitting (See A.A.C., Title 18, Chapter 2, Articles 1, 2 and 3). All new major sources and modifications to existing major sources in Arizona are subject to the New Source Review (NSR) provisions of these rules, including Nonattainment Area Analysis (NAA) and Prevention of Significant Deterioration (PSD). The State NSR program was conditionally approved by EPA in 1982, and has been revised and submitted to EPA for full approval.

The PM₁₀ PSD requirements for Arizona will be adopted within one year of promulgation of PM₁₀ increments by EPA. The State's program is currently designed to meet the requirements of 40 CFR Part 52.

8.0 MAINTENANCE OF THE NAAQS

Section 110 of the Clean Air Act requires, among other items, that the State implementation maintain the primary PM₁₀ NAAQS in the nonattainment area. If attainment is demonstrated, EPA recommends that the plan show maintenance of the PM₁₀ standard for ten years beyond the attainment date of December 31, 1994. If a violation of the PM₁₀ NAAQS were to occur, the contingency plan described in Chapter 6 would be followed to ensure the foregoing.

9.0 CONFORMITY PROCEDURE

The Clean Air Act requires conformity determinations for transportation plans, programs and federally-assisted or approved transportation projects, with respect to each pollutant for which NAAQS exist in the areas designated as nonattainment for that pollutant.

Arizona Department of Transportation works closely with the ADEQ in conducting a qualitative analysis of transportation plans, programs and federally-assisted or approved transportation projects on a case-by-case basis in the Douglas nonattainment area to ensure that these plans or projects will not result in a violation of the PM₁₀ NAAQS in the Douglas nonattainment area.

10.0 SOURCE EMISSIONS AND STATE ACTION REPORTING

10.1 Annual Source Emissions and State Action Report

On an annual basis, the ADEQ shall report to EPA, Region IX, information as specified in 40 CFR 51.323-326. Reports will be submitted by July 1 of each year for data collected and actions which took place during the period January 1 to December 31 of the previous year. Sources subject to emissions reporting are described below.

10.2 Sources Subject to Emissions Reporting

Point sources are subject to the annual emissions reporting requirements of 40 CFR 51.321 if the facility emits 90.7 metric tons (100 tons) per year or more of PM₁₀. The reporting requirement begins with the reporting of calendar year 1988 emissions.

Annual emissions reporting requirements apply to any individual emission point within a facility if that point emits 22.7 metric tons (25 tons) per year or more. The reporting requirement begins with the reporting of calendar year 1988 emissions.

Notwithstanding the above, proposed state rules require reporting for all stationary sources of PM₁₀ greater than 40 tons per year.

11.0 AIR POLLUTION EMERGENCY EPISODES

R18-2-220 prescribes the procedures the Director of the ADEQ shall implement in order to prevent the occurrence of ambient air pollutant concentrations which would cause significant harm to the health of the public. It stipulates that a Stage I air pollution alert shall be declared when any of the alert level concentrations listed in Table 11.0 are exceeded at any monitoring site and when meteorological conditions indicate that there will be a continuance or recurrence of alert level concentrations for the same pollutant during the subsequent 24-hour period.

A Stage II air pollution warning shall be declared when any of the warning level concentrations listed in Table 11.0 are exceeded at any monitoring site and when meteorological conditions indicate

that there will be a continuance or recurrence of concentrations of the same pollutant exceeding the warning level during the subsequent 24-hour period.

A Stage III air pollution emergency shall be declared when any of the emergency level concentrations listed in Table 11.0 are exceeded at any monitoring site and when meteorological conditions indicate that there will be a continuance or recurrence of concentrations of the same pollutant exceeding the emergency level during the subsequent 24-hour period.

Table 11.0
Summary of Emergency Episode and Significant Harm Levels

<u>Pollutant</u>	<u>Averaging Time</u>	<u>Alert</u>	<u>Warn'g</u>	<u>Emergency</u>	<u>Significant Harm</u>
Carbon Monoxide (mg/m3)	1-hr	--	--	--	144
	4-hr	--	--	--	86.3
	8-hr	17	34	46	57.5
Nitro Dioxide (µg/m3)	1-hr	1,130	2,260	3,000	3,750
	24-hr	282	565	750	938
Ozone (ppm)	1-hr	.2	.4	.5	.6
PM10 (µg/m3)	24-hr	350	420	500	600
Sulfur Dioxide µg/m3)	24-hr	800	1,600	2,100	2,620

11.1 Air Pollution Episode Monitoring

In the event of an air pollution episode in the Douglas area, the current PM₁₀ sampler (dichotomous) could be operated on an intensive schedule. This would require dispatching an ADEQ technician to the site because the routine, every 6th day operator would probably not be able to conduct intensive sampling. However, even with ADEQ personnel on the scene, there would be a problem with sample analysis since the laboratory is located in Phoenix, which is 240 miles from Douglas. Moreover, quality assurance procedures call for a 24-hour equilibration period prior to gravimetric analysis. A more feasible and effective approach would be to monitor PM₁₀ with a continuous sampler, that is, a TUUM or Beta Gauge. ADEQ does have three TUUM samplers used for special studies such as SIP development, visibility monitoring, PM₁₀ emission factor determination and smoke management. One unit could be transferred from special studies to Douglas for episode

monitoring after this need had been identified by visual observations, complaints, etc.

12.0 AMBIENT PM₁₀ SAMPLING

The State will continue to conduct ambient PM₁₀ sampling utilizing an Andersen dichotomous samplers consistent with the requirements of 40 CFR Parts 50 and 58 to monitor the effectiveness of the implemented control strategies. This sampling will be conducted on an every-6th-day frequency as calculated using the criteria in 40 CFR Part 58.13 at the SLAM Site. The ADEQ will administer the State PM₁₀ sampler at the permanent site on the maintenance building in the 15th street park and complete quality assurance checks as required by statute.

13.0 ANNUAL REVIEW OF SLAMS

In order to conform with Appendix D of 40 CFR Part 58, the Douglas SLAMS has been included in ADEQ's SLAMS Network Review for the past several years including 1992 because it meets the monitoring objectives in the Appendix to 40 CFR Part 58. The site is located in the 15th Street Park, representing neighborhood scale around the park. As such, it lies in a high concentration/high population area of the city. Primary sources of PM₁₀ include motor vehicle traffic and woodburning in Douglas and Agua Prieta, Sonora, Mexico.

13.1 Follow-Up Monitoring

A special PM₁₀ monitoring study for the Douglas-Agua Prieta Border area is planned for the fall/winter of 1994. The objectives of this study are to assess

- i) spatial and temporal variations in PM₁₀ levels;
- ii) source contributions to PM₁₀ concentrations and
- iii) population exposure.

This study should provide valuable information. In addition to monitoring PM₁₀ and meteorology, hazardous air pollutants (HAPS) will be monitored.

13.2 SLAMS Network Description

The 15th Street site has been included in ADEQ's SLAMS Network Review for several years. Important site description information are given below:

AIRS Number:	04-003-1004
Location:	Maintenance Building, 15th Street Park
Sampler:	Hi-Volume until 1991, dichot since then

Schedule: 6th day
Monitoring

Objective: Highest concentration and exposure.
population

14.0 SUMMARY

This plan has clearly demonstrated that the Douglas area PM₁₀ pollution problem is largely the result of emissions from Mexico. Attainment of the both the annual and 24-hour PM₁₀ standards would be possible if not for emissions from outside of the United States. Controlling for emissions from Mexico, the 24-hour design value was calculated to be 102 $\mu\text{g}/\text{m}^3$, well below the standard of 150 $\mu\text{g}/\text{m}^3$. The annual design value was calculated to be 44 $\mu\text{g}/\text{m}^3$, including PM₁₀ emissions from Mexico. This figure is already below the annual standard of 50 $\mu\text{g}/\text{m}^3$. The figure drops to 28 $\mu\text{g}/\text{m}^3$ discounting emissions from Mexico.

The following control strategies are being currently implemented in the Douglas nonattainment area:

Fugitive Dust Control Measures

- i) Pave, vegetate or chemically stabilize access points where unpaved traffic surfaces adjoin paved roads;
- ii) Develop traffic reduction plans for unpaved roads. Use of low speed limits or other mechanisms to encourage use of other paved roads;
- iii) Require curbing and pave or stabilize (chemically or with vegetation) shoulders of paved roads;
- iv) Pave or chemically stabilize unpaved roads;
- v) Pave, vegetate or chemically stabilized unpaved parking areas;
- vi) Require dust control measures for material storage piles;
- vii) Utilize a water misting system for mobile sources at Port of Entry; and
- viii) Add additional traffic lanes at Port of Entry facility to reduce vehicle idling time.

In view of the recent growth and development along the U.S. side of the border, the ADEQ contends that the RACMs currently being implemented on the American side will suffice in maintaining the area in compliance with the PM₁₀ standards for at least ten

years beyond the mandatory attainment date of December 31, 1994, discounting PM₁₀ emissions from Mexico.

15.0 REFERENCES

Code of Federal Regulations, Title 40, Part 50, Appendix K.

Control of Open Fugitive Dust Sources, US Environmental Protection Agency, EPA-450/3-88-008, Research Triangle Park, North Carolina, 1988.

Guideline for the Interpretation and Use of Air Quality Data Standards, EPA-450/4-79-003, OAQS No. 1.2-108, January, 1979.

Guideline on the Identification and Use of Air Quality Data Affected by Exceptional Events, EPA-450/4-86-007, July 1986.

PM₁₀ SIP Development Guideline, US Environmental Protection Agency, OAQPS, EPA-450/2-86-001, Research Triangle Park, North Carolina, June 1987.

Receptor Model Source Composition Library, US Environmental Protection Agency, EPA-450/4-85-002, Research Triangle Park, North Carolina, 1984.

Workbook on Estimation of Emissions and Sources, Document P-A857, Environmental Research and Technology, Inc., 1981, Prepared for Utility Air Regulatory Group.

APPENDIX A

DOCUMENTATION FOR REASONABLY AVAILABLE CONTROL MEASURES

IMPLEMENTED IN THE DOUGLAS NONATTAINMENT AREA

**DOUGLAS SIP ADMINISTRATIVE AND TECHNICAL
RACM DOCUMENTATION**

Administrative Documentation

NUMBER: DGRACM01.GSA
CATEGORY: Mobile Source
MEASURE: Water misting system
RESPONSIBLE AGENCY: U. S. General Services Administration and U. S. Customs Service
IMPLEMENTATION SCHEDULE: Has been implemented since 1990.
AUTHORITY CITATION: Forthcoming
FINANCING AND MAN-POWER RESOURCES: Forthcoming
MONITORING PROGRAM: Forthcoming

Technical Documentation

- What is the average frequency that the misting system is employed?
Forthcoming
- What is the average daily traffic volume?
The average daily traffic volume for 1991 at the Port of Entry was 4,857 vehicles using three inspection lanes.
- What is the level of PM₁₀ control?
Forthcoming

**DOUGLAS SIP ADMINISTRATIVE AND TECHNICAL
RACM DOCUMENTATION**

Administrative Documentation

NUMBER: DGRACM02.GSA
CATEGORY: Mobile Source
MEASURE: Four additional vehicle lanes at Port of Entry
RESPONSIBLE AGENCY: U. S. General Services Administration and U. S. Customs Service

IMPLEMENTATION

SCHEDULE: To be complete by September, 1993.

AUTHORITY CITATION: Data forthcoming

FINANCING AND MAN-
POWER RESOURCES:

	FY '89	FY '90	FY '91	FY '92	FY '93	FY '94
Funding					\$6 million	
Manpower						

The funding source for this control measure is U.S.G.S.A.

MONITORING PROGRAM: A congressional study is in progress to evaluate the effectiveness of this measure.

Technical Documentation

- How many additional vehicle lanes will be built at the Port of Entry?
Four (4)
- What is the average daily traffic volume?

The average daily traffic volume for 1991 at the Port of Entry was 4,857 vehicles using three inspection lanes.

DGRACM02.GSA

- What effect will the construction of the additional vehicle lanes have on the average delay per vehicle?

It is anticipated to reduce the average delay per vehicle from twenty (20) minutes to three (3) minutes.

- What effect will the reduced average delay time per vehicle have on the PM_{10} emissions of the average daily traffic of 4,857 vehicles.

Data forthcoming

**DOUGLAS SIP ADMINISTRATIVE AND TECHNICAL
RACM DOCUMENTATION**

Administrative Documentation

NUMBER: DGRACM03.CITY

CATEGORY: Fugitive Dust

MEASURE: Pave, vegetate, or chemically stabilize access points where unpaved traffic surfaces adjoin paved roads

Measure not implemented since PM₁₀ source inventory revealed that emissions from this source category in the City of Douglas are negligible.

RESPONSIBLE AGENCY: City of Douglas, Public Works Department

IMPLEMENTATION SCHEDULE: N/A

AUTHORITY CITATION: N/A

FINANCING AND MAN-POWER RESOURCES: N/A

MONITORING PROGRAM: N/A

Technical Documentation

- How many intersections where paved and unpaved roads meet have been paved?
N/A
- Where are these intersections located in the nonattainment area?
N/A
- What is the average daily traffic volume at these intersections?
N/A
- What is level of PM₁₀ control that can be attributed to paving?
N/A

DGRACM03.CITY

- How many intersections where paved and unpaved roads meet have been chemically stabilized?

N/A

- Where are these intersections located in the nonattainment area?

N/A

- What is the average daily traffic volume at these intersections?

N/A

- What is the level of PM_{10} control that can be attributed to chemical stabilization?

N/A

**DOUGLAS SIP ADMINISTRATIVE AND TECHNICAL
RACM DOCUMENTATION**

Administrative Documentation

NUMBER: DGRACM03.CNTY

CATEGORY: Fugitive Dust

MEASURE: Pave, vegetate, or chemically stabilize access points where unpaved traffic surfaces adjoin paved roads

Measure not implemented since PM₁₀ source inventory revealed that emissions from this source category in Cochise County are negligible

RESPONSIBLE AGENCY: Cochise County, Public Works Department

IMPLEMENTATION SCHEDULE: N/A

AUTHORITY CITATION: N/A

FINANCING AND MAN-POWER RESOURCES: N/A

MONITORING PROGRAM: N/A

Technical Documentation

- How many intersections where paved and unpaved roads meet have been paved?
N/A
- Where are these intersections located in the nonattainment area?
N/A
- What is the average daily traffic volume at these intersections?
N/A
- What is level of PM₁₀ control that can be attributed to paving?
N/A

DGRACM03.CNTY

- How many intersections where paved and unpaved roads meet have been chemically stabilized?

N/A

- Where are these intersections located in the nonattainment area?

N/A

- What is the average daily traffic volume at these intersections?

N/A

- What is the level of PM_{10} control that can be attributed to chemical stabilization?

N/A

**DOUGLAS SIP ADMINISTRATIVE AND TECHNICAL
RACM DOCUMENTATION**

Administrative Documentation

NUMBER: DGRACM04.ADOT

CATEGORY: Fugitive Dust

MEASURE: Require curbing and pave or stabilize
(chemically or with vegetation) shoulders of
paved roads

RESPONSIBLE AGENCY: Arizona Department of Transportation

IMPLEMENTATION

SCHEDULE: Implemented since May, 1989

AUTHORITY CITATION: Data forthcoming

**FINANCING AND MAN-
POWER RESOURCES:** Arizona's Highway Users Revenue Fund

MONITORING PROGRAM: Data forthcoming

Technical Documentation

- How many miles of shoulders of roads have been stabilized with vegetation?
Data forthcoming
- Where are these shoulders or roads located in the nonattainment area?
Data forthcoming
- What is the average daily traffic volume on these roads?
Data forthcoming
- What is level of PM_{10} control that can be attributed to stabilizing the shoulders of these roads with vegetation?
Data forthcoming
- How many miles of curbing have been installed since May, 1989?
Data forthcoming

DGRACM04.ADOT

- Where has this curbing been installed in the nonattainment area?

Data forthcoming

- What is the average daily traffic volume on these roads?

Data forthcoming

- What is the level of PM_{10} control that can be attributed to curbing these roads?

Data forthcoming

**DOUGLAS SIP ADMINISTRATIVE AND TECHNICAL
RACM DOCUMENTATION**

Administrative Documentation

NUMBER: DGRACM04.CITY
CATEGORY: Fugitive Dust
MEASURE: Require curbing and pave or stabilize
(chemically or with vegetation) shoulders of
paved roads
RESPONSIBLE AGENCY: City of Douglas, Public Works Department
IMPLEMENTATION
SCHEDULE: Implemented since May, 1989
AUTHORITY CITATION: Arizona Revised Statute Section 48-572;
City Resolution Number 90-006 (see Attachments
1 and 2)

**FINANCING AND MAN-
POWER RESOURCES:**

	FY '89	FY '90	FY '91	FY '92	FY '93	FY '94
Funding						
Manpower						

Municipal property taxes; Community Development Block Grants

MONITORING PROGRAM:

Technical Documentation

- How many miles of shoulders of roads have been stabilized with vegetation?
Three (3) miles
- Where are these shoulders or roads located in the nonattainment area?
See map (Attachment 3)

DGRACM04.CITY

- What is the average daily traffic volume on these roads?

15th Street: 1500
Golf course: 300
A Avenue: 6000

- What is level of PM_{10} control that can be attributed to stabilizing the shoulders of these roads with vegetation?

Sixty-five (65) percent control of PM_{10} emissions

- How many miles of curbing have been installed since May, 1989?

4.5 miles

An additional 0.9 miles of curbing is scheduled for construction within the next 12 - 18 months.

- Where has this curbing been installed in the nonattainment area?

See Attachment DGRACM05.2

- What is the average daily traffic volume on these roads?

490

- What is the level of PM_{10} control that can be attributed to curbing these roads?

Ninety-seven (97) percent control of PM_{10} emissions

RESOLUTION NO. 90-006

A RESOLUTION OF THE MAYOR AND COUNCIL OF THE CITY OF DOUGLAS, ARIZONA, AUTHORIZING AND DIRECTING THE MAYOR TO EXECUTE AN INTERGOVERNMENTAL AGREEMENT REGARDING LANDSCAPE MAINTENANCE BETWEEN THE STATE OF ARIZONA AND THE CITY OF DOUGLAS.

WHEREAS, the State of Arizona and the City of Douglas each desire to landscape and thus beautify certain areas of the U.S. 80 right-of-way within the City of Douglas from center line roadway station 73 + 55 to center line roadway state 95 + 75, a distance of approximately 0.42 miles, and

WHEREAS, it is in the best interest of the inhabitants and residents of the City of Douglas that the City of Douglas participate in the landscape project by intergovernmental agreement with the State of Arizona.

NOW, THEREFORE, be it resolved by the Mayor and Council of the City of Douglas, Arizona, that the Mayor of the City is authorized and directed to execute AG Contract #KR900618PRD, which is an intergovernmental agreement regarding landscape maintenance between the State of Arizona and the City of Douglas, for landscaping certain areas within the City of Douglas and obligating the City of Douglas to continue to maintain the landscaped areas.

PASSED AND ADOPTED by the Mayor and Council of the City of Douglas, Arizona, April 11, 1990.



GEORGE SAYERS, Mayor

1007.00 (001) 301 7001
DOUGLAS, ARIZONA
MAYOR

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ATTEST:

Victor Stevens

VICTOR STEVENS, City Clerk

APPROVED AS TO FORM:

Arthur C. Atonna

ARTHUR C. ATONNA, City Attorney

CHARLES W. STEVENS, 1911
1015 F AVENUE
DOUGLAS, ARIZONA 86007
(602) 361-7801

**DOUGLAS SIP ADMINISTRATIVE AND TECHNICAL
RACM DOCUMENTATION**

Administrative Documentation

NUMBER: DGRACM04.CNTY
CATEGORY: Fugitive Dust
MEASURE: Require curbing and pave or stabilize (chemically or with vegetation) shoulders of paved roads
RESPONSIBLE AGENCY: Cochise County, Public Works Department

IMPLEMENTATION

SCHEDULE: Implemented since May, 1989

AUTHORITY CITATION: Board Resolution 78-44; Board Resolution 82-16; A.R.S. §18-201 et. seq. (see Attachments 1, 2 and 3)

FINANCING AND MAN-
POWER RESOURCES:

	FY '89	FY '90	FY '91
Funding	\$1,500	\$1,500	\$1,500
Manpower	2 FTE	2 FTE	2 FTE

	FY '92	FY '93	FY '94
Funding	\$1,500	\$1,500	\$1,500
Manpower	2 FTE	2 FTE	2 FTE

Funding for highway and street maintenance and improvement comes from Highway User Revenue Funds distributed as a proportionate share of gas tax collected in the State

MONITORING PROGRAM: Program is to allow vegetation to grow naturally along shoulders of paved roads. Periodic visual inspections to ensure that vegetation is not undermining or damaging road surface edges; respond to citizen comments/complaints regarding dust

Technical Documentation

- How many miles of shoulders of roads have been stabilized with vegetation?

23.3 miles

- Where are these shoulders or roads located in the nonattainment area?

See attached map (Attachment DGRACM06.4)

- What is the average daily traffic volume on these roads?

Average daily traffic volume is 880 vehicles per day traveling at 45 miles per hour

- What is level of PM_{10} control that can be attributed to stabilizing the shoulders of these roads with vegetation?

Data forthcoming

- How many miles of curbing have been installed since May, 1989?

None

- Where has this curbing been installed in the nonattainment area?

N/A

- What is the average daily traffic volume on these roads?

N/A

- What is the level of PM_{10} control that can be attributed to curbing these roads?

N/A

RESOLUTION NO. 78-44

ESTABLISHING A COCHISE COUNTY HIGHWAY DEPARTMENT

WHEREAS the Board of Supervisors pursuant to A.R.S. §11-251(4) shall lay out, maintain, control and manage public roads and bridges within the County of Cochise;

WHEREAS the Cochise County Engineer pursuant to A.R.S. §11-562(B) shall, under the direction of the Board, have charge of all highways, other engineering construction, improvements, alterations, and repairs to County property;

WHEREAS the above-mentioned statutes permit the establishment of a unified county highway department to be operated by the County Engineer under the direction of the Board of Supervisors;

WHEREAS formation and operation of a county highway department would promote the health, safety and general welfare of the residents of Cochise County by:

- (1) Increasing the efficiency of the County in constructing, maintaining, improving and repairing its public roadways;
- (2) Increasing the cost effectiveness of the County by eliminating unnecessary and overlapping financial costs involved in operating separate road districts in the County;
- (3) Minimizing the County's exposure to liability by establishment of a uniform overall plan for construction, maintenance, improvement, and repair of public roadways based on necessity and conduciveness to the public's health safety;
- (4) Providing for a consistent and uniform program for maintenance and repair of County public roadways;
- (5) Promoting more effective participation in programs funded in part or wholly by the state or federal government;

BE IT THEREFORE RESOLVED that the Board of Supervisors hereby authorizes the establishment of the Cochise County Highway Department, which shall become operational on or about January 1, 1979;

BE IT FURTHER RESOLVED that the Cochise County Engineer shall be the head of and shall administer the Cochise County Highway Department, under the direction of the Board of Supervisors, and shall have the power to:

- (1) Direct the preparation of plans and specifications for work on public roadways in the County;
- (2) Advertise for competitive bids for work on public roadways when required;
- (3) Direct supervision of all construction work on public roadways and have charge of maintenance and upkeep of such roadways, pursuant to direction from the Board of Supervisors;
- (4) Purchase any items of equipment necessary to construct and provide maintenance on public roadways;
- (5) Require approval by him of work done on public roadways prior to submission of a demand to the Board of Supervisors for final payment;
- (6) Make recommendations to the Board of Supervisors and implement its decisions in the hiring of engineering consultants, when desirable;
- (7) Direct the organization of the Department; recommend to the Board of Supervisors the hiring, firing, promoting and suspension of employees of the Department, and supervise and regulate the conduct of such employees;
- (8) Account to the Board of Supervisors for the expenditures of the Department;

(9) Exercise such other powers as are necessary to carry out the work of the Department and carry out such other duties as prescribed by the Board of Supervisors.

ADOPTED this 30th day of October, 1978.

Judith A. Gignac
JUDITH A. GIGNAC - - CHAIRMAN
BOARD OF SUPERVISORS
COUNTY OF COCHISE - - STATE OF ARIZONA

ATTEST:
Madeline M. Corrin
MADELINE M. CORRIN - - CLERK
BOARD OF SUPERVISORS
COUNTY OF COCHISE - - STATE OF ARIZONA



STATE OF ARIZONA | SS. I HEREBY CERTIFY THAT THE WITHIN INSTRUMENT WAS FILED AND RECORDED AT REQUEST OF
FILE # *No File* *Bo. of Supervisors*
Bo. of Supervisors
DATE *OCT 31 1978 - 11 00 AM*
BOOK *1282* PAGE *402* NO *23468*
403

RESOLUTION NO. 82-16

Establishment of
Department of Public Works

WHEREAS, Cochise County, under the laws of the United States and the State of Arizona, is responsible for the provision, administration, repair and maintenance of certain highways, structures, buildings and other real property, hereinafter referred to as "works", held in trust for the public residing in Cochise County; and

WHEREAS, certain employees of Cochise County are engaged in the business of providing, administering, repairing and maintaining these works so held in trust; and

WHEREAS, these employees have been grouped under the categories referred to as Highway Department, Engineering Department, Buildings and Grounds, Flood Control District, Sanitation, Motor Pool and Mail Service; and

WHEREAS, all of the aforesaid categories contain responsibilities which may be referred to as Public Works and each may also contain functions which overlap those of other categories; and

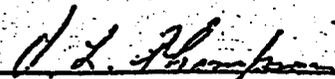
WHEREAS, such possible overlap of function or possible omission of functions which may be seen as a dual responsibility and be overlooked by both parties, constitute inefficiency of operation;

NOW THEREFORE BE IT RESOLVED that one and all of these works be provided, administered, repaired and maintained by one group of employees named the Department of Public Works.

This Department shall be under the control of a director who shall be responsible to the Board of Supervisors for its proper administration and effective operation. The director shall be known as Director of Public Works.

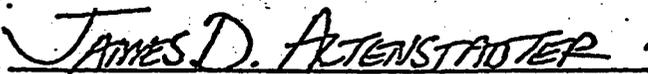
Exhibit A, which forms part of this resolution, is an organizational chart which sets out graphically the subdivisions of the Department of Public Works. This chart is subject to alteration by further resolutions of the Board of Supervisors when it feels this to be necessary. Such alteration may be recommended to the Board by the Director of Public Works who shall regularly reexamine the organization with a view to improving it. Such revised chart will then become a part of this resolution, will be referred to as Exhibit A and will replace the organization chart which was in effect prior to the revision.

Rules, regulations and standard operating procedures shall be formulated for the Department of Public Works and shall be presented to the Board of Supervisors for its approval by the Director of Public Works. Those governing ordinances, which are deemed necessary by the Board for proper operation of the Department must be promulgated by the Director and approved by the Board within twelve months of the date of this resolution or the Department shall be dissolved and its personnel returned to their previous categories.



V.L. Thompson, Chairman

ATTEST:



Clerk of the Board

Adopted in formal meeting May 10, 1982.

BOARD OF SUPERVISORS

DIRECTOR

ADMINISTRATION
DEPUTY DIRECTOR

FINANCE AND
GENERAL OFFICE
SUPERVISOR

AIRPORT STUDIES
AND CONTRACTS

MISCELLANEOUS
PROJECTS

FLOOD CONTROL DIVISION
MGR. & CHIEF ENGINEER

HIGHWAY DIVISION
COUNTY ENGINEER

ENGINEERING DIVISION
CHIEF ENGINEER

SANITATION DIVISION
SUPERINTENDENT

(WORK PRESENTLY
DONE BY THE
ENGINEERING DIV.)

INSPECTORS
(ONE ONLY AT
PRESENT.)

DESIGN AND
DRAFTING
CHIEF TECH.

SURVEY CREW
CHIEF TECH.

CREW
FOREMAN

MAINTENANCE AND
CONSTRUCTION
HIGHWAY SUPERINTENDENT

HIGHWAY SAFETY
TRAFFIC STUDIES
AND CONTRACTS

SIGN SHOP AND
TRAFFIC COUNTS

BUILDINGS AND GROUNDS
DIVISION
DEPUTY DIRECTOR

TRAINING
COORDINATOR

CUSTODIANS
AND SUPPLIES

BUILDING MAINTENANCE
AND STATIONERY
EQUIPMENT CREW
FOREMAN

BUILDING CONTRACTS
AND CONSTRUCTION

AREA 1
CREW
FOREMAN

AREA 2
CREW
FOREMAN

AREA 3
CREW
FOREMAN

MOTOR POOL

MAIL SERVICE

COCHISE COUNTY
DEPARTMENT OF PUBLIC WORKS

TITLE 18

HIGHWAYS AND BRIDGES

Ch. Art.		Section
2.	COUNTY HIGHWAYS	
1.	Construction, Maintenance and Abandonment	18-201
2.	County Highway Bonds and County Highway Commission	18-231
3.	BRIDGES	
1.	In General	18-301
2.	County Bridges	18-311
4.	TOLL ROADS, FERRIES AND BRIDGES	
1.	In General	18-401

CHAPTER 2

COUNTY HIGHWAYS

ARTICLE 1. CONSTRUCTION, MAINTENANCE AND ABANDONMENT

Section	
18-201.	Establishing, altering or abandoning local highways.
18-202.	Survey of proposed highway; notice of hearing.
18-203.	Hearing.
18-206.	Exercise of eminent domain by county to obtain right of way for federal-county highway.
18-207.	Maintenance of public roads and streets not within city or town.
18-208.	Improvement of highway within city or town limit.
18-208.01.	Improvement of arterial streets within cities and towns.
18-209.	Jurisdiction of streets in unincorporated towns.
18-210.	Abandonment of streets and alleys.
18-213.	Construction of cattle guards.
18-215.	Prohibition of construction of railroad along improved highway; exception.
18-216.	Tax levy for county highway improvement; additional tax for highway purposes.
18-217.	Bids for construction, reconstruction, equipment or supplies; procedure; bond.

ARTICLE 2. COUNTY HIGHWAY BONDS AND COUNTY HIGHWAY COMMISSION

18-231.	Bonds for highway construction; authorization for issuance.
18-232.	County highway commission; members; term; compensation; bond.
18-233.	Commission powers and duties; report; publication; call for election.
18-234.	Semiannual report of commission; publication.
18-235.	Expenses of commission.
18-236.	Road bond election precincts; conduct of election.
18-237.	Sale of bonds; disposition of proceeds; use of surplus funds.
18-238.	Contract for proposed work; cooperative contracts with United States; bond.

ARTICLE 1. CONSTRUCTION, MAINTENANCE AND ABANDONMENT

18-201. Establishing, altering or abandoning local highways

The board of supervisors may establish, alter or abandon highways in the county and other legal subdivisions, and acquire real property for such purposes by purchase, donation, dedication, condemnation or other lawful means. Such highways may be estab-

lished or altered by presentation of a petition signed by ten or more resident taxpayers of the county to the board of supervisors, or upon petition to the board by the governing body of a legal subdivision, praying that a highway be established or altered and giving its beginning, terminus and its general course and direction. The board may either reject the petition or act thereon as prescribed by this article. The board may abandon or vacate such highways by resolution as provided in title 28, chapter 14, article 1. 1976

18-202. Survey of proposed highway; notice of hearing

A. Upon filing the petition, the board shall direct the county engineer to make a survey of the proposed highway and file with the board a report of the proposed highway, together with a map as surveyed, showing thereon the legal subdivision of the lands traversed by the survey. If a survey and maps have already been made for any purpose, such data and maps may be used instead.

B. The board shall thereupon set a date for a public hearing on the petition. The board shall give notice to the public by advertising once a week for two consecutive weeks in a newspaper in the county. The notice shall state the purpose and the date of the ensuing hearing, and shall direct all persons desiring to object to the action prayed for in the petition to file with the board a statement in writing setting forth their objection or opposition, and to show cause why the petition should not be granted. 1961

18-203. Hearing

A. At the hearing provided for in § 18-202 the board shall consider the feasibility, advantages and necessity of the highway sought to be established, and, if in the opinion of the board the proposed highway is a public necessity, the board may approve the establishment thereof by resolution, and may accept any right of way or property donated to the state or the county.

B. A landowner or party affected may make and execute a written waiver or release of all compensation or any part thereof, or may grant an easement or other conveyance of property for such purposes. 1961

18-206. Exercise of eminent domain by county to obtain right of way for federal-county highway

A. When a board of supervisors enters into an agreement with the United States acting through its duly authorized officers or agents, pursuant to an act of Congress for acquiring a right of way for a highway in a county, and the United States has constructed a part of the highway described in the agreement, but the board of supervisors has been unable under the provisions of §§ 18-201 and 18-202 to acquire a right of way necessary for completion of the highway, it is the duty of the county attorney of the county upon demand by the agent of the United States having charge of the work to be done by the United States under the agreement, and upon resolution by the board of supervisors directing him so to do, to file in the superior court of the county in which the land is located, proceedings for condemnation as provided in § 12-1116 in the name of the county.

B. The county treasurer shall make the deposit required by the court as provided by § 12-1116, and upon final judgment by the court assessing the value of the lands sought to be condemned and the damages, if any, to pay the amount found due. If the money so deposited or paid by the treasurer has not

been appropriated or set aside for that purpose by the board of supervisors, the board shall set up the amount in its next budget and levy a tax for that purpose.

C. The provisions of this section shall not apply to highways designated as national highways, state highways or state routes. 1955

18-207. Maintenance of public roads and streets not within city or town

A. The board of supervisors may expend public funds for maintenance of public roads and streets other than legally designated state and county highways located without the limits of an incorporated city or town. Before expending public funds thereon, such roads or streets shall be laid out, opened and constructed without cost to the county, and fully completed in accordance with a plat approved pursuant to sections 11-802 and 11-806.01, and in accordance with standard engineering road specifications adopted by the county board of supervisors to insure uniform compliance.

B. Public funds may be expended by the board of supervisors for maintenance of public roads and streets laid out, constructed and opened prior to June 13, 1975 even if such roads and streets were not constructed in accordance with subsection A of this section.

C. Maintenance on public roads and streets shall not be construed to include purchasing or laying cement or petroleum product materials, except that maintenance on public roads and streets which are paved with cement or petroleum product materials may include seal coating and patching. To reduce long-term maintenance costs for maintenance authorized under this section, the board of supervisors may expend monies to add rock products, gravel and processed materials to the base of the roads and streets. 1991

18-208. Improvement of highway within city or town limit

A. That part of a highway lying within an incorporated city or town may through cooperation be constructed, improved or maintained under the provisions of this article in the same manner as if lying without an incorporated city or town.

B. As part of such cooperation, the board of supervisors may enter into an agreement with the governing body of a city or town for the lease of:

1. County equipment for use to construct, improve or maintain highways located within the boundaries of the city or town.

2. City or town equipment for use to construct, improve or maintain roads located within the boundaries of the county. 1961

18-208.01. Improvement of arterial streets within cities and towns

In addition to the purposes authorized by §§ 18-208, 28-1501.01 and 28-1502, the tax accruing to counties under § 28-1501.01 may, upon approval of the board of supervisors, be used for the construction or reconstruction of arterial streets as defined in § 28-1501.01 within incorporated cities and towns. 1966

18-209. Jurisdiction of streets in unincorporated towns

The streets of an unincorporated town shall be considered public highways and under control of the board of supervisors of the county in which the town is located. The board may designate what streets in

such towns shall be considered public highways and give appropriate names to them. 1955

18-210. Abandonment of streets and alleys

The board of supervisors may vacate and abandon streets, alleys and avenues outside the boundaries of incorporated cities and towns shown upon recorded plats as dedicated to the public, or to which the public or county may have received title by deed, in like manner and procedure as for abandoning county highways. 1955

18-213. Construction of cattle guards

A. When deemed expedient and necessary, the board of supervisors may install and construct cattle guards on county roads, or may authorize private persons who own or are in possession of real estate lying adjacent to county roads, to install and construct them.

B. The board shall prescribe the specifications and type of material to be used in the installation and construction of cattle guards, which shall be reasonably uniform throughout the county. Upon the installation and construction of a cattle guard on a county road the county shall maintain and repair the cattle guard.

C. Cattle guards installed prior to June 12, 1937 on county roads which do not substantially comply as to type of material and specifications prescribed by the board, shall not be required to be maintained by the county unless the board otherwise orders and a copy of the order entered in the minutes of the board. 1955

18-215. Prohibition of construction of railroad along improved highway; exception

A. No railroad or street railway shall be constructed along or upon any portion of a highway improved under the provisions of this article, except a crossing authorized by the board of supervisors, nor shall the board grant a franchise for the construction of a railroad or street railway along or upon an improved portion of the highway, except for crossing.

B. If such a highway or portion thereof shall, after having been improved, be included within the boundaries of an incorporated city or town, the municipal authorities may grant the franchise within the boundaries of the city or town upon express condition that the grantee will pay to the county, for the benefit of the general fund, an amount equal to the cost of the improvement of such portion of the highway improved as will be occupied by the track of the railroad or street railway. 1955

18-216. Tax levy for county highway improvement; additional tax for highway purposes

A. The board of supervisors may levy a real and personal property tax, not exceeding twenty-five cents per one hundred dollars of property in the county as valued for tax purposes, for road purposes, to be levied and collected at the same time and manner as other primary property taxes are levied and collected.

B. The money when collected shall be paid into the county treasury for the benefit of the highways within the county and, together with other money received for those purposes, expended by the board for improvement of roads of the county.

C. In counties having an assessed valuation of two hundred million dollars or over, an amount not to exceed twenty-five cents per one hundred dollars assessed valuation may be budgeted, levied, collected,

and expended for road purposes, independently of, and in addition to any other amounts lawfully available for road purposes, all other laws to the contrary notwithstanding. Such levy shall be in lieu of the levy permitted under subsection A of this section. 1961

18-217. Bids for construction, reconstruction, equipment or supplies; procedure; bond

Text of section effective until July 2, 1994

A. In a county of the first class having a population of one hundred fifty thousand persons or over, bids for all items of construction or reconstruction involving an expenditure equal to or greater than the amount determined pursuant to subsection B of this section, all purchases or other acquisition of equipment involving an expenditure in excess of five thousand dollars, and all purchases of supplies and materials involving an expenditure of two thousand five hundred dollars or over shall be called for by advertising in a newspaper of general circulation published within the county for two consecutive insertions if it is a weekly newspaper, or for two insertions not less than six nor more than ten days apart, if it is a daily newspaper. The advertisement shall state specifically the character of the work to be done and the kind and quality of materials or supplies to be furnished.

B. Bids shall be called pursuant to subsection A of this section for all items of construction or reconstruction involving an expenditure of:

- 1. In fiscal year 1985-1986, thirty-five thousand dollars.
- 2. In fiscal year 1986-1987 and each fiscal year thereafter, the amount provided in paragraph 1 of this subsection adjusted by the annual percentage growth in the GNP price deflator as defined in section 41-563, subsection E.

C. Should a bid satisfactory to the board of supervisors be received, it shall let a contract to the lowest responsible bidder, upon the contractor or supplier giving such bond or bonds as required under the provisions of title 34, chapter 2, article 2, or the board may reject any or all bids and readvertise.

D. No board of supervisors, member thereof, or other official or agent of a county affected by this section shall segregate or divide into separate units a contiguous or continuous portion of highway construction or reconstruction, or divide into separate portions an item of equipment or generally recognized unit of supplies or material, in order to avoid the restrictions imposed by subsection A.

E. After a contract has been awarded, the board authorized representative may if necessary authorize change orders to the contract in accordance with guidelines set by the board of supervisors. Such change order authority shall not be construed to permit the board authorized representative to act independently to award new contracts.

F. Notwithstanding the provisions of this section, from and after July 1, 1992, an action or proceeding shall not be maintained, continued, instituted or prosecuted under this section or section 34-203 and no order, judgment or injunction shall be entered or issued against any agent who performs public improvement work with the use of the agent's regularly employed personnel in dollar amounts exceeding the provisions of this section without advertising for bids. 1992

18-217. Bids for construction, reconstruction, equipment or supplies; procedure; bond

Text of section effective July 2, 1994

A. In a county of the first class having a population of one hundred fifty thousand persons or over, bids for all items of construction or reconstruction involving an expenditure equal to or greater than the amount determined pursuant to subsection B of this section, all purchases or other acquisition of equipment involving an expenditure in excess of five thousand dollars, and all purchases of supplies and materials involving an expenditure of two thousand five hundred dollars or over shall be called for by advertising in a newspaper of general circulation published within the county for two consecutive insertions if it is a weekly newspaper, or for two insertions not less than six nor more than ten days apart, if it is a daily newspaper. The advertisement shall state specifically the character of the work to be done and the kind and quality of materials or supplies to be furnished.

B. Bids shall be called pursuant to subsection A of this section for all items of construction or reconstruction involving an expenditure of:

- 1. In fiscal year 1985-1986, thirty-five thousand dollars.
- 2. In fiscal year 1986-1987 and each fiscal year thereafter, the amount provided in paragraph 1 of this subsection adjusted by the annual percentage growth in the GNP price deflator as defined in section 41-563, subsection E.

C. Should a bid satisfactory to the board of supervisors be received, it shall let a contract to the lowest responsible bidder, upon the contractor or supplier giving such bond or bonds as required under the provisions of title 34, chapter 2, article 2, or the board may reject any or all bids and readvertise.

D. No board of supervisors, member thereof, or other official or agent of a county affected by this section shall segregate or divide into separate units a contiguous or continuous portion of highway construction or reconstruction, or divide into separate portions an item of equipment or generally recognized unit of supplies or material, in order to avoid the restrictions imposed by subsection A.

E. After a contract has been awarded, the board authorized representative may if necessary authorize change orders to the contract in accordance with guidelines set by the board of supervisors. Such change order authority shall not be construed to permit the board authorized representative to act independently to award new contracts. 1992

ARTICLE 2. COUNTY HIGHWAY BONDS AND COUNTY HIGHWAY COMMISSION

18-231. Bonds for highway construction; authorization for issuance

The bonds of a county authorized and issued for construction or improvement of public highways may be issued by complying with this article. The board of supervisors may, and upon petition of fifteen per cent of the qualified electors of the county, shall, order an election by the real property taxpayers who are qualified electors of the county to determine whether the indebtedness shall be authorized. 1955

18-232. County highway commission; members; term; compensation; bond

A. If the contemplated bond issue is two million dollars or more, the board of supervisors shall appoint

DOUGLAS SIP ADMINISTRATIVE AND TECHNICAL
RACM DOCUMENTATION

Administrative Documentation

NUMBER: DGRACM05.ADOT
CATEGORY: Fugitive Dust
MEASURE: Pave or chemically stabilize unpaved roads
RESPONSIBLE AGENCY: Arizona Department of Transportation
IMPLEMENTATION
SCHEDULE: Implemented since May, 1989
AUTHORITY CITATION: Data forthcoming
FINANCING AND MAN-
POWER RESOURCES: Data forthcoming
MONITORING PROGRAM: Data forthcoming

Technical Documentation

- How many miles of unpaved roads have been paved since May, 1989?
Data forthcoming
- Where are these roads located in the nonattainment area?
Data forthcoming
- What is the average daily traffic volume on these roads?
Data forthcoming
- What is level of PM_{10} control that can be attributed to paving these roads?
Data forthcoming
- How many miles of unpaved roads have been chemically stabilized since May, 1989?
Data forthcoming

DGRACM05.ADOT

- Where are these roads located in the nonattainment area?

Data forthcoming

- At what frequency that these roads are chemically stabilized?

Data forthcoming

- What is level of PM_{10} control that can be attributed to chemically stabilizing these roads with magnesium chloride?

Data forthcoming

**DOUGLAS SIP ADMINISTRATIVE AND TECHNICAL
RACM DOCUMENTATION**

Administrative Documentation

NUMBER: DGRACM05.CITY

CATEGORY: Fugitive Dust

MEASURE: Pave or chemically stabilize unpaved roads

RESPONSIBLE AGENCY: City of Douglas, Public Works Department

IMPLEMENTATION SCHEDULE: Implemented since May, 1989

AUTHORITY CITATION: City of Douglas Subdivision Code Article 5 Section 504 (see Attachment 1)

FINANCING AND MAN-POWER RESOURCES:

	FY '89	FY '90/91	FY '92	FY '93	FY '94
Funding		\$240,000	\$175,000		
Manpower					

City public work funds; municipal property tax; improvement districts or special assessment districts; Community Development Block Grant Program; grants pursuant Section 815 of the CAAA; funding for paving projects in the Border Environmental Plan provisions of the North American Free Trade Agreement; funding for order improvement programs in the Intermodal Surface Transportation Efficiency Act of 1991

MONITORING PROGRAM:

Technical Documentation

- How many miles of unpaved roads have been paved since May, 1989?

6.5 miles
- Where are these roads located in the nonattainment area?

DGRACM05.CITY

- What is the average daily traffic volume on these roads?

<u>Road Segment</u>	<u>Project Length</u>	<u>Traffic Volume</u>
Bonita Ave., 1200 and 1300 Block	.11	400
C Ave., 600 to 900 Block	.25	300
Carmelita Ave., 700 Block	.06	290
14th St. Between Wash & San Ant.	.17	340
Florida Ave., Between 7th & 8th	.06	600
18th St., A Ave to Pan American	.25	360

- What is level of PM₁₀ control that can be attributed to paving these roads?

Data forthcoming

- How many miles of unpaved alleyways have been paved since May, 1989?

Alley between 10th & 11th, F and G: .05
 Alley north of 1890 Rogers Avenue: .04

- Where are these alleyways located in the nonattainment area?

See the attached map (Attachment 2)

- What is the average daily traffic volume on these roads?

Alley between 10th & 11th, F and G: 90
 Alley north of 1890 Rogers Avenue: 90

- How many miles of unpaved roads does the City have on schedule to be paved on or before December 10, 1993?

E Avenue: 42,000 sq. ft.
 7th, 8th Streets,
 G Ave to Pan American 810,000 sq. ft.

- Where are these roads located in the nonattainment area?

See the attached map (Attachment 3)

- What is the average daily traffic volume on these roads?

E Avenue: 200
 7th, 8th Streets, G Ave
 to Pan American 680

DGRACM05.CITY

- What is level of PM_{10} control that can be attributed to paving these roads?

Data forthcoming

DOUGLAS SUBDIVISION CODE

M

ARTICLE 5

~~STREET AND UTILITY IMPROVEMENT REQUIREMENTS~~

Section 500.00. PURPOSE: It is the purpose of this Article to establish in outline the minimum acceptable standards for improvement of public streets and utilities, to define the responsibility of the subdivider in the planning, construction, and financing of public improvements, and to establish procedures for review and approval of engineering plans.

Section 501.00. RESPONSIBILITY FOR IMPROVEMENTS: The planning, construction and financing of all required sidewalks, curbs, gutters, pavements, street lights, sanitary sewers, storm sewers, water mains, fire hydrants, and drainage structures shall be the responsibility of the subdivider, and shall comply with Public Improvement Standards established by the Public Works Director and Water Superintendent and approved by the Council; provided, however, that he may meet such requirements by participation in an improvement district approved by the City.

Section 502.00. ENGINEERING PLANS: The subdivider shall be responsible for having a registered engineer prepare a complete set of engineering plans, satisfactory to the Public Works Director, for construction of required improvements. Such plans shall be based on the approved preliminary plat and be prepared in conjunction with the final plat. Engineering plans shall have been approved by the Public Works Director prior to recordation of the final plat.

Section 503.00. CONSTRUCTION AND INSPECTION:

503.01. All improvements in the public right-of-way shall be constructed under inspection and approval of the Public Works Director. Construction shall not be commenced until a permit has been issued for such construction, and if work has been discontinued for any reason, it shall not be resumed until after notifying the Public Works Director in advance.

503.02. All underground utilities to be installed in streets shall be constructed prior to the surfacing of such streets. Service stubs to platted lots within the subdivision for underground utilities shall be placed to such length as to avoid disturbance of street improvements when service connections are made.

Section 504.00. REQUIRED IMPROVEMENTS:

504.01. Streets and Alleys: All streets and alleys within the subdivision shall be graded and surfaced to standards approved by the Public Works Director. Where there are existing streets adjacent to the subdivision, proposed streets shall be improved to the intercepting paving line of such existing streets. Temporary dead-end streets serving more than four (4) lots shall be provided a graded and surfaced temporary turning circle.

- 504.02. Curbs:** Portland cement concrete curb, curb-and-gutter, or other pavement edging, as designated by the Public Works Director, shall be installed in accordance with approved City standards.
- 504.03. Sidewalks:** Portland cement concrete sidewalks shall be constructed to a width, line, and grade approved by the Public Works Director in accordance with approved City standards. Where lots are one-half acre or larger in area, the Commission may recommend that requirement of sidewalk on one or both sides be waived.
- 504.04. Crosswalks:** Portland cement concrete crosswalks through blocks shall be constructed to a line and grade approved by the Public Works Director and fenced on both sides with four (4) foot chain link fencing with posts set in concrete.
- 504.05. Street Name Signs:** Street name signs shall be installed at all street intersections by the time the street pavement is ready for use; design, construction, location and installation shall comply with approved City standards.
- 504.06. Storm Drainage:** Adequate provision shall be made for disposal of storm waters from both private lots and public streets and to avoid impoundment at any point within the subdivision. Existing major surface drainage courses shall be maintained and dedicated as drainageways. The type, extent, location and capacity of drainage facilities shall be determined for the individual subdivision by the Public Works Director and shall be constructed in accordance with approved City standards. Where storm water is discharged into any outlet not directly controlled by the Public Works Director, the subdivider shall submit satisfactory evidence that the use of such outlet is approved by the owner or custodian thereof.
- 504.07. Sewage Disposal:** A public or community sanitary sewerage system shall be installed in all subdivisions and shall be constructed to plans, profiles and specifications approved by the Water Superintendent.
- 504.08. Water Supply:** Each lot shall be supplied with safe, pure and potable water in sufficient volume and pressure for domestic use and fire protection by a public water system planned and constructed to approved City standards.
- 504.09. Monuments:** Permanent monuments shall be installed in accordance with current City standards at all corners, angle points, and points of curve, and at all street intersections. After all improvements have been installed, the subdivider shall be responsible for having a registered land surveyor or engineer check the location of monuments and certify as to their accuracy.

504.10. Corner Markers: One-half ($\frac{1}{2}$) inch iron pins or rods of a minimum length of eighteen (18) inches shall be set at all corners, angle points, and points of curve for each lot within the subdivision prior to recordation of the plat.

Section 505.00. SUBMITTAL, REVIEW AND APPROVAL OF ENGINEERING PLANS: Two (2) sets of Engineering Plans shall be filed with the Public Works Director simultaneously with filing of the final plat. Plans shall be reviewed by the Public Works Director and a certificate of approval filed with the City Clerk prior to recordation of the plat. If engineering plans have not been approved within ninety (90) days after approval of the final plat, the Council may require that the final plat be resubmitted.

Section 506.00. AGREEMENT TO INSTALL IMPROVEMENTS: Upon approval of the final plat by the Council, the subdivider shall execute and file an agreement between himself and the City specifying the period within which he or his agent or contractor will complete all required improvements to the satisfaction of the Public Works Director. The agreement shall provide for inspection of all improvements by the Public Works Director and reimbursement of the City by the subdivider for the actual costs of such inspections. The agreement may also provide for construction of improvements in units and for an extension of time under specified conditions. The Council may require of the subdivider such further assurance of completion of improvements as may be justified in the interests of the future lot owners and the general public.

**DOUGLAS SIP ADMINISTRATIVE AND TECHNICAL
RACM DOCUMENTATION**

Administrative Documentation

NUMBER: DGRACM05.CNTY
CATEGORY: Fugitive Dust
MEASURE: Pave or chemically stabilize unpaved roads
RESPONSIBLE AGENCY: Cochise County, Public Works Department

IMPLEMENTATION

SCHEDULE: Implemented since May, 1989

AUTHORITY CITATION: Data forthcoming

FINANCING AND MAN-

POWER RESOURCES: County public work funds; county property tax; improvement districts or special assessment districts; Community Development Block Grant Program; grants pursuant Section 815 of the CAAA; funding for paving projects in the Border Environmental Plan provisions of the North American Free Trade Agreement; funding for border improvement programs in the Intermodal Surface Transportation Efficiency Act of 1991

MONITORING PROGRAM: Data forthcoming

Technical Documentation

- How many miles of unpaved roads have been paved since May, 1989?
3.6 miles
This translates into 974,688 square feet of road surface area have been covered with pavement, based on an average road width of 26 feet.
County has scheduled an additional 2 miles of road for paving by the end of 1993.
- Where are these roads located in the nonattainment area?
Data forthcoming
- What is the average daily traffic volume on these roads?

DGRACM05.CNTY

- What is level of PM_{10} control that can be attributed to paving these roads?

Data forthcoming

- How many miles of unpaved roads have been chemically stabilized since May, 1989?

1.5 miles of unpaved roads

Based on an average roadway width of 26 feet, a total of 205,920 square feet have been stabilized.

- Where are these roads located in the nonattainment area?

Data forthcoming

- At what frequency that these roads are chemically stabilized?

Data forthcoming

- What is level of PM_{10} control that can be attributed to chemically stabilizing these roads with magnesium chloride?

Data forthcoming

**DOUGLAS SIP ADMINISTRATIVE AND TECHNICAL
RACM DOCUMENTATION**

Administrative Documentation

NUMBER: DGRACM06.ATV

CATEGORY: Fugitive Dust

MEASURE: Two motorcycles and two four wheeled ATV's were activated in August, 1992 for field patrol in lieu of full sized four-wheel drive vehicles

RESPONSIBLE AGENCY: U.S. Immigration and Naturalization Service

IMPLEMENTATION SCHEDULE: Implemented August, 1992

AUTHORITY CITATION: Data forthcoming

FINANCING AND MAN-POWER RESOURCES: Data forthcoming

MONITORING PROGRAM: Data forthcoming

Technical Documentation

- What is the reduction in the number of full sized four-wheel drive vehicles that resulted through the activation of the two motorcycles and two four wheeled ATV's?
Data forthcoming
- On what roads in the nonattainment area did the vehicle type change occur?
Data forthcoming
- Are these roads paved or unpaved?
Data forthcoming
- What was the average frequency of patrolling on these roads?
Data forthcoming
- What is the amount of PM₁₀ reduction (if any) that can be attributed to the change of vehicle types on these roads?
Data forthcoming

**DOUGLAS SIP ADMINISTRATIVE AND TECHNICAL
RACM DOCUMENTATION**

Administrative Documentation

NUMBER: DGRACM06.CAM
CATEGORY: Fugitive Dust
MEASURE: Develop traffic reduction plans for unpaved roads
RESPONSIBLE AGENCY: U.S. Immigration and Naturalization Service
IMPLEMENTATION SCHEDULE: To be implemented by September, 1993
AUTHORITY CITATION: Data forthcoming
FINANCING AND MAN-POWER RESOURCES: Data forthcoming
MONITORING PROGRAM: Data forthcoming

Technical Documentation

- How will the traffic reduction on the roads be accomplished?
Video camera surveillance to reduce the amount of field surveillance, driving and dragging required by about fifty (50.0) percent vehicles
- What will be the estimated reduction in the number of patrol vehicles?
Data forthcoming
- On what roads in the nonattainment area will this reduction occur?
Data forthcoming
- Are these roads paved or unpaved?
Data forthcoming
- What was the average frequency of patrolling on these roads?
Data forthcoming

DGRACM06.CAM

- What was the average speeds that the vehicles patrol at?

Data forthcoming

- What is the amount of PM_{10} reduction (if any) that can be attributed to the change of vehicle types on these roads?

Data forthcoming

**DOUGLAS SIP ADMINISTRATIVE AND TECHNICAL
RACM DOCUMENTATION**

Administrative Documentation

NUMBER: DGRACM06.SEN

CATEGORY: Fugitive Dust

MEASURE: Develop traffic reduction plans for unpaved roads. Use of speed bumps, low speed limits, etc., to encourage use of other (paved) roads

Installation of new, expanded electronic sensing system to detect crossing activities at the U.S./Mexico border to reduce dragging requirements

RESPONSIBLE AGENCY: U.S. Immigration and Naturalization Service

IMPLEMENTATION

SCHEDULE: Implemented September, 1989

AUTHORITY CITATION: Data forthcoming

**FINANCING AND MAN-
POWER RESOURCES:** Data forthcoming

MONITORING PROGRAM: Data forthcoming

Technical Documentation

- What is the reduction in dragging of unpaved roads since September, 1989 as the result of the installation of the new, expanded electronic sensing system?
Data forthcoming
- Where did this reduction in dragging occur in the nonattainment area?
Data forthcoming
- What was the average frequency of dragging these roads?
Data forthcoming

DGRACM06.SEN

- What is level of PM_{10} control that can be attributed to the reduction of dragging these roads?

Data forthcoming

**DOUGLAS SIP ADMINISTRATIVE AND TECHNICAL
RACM DOCUMENTATION**

Administrative Documentation

NUMBER: DGRACM07.CITY
CATEGORY: Fugitive Dust
MEASURE: Prohibit permanent unpaved haul roads, and parking or staging areas at commercial, municipal, or industrial facilities.
RESPONSIBLE AGENCY: City of Douglas, Public Works Department

IMPLEMENTATION

SCHEDULE: Implemented since May, 1989

AUTHORITY CITATION: Data forthcoming

FINANCING AND MAN-
POWER RESOURCES:

	FY '89	FY '90	FY '91	FY '92	FY '93	FY '94
Funding						
Manpower						

Treatment of municipal parking areas are funded by state and local sources and Community Development Block Grants

MONITORING PROGRAM:

Technical Documentation

- How many unpaved parking lots have been paved since May, 1989?
Seven (7)
- Where are these parking lots located in the nonattainment area?
Data forthcoming
- What is the total surface area of the seven parking lots that have been paved?

DGRACM07.CITY

400,000 square feet

- What is the average daily usage of these parking lots?

Combined usage of 700 vehicles per day

- What is the amount of PM_{10} reduction (if any) that can be attributed to paving the parking lots?

Sixty (60) percent control of PM_{10} emissions

- How many basketball courts have been treated since May, 1989?

Seven (7)

- Where are these basketball courts located in the nonattainment area?

Data forthcoming

- How were these basketball courts treated -- asphalt or concrete?

Asphalt

- What is the total surface area of the seven basketball courts that have been treated?

50,400

- What was the average daily usage of these basketball courts?

240 people

- What is the amount of PM_{10} reduction (if any) that can be attributed to the treatment of the basketball courts?

Forty (40) percent PM_{10} reduction

**DOUGLAS SIP ADMINISTRATIVE AND TECHNICAL
RACM DOCUMENTATION**

Administrative Documentation

NUMBER: DGRACM08.ADOT

CATEGORY: Fugitive Dust

MEASURE: Require dust control measures for material storage piles.

RESPONSIBLE AGENCY: Arizona Department of Transportation

IMPLEMENTATION SCHEDULE: Implemented since May, 1989

AUTHORITY CITATION: Data forthcoming

FINANCING AND MAN-POWER RESOURCES: Data forthcoming

MONITORING PROGRAM: Data forthcoming

Technical Documentation

- How many material piles are currently being control by ADOT?
Data forthcoming
- Where are these material piles located in the nonattainment area?
Data forthcoming
- What is the method of PM_{10} control?
The material piles are watered two days prior to use
- What is the average amount of watering that occurs on a daily, weekly or monthly basis?
Data forthcoming
- What is the amount of PM_{10} reduction (if any) that can be attributed to paving the parking lots?
Data forthcoming

DOUGLAS SIP ADMINISTRATIVE AND TECHNICAL
RACM DOCUMENTATION

Administrative Documentation

NUMBER: DGRACM09.RWC

CATEGORY: Residential Wood Combustion

MEASURE: Encourage improved performance of woodburning devices by:

evaluating and encouraging, as appropriate, the accelerated changeover of existing devices to new source performance standard or other new technology stoves (e.g., hybrid designs, pellet stoves) by such approaches as subsidized stove purchases tax credits or other incentives

Not implemented

RESPONSIBLE AGENCY: N/A

IMPLEMENTATION SCHEDULE: N/A

AUTHORITY CITATION: N/A

FINANCING AND MAN-POWER RESOURCES: N/A

MONITORING PROGRAM: N/A

Technical Documentation

- How many wood stoves have been replaced by wood stoves meeting new source performance standards since July 1, 1990 in the nonattainment area?
N/A
- What was the average usage of the wood stoves on a daily, weekly or monthly basis?
N/A
- What is the amount of PM₁₀ reduction that can be attributed to the new wood stoves meeting new source performance standards?
N/A

**DOUGLAS SIP ADMINISTRATIVE AND TECHNICAL
RACM DOCUMENTATION**

Administrative Documentation

NUMBER: DGRACM10.CITY

CATEGORY: Open Burning

MEASURE: Ordinance controlling open burning within the corporate limits of Douglas

RESPONSIBLE AGENCY: City of Douglas, Fire Department

IMPLEMENTATION SCHEDULE: Ordinance passed in April, 1991

AUTHORITY CITATION: City Ordinance 582 (see Attachment 1)

FINANCING AND MAN-POWER RESOURCES:

	FY '89	FY '90	FY '91	FY '92	FY '93	FY '94
Funding			\$13,911.75			
Manpower						

Manpower is supplied through the Douglas Fire Department

MONITORING PROGRAM: The Fire Department monitor burning and issue permits that are consistent with all applicable state and federal air pollution control regulations

Technical Documentation

- How many open burns occur on a daily, weekly or monthly average in the nonattainment area?

One per month

- What is the amount of PM₁₀ reduction that can be attributed to Douglas City Ordinance 582?

Seventy (70) percent

Purchase of chipper eliminates indiscriminate burning -- City accepting yard waste for composting (i.e., Christmas trees, etc.)

DGRACM10.CITY

- In what portion of the nonattainment area is Douglas City Ordinance 582 applicable?

Data forthcoming

AN ORDINANCE OF THE CITY OF DOUGLAS, ARIZONA, AUTHORIZING THE FIRE CHIEF OR HIS DESIGNEE TO APPLY FOR AUTHORITY FOR ISSUANCE OF OPEN BURNING PERMITS, REQUIRING QUALIFIED PERSONNEL AND ESTABLISHING FEES FOR PERMITS.

BE IT ORDAINED by the Mayor and Council, of the City of Douglas, Arizona, as follows:

SECTION 1. In order to have authority to authorize the issuance of open burning permits, the Chief of the Douglas Fire Department, or his designee shall apply to the Arizona Department of Environmental Quality as needed for a delegation of authority to issue open burning permits.

SECTION 2. The Chief of the Douglas Fire Department or his designee shall at all times be conversive with state and federal laws and agency regulations dealing with air pollution regulations on open burning.

SECTION 3. Upon delegation of authority by the Arizona Department of Environmental Quality, or any other appropriate state or federal agency, the Douglas Fire Department, through the Chief or his designated employee, shall be responsible for the enforcement of open burning limitations within the city limits of the City of Douglas and shall report any violations of the air pollution regulations on open burning to the Department of Environmental Quality or other appropriate agency.

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DOUGLAS, ARIZONA 85607
(602) 364-7961

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(602) 364-7861

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SECTION 4. Whenever a permit is required to be issued for open burning other than to a state, federal, county, school district or municipal government, application fees shall be paid for each application and permit. The fee shall be \$5.00 per application except that the fees for permits for open burning at or relating to construction sites, or for commercial or business premises shall be \$25.00 per application and permit. All fees shall be paid to the City Treasurer at or before the issuance of any permit.

PASSED AND ADOPTED by the Mayor and Council of the City of Douglas, Arizona, this 10th day of APRIL, 1991.

Elizabeth N. Ames
Elizabeth Ames, Mayor

ATTEST:

Victor M. Stevens
Victor M. Stevens, City Clerk

APPROVED AS TO FORM:

Arthur C. Atonna
Arthur C. Atonna, City Attorney

**DOUGLAS SIP ADMINISTRATIVE AND TECHNICAL
RACM DOCUMENTATION**

Administrative Documentation

NUMBER: DGRACM11.CNTY

CATEGORY: State Defined

MEASURE: County Resolution 91-19 establishing rules for permitting recycling centers and prohibits these sources from generating dust or smoke that is discernible on adjacent properties

RESPONSIBLE AGENCY: Cochise County, Planning and Zoning Department

IMPLEMENTATION

SCHEDULE: Since July 10, 1991

AUTHORITY CITATION: County Resolution 91-19 (see Attachment 1)

**FINANCING AND MAN-
POWER RESOURCES:**

	FY '89	FY '90	FY '91	FY '92	FY '93	FY '94
Funding	\$0	\$0	\$660	\$400	\$400	\$400
Manpower	0	0	3 FTE	2 FTE	2 FTE	2 FTE

Manpower is supplied through the County Planning and Zoning Department

MONITORING PROGRAM: Site visits for compliance and response to citizen complaints

Technical Documentation

- How many recycling centers have been permitted by the County since May, 1989 in the nonattainment area?
None to date
- What is the amount of PM₁₀ reduction that can be attributed to County Resolution 91-19?
None to date

JUN 12 1991 9AM 3

ATTACHMENT 1

Gene Manning, Chairman, District 1
Ann English, District 2
Kim Bennett, District 3
Dennis R. Tinberg, County Manager

Board of Supervisors

County of Cochise

P.O. Box 225 • Bisbee, Ariz. 85603 • (602)432-9200 • Fax (602)432-5016

RESOLUTION NO. 91-19
(Docket R-91-02)

**AMENDING THE COCHISE COUNTY ZONING REGULATIONS
TO PERMIT RECYCLING CENTERS AS A SPECIAL USE IN RURAL,
GENERAL BUSINESS AND LIGHT INDUSTRY ZONING DISTRICTS**

WHEREAS the Cochise County Zoning Regulations currently do not explicitly address recycling centers;

WHEREAS recycling centers would currently only be permitted in the Heavy Industry Zoning District as a Special Use in Section 1405.10 Junkyards;

WHEREAS it is recognized that recycling centers have less impact than a junkyard if appropriately regulated;

WHEREAS it is further recognized that recycling reusable products is beneficial to the environment and will preserve scarce space in solid waste management facilities;

WHEREAS it is further recognized that a need exists in Cochise County for convenient public recycling centers;

WHEREAS a public hearing has been held before the Planning and Zoning Commission and the Board of Supervisors pursuant to required legal notice;

NOW, BE IT THEREFORE RESOLVED that the following amendments to the Cochise County Zoning Regulations are adopted:

Section 203 of the Cochise County Zoning Regulations, Definitions, is amended as follows:

Recycling Center

A permanent facility for the collection, temporary storage and processing of pre-sorted, clean recyclable materials, for efficient shipment. Sale of parts is not permitted. Processing for efficient shipment includes but is not limited to baling, compacting, crushing and flattening. Any such process shall be conducted within an enclosed building. Facilities should be less than 45,000 square feet in size and shall have no more than two outbound truck shipments to market per day. No dust, smoke, vibration, odors or noise other than vehicles shall be discernable on adjacent properties. The site shall be kept free of litter and any other undesirable products. All outdoor storage will be within secured, enclosed containers.

910611339
COCHISE COUNTY BOARD OF SUPV
BOX 225
BISBEE, AZ. 85603



FEE # 910611339
OFFICIAL RECORDS
COCHISE COUNTY
DATE 06/12/91 HOUR 9

REQUEST OF
COCHISE COUNTY BOARD OF SUPV
CHRISTINE RHODES-RECORDER
FEE : 0.00 PAGES : 2

910611339

Recyclable Materials

Recyclable materials include glass, steel and aluminum cans, plastics, paper products and other reusable products. Putrescible materials (materials that decay producing a foul odor) and items disassembled and sold for parts such as automobiles are not permitted. Except for motor oil, hazardous waste is not permitted. Motor oil must be stored and transported according to Federal, State and Local regulations.

Section 607 - Special Uses in Rural Zoning District is amended as follows:

607.43 Recycling Centers - Permits for such centers shall be valid for three (3) years, but shall be automatically renewed for successive three (3) year periods only if there has been no significant violation of any term or condition of the permit or of the Zoning Regulations during the previous three-year period.

Section 1205 - Special Uses in a General Business Zoning District is amended as follows:

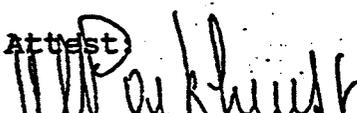
1205.09 Recycling Centers - Permits for such centers shall be valid for three (3) years, but shall be automatically renewed for successive three (3) year periods only if there has been no significant violation of any term or condition of the permit or of the Zoning Regulations during the previous three-year period.

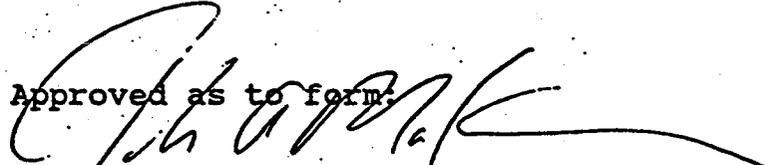
Section 1305 - Special Uses in a Light Industry Zoning District is amended as follows:

1305.04 Recycling Centers - Permits for such centers shall be valid for three (3) years, but shall be automatically renewed for successive three (3) year periods only if there has been no significant violation of any term or condition of the permit or of the Zoning Regulations during the previous three-year period.

PASSED AND ADOPTED THIS 10TH day of JUNE, 1991.


Gene Manning, Chairman
Cochise County Board of Supervisors

Attest

Naaine M. Parkhurst
Clerk of the Board

Approved as to form:

Deputy County Attorney

**DOUGLAS SIP ADMINISTRATIVE AND TECHNICAL
RACM DOCUMENTATION**

Administrative Documentation

NUMBER: DGRACM12.CNTY
CATEGORY: State Defined
MEASURE: Prohibit any home occupation business or activity from generating dust in a quantity that would escape from the property line
RESPONSIBLE AGENCY: Cochise County, Planning and Zoning Department
IMPLEMENTATION SCHEDULE: Effective since July 10, 1991
AUTHORITY CITATION: County Resolution 91-30 (see Attachment 1)
FINANCING AND MAN-POWER RESOURCES:

	FY '89	FY '90	FY '91	FY '92	FY '93	FY '94
Funding	\$0	\$0	\$990	\$600	\$600	\$600
Manpower	\$0	\$0	3	2	2	2

Manpower is supplied through the County Planning and Zoning Department

MONITORING PROGRAM: Site visits for compliance and response to citizen complaints

Technical Documentation

- How many home occupation business or home based activities have been controlled by this resolution since May, 1989 in the nonattainment area?

Five (5)
Four minor home occupations and one major

DGRACM12.CNTY

- What was the amount of PM_{10} emitted by these businesses or activities before the adoption of this resolution (i.e. in tons per year, pounds per day, etc.)?

Unknown, but assumed to be negligible

- What is the amount of PM_{10} reduction that can be attributed to County Resolution 91-19?

Negligible

ATTACHMENT 1
Gene Manring, Chairman, District 1
Ann English, District, 2
Kim Bennett, District, 3
Dennis R. Timberg, County Manager

Board of Supervisors

County of Cochise

P.O. Box 225 • Bisbee, Ariz. 85603 • (602)432-9200 • Fax (602)432-5016

RESOLUTION 91-30 (Docket R-91-03)

AN AMENDMENT TO THE COCHISE COUNTY ZONING REGULATIONS MODIFYING THE PROVISIONS FOR HOME OCCUPATIONS IN RURAL AND RESIDENTIAL ZONING DISTRICTS

WHEREAS the current Cochise County Zoning Regulations provides for "home occupations" in rural and residential zoning districts generally as a "use permitted upon appeal" rather than a "permitted use";

WHEREAS most home occupations are of such a low intensity that they are not discernible on any neighboring property;

WHEREAS it is the desire of the Board of Supervisors to allow "minor home occupations" which are of a low intensity and have no impact on surrounding properties to be permitted as of right in rural and residential zoning districts;

WHEREAS the Board of Supervisors desires to promote economic development by encouraging development of low-impact, home businesses in the County;

WHEREAS a public hearing has been held before the Cochise County Planning and Zoning Commission and the Cochise County Board of Supervisors on Docket R-91-03 (Resolution 91-30) pursuant to proper notice;

NOW BE IT THEREFORE RESOLVED that the Cochise County Zoning Regulations are amended as follows:

Section 203, Definitions, is amended as follows:

Home Occupation, Major - An activity carried on by the occupant of a dwelling as a secondary use, including professional offices, subject to the following limitations: (a) The activity shall be entirely enclosed within the dwelling or a detached home workshop, and no display or storage of materials or merchandise shall be visible from outside of the structure; (b) No more than one-fourth (1/4) of the floor area of one (1) story of the principal structure, or two hundred (200) square feet in a detached workshop, shall be used, and the area devoted to the home occupation shall comply with all development standards

applicable to the principal dwelling; (c) The residential character of the dwelling shall not be changed by said use and such occupation shall not cause any unpleasant or unusual noises, vibrations, noxious fumes, odors, or parking or traffic congestion. The placement of any detached home workshop shall comply with the specifications of these Regulations for accessory structures.

Section 203, Definitions, is amended to add the following:

Home Occupations, Minor - An activity carried on by the occupant of a dwelling as a secondary use, including personal and professional services, subject to the following limitations:

a. No more than one-fourth (1/4) of the floor area of one story of the principal structure, or two hundred (200) square feet in a detached workshop, shall be used, and the area devoted to the home occupation shall comply with all development standards applicable to the principal dwelling.

b. No persons other than the residents of the dwelling shall be employed in the conduct of the home occupation.

c. There is no display that will indicate from the exterior that any building is used, in whole or in part, for any purpose other than a dwelling.

d. Any outdoor display or storage of materials, goods, supplies or equipment shall be prohibited.

e. The use of commercial vehicles for delivery of materials to or from the premises shall be prohibited, other than one (1) vehicle not to exceed one (1) ton owned by the resident of the dwelling.

f. The generation of noise, vibrations, noxious odors, dust, heat, or glare detectable beyond any property line is prohibited.

g. No toxic, explosive, flammable, radioactive, or other similar material shall be used, sold, or stored on the site.

h. Direct sales of products off display shelves or racks is prohibited. However, a customer may pick up an order previously made by telephone or at a sales meeting.

i. No traffic shall be generated by such home occupation in greater volumes than would normally be expected in a residential neighborhood, and any need for parking generated by the conduct of such home occupation shall be met off the street.

j. There shall be no change to the residential appearance of the premises, including the creation of separate or exclusive business entrances.

k. There shall be no signage, displays, or other indications of a home occupation on the premises.

Section 603.09 shall be amended as follows:

603.09 Minor Hhome occupations. for personal or professional services-

Section 606.03 shall be amended as follows:

606.03 Major Hhome occupations other than for personal or professional services.

The following sections shall be added: sec. 703.15, sec. 753.07, sec. 803.13, and 1003.16, each of which will add the following language after the section number:

Minor Home Occupations

Sec. 706.03, 756.03, and 806.03, shall be amended as follows:

Major Hhome occupations

Section 903.17 shall be added as follows:

Major and minor home occupations.

Sec. 906, Uses Permitted on Appeal, shall be deleted.

Sec. 1008 shall be amended as follows:

Major Hhome occupations shall be a use permitted on appeal in MH districts.

Section 1102.12 shall be amended as follows:

1102.12 Major and minor Hhome occupations for personal or professional services

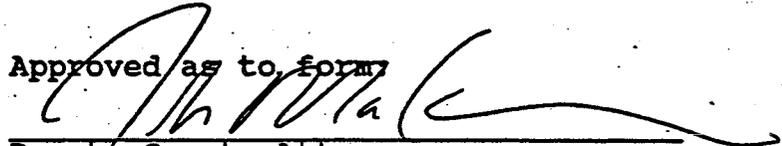
Sec. 1105, Uses Permitted on Appeal, shall be deleted.

APPROVED AND ADOPTED this 10 day of JUNE, 1991.


Gene Manring, Chairman
Cochise County Board of Supervisors

Attest:

Nadine M. Parkhurst
Clerk of the Board

Approved as to form

Deputy County Attorney.



FEE # 910611956
OFFICIAL RECORDS
COCHISE COUNTY
DATE 06/20/91 HOUR 3

REQUEST OF
COCHISE COUNTY BOARD OF SUPV
CHRISTINE RHODES-RECORDER
FEE : 0.00 PAGES : 3

**DOUGLAS SIP ADMINISTRATIVE AND TECHNICAL
RACM DOCUMENTATION**

Administrative Documentation

NUMBER: DGRACM13.CITY

CATEGORY: Fugitive Dust

MEASURE: Pave, vegetate, or chemically stabilize unpaved parking areas

RESPONSIBLE AGENCY: City of Douglas, Public Works Department

IMPLEMENTATION SCHEDULE: To be implemented between April 9 - December 10, 1993

AUTHORITY CITATION: Data forthcoming

FINANCING AND MAN-POWER RESOURCES:

	FY '89	FY '90	FY '91	FY '92	FY '93	FY '94
FUNDING						
MANPOWER						

City public work funds; municipal property tax; improvement districts or special assessment districts; Community Development Block Grant Program; grants pursuant Section 815 of the CAAA; funding for paving projects in the Border Environmental Plan provisions of the North American Free Trade Agreement; funding for order improvement programs in the Intermodal Surface Transportation Efficiency Act of 1991

MONITORING PROGRAM:

Technical Documentation

- How many miles of unpaved roads have been paved since May, 1989?
6.5 miles

DGRACM13.CITY

- Where are these roads located in the nonattainment area?

Data forthcoming

- What is the average daily traffic volume on these roads?

Project		
<u>Road Segment</u>	<u>Length</u>	<u>Traffic Volume</u>
Bonita Ave., 1200 and 1300 Block	.11	400
C Ave., 600 to 900 Block	.25	300
Carmelita Ave., 700 Block	.06	290
14th St. Between Wash & San Ant.	.17	340
Florida Ave., Between 7th & 8th	.06	600
18th St., A Ave to Pan American	.25	360

- What is level of PM₁₀ control that can be attributed to paving these roads?

Data forthcoming

- How many miles of unpaved alleyways have been paved since May, 1989?

Alley between 10th & 11th, F and G: .05
Alley north of 1890 Rogers Avenue: .04

- Where are these alleyways located in the nonattainment area?

Data forthcoming

- What is the average daily traffic volume on these roads?

Alley between 10th & 11th, F and G: 90
Alley north of 1890 Rogers Avenue: 90

- How many miles of unpaved roads does the City have on schedule to be paved on or before December 10, 1993?

E Avenue: 42,000 sq. ft.
7th, 8th Streets,
G Ave to Pan American 810,000 sq. ft.

- Where are these roads located in the nonattainment area?

Data forthcoming

DGRACM13.CNTY

- What is the average daily traffic volume on these roads?

E Avenue:	200
7th, 8th Streets, G Ave to Pan American	680

- What is level of PM_{10} control that can be attributed to paving these roads?

Data forthcoming

**DOUGLAS SIP ADMINISTRATIVE AND TECHNICAL
RACM DOCUMENTATION**

Administrative Documentation

NUMBER: DGRACM14.GSA

CATEGORY: Mobile Source

MEASURE: Ventilation of primary lanes, headhouse and secondary inspection area

RESPONSIBLE AGENCY: U.S.G.S.A. and U.S. Customs Service

IMPLEMENTATION SCHEDULE: To be implemented by September, 1993

AUTHORITY CITATION: Data forthcoming

FINANCING AND MAN-POWER RESOURCES:

	FY '89	FY '90	FY '91	FY '92	FY '93	FY '94
FUNDING					\$200,000	
MANPOWER					1	

Funding is a result of the U.S.G.S.A. modernization program

MONITORING PROGRAM: U.S.G.S.A. will monitor the ventilation system on an on-going basis

Technical Documentation

- How many booths will be serviced by this system?

Seven (7)

The booths are air-tight with sliding windows for inspection without opening the doors.

- What is the average daily traffic volume?

In 1992, it was 4,951.

DGRACM14.GSA

- What is the level of PM_{10} control that can be attributed to the ventilation system?

Data forthcoming

**DOUGLAS SIP ADMINISTRATIVE AND TECHNICAL
RACM DOCUMENTATION**

Administrative Documentation

NUMBER: DGRACM15.GSA
CATEGORY: Fugitive Dust
MEASURE: Landscaping the ditch at the international border
RESPONSIBLE AGENCY: U.S. General Services Administration

IMPLEMENTATION

SCHEDULE: Implemented March, 1993

AUTHORITY CITATION: Data forthcoming

FINANCING AND MAN-
POWER RESOURCES:

	FY '89	FY '90	FY '91	FY '92	FY '93	FY '94
FUNDING					\$2,000	
MANPOWER					1	

The U.S.G.S.A. is the source of funding for this control measure

MONITORING PROGRAM: The border ditch is inspected every quarter.

Technical Documentation

- What are the dimensions of the international border ditch?
Data forthcoming
- What level of PM₁₀ control can be attributed to landscaping the international border ditch?
Data forthcoming

**DOUGLAS SIP ADMINISTRATIVE AND TECHNICAL
RACM DOCUMENTATION**

Administrative Documentation

NUMBER: DGRACM16.GSA
CATEGORY: Fugitive Dust
MEASURE: Landscaping natural drainage feature
RESPONSIBLE AGENCY: U.S. General Services Administration
IMPLEMENTATION SCHEDULE: Implemented March, 1993
AUTHORITY CITATION: Data forthcoming
FINANCING AND MAN-POWER RESOURCES:

	FY '89	FY '90	FY '91	FY '92	FY '93	FY '94
FUNDING						
MANPOWER					1	

The U.S.G.S.A. is the source of funding for this control measure

MONITORING PROGRAM: Data forthcoming

Technical Documentation

- What are the dimensions of the natural drainage feature?
Data forthcoming
- What level of PM₁₀ control can be attributed to landscaping this feature?
Data forthcoming

APPENDIX B

ADEQ FUGITIVE DUST RULES

ARIZONA ADMINISTRATIVE CODE, TITLE 18, CHAPTER 2, ARTICLE 4

Department of Environmental Quality - Air Pollution Control

1. The amount of used oil, used oil fuel, hazardous waste, or hazardous waste fuel burned at the facility exceeds the amount reported in the notice by more than 10%.
 2. The facility is burning used oil, used oil fuel, hazardous waste, or hazardous waste fuel other than that reported in the notice.
- C. Any person who submits a notification for a facility pursuant to subsection (A) or (B) which ceases burning used oil, used oil fuel, hazardous waste, or hazardous waste fuel for a period greater than 180 days shall submit a cancellation notice, except that any person who ceases burning off-specification used oil for the purpose of compliance with the requirements of A.R.S. § 49-808(B)(2) shall not be required to submit a cancellation notice.
- D. Any person who submits a cancellation notice under R18-2-325(C) may not resume burning used oil, used oil fuel, hazardous waste, or hazardous waste fuel until issued a permit under A.R.S. § 49-426(H).

Historical Note

Emergency rule adopted effective September 17, 1991, pursuant to A.R.S. § 41-1026, valid for only 90 days (Supp. 91-3).

Emergency rule re-adopted without change effective December 16, 1991, pursuant to A.R.S. § 41-1026, valid for only 90 days (Supp. 91-4).

EMERGENCY ADOPTION

R18-2-327. Permits for burning used oil, used oil fuel, hazardous waste, and hazardous waste fuel; interim compliance

- A. Except as provided in subsection (C) below, any person who submits to the Director the notice and preliminary application under R18-2-326(A) shall be in compliance with A.R.S. § 49-426(H) until the Director issues or denies a permit that addresses the requirements of A.R.S. § 49-426(H). Submittal of a notice under A.A.C. R18-2-326(A) shall not excuse or otherwise constitute a defense to any violation of any other provision of any law, rule or permit.
- B. Except as provided in subsection (C) below, any person who submits to the Director the notice and preliminary application required by A.A.C. R18-2-326(A) and who burns used oil, used oil fuel, hazardous waste, or hazardous waste fuel pursuant to an existing permit issued under A.R.S. § 49-426 or 49-501 shall be in compliance with the requirements of A.R.S. § 49-426(H) until the Director issues or denies a permit that addresses the requirements of A.R.S. § 49-426(H).
- C. The Director may require any person who has submitted a notice and preliminary application under R18-2-326 to submit an application for a permit as set forth in Title 18 of the A.A.C., Chapter 2, Article 3. The Director shall set forth this requirement in writing after a review of the notice and preliminary application, and based on the Director's assessment of the potential health and environmental impacts from the burning described therein. The person shall then submit the application within 30 days. If it is not submitted within 30 days, the person shall cease and desist from any burning described in R18-2-325.

Historical Note

Emergency rule adopted effective September 17, 1991, pursuant to A.R.S. § 41-1026, valid for only 90 days (Supp. 91-3).

Emergency rule re-adopted without change effective December 16, 1991, pursuant to A.R.S. § 41-1026, valid for only 90 days (Supp. 91-4).

ARTICLE 4. EMISSIONS FROM EXISTING AND NEW NONPOINT SOURCES

R18-2-401. General

For purposes of this Article, any source of air contaminants which due to lack of an identifiable emission point or plume cannot be considered a point source, shall be classified as a nonpoint source. In applying this criteria, such items as air-curtain destructors, heater-planners, and conveyor transfer points shall be considered to have identifiable plumes. Any affected facility subject to regulation under Article 5 of this Chapter or A.A.C. Title 9, Chapter 3, Article 8, shall not be subject to regulation under this Article.

Historical Note

Adopted effective May 14, 1979 (Supp. 79-1). Amended effective October 2, 1979 (Supp. 79-5). Former Section R9-3-401 renumbered without change as Section R18-2-401 (Supp. 87-3).

R18-2-402. Unlawful open burning.

- A. Notwithstanding the provisions of any other rule in this Chapter, it is unlawful for any person to ignite, cause to be ignited, permit to be ignited, or suffer, allow or maintain any open outdoor fire.
- B. "Open outdoor fire", as used in this rule, means any combustion of combustible material of any type outdoors, in the open where the products of combustion are not directed through a flue. "Flue", as used in this rule, means any duct or passage for air, gases or the like, such as a stack or chimney.
- C. The following fires are excepted from the provisions of this rule:
1. Fires used only for cooking of food or for providing warmth for human beings or for recreational purposes or the branding of animals or the use of orchard heaters for the purpose of frost protection in farming or nursery operations.
 2. Any fire set or permitted by any public officer in the performance of official duty, if such fire is set or permitted by the permission given for the purpose of weed abatement, the prevention of a fire hazard, or instruction in the methods of fighting fires.
 3. Fires set by or permitted by the state entomologist or county agricultural agents of the county for the purpose of disease and pest prevention.
 4. Fires set by or permitted by the federal government or any of its departments, agencies or agents, the state or any of its agencies, departments or political subdivisions, for the purpose of watershed rehabilitation or control through vegetative manipulation.
- D. Permission for the setting of any fire given by a public officer in the performance of official duty under paragraphs (2), (3), or (4) of subsection (C), shall be given, in writing, and a copy of such written permission shall be transmitted immediately to the Director of the Department of Environmental Quality and the control officer, if any, of the county, district or region in which such fire is allowed. The setting of any such fire shall be constructed in a manner and at such time as approved by the Director, unless doing so would defeat the purpose of the exemption.
- E. The following fires may be excepted from the provisions of this Section when permitted in writing by the Director of the Department of Environmental Quality or the control officer of the county, district or region in which such fire is allowed:
1. Fires set for the disposal of dangerous materials where there is no safe alternative method of disposal.
 - a. "Dangerous material" is any substance or combination of substances which is able or likely to inflict bodily harm or property loss unless neutralized, consumed or otherwise disposed of in a controlled and safe manner.

Department of Environmental Quality - Air Pollution Control

- b. Fires set for the disposal of dangerous materials shall be permitted only when there is no safe alternative method of disposal, and when the burning of such materials does not result in the emission of hazardous or toxic substances either directly or as a product of combustion in amounts which will endanger health or safety.
2. Open outdoor fires for the disposal of ordinary household trash in an approved waste burner in nonurban areas of less than 100 well spread out dwelling units per square mile where no refuse collection and disposal service is available.
- a. An "approved waste burner" is an incinerator constructed of fire resistant material with a cover or screen which is closed when in use having openings in the sides or top no greater than one inch in diameter.
- b. Open burning of the following materials is forbidden: Garbage resulting from the processing, storage, service or consumption of food; asphalt shingles; tar paper; plastic and rubber products (such as waste crankcase oil, transmission oil and oil filters); transformer oils; and hazardous material containers including those that contained inorganic pesticides, lead, cadmium, mercury, or arsenic compounds.
- F. The Director of the Department of Environmental Quality or the air pollution control officer, if any, of the county, district, or region may delegate the authority for the issuance of allowable open burning permits to responsible local officers. Such permits shall contain conditions limiting the manner and the time of the setting of such fires as specified in the Arizona Guidelines for Open Burning and shall contain a provision that all burning be extinguished at the discretion of the Director or his authorized representative during periods of inadequate atmospheric smoke dispersion, periods of excessive visibility impairment which could adversely affect public safety, or periods when smoke is blown into populated areas so as to create a public nuisance.
1. Any local officer delegated the authority for issuance of open burning permits shall maintain a copy of all currently effective permits issued including a means of contacting the person authorized by the permit to set an open fire in the event that an order for extinguishing of open burning is issued.
- G. Nothing in this rule is intended to permit any practice which is a violation of any statute, ordinance, rule or regulation.

Historical Note

Amended effective August 6, 1976 (Supp. 76-4). Former Section R9-3-402 repealed, new Section R9-3-402 adopted effective May 14, 1979 (Supp. 79-1). Amended and adopted by reference Open Burning Guidelines for Air Pollution Control effective September 22, 1983 (Supp. 83-5). Former Section R9-3-402 renumbered without change as Section R18-2-402 (Supp. 87-3).

R18-2-403. Forestry management

- A. All national parks and national forests having areas which extend into more than one county of the state of Arizona, as well as all state parks and forests shall be under the jurisdiction of the Director in all matters relating to prescribed burning or slash disposal.
- B. Each entity mentioned in subsection (A) shall comply with the following:
1. Each national park, state park, national forest or state forest hereinafter called forest will apply directly to the Bureau for an annual burning permit for all planned burning projects. Application will be made in the spring of the year, prior to June 1 for the ensuing fiscal year.
 2. The application shall be in the form of a letter listing all projects. Enclosed with the letter will be copies of the Park

Service or Forest Service approved burning plans for each planned project. A map of the burn and immediate surrounding area must accompany each plan.

3. The application and the Park Service or Forest Service plans will list the following:
 - a. Approximate date the project will start.
 - b. Location of project by sections, townships, or ranges.
 - c. Approximate elevation of project.
 - d. Aspect of any slopes.
 - e. Description of fuel to be burned.
 - f. Prescribed conditions for fire (e.g. time of day, fuel moisture, weather).
4. Each forest as part of the application will provide the Bureau with one emergency or 24-hour telephone number.
5. Each forest will notify the Bureau when a project planned starting date is later changed. Notification will be by telephone. Any other changes, such as fuel type, duration of burn or location, should be included in this notification.
6. The determination to allow burning will be made on a day-by-day basis. It is the responsibility of each park or forest to telephone the Bureau for such a determination. Large fires and those that continue during nighttime hours will require special forecasts made by the national weather service, the Department's meteorologist, or by the permittee if forecast procedures are approved by the Department. On site meteorological measurements by the permittee may be required as inputs to dispersion forecasts and smoke management during the burn.
7. Once each year, on or before December 31, the Forest Service or Parks Service shall submit to the Bureau a report outlining the progress of research and development concerning the effects of forest burn programs on air quality. Such report shall include, where applicable, innovations in the management of prescribed burning using meteorological data, as well as special burning methods, or innovative equipment. Alternatives to burning shall also be considered. Research as to cost effectiveness of the various methods should also be included.

Historical Note

Former Section R9-3-403 repealed, new Section R9-3-403 adopted effective May 14, 1979 (Supp. 79-1). Former Section R9-3-403 renumbered without change as Section R18-2-403 (Supp. 87-3).

R18-2-404. Open areas, dry washes or riverbeds

- A. No person shall cause, suffer, allow, or permit a building or its appurtenances, or a building or subdivision site, or a driveway, or a parking area, or a vacant lot or sales lot, or an urban or suburban open area to be constructed, used, altered, repaired, demolished, cleared, or leveled, or the earth to be moved or excavated, without taking reasonable precautions to limit excessive amounts of particulate matter from becoming airborne. Dust and other types of air contaminants shall be kept to a minimum by good modern practices such as using an approved dust suppressant or adhesive soil stabilizer, paving, covering, landscaping, continuous wetting, detouring, barring access, or other acceptable means.
- B. No person shall cause, suffer, allow, or permit a vacant lot, or an urban or suburban open area, to be driven over or used by motor vehicles, trucks, cars, cycles, bikes, or buggies, or by animals such as horses, without taking reasonable precautions to limit excessive amounts of particulates from becoming airborne. Dust shall be kept to a minimum by using an approved dust suppressant, or adhesive soil stabilizer, or by paving, or by barring access to the property, or by other acceptable means.
- C. No person shall operate a motor vehicle for recreational purposes in a dry wash, riverbed or open area in such a way as to

Department of Environmental Quality - Air Pollution Control

cause or contribute to visible dust emissions which then cross property lines into a residential, recreational, institutional, educational, retail sales, hotel or business premises. For purposes of this subsection "motor vehicles" shall include, but not be limited to trucks, cars, cycles, bikes, buggies and three-wheelers. Any person who violates the provisions of this subsection shall be subject to prosecution under A.R.S. § 49-451.

Historical Note

Former Section R9-3-404 repealed, new Section R9-3-404 adopted effective May 14, 1979 (Supp. 79-1). Amended by adding subsection (C) effective September 22, 1983 (Supp. 83-5). Former Section R9-3-404 renumbered without change as Section R18-2-404 (Supp. 87-3). Amended subsection (C) effective December 1, 1988 (Supp. 88-4).

R18-2-405. Roadways and streets

- A. No person shall cause, suffer, allow or permit the use, repair, construction or reconstruction of a roadway or alley without taking reasonable precautions to prevent excessive amounts of particulate matter from becoming airborne. Dust and other particulates shall be kept to a minimum by employing temporary paving, dust suppressants, wetting down, detouring or by other reasonable means.
- B. No person shall cause, suffer, allow or permit transportation of materials likely to give rise to airborne dust without taking reasonable precautions, such as wetting, applying dust suppressants, or covering the load, to prevent particulate matter from becoming airborne. Earth or other material that is deposited by trucking or earth moving equipment shall be removed from paved streets by the person responsible for such deposits.

Historical Note

Former R9-3-405, Other industries, renumbered R9-3-406, new Section adopted effective September 17, 1975 (Supp. 75-1). Former Section R9-3-405 repealed, new Section R9-3-405 adopted effective May 14, 1979 (Supp. 79-1). Amended effective October 2, 1979 (Supp. 79-5). Former Section R9-3-405 renumbered without change as Section R18-2-405 (Supp. 87-3).

R18-2-406. Material handling

No person shall cause, suffer, allow or permit crushing, screening, handling, transporting or conveying of materials or other operations likely to result in significant amounts of airborne dust without taking reasonable precautions, such as the use of spray bars, wetting agents, dust suppressants, covering the load, and hoods to prevent excessive amounts of particulate matter from becoming airborne.

Historical Note

Former Section R9-3-405, renumbered effective September 17, 1975 (Supp. 75-1). Former Section R9-3-406 repealed, new Section R9-3-406 adopted effective May 14, 1979 (Supp. 79-1). Former Section R9-3-406 renumbered without change as Section R18-2-406 (Supp. 87-3).

R18-2-407. Storage piles

- A. No person shall cause, suffer, allow, or permit organic or inorganic dust producing material to be stacked, piled, or otherwise stored without taking reasonable precautions such as chemical stabilization, wetting, or covering to prevent excessive amounts of particulate matter from becoming airborne.
- B. Stacking and reclaiming machinery utilized at storage piles shall be operated at all times with a minimum fall of material and in such manner, or with the use of spray bars and wetting

agents, as to prevent excessive amounts of particulate matter from becoming airborne.

Historical Note

Adopted effective May 14, 1979 (Supp. 79-1). Former Section R9-3-407 renumbered without change as Section R18-2-407 (Supp. 87-3).

R18-2-408. Mineral tailings.

No person shall cause, suffer, allow, or permit construction of mineral tailing piles without taking reasonable precautions to prevent excessive amounts of particulate matter from becoming airborne. Reasonable precautions shall mean wetting, chemical stabilization, revegetation or such other measures as are approved by the Director.

Historical Note

Adopted effective May 14, 1979 (Supp. 79-1). Amended effective October 2, 1979 (Supp. 79-5). Former Section R9-3-408 renumbered without change as Section R18-2-408 (Supp. 87-3).

R18-2-409. Agricultural practices

No person shall cause, suffer, allow or permit the performance of agricultural practices including but not limited to tilling of land and application of fertilizers without taking reasonable precautions to prevent excessive amounts of particulate matter from becoming airborne.

Historical Note

Adopted effective May 14, 1979 (Supp. 79-1). Former Section R9-3-409 renumbered without change as Section R18-2-409 (Supp. 87-3).

R18-2-410. Evaluation of nonpoint source emissions

Opacity of an emission from any nonpoint source shall not be greater than 40 percent measured in accordance with the Arizona Testing Manual, Reference Method 9. Open fires permitted under R18-2-402 and R18-2-403 are exempt from this requirement.

Historical Note

Adopted effective May 14, 1979 (Supp. 79-1). Former Section R9-3-410 renumbered without change as Section R18-2-410 (Supp. 87-3).

ARTICLE 5. EXISTING STATIONARY SOURCE PERFORMANCE STANDARDS**R18-2-501. Definitions**

For purposes of this Article:

1. "Acid mist" means sulfuric acid mist as measured in the Arizona Testing Manual and 40 CFR 60, Appendix A.
2. "Architectural coating" means a coating used commercially or industrially for residential, commercial or industrial buildings and their appurtenances, structural steel, and other fabrications such as storage tanks, bridges, beams and girders.
3. "Asphalt concrete plant" means any facility used to manufacture asphalt concrete by heating and drying aggregate and mixing with asphalt cements. This is limited to facilities, including drum dryer plants that introduce asphalt into the dryer, which employ two or more of the following processes:
 - a. A dryer.
 - b. Systems for screening, handling, storing, and weighing hot aggregate.
 - c. Systems for loading, transferring, and storing mineral filler.
 - d. Systems for mixing asphalt concrete.
 - e. The loading, transferring, and storage systems associated with emission control systems.

APPENDIX C

TECHNICAL SUPPORT DOCUMENTATION

IMPLEMENTED IN THE DOUGLAS NONATTAINMENT AREA

COLLECTION AND REDUCTION OF

**PM₁₀ EMISSIONS INVENTORY
DATA FOR THE DOUGLAS
PLANNING AREA**

**EPA CONTRACT No. 68-02-3888
WORK ASSIGNMENT 35**

PREPARED FOR

**U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION IX**

215 Fremont St.

San Francisco, Ca. 94105

OCTOBER 1987

PREPARED BY

ENGINEERING-SCIENCE

DESIGN • RESEARCH • PLANNING

75 NORTH FAIR OAKS AVE. • P.O. BOX 7107 • PASADENA, CALIFORNIA 91109

DOUGLAS PLANNING AREA EMISSIONS INVENTORY

INTRODUCTION

The promulgation of a PM₁₀ National Ambient Air Quality Standard requires the reassessment and upgrading of particulate matter emissions inventories in suspected PM₁₀ non-attainment areas as part of the State Implementation Plan development procedure.. This emissions inventory for the Douglas Planning Area in Arizona was conducted to meet these needs. The overall emissions inventory project, which included the Maricopa and Pima and other Planning Areas in addition to Douglas, involved the following three tasks.

1. Compilation of available data concerning source activity levels and emission factors for TSP, PM₁₀, and smaller size fractions.
2. Field testing and sample collection for emission factor development and data for use in existing emission factors.
3. Development of a microcomputer based emissions inventory data handling system and incorporation of the collected data into that system.

The results of tasks 2 and 3 above are described in the Maricopa and Pima Planning Areas report. This Douglas Planning Area emissions inventory report contains a summary of the emissions by source category, documentation of the activity levels and the emission factors used, and the potential emission reductions available from application of controls. Attached with the report are an ASES program diskette in DOS format and a data diskette containing the Planning Area emissions inventory. The ASES system allows report generation by grid square and groups of grid squares, and by source categories and pollutant categories. The system also allows modification of activity levels and emission factors and generation of new reports incorporating these modifications.

The Appendix to this report contains the silt content measurement analysis and a copy of the ADOT Douglas traffic count map..

SUMMARY

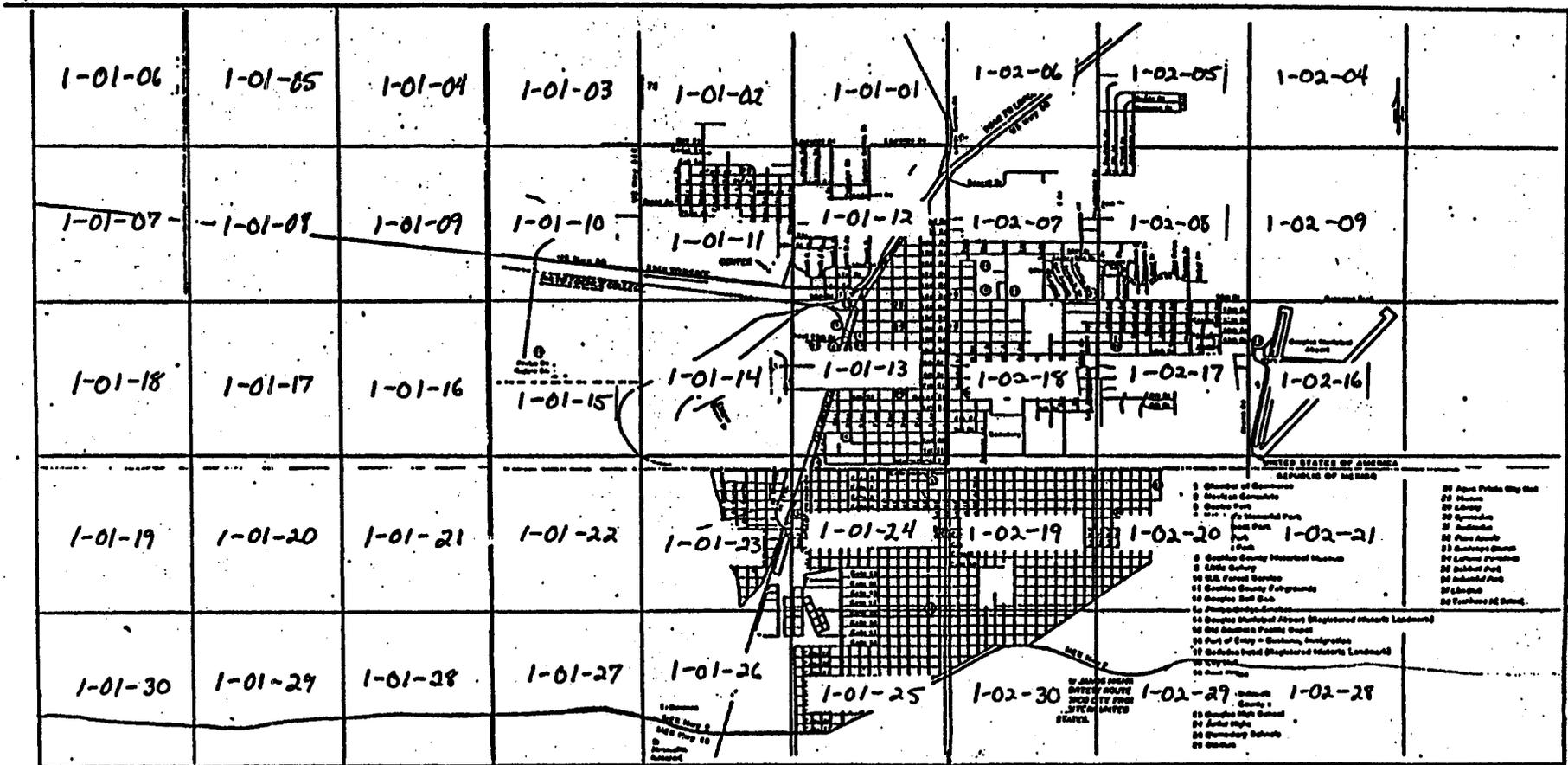
Figure 1 shows the Douglas Planning Area as defined by CFR 81.303 plus the addition of the city of Agua Prieta and adjacent areas to the south of Douglas in the state of Sonora, Mexico. The Planning Area contains portions of four townships in Arizona and portions of two equivalent townships in Mexico. Each township has a grid ID number; townships containing the bulk of the population in the planning area were subdivided into square mile sections, with each section identified by its legal section number.

Figure 2 shows the PM₁₀ emission inventory on a bar chart by consolidated source category, and also shows the projected emissions by category following implementation of suggested control strategies. Table 1 lists the estimated current emissions by individual source category and by particle size. Emissions from unpaved roads, alleys, and parking lots account for a majority of the PM₁₀ totals, followed by agricultural activities, reentrained fugitive emissions from paved streets and roads, wind blown dust, and wood burning. Almost all of the unpaved road emission comes from Agua Prieta. Agua Prieta has few paved streets. Also, the only agricultural portion of the Planning Area is in Mexico, to the west of Agua Prieta.

Paving, curbing, and vegetating or paving adjacent areas were estimated to reduce unpaved road, alley, and parking lot emissions by an estimated 90%. Additional curbing and paving or vegetating of adjacent areas, and a program of street sweeping and washing may reduce paved street emissions by 60%.

Table 2 lists the emission factors used in the Douglas study. The Appendix contains the silt sample results for the Douglas Planning Area.

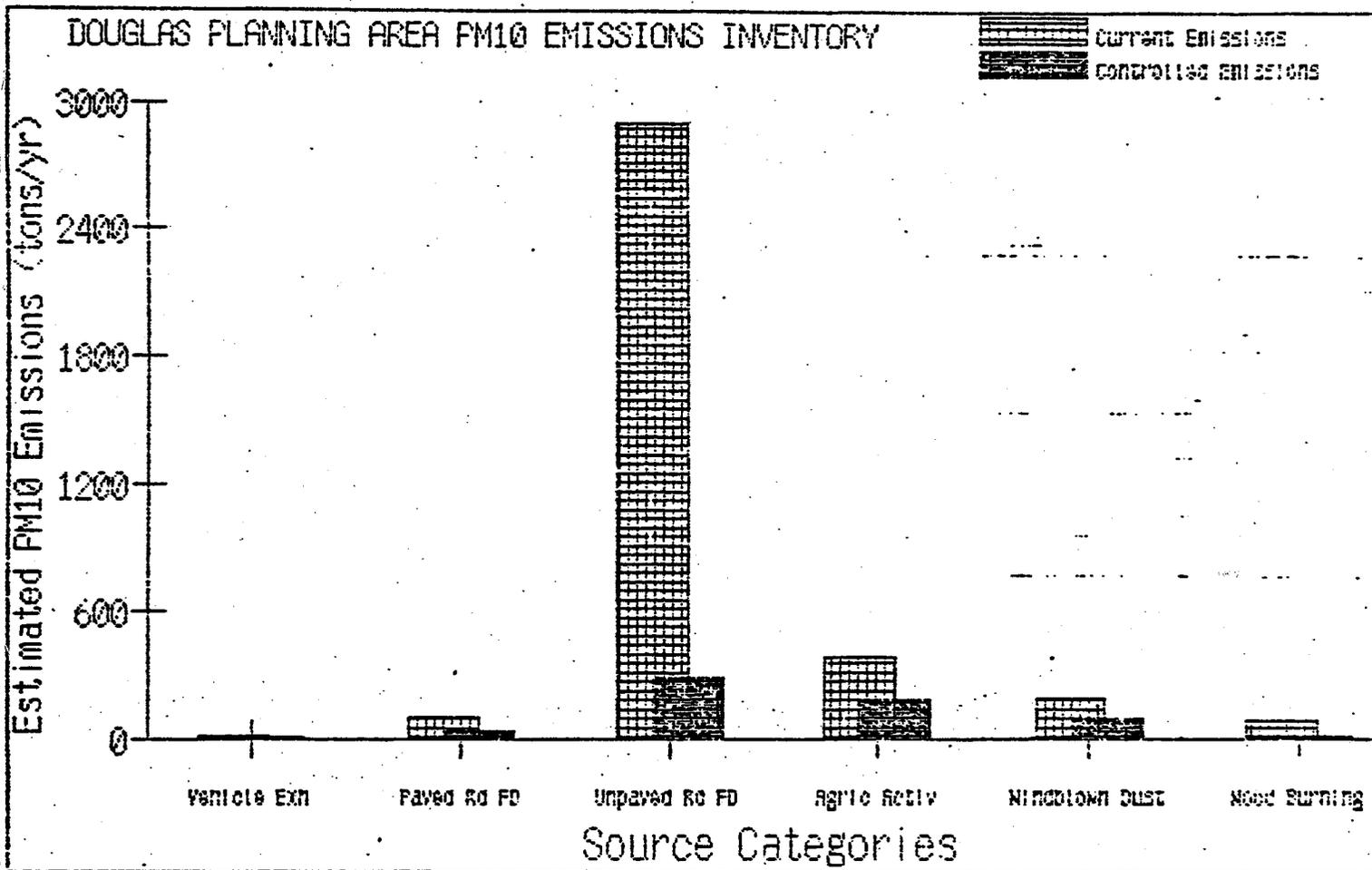
DOUGLAS PLANNING AREA
(INCLUDES AGUA PRIETA, MEXICO)



R27E

R28E

Figure 2



SUMMARY REPORT - ACTIVITY LEVELS AND EMISSIONS

File directories: B: (Activity values)
 B: (Emission factors)

DATE: 01/04/80 TIME: 2:48

Emissions in tons per year

Activity	Cell	Records	Total	Units	Emissions in tons per year					
					TSP	PM10	PM2.5	PM1		
103	ARTERIALS - EX B T	TOTAL	21	45,709	1000 VMT	15.0	14.0	10.7	3.5	0.0
105	LOCAL STREETS - EX B T	TOTAL	14	4,938	1000 VMT	1.8	1.8	1.2	0.9	0.0
113	ARTERIALS - FUG DUST	TOTAL	21	45,709	1000 VMT	228.7	91.6	41.6	0.0	0.0
115	LOCAL STREETS - FUG DUST	TOTAL	14	4,938	1000 VMT	24.7	9.9	4.3	0.0	0.0
120	UNPAVED ROADS - FUG DUST	TOTAL	31	4,350	1000 VMT	6,455.5	2,905.7	765.9	0.0	0.0
150	AGRICULTURAL TILLING	TOTAL	3	19,200	ACRES	556.8	355.2	172.8	0.0	0.0
160	CLEARED AREAS - WB DUST	TOTAL	16	1,488	ACRES	1,045.1	173.9	2.1	0.0	0.0
180	PRODUCTIVE AG LAND - WB	TOTAL	3	384	ACRES	99.9	16.8	0.3	0.0	0.0
190	AG BURNING - FIELDS	TOTAL	3	1,920	ACRES	38.4	27.9	18.3	19.5	0.0
221	WOOD BURNING	TOTAL	14	5,460	TONS	114.9	81.7	54.5	13.6	0.0
242	FUEL USE (KEROSENE)	TOTAL	6	1,224	1000 GAL	1.7	1.3	1.1	0.7	0.0
		* TOTAL	146			8,582.5	3,679.8	1,072.8	34.2	0.0

Table 1

Douglas/Agua Prieta Emissions Inventory by Source Category

EMISSION FACTOR FILE

Code	Activity description	Cell	Pollutant	Factor	Adjust
103	ARTERIALS - EX B T	0-00-00-0	11101 TSP	0.678	1.00
103	ARTERIALS - EX B T	0-00-00-0	11102 PM10	0.617	1.00
103	ARTERIALS - EX B T	0-00-00-0	11103 PM2.5	0.469	1.00
103	ARTERIALS - EX B T	0-00-00-0	11104 PM1	0.374	1.00
105	LOCAL STREETS - EX B T	0-00-00-0	11101 TSP	0.756	1.00
105	LOCAL STREETS - EX B T	0-00-00-0	11102 PM10	0.687	1.00
105	LOCAL STREETS - EX B T	0-00-00-0	11103 PM2.5	0.516	1.00
105	LOCAL STREETS - EX B T	0-00-00-0	11104 PM1	0.409	1.00
113	ARTERIALS - FUG DUST	0-00-00-0	11101 TSP	10.000	1.00
113	ARTERIALS - FUG DUST	0-00-00-0	11102 PM10	4.000	1.00
113	ARTERIALS - FUG DUST	0-00-00-0	11103 PM2.5	1.800	1.00
115	LOCAL STREETS - FUG DUST	0-00-00-0	11101 TSP	10.000	1.00
115	LOCAL STREETS - FUG DUST	0-00-00-0	11102 PM10	4.000	1.00
115	LOCAL STREETS - FUG DUST	0-00-00-0	11103 PM2.5	1.800	1.00
120	UNPAVED ROADS - FUG DUST	0-00-00-0	11101 TSP	2,969.000	1.00
120	UNPAVED ROADS - FUG DUST	0-00-00-0	11102 PM10	1,336.000	1.00
120	UNPAVED ROADS - FUG DUST	0-00-00-0	11103 PM2.5	352.000	1.00
150	AGRICULTURAL TILLING	0-00-00-0	11101 TSP	5.800	10.00
150	AGRICULTURAL TILLING	0-00-00-0	11102 PM10	3.700	10.00
150	AGRICULTURAL TILLING	0-00-00-0	11103 PM2.5	1.600	10.00
160	CLEARED AREAS - WB DUST	0-00-00-0	11101 TSP	1,405.000	1.00
160	CLEARED AREAS - WB DUST	0-00-00-0	11102 PM10	234.000	1.00
160	CLEARED AREAS - WB DUST	0-00-00-0	11103 PM2.5	2.680	1.00
180	PRODUCTIVE AG LAND - WB	0-00-00-0	11101 TSP	520.000	1.00
180	PRODUCTIVE AG LAND - WB	0-00-00-0	11102 PM10	87.000	1.00
180	PRODUCTIVE AG LAND - WB	0-00-00-0	11103 PM2.5	1.000	1.00
190	AG BURNING - FIELDS	0-00-00-0	11101 TSP	40.000	1.00
190	AG BURNING - FIELDS	0-00-00-0	11102 PM10	29.000	1.00
190	AG BURNING - FIELDS	0-00-00-0	11103 PM2.5	19.000	1.00
190	AG BURNING - FIELDS	0-00-00-0	11104 PM1	11.000	1.00
221	WOOD BURNING	0-00-00-0	11101 TSP	42.000	1.00
221	WOOD BURNING	0-00-00-0	11102 PM10	30.000	1.00
221	WOOD BURNING	0-00-00-0	11103 PM2.5	20.000	1.00
221	WOOD BURNING	0-00-00-0	11104 PM1	5.000	1.00
242	FUEL USE (KEROSENE)	0-00-00-0	11101 TSP	2.500	1.00
242	FUEL USE (KEROSENE)	0-00-00-0	11102 PM10	2.300	1.00
242	FUEL USE (KEROSENE)	0-00-00-0	11103 PM2.5	1.750	1.00
242	FUEL USE (KEROSENE)	0-00-00-0	11104 PM1	1.250	1.00

DOCUMENTATION

The following sections document the data sources and assumptions used in developing the activity levels and emission factors for the Douglas Planning Area emissions inventory. For the mobile source exhaust, brake and tire wear categories, and the mobile source fugitive dust from paved road categories, the emission factors, reliability of estimates, and potential for control were the same as used in the Pima Planning Area emissions inventory. Other source category emission factors used from that report are noted in the specific emission factor documentation. It was assumed in the inventory that fugitive dust emissions of particle size less than 1 micron were insignificant. The following paragraphs document Douglas Planning Area emissions inventory methodology:

Arterials - Exhaust, Brake, and Tire Wear (Activity Code 103)

Activity Levels

The ADOT, 1981 Report No. T-124-81-3 provided ADTs for highways and arterial streets in the Douglas Area. For Agua Prieta it was assumed that ADTs were one-half of the values for comparable areas in Douglas. Calle 6 and Avenida 13 in Agua Prieta were assumed to be arterial streets.

Local Paved Streets, Brake, Exhaust, and Tire Wear (Activity Code 105)

Activity Levels

ADTs for local streets in the Douglas area were estimated using the following assumptions:

Central areas	-	200 - 250 ADT
Peripheral areas	-	100 - 150 ADT
Central areas	-	60 ADT

ADTs for Agua Prieta were assumed to be one-half of the values for comparable areas in Douglas. Observations of Agua Prieta indicated that Mexico Highway 2 and the N-S Pan American Highway were paved, as were approximately 4 miles of streets in grid square 01-01-24 in the town of Agua Prieta. Most of the remaining Agua Prieta streets were unpaved.

Emission Factors for Exhaust, Brake and Tire Wear
for all Street Types (103, 105)

Emissions were calculated using the following equations obtained from EPA Rg.IX, citing EPA 460/3-85-007 (Energy and Environmental Associates, Inc.) and MOBILE3 (See Maricopa/Pima report for additional emission factor information concerning these categories):

$$\begin{aligned} \text{TSP} &= \text{PM}_{10}/0.9 \quad (\text{not given, est. from PM}_{10}) \\ \text{PM}_{10} &= \text{traffic speed}(\text{exp } -0.19) \\ \text{PM}_{2.5} &= \text{traffic speed}(\text{exp } -0.17) \\ \text{PM}_1 &= \text{traffic speed}(\text{exp } -0.16) \end{aligned}$$

Traffic speed estimates were as follows:

Arterials	35 mph
Local Streets	25 mph

These calculated to the following emission factors:

Arterials	TSP	= 0.678 lbs/1000VMT
	PM ₁₀	= 0.617 lbs/1000VMT
	PM _{2.5}	= 0.469 lbs/1000VMT
Local Streets	PM ₁	= 0.374 lbs/1000VMT
	TSP	= 0.756 lbs/1000VMT
	PM ₁₀	= 0.687 lbs/1000VMT
	PM _{2.5}	= 0.516 lbs/1000VMT
	PM ₁	= 0.409 lbs/1000VMT

Reliability of Estimates

Estimates were given a "C" rating.

Controls

Retirement of older vehicles and application of particulate controls to diesel vehicles was estimated to reduce PM₁₀ emissions an additional 25%.

Arterials - Fugitive Dust (Activity Code 113)

Activity Levels

The same as Activity Code 103.

Local Paved Streets - Fugitive Dust (Activity Code 114)

Activity Levels

Same as Activity Code 104

Emission Factors for Fugitive Dust from all Paved Road Types (Activity Code 113 and 114)

The factors used here were the same as for the Pima Planning Area, which were derived from the EPA AP-42 Section 11.2.-5 equations using results of the Pima Planning Area tests for silt loading on paved roads. These silt loading averages were similar to those measured by EPA for average U. S. cities. The following shows the equation:

$$E = K \frac{(SL)^p}{0.7} \quad (\text{lbs/VMT})$$

where

- E = particulate emission factor (lbs/VMT)
- L = total road surface dust loading (grains/ft²)
- S = surface silt content, fraction of particles < 75 um diameter. (American Association of State Highway Officials)
- K = base emission factor (lbs/VMT)
- p = exponent (dimensionless)
- (Combined SL = silt loading in grains/ft²)
- For TSP K = 0.0208, p = 0.9
- PM10 K = 0.0081, p = 0.8
- PM2.5 K = 0.0036, p = 0.6

For arterials and local streets the measured silt loadings from the Pima Planning Area test sites were calculated into emission factors and the factors averaged to apply to all areas. This average factor was used for both arterial and local streets. Section 2 of the Maricopa/Pima report lists the silt loadings from which the factors were calculated. The average silt loading was 0.327 grains/square foot. Following are the emission factors:

Arterials and Local Streets	TSP	= 10	lbs/1000VMT
	PM ₁₀	= 4	lbs/1000VMT
	PM _{2.5}	= 1.8	lbs/1000VMT

Reliability of Estimates

These estimates were given a "C" to "D" rating.

Controls

The Maricopa report describes street sweeping, washing, addition of curbing, and paving or vegetating of adjacent areas as potential control measures. A 60% emission reduction was estimated with implementation of these controls.

Local Paved Streets - Fugitive Dust (Activity Code 114)

Activity Levels

Same as Activity Code 104

Emission Factors for Fugitive Dust from all Paved Road Types (Activity Code 113 and 114)

The factors used here were the same as for the Pima Planning Area, which were derived from the EPA AP-42 Section 11.2.-5 equations using results of the Pima Planning Area tests for silt loading on paved roads. These silt loading averages were similar to those measured by EPA for average U. S. cities. The following shows the equation:

$$E = K \frac{(SL)^p}{0.7} \quad (\text{lbs/VMT})$$

where

E = particulate emission factor (lbs/VMT)

L = total road surface dust loading (grains/ft²)

S = surface silt content, fraction of particles < 75 um diameter. (American Association of State Highway Officials)

K = base emission factor (lbs/VMT)

p = exponent (dimensionless)

(Combined SL = silt loading in grains/ft²)

For TSP K = 0.0208, p = 0.9

PM₁₀ K = 0.0081, p = 0.8

PM_{2.5} K = 0.0036, p = 0.6

For arterials and local streets the measured silt loadings from the Pima Planning Area test sites were calculated into emission factors and the factors averaged to apply to all areas. This average factor was used for both arterial and local streets. Section 2 of the Maricopa/Pima report lists the silt loadings from which the factors were calculated. The average silt loading was 0.327 grains/square foot. Following are the emission factors:

Arterials and Local Streets	TSP	= 10	lbs/1000VMT
	PM ₁₀	= 4	lbs/1000VMT
	PM _{2.5}	= 1.8	lbs/1000VMT

Reliability of Estimates

These estimates were given a "C" to "D" rating.

Controls

The Maricopa report describes street sweeping, washing, addition of curbing, and paving or vegetating of adjacent areas as potential control measures. A 60% emission reduction was estimated with implementation of these controls.

Unpaved Roads, Streets, Alleys, Parking Lots - Fugitive Dust
(Activity Code 120)

Activity Levels

The town of Douglas had no significant unpaved streets. For Agua Prieta all streets outside of the downtown area except for the arterials previously mentioned were considered unpaved. Activity levels were estimated using the assumptions discussed in Activity Code 105.

Emissions Factors

The four unpaved road silt samples taken in the Douglas/Agua Prieta area showed silt contents of 9.92%, 9.29%, 11.57%, and 16.09%. The average silt content of 11.72% was used in defining the emission factor for this category. Following is the unpaved road equation from AP-42 Section 11.2.1, with estimates for each parameter:

$$E = K \frac{(s) (S) (W)^{0.7} (w)^{0.5} (365-30)}{12 \cdot 30 \cdot 3 \cdot 4 \cdot 365} \quad (\text{lbs/VMT})$$

K = particle size multiplies = 0.8 for TSP
= 0.36 for PM10
= 0.095 for PM2.5

s = silt content = 11.72 percent

S = average speed = 25 mph

W = vehicle weight = 2 tons

w = number of wheels = 5

p = number of days exceeding 0.1" precipitation = 20

Emission factors using these values calculated as follows:

TSP = 2968 lbs/1000VMT
PM₁₀ = 1336 lbs/1000VMT
PM_{2.5} = 352 lbs/1000VMT

Reliability of Estimates

Additional samples collected and analyzed would have improved estimate reliability for the Douglas Planning Area. The estimates used were judged a "D".

Controls

Paving of roads and parking areas were estimated to produce a 90% emission reduction; lesser reductions could be achieved through application of dust suppressants.

Agricultural Tilling - (Activity Code 150)

Activity Level

The southwest corner of the Study Area in Mexico contains an estimated three square miles of agricultural land. The number of annual tills was estimated a 10.

Emission Factor

The following lists the equation from AP-42 Section 11.2-2, and the application of the 8.8% silt content for agricultural land taken from the Yuma agricultural area test site:

$$E = K (4.8) (s)^{0.6} \text{ lb/acre}$$

where K = particle size fraction
for TSP K = 0.33
PM10 K = 0.21
PM2.5 K = 0.10

the following emission factors were calculated:

$$\begin{aligned} \text{TSP} &= 5.8 \text{ lbs/acre/till} \\ \text{PM10} &= 3.7 \text{ lbs/acre/till} \\ \text{PM2.5} &= 1.8 \text{ lbs/acre/till} \end{aligned}$$

Cleared Areas - Wind Blown Dust (Activity Code 160)

Activity Level

For the Douglas urban area an estimated 15% was estimated to be unvegetated, disturbed, and subject to wind erosion. For Agua Prieta 30% of the urban area was estimated for that category. Desert areas that were undisturbed were assumed to have no emissions. Estimates for the non-urban areas were developed from observations and from maps.

Emission Factor

Table 3 shows the wind speed frequencies for Douglas taken from 6 years of climatological data compiled by the National Weather Records Center from the Douglas Airport. The flux equation for "Construction" (Nickling W. G. and Gillies, J. A.) was selected as the most appropriate for cleared area emission factor development (Nickling W. G., Oct. 1986). For threshold wind speed numbers the average of the values for the Maricopa and Pima construction areas and

TABLE 3

DOUGLAS CLEARED AREA WIND BLOWN DUST EMISSION FACTOR CALCULATIONS

Wind Speed Class M/sec	(mph)	U, Midpoint of Wind Speed Class m/sec	(mph)	Duration hrs/yr
5.8-11.2	(13-25)	8.5	(18.7)	1216
11.2-14.3	(25-32)	12.7	(28.5)	116
14.3-21	(32-47)	17.7	(39.5)	29
21	(47)	22	(48)	1

Assume: Threshold wind speed = 11 m/sec (24.6 mph) (Average of Pima and Maricopa construction site tests)

Use flux equation for construction (Nickling and Gillies, 1986)

Example calculation at 12.7 m/sec wind speed

EF = Flux (gm/cm²-sec) x Fetch correction x duration (sec) x area (cm²)

F = 1.71 x 10⁻² (U^{4.333}) = 1.71 x 10⁻² (1257^{4.333}) = 5.62 x 10⁻²

Fetch Correction = 1/3 (log 3.281d) = 1/3 log 3.281 (50) = 0.74 (Fetch length est @ 50 m.)

Duration = 116 hrs X 3600 sec/hr = 417600 sec

Area per acre = 4.07 x 10⁷ cm² One lb = 454 gm

@ 12.7 m/sec EF = 5.62 x 10⁻² (0.74) (417,600) (4.047 x 10⁷) 1/454 = 1544 lbs/acre/yr

@ 17.7 m/sec EF = 23.9 x 10⁻² (0.74) (104,400) (4.047 x 10⁷) 1/454 = 1646 " " "

@ 22.0 m/sec EF = 61.6 x 10⁻² (0.74) (3600) (4.047 x 10⁷) 1/454 = 146 " " "

Total Particulate = 3346 lbs/acre/yr

TSP = 0.42(3346) = 3186 lbs/acre/yr

PM10 = 0.07(3346) = 175 lbs/acre/yr

PM_{2.5} = 0.0008(3346) = 0.5 lbs/acre/yr

the Yuma disturbed desert was used. Table 3 also shows the emission calculations and the resultant emission factors. The particle size distributions were derived from wind tunnel test particle count data using assumptions of log normal mass frequency distributions and consistent densities and particle shapes. Chapter 2 of the revised Maricopa Planning Area Emissions Inventory Report, October, 1987 describes this methodology. Follows are the emission factor estimates:

TSP	= 0.42(3346)	= 1405	lbs/acre
PM ₁₀	= 0.07(3346)	= 234	lb/acre
PM _{2.5}	= 0.0008(3346)	= 2.7	lb/acre

Reliability of Estimates

These estimates were given a "D" rating.

Control

An estimated 50% emission reduction could be obtained through planted vegetation, paving, traffic restrictions, etc. (See Maricopa report for discussion)

Productive Agricultural Land (Activity Code 180)

Activity Level

This value was estimated by taking the total agricultural land as estimated for Agricultural Tilling, and assuming that 30% of the land at any given time is fallow and unvegetated and therefore subject to wind erosion.

Emission Factor

Table 4 lists the wind speed and frequency data collected at the Douglas Airport and the application of the flux equation developed from the agricultural testing sites (Nickling and Gillies). The following emission factors were developed:

TSP	= 0.42(1237)	= 520	lbs/acre of fallow land
PM ₁₀	= 0.07(1237)	= 87	lbs/acre of fallow land
PM _{2.5}	= 0.0008(1227)	= 1	lb/acre of fallow land

Wood Burning (Activity Code 221)

Activity Level

Wood provided an estimated 10% of domestic fuel use in the town of Douglas, and approximately 50% of Agua Prieta. From the Nogales study Mr Lina Vega of the Nogales International Waste Treatment facility indicated that in Nogales, Mexico heating was supplied by both wood and kerosine. Agua Prieta was assumed to be the same, with a

TABLE 4

DOUGLAS AGRICULTURAL FIELD WIND BLOWN DUST EMISSION FACTOR CALCULATIONS

Wind Speed Class M/sec (mph)	U, Midpoint of Wind Speed Class m/sec (mph)	Duration hrs/yr
5.8-11.2 (13-25)	8.5 (18.7)	1216
11.2-14.3 (25-32)	12.7 (28.5)	116
14.3-21 (32-47)	17.7 (39.5)	29
21 (47)	22 (48)	1

Assume: Threshold wind speed = 13.46 m/sec (30.1 mph) (Average of all agricultural area
area test sites)

Use flux equation for agricultural sites (Nickling and Gillies, 1986)

Example calculation at 13.46 m/sec wind speed

$$EF = \text{Flux (gm/cm}^2\text{-sec)} \times \text{Fetch correction} \times \text{duration (sec)} \times \text{area (cm}^2\text{)}$$

$$F = 3.36 \times 10^{-30} (U^{4.72}) = 3.36 \times 10^{-30} (13.46^{4.72}) = 1.51 \times 10^{-8}$$

$$\text{Fetch Correction} = 1$$

$$\text{Duration} = 116 \text{ hrs} \times (14.3 - 13.46) / (14.3 - 11.2) \times 3600 \text{ sec/hr} = 113,156 \text{ sec}$$

$$\text{Area per acre} = 4.07 \times 10^7 \text{ cm}^2 \quad \text{One lb} = 454 \text{ gm}$$

$$\text{@ } 12.7 \text{ m/sec } EF = 1.51 \times 10^{-8} (113,156) (4.047 \times 10^7) (1/454) = 152 \text{ lbs/acre/yr}$$

$$\text{@ } 17.7 \text{ m/sec } EF = 10.1 \times 10^{-8} (104,400) (4.047 \times 10^7) (1/454) = 940 \text{ " " "}$$

$$\text{@ } 22.0 \text{ m/sec } EF = 45.3 \times 10^{-8} (3600) (4.047 \times 10^7) (1/454) = 145 \text{ " " "}$$

$$\text{Total Particulate} = 1237 \text{ lbs/acre/yr}$$

$$\text{TSP} = 0.42(1237) = 520 \text{ lbs/acre/yr}$$

$$\text{PM}_{10} = 0.07(1237) = 87 \text{ lbs/acre/yr}$$

$$\text{PM}_{2.5} = 0.0008(1237) = 1 \text{ lb/acre/yr}$$

50/50 split between wood and kerosine. Heating requirements were based on the use of fuel oil at 0.18 gal per dwelling unit per degree day (Guidelines for Compiling a Comprehensive Emission Inventory, EPA, March 1973). Degree days for Phoenix were used. The equivalent amount of wood was estimated by using a conversion factor to produce BTUs per dwelling unit per degree day and applying an average BTUs per cord of wood and tons of wood per cord. Distribution of fuel use was based on estimation from maps of the number of dwelling units in each area.

Emission Factor

The AP-42 Section 1.9.9 emission factors for wood burning stoves are listed below. No specific particle size data were available for this source category; size specific rates compiled by Weant, G.T., et al, 1986, for wood fired boilers were used.

TSP	42 lbs/ton
PM10	30 lbs/ton
PM2.5	20 lbs/ton
PM1	5 lbs/ton

Fuel Burning - Kerosene (Activity Code 242)

Activity Levels

As previously noted under Activity Code 221, half of the heating requirements for the population in Agua Prieta, Mexico is provided by the burning of kerosene. Consumption of kerosene is estimated by using the same basic assumptions as for wood burning.

Emission Factor

The AP-42 emission factor for distillate fuel oil combustion is used in this category. The size distribution is based on a study by PEDCo (Generalized Particle Size Distributions, Draft AP-42 Section, June 1984). These factors are:

TSP	=	2.5 lb/1000 gal
PM ₁₀	=	2.3 lb/1000 gal (92% TSP)
PM _{2.5}	=	1.75 lb/1000 gal (70% TSP)
PM _{1.0}	=	1.25 lb/1000 gal (50% TSP, as extrapolated from Table A-4, PEDCo, June 1984)

APPENDIX

TRAFFIC COUNT MAP

SILT CONTENT ANALYSIS

177

OH 9

6

4-31

VI

636

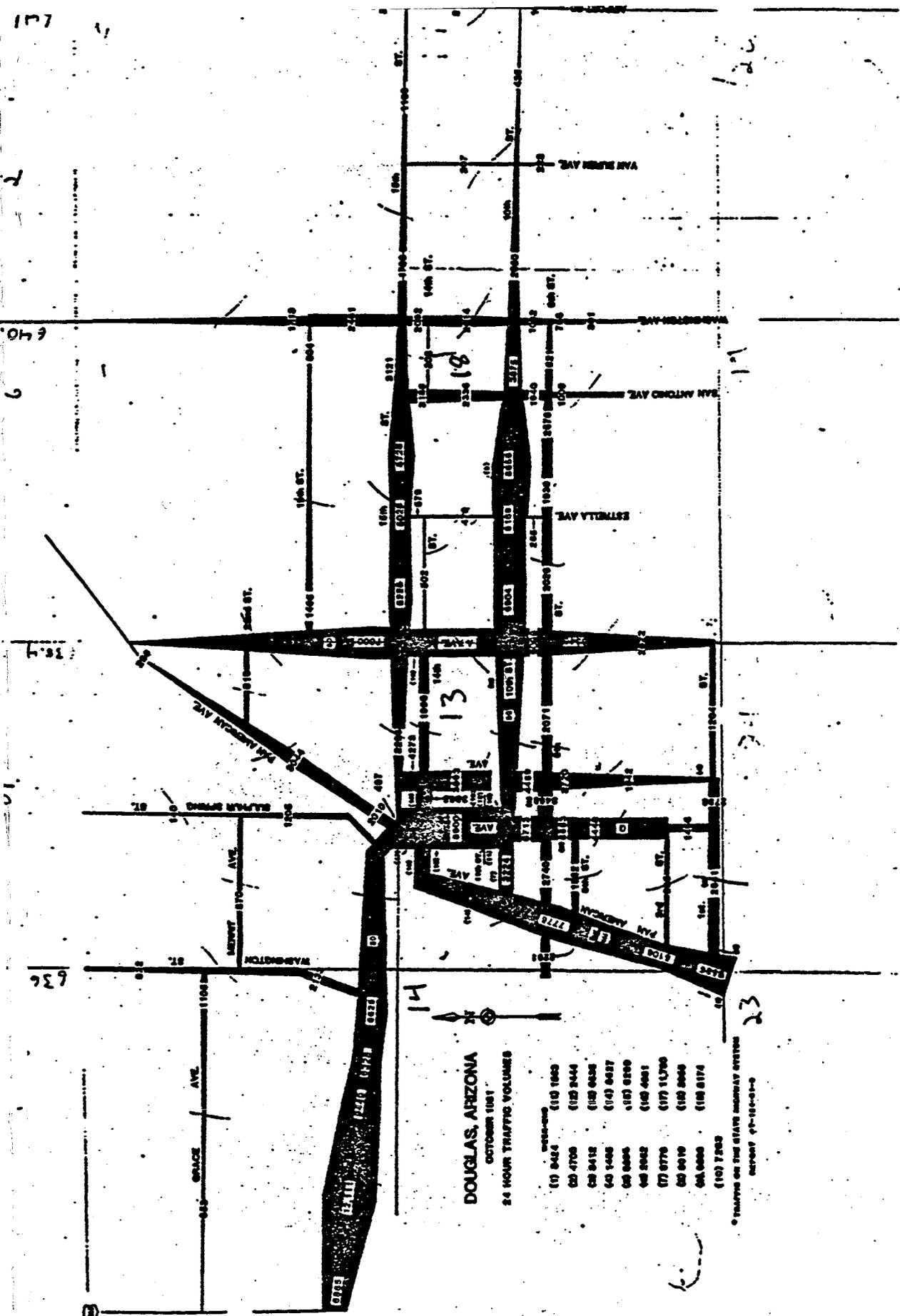
0

120

101

201

23



DOUGLAS, ARIZONA

OCTOBER 1981
24 HOUR TRAFFIC VOLUMES

SECTION	(1)	(10)	(10)
010 0424	(10)	1000	
020 4700	(10)	2444	
030 5410	(10)	0320	
040 1400	(10)	0487	
050 0000	(10)	0200	
060 2022	(10)	4001	
070 0770	(10)	11700	
080 0010	(10)	2000	
090 0000	(10)	0174	
(10) 7200			

TRAFFIC ON THE STATE HIGHWAY STATION
SERVEY 45-10-01-00

GRAIN SIZE ANALYSIS

ARIZONA SURFACE SAMPLES

Sample: Douglas 1

Total sample weight: 178.3

Sieve #	Weight (g)	Percentage	Cum Percent
3/8	8.343	4.682	4.682
4	14.879	8.350	13.032
10	26.517	14.882	27.914
20	25.882	14.526	42.440
40	24.709	13.867	56.307
100	40.708	22.846	79.153
140	10.750	6.033	85.186
200	8.715	4.891	90.077
Pass	17.683	9.922	99.999

* Silt = 9.922

Mean (in.) = .079

Standard Deviation = .114

GRAIN SIZE ANALYSIS

ARIZONA SURFACE SAMPLES

SAMPLE: # 11 Douglas Street Sample - 20th St Wash

DATE:

TOTAL SAMPLE WEIGHT: 287.52

SIEVE #	WEIGHT (g)	PERCENTAGE (%)	Cum Percent
3/8	18.30	6.36	6.36
4	24.77	8.62	14.98
10	45.73	15.90	30.88
20	36.03	12.53	43.41
40	30.67	10.67	54.08
100	62.25	21.65	75.73
140	22.72	7.90	83.63
200	13.79	4.80	88.43
Pan	33.26	11.57	100

$$\% \text{ SILT} = \left(\frac{200 \text{ mesh} \times 100}{\text{total}} \right) = 11.57\%$$

mean = 0.0870 in / 2.21 mm
standard deviation = 0.125 in / 3.17 mm

GRAIN SIZE ANALYSIS

ARIZONA SURFACE SAMPLES.

SAMPLE: #14 Douglas, RR between Douglas + Paul spur

DATE:

TOTAL SAMPLE WEIGHT: 142.59

SIEVE #	WEIGHT (g)	PERCENTAGE (%)	Cum Percent
3/8	3.52	2.47	2.47
4	2.66	1.87	4.34
10	11.58	8.12	12.46
20	39.13	27.44	39.90
40	29.72	20.84	60.74
100	22.82	16.00	76.74
140	5.52	3.87	80.61
200	4.70	3.30	83.91
Pan	22.94	16.09	100.00

$$\% \text{ SILT} = \left(\frac{200 \text{ mesh} \times 100}{\text{total}} \right) = 16.09 \%$$

mean = 0.0501 in / 1.274 mm.
 standard deviation = 0.0803 in / 2.04 mm

GRAIN SIZE ANALYSIS

ARIZONA SURFACE SAMPLES.

SAMPLE: #16 Agua Prieta - Street

DATE:

TOTAL SAMPLE WEIGHT: 220.54

SIEVE #	WEIGHT (g)	PERCENTAGE (%)	Cum Percent
3/8	21.34	9.68	9.68
4	32.69	14.82	24.50
10	38.21	17.33	41.83
20	48.36	21.93	63.76
40	21.29	9.65	73.41
100	19.39	8.79	82.20
140	9.35	4.24	86.44
200	9.42	4.27	90.71
Pan	20.49	9.29	100.00

$$\% \text{ SILT } \left(\frac{200 \text{ mesh} \times 100}{\text{total}} \right) = 9.29 \%$$

mean = 0.126 in. / 3.17 mm.
 standard deviation = 3.17 in. / 3.57 mm.

APPENDIX D

PUBLIC COMMENTS & RESPONSIVENESS SUMMARY

Douglas Daily Dispatch

PUBLISHER'S AFFIDAVIT

STATE OF ARIZONA }
COUNTY OF COCHISE } ss.

SHIRLEY MORALES

being first duly sworn, deposes and says that he/she is the

Agent to the Publisher

of the DOUGLAS DAILY DISPATCH, a newspaper of

general circulation published in Douglas, Cochise County, State of Arizona; That the

Public Notice

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

Public Hearing for the Douglas, AZ
Dust Control Plan

The Arizona Department of Environmental Quality (ADEQ) will hold a public hearing beginning at 7:00 p.m. Friday, May 28, 1993, in the Douglas City Council Chambers, 425 10th Street, Douglas, Arizona, for public comment on the proposed State Implementation Plan (SIP) to reduce particulate air pollution in the Douglas area. The plan is designed to demonstrate that the Douglas area is compliant with the federal health based standards for particulate matter 10 microns or less in diameter (referred to as PM₁₀), if it were not for PM₁₀ emissions outside of the United States.

The U.S. Environmental Protection Agency has classified the Douglas area as a PM₁₀ nonattainment area, which by Federal and State laws requires the development of a pollution control plan. The draft plan describes analysis of ambient air quality, apportions the regional PM₁₀ contribution between the United States and Mexico, discloses which source of particulate air pollutants are major contributors to the regional problem and documents the control strategies that are being implemented in the Douglas area. This plan has been developed by ADEQ in consultation with and with the cooperation with the City of Douglas, Cochise County, Arizona Department of Transportation, U.S. General Services Administration, U.S. Customs Service and U.S. Immigration and Naturalization Service.

A copy of the draft plan will be available at the Office of Air Quality of the Arizona Department of Environmental Quality (address below), beginning April 26, 1993. A copy of this document will also be available for review during regular business hours at the following locations:

Douglas City Library, 425 10th Street, Douglas, Arizona

The City of Douglas, Public Works Department, 425 10th Street, Douglas Arizona.

The County of Cochise, Department of

Public Notice

Environmental Quality, 619 Melody Lane,
Bisbee, Arizona.

All interested parties will be given a reasonable opportunity at the hearing to submit relevant evidence, data, views, and arguments, orally and in writing. All written comments must be received by 5:00 p.m. May 28, 1993 to be considered by the Department in developing the final plan. Written comments should be addressed to: Andrea Juniel, Air Quality Planning Section, Arizona Department of Environmental Quality, 6024 N. Central Ave., Phoenix, Arizona 85012. Publish: April 27, 1993.

PUBLIC NOTICE

ARIZONA DEPT. OF ENVIRONMENTAL QUALITY

PUBLIC HEARING FOR THE DOUGLAS, AZ

DUST CONTROL PLAN

a copy of which is hereto attached, was published in said newspaper for 1 successive time(s), the first

publication being in its issue dated the 27th day of

APRIL, 1993, and the last

publication being in its issue dated the 27th day of

APRIL, 1993

Shirley Morales

Subscribed and sworn to before me 7th day of

May, 1993

Kathleen Curtis

My Commission expires My Commission Expires Dec. 1, 1993

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

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A copy of the draft plan will be available at the Office of Air Quality of the Arizona Department of Environmental Quality (address below), beginning April 25, 1993. A copy of this document will also be available for review during regular business hours at the following locations:

Douglas City Library, 625 10th Street, Douglas, Arizona

The City of Douglas, Public Works Department, 425 10th Street, Douglas, Arizona

The County of Cochise, Department of Environmental Quality, 619 Melody Lane, Bisbee, Arizona.

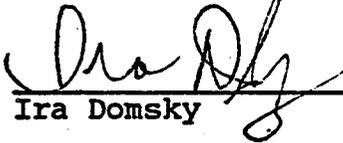
All interested parties will be given a reasonable opportunity at the hearing to submit relevant evidence, data, views, and arguments, orally and in writing. All written comments must be received by 5:00 p.m., May 28, 1993, to be considered by the Department in developing the final plan. Written comments should be addressed to:

ANDRA JUNIEL, Air Quality Planning Section, Arizona Department of Environmental Quality, 3033 N Central Ave, Phoenix, Arizona 85012.

Public Hearing Presiding Officer Certification

I, Ira Domsy, the designated Presiding Officer, do hereby certify that the public hearing held by the Arizona Department of Environmental Quality was conducted on May 28, 1993, in the Douglas City Council Chambers, Douglas, Arizona, in accordance with public notice requirements by publication in the Douglas Daily Dispatch dated April 27, 1993. Furthermore, I do hereby certify that the public hearing was electronically recorded from the opening of the public record through concluding remarks and adjournment, and the audio-cassette provided contains a full, true, and correct record of the above-referenced public hearing.

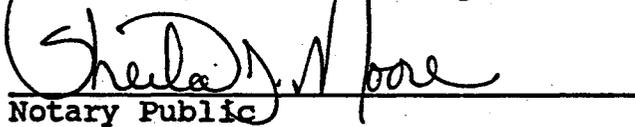
Dated this 7th day of June 1993.


Ira Domsy

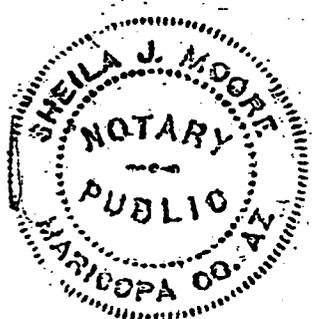
State of Arizona

County of Maricopa

Acknowledged before me by Ira Domsy on this 7th day of June, 1993.


Notary Public

My commission expires: ~~My Commission Expires Dec. 15, 1996~~



ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

PLEASE SIGN TO RECEIVE A COPY OF THE FINAL DECISION AND RESPONSE SUMMARY:

Douglas PM₁₀ SIP Douglas, Cochise Co. 5/28/93 7:00 PM
 FACILITY/PERMITTEE COUNTY DATE

NAME	AGENCY OR ORGANIZATION	MAILING ADDRESS	ZIP CODE*
Margaret Shannon	City of Douglas	858-14 th St	85607
Quinn Scott		858-14 th St, N.	85607
BENLAFDRGL	Douglas	2907 CORTEZ	85607

*SUMMARY WILL NOT BE MAILED WITHOUT A CORRECT ZIP CODE

DGRACM13.CNTY

- What is the average daily traffic volume on these roads?

E Avenue: 200

7th, 8th Streets, G Ave
to Pan American 680

- What is level of PM_{10} control that can be attributed to paving these roads?

Data forthcoming

**DOUGLAS SIP ADMINISTRATIVE AND TECHNICAL
RACM DOCUMENTATION**

Administrative Documentation

NUMBER: DGRACM13.CITY

CATEGORY: Fugitive Dust

MEASURE: Pave, vegetate, or chemically stabilize unpaved parking areas

RESPONSIBLE AGENCY: City of Douglas, Public Works Department

IMPLEMENTATION

SCHEDULE: To be implemented between April 9 - December 10, 1993

AUTHORITY CITATION: Data forthcoming

FINANCING AND MAN-
POWER RESOURCES:

	FY '89	FY '90	FY '91	FY '92	FY '93	FY '94
FUNDING						
MANPOWER						

City public work funds; municipal property tax; improvement districts or special assessment districts; Community Development Block Grant Program; grants pursuant Section 815 of the CAAA; funding for paving projects in the Border Environmental Plan provisions of the North American Free Trade Agreement; funding for order improvement programs in the Intermodal Surface Transportation Efficiency Act of 1991

MONITORING PROGRAM:

Technical Documentation

- How many miles of unpaved roads have been paved since May, 1989?

6.5 miles

DGRACM13.CITY

- Where are these roads located in the nonattainment area?

Data forthcoming

- What is the average daily traffic volume on these roads?

Project		
<u>Road Segment</u>	<u>Lenght</u>	<u>Traffic Volume</u>
Bonita Ave., 1200 and 1300 Block	.11	400
C Ave., 600 to 900 Block	.25	300
Carmelita Ave., 700 Block	.06	290
14th St. Between Wash & San Ant.	.17	340
Florida Ave., Between 7th & 8th	.06	600
18th St., A Ave to Pan American	.25	360

- What is level of PM₁₀ control that can be attributed to paving these roads?

Data forthcoming

- How many miles of unpaved alleyways have been paved since May, 1989?

Alley between 10th & 11th, F and G: .05
 Alley north of 1890 Rogers Avenue: .04

- Where are these alleyways located in the nonattainment area?

Data forthcoming

- What is the average daily traffic volume on these roads?

Alley between 10th & 11th, F and G: 90
 Alley north of 1890 Rogers Avenue: 90

- How many miles of unpaved roads does the City have on schedule to be paved on or before December 10, 1993?

E Avenue: 42,000 sq. ft.
 7th, 8th Streets,
 G Ave to Pan American 810,000 sq. ft.

- Where are these roads located in the nonattainment area?

Data forthcoming

1
2 AN ORDINANCE OF THE CITY OF
3 DOUGLAS, ARIZONA, AUTHORIZING THE
4 FIRE CHIEF OR HIS DESIGNEEE TO
5 APPLY FOR AUTHORITY FOR ISSUANCE OF
6 OPEN BURNING PERMITS, REQUIRING
7 QUALIFIED PERSONNEL AND
8 ESTABLISHING FEES FOR PERMITS.

9 BE IT ORDAINED by the Mayor and Council, of the City of
10 Douglas, Arizona, as follows:

11 SECTION 1. In order to have authority to authorize
12 the issuance of open burning permits, the Chief of the Douglas
13 Fire Department, or his designee shall apply to the Arizona
14 Department of Environmental Quality as needed for a delegation of
15 authority to issue open burning permits.

16 SECTION 2. The Chief of the Douglas Fire Department
17 or his designee shall at all times be conversive with state and
18 federal laws and agency regulations dealing with air pollution
19 regulations on open burning.

20 SECTION 3. Upon delegation of authority by the
21 Arizona Department of Environmental Quality, or any other
22 appropriate state or federal agency, the Douglas Fire Department,
23 through the Chief or his designated employee, shall be
24 responsible for the enforcement of open burning limitations
25 within the city limits of the City of Douglas and shall report
26 any violations of the air pollution regulations on open burning
to the Department of Environmental Quality or other appropriate
agency.

1 A RESOLUTION OF THE CITY OF DOUGLAS
2 ARIZONA ADOPTING THE DEPARTMENT OF
3 ENVIRONMENTAL QUALITY 1991 PARTICULATE
4 PLAN FOR PM10, STATING THE COUNCIL'S
5 INTENT TO IMPLEMENT CERTAIN MEASURES
6 CONTAINED IN THAT PLAN.

7 WHEREAS, the Department of Environmental Quality has
8 prepared a State Implementation Plan for Particulates.

9 NOW THEREFORE, BE IT RESOLVED BY THE MAYOR AND COUNCIL OF
10 THE CITY OF DOUGLAS as follows:

11 SECTION 1. That the Mayor and Council of the City of
12 Douglas adopts the 1991 Particulate Plan for PM10 attached
13 herewith as Exhibit A.

14 SECTION 2. That the City of Douglas intends to implement
15 the control measures set forth with the plan, subject to the
16 City's funding ability.

17 SECTION 3. That annual progress reports will be provided
18 to the Department of Environmental Quality.

19 SECTION 4. That the Mayor and Council will consider
20 modifications to the control measures set forth herewith and
21 additional strategies, as appropriate, during the continuing
22 planning process.

23 PASSED AND ADOPTED by the Mayor and Council of the City of
24 Douglas, Arizona this 09 day of JUNE, 1993.

25 Elizabeth W. Ames
26 Elizabeth W. Ames, Mayor

27 ATTEST:

28 Victor M. Stevens
Victor M. Stevens, City Clerk/Treasurer

APPROVED AS TO FORM:

James Conlogue
James Conlogue, City Attorney



Board of Supervisors
County of Cochise

Gene Meering, Chairman, District 1
Ann English, District, 2
Kim Bennett, District, 3
Dennis R. Tinberg, County Manager

P.O. Box 225 • Bisbee, Ariz. 85603 • (602)432-9200 • Fax (602)432-5016

RESOLUTION NUMBER 83- 58

A RESOLUTION OF THE COCHISE COUNTY BOARD OF SUPERVISORS ADOPTING THE DEPARTMENT OF ENVIRONMENTAL QUALITY 1993 PARTICULATE PLAN FOR PM₁₀, STATING THE BOARD'S INTENT TO CONTINUE TO IMPLEMENT CERTAIN MEASURES CONTAINED IN THAT PLAN.

WHEREAS, the Department of Environmental Quality has prepared a State Implementation Plan for Particulates.

NOW THEREFORE, BE IT RESOLVED BY THE BOARD OF SUPERVISORS OF COCHISE COUNTY as follows:

SECTION 1. That the Cochise County Board of Supervisors adopts the 1993 Particulate Plan for PM₁₀ attached herewith as Exhibit A.

SECTION 2. That Cochise County intends to continue to implement the control measures set forth with the plan, subject to the County's funding ability.

SECTION 3. That annual progress reports will be provided to the Department of Environmental Quality.

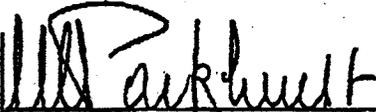
SECTION 4. That the Board of Supervisors will consider modifications to the control measures set forth herewith and additional strategies, as appropriate and as funding permits, during the continuing planning process.

PASSED AND ADOPTED by the Cochise County Board of Supervisors, Bisbee, Arizona, this 7 day of JUNE 1993.



MIKE PALMER, CHAIRMAN
COCHISE COUNTY BOARD OF SUPERVISORS

ATTEST:



NADINE M. PARKHURST
CLERK OF THE BOARD

DOUGLAS SUBDIVISION CODE

Mc

ARTICLE 5

STREET AND UTILITY IMPROVEMENT REQUIREMENTS

Section 500.00. PURPOSE: It is the purpose of this Article to establish in outline the minimum acceptable standards for improvement of public streets and utilities, to define the responsibility of the subdivider in the planning, construction, and financing of public improvements, and to establish procedures for review and approval of engineering plans.

Section 501.00. RESPONSIBILITY FOR IMPROVEMENTS: The planning, construction and financing of all required sidewalks, curbs, gutters, pavements, street lights, sanitary sewers, storm sewers, water mains, fire hydrants, and drainage structures shall be the responsibility of the subdivider, and shall comply with Public Improvement Standards established by the Public Works Director and Water Superintendent and approved by the Council; provided, however, that he may meet such requirements by participation in an improvement district approved by the City.

Section 502.00. ENGINEERING PLANS: The subdivider shall be responsible for having a registered engineer prepare a complete set of engineering plans, satisfactory to the Public Works Director, for construction of required improvements. Such plans shall be based on the approved preliminary plat and be prepared in conjunction with the final plat. Engineering plans shall have been approved by the Public Works Director prior to recordation of the final plat.

Section 503.00. CONSTRUCTION AND INSPECTION

503.01. All improvements in the public right-of-way shall be constructed under inspection and approval of the Public Works Director. Construction shall not be commenced until a permit has been issued for such construction, and if work has been discontinued for any reason, it shall not be resumed until after notifying the Public Works Director in advance.

503.02. All underground utilities to be installed in streets shall be constructed prior to the surfacing of such streets. Service stubs to platted lots within the subdivision for underground utilities shall be placed to such length as to avoid disturbance of street improvements when service connections are made.

Section 504.00. REQUIRED IMPROVEMENTS:

504.01. Streets and Alleys: All streets and alleys within the subdivision shall be graded and surfaced to standards approved by the Public Works Director. Where there are existing streets adjacent to the subdivision, proposed streets shall be improved to the intercepting paving line of such existing streets. Temporary dead-end streets serving more than four (4) lots shall be provided a graded and surfaced temporary turning circle.

- 504.02. Curbs: Portland cement concrete curb, curb-and-gutter, or other pavement edging, as designated by the Public Works Director, shall be installed in accordance with approved City standards.
- 504.03. Sidewalks: Portland cement concrete sidewalks shall be constructed to a width, line, and grade approved by the Public Works Director in accordance with approved City standards. Where lots are one-half acre or larger in area, the Commission may recommend that requirement of sidewalk on one or both sides be waived.
- 504.04. Crosswalks: Portland cement concrete crosswalks through blocks shall be constructed to a line and grade approved by the Public Works Director and fenced on both sides with four (4) foot chain link fencing with posts set in concrete.
- 504.05. Street Name Signs: Street name signs shall be installed at all street intersections by the time the street pavement is ready for use; design, construction, location and installation shall comply with approved City standards.
- 504.06. Storm Drainage: Adequate provision shall be made for disposal of storm waters from both private lots and public streets and to avoid impoundment at any point within the subdivision. Existing major surface drainage courses shall be maintained and dedicated as drainageways. The type, extent, location and capacity of drainage facilities shall be determined for the individual subdivision by the Public Works Director and shall be constructed in accordance with approved City standards. Where storm water is discharged into any outlet not directly controlled by the Public Works Director, the subdivider shall submit satisfactory evidence that the use of such outlet is approved by the owner or custodian thereof.
- 504.07. Sewage Disposal: A public or community sanitary sewerage system shall be installed in all subdivisions and shall be constructed to plans, profiles and specifications approved by the Water Superintendent.
- 504.08. Water Supply: Each lot shall be supplied with safe, pure and potable water in sufficient volume and pressure for domestic use and fire protection by a public water system planned and constructed to approved City standards.
- 504.09. Monuments: Permanent monuments shall be installed in accordance with current City standards at all corners, angle points, and points of curve, and at all street intersections. After all improvements have been installed, the subdivider shall be responsible for having a registered land surveyor or engineer check the location of monuments and certify as to their accuracy.

504.10. Corner Markers: One-half ($\frac{1}{2}$) inch iron pins or rods of a minimum length of eighteen (18) inches shall be set at all corners, angle points, and points of curve for each lot within the subdivision prior to recordation of the plat.

Section 505.00. SUBMITTAL, REVIEW AND APPROVAL OF ENGINEERING PLANS: Two (2) sets of Engineering Plans shall be filed with the Public Works Director simultaneously with filing of the final plat. Plans shall be reviewed by the Public Works Director and a certificate of approval filed with the City Clerk prior to recordation of the plat. If engineering plans have not been approved within ninety (90) days after approval of the final plat, the Council may require that the final plat be resubmitted.

Section 506.00. AGREEMENT TO INSTALL IMPROVEMENTS: Upon approval of the final plat by the Council, the subdivider shall execute and file an agreement between himself and the City specifying the period within which he or his agent or contractor will complete all required improvements to the satisfaction of the Public Works Director. The agreement shall provide for inspection of all improvements by the Public Works Director and reimbursement of the City by the subdivider for the actual costs of such inspections. The agreement may also provide for construction of improvements in units and for an extension of time under specified conditions. The Council may require of the subdivider such further assurance of completion of improvements as may be justified in the interests of the future lot owners and the general public.

RESOLUTION NO. 90-006

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A RESOLUTION OF THE MAYOR AND COUNCIL
OF THE CITY OF DOUGLAS, ARIZONA,
AUTHORIZING AND DIRECTING THE MAYOR
TO EXECUTE AN INTERGOVERNMENTAL
AGREEMENT REGARDING LANDSCAPE
MAINTENANCE BETWEEN THE STATE OF
ARIZONA AND THE CITY OF DOUGLAS.

WHEREAS, the State of Arizona and the City of Douglas
each desire to landscape and thus beautify certain areas of the
U.S. 80 right-of-way within the City of Douglas from center line
roadway station 73 + 55 to center line roadway state 95 + 75, a
distance of approximately 0.42 miles, and

WHEREAS, it is in the best interest of the inhabitants
and residents of the City of Douglas that the City of Douglas
participate in the landscape project by intergovernmental agreement
with the State of Arizona.

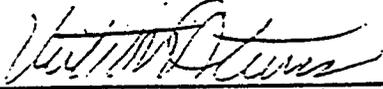
NOW, THEREFORE, be it resolved by the Mayor and Council
of the City of Douglas, Arizona, that the Mayor of the City is
authorized and directed to execute AG Contract #XR900618PRD, which
is an intergovernmental agreement regarding landscape maintenance
between the State of Arizona and the City of Douglas, for
landscaping certain areas within the City of Douglas and obligating
the City of Douglas to continue to maintain the landscaped areas.

PASSED AND ADOPTED by the Mayor and Council of the City
of Douglas, Arizona, April 11, 1990.



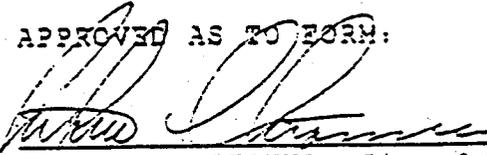
GEORGE SAYERS, Mayor

1 ATTEST:

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3 VICTOR STEVENS, City Clerk

4 APPROVED AS TO FORM:

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6 ARTHUR C. ATONNA, City Attorney

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U.S. DISTRICT COURT
1006 F AVENUE
DOUGLAS, ARIZONA 86607
(602) 361-7961

