

GRAND JUNCTION AREA
AIR QUALITY PLANNING SUMMARY

The Grand Junction urban area has been designated by the State and the EPA as an area in "non-attainment" of the primary standards for particulate matter. A Plan must therefore be developed that will allow the Grand Valley to attain and maintain air quality at satisfactory levels. This Plan must be completed and sent to the Colorado Air Pollution Control Commission before September 25, 1978 to meet the federal submittal deadline of January 1, 1979. (The CAPCC has primary responsibility within the State government for attainment of air quality standards).

Before the Plan is submitted to the State, the City and County should make commitments to implement it. The purpose of this summary is to give local officials and interested citizens some general information on the particulate problem, explain why the local area was designated, and explain why the Plan is necessary. The deadline for actual attainment of air quality which satisfies Federal and State standards is 1982.

I. THE PARTICULATE PROBLEM IN THE GRAND JUNCTION AREA

The EPA hired a consulting firm, PEDCO Environmental, Inc. to determine the amount of particulate emissions from contributing sources in the area, and to "model" the Grand Valley for air pollution diffusion in order to predict particulate concentrations in the future. Concentrations were recorded at two primary sampling sites in Grand Junction and Fruita, but a total of 61 receptor locations have been used. Throughout the period from 1971 - 1977 the annual mean concentration of particulates at the downtown Grand Junction site exceeded the primary standards, while in 1977 a larger area encompassing Orchard Mesa, Appleton, and a portion of Fruitvale failed to meet the secondary standards. Readings in Fruita also indicated violation of the secondary standards, though not of the primary standards. Particulate sources are categorized as either a single "point" source, like Gary Western, or as those which are generated throughout the study area, like motor vehicle exhaust. The Gary Western source is significant in relation to Fruita's particulate data, but "area-wide" sources are more responsible for the particulate problem in Grand Junction.

The PEDCO air diffusion model concluded further that future concentrations will increase from existing levels if no control measures are implemented. Specifically, the secondary non-attainment area would be expanded to include Fruitvale by 1982, and a major portion of the incorporated area of Grand Junction is projected to exceed the primary standards by that date. All model predictions acknowledge a "background" particulate concentration level comparable to those levels measured elsewhere in Colorado; however, the level of particulates transported long-range apparently doesn't preclude local compliance.

Table 2-2. AREA SOURCE EMISSIONS IN
GRAND JUNCTION ANALYSIS AREA, 1977, AND 1982 PROJECTIONS

Source Category	1977 Partic emis, ton/yr		1982 Projected ton/yr
Fuel combustion:			
Bituminous coal	126	Dealer survey, previous AQMA analysis	129
Distillate oil	12	Previous AQMA analysis	14
Residual oil	8	Previous AQMA analysis	9
Natural gas	20	Previous AQMA analysis	25
LPG	4	Previous AQMA analysis	6
Wood	198	Dealer survey, wood burned per fireplace	235
Mobile Sources:			
Highway	181	VMT from county traffic volume map	221
Off-highway	11	Previous AQMA analysis	14
Railroads	21	Previous AQMA analysis	42
Aircraft	2	Previous AQMA analysis	3
Fugitive Dust:			
Unpaved roads	2122	1977 county map of unpaved roads	2574
Sand on paved roads	333	VMT from county traffic volume map	412
Paved roads	357	VMT from county traffic volume map	433
Agriculture	1020	County land use map	1020
Land development/ Exposed areas	147	Site visit	173
Construction	209	City/county building permits issued	256
Quarry, mines, tailings	85	Previous AQMA analysis	90
Aggregate storage	43	Site visit	53
Other:			
Area process particulates	23	Previous AQMA analysis	30
Portable sources	8	Previous AQMA analysis	9
Agricultural burning	33	Previous AQMA analysis	33
Total	4963		5781

II. CLEAN AIR ACT AMENDMENTS OF 1977

Unlike earlier versions of the Clean Air Act, the 1977 Amendments include real teeth to back up deadlines for compliance. They explicitly prohibit the approval of federal funds for transportation projects and other programs in areas in which air quality standards have not been met by the required dates, or for which an acceptable implementation plan has not been prepared, or in which effective action is not being taken to meet the standards. It must be noted that this sanction is not discretionary, but is mandatory once it has been determined that the Clean Air Act is being violated. In addition to the possible cutoff of federal funds, the Grand Junction area also faces the prospect of restrictions on industrial development if compliance with the requirements of the Clean Air Act is not achieved.

The Clean Air Act now prohibits the approval of permits for major new or expanded stationary emission sources in non-attainment areas for which an approved implementation plan is not developed, and in which significant progress is not being made to reach and maintain those standards. If the State doesn't submit an acceptable implementation plan to EPA, the EPA itself must develop the Plan and impose it upon the Grand Junction area, and require local governments to comply with that EPA Plan. However, for the first time, the Clean Air Act gives local governments the opportunity to play a key role in development of their own implementation plans.

III. GRAND JUNCTION AREA AIR QUALITY ADVISORY COMMITTEE (AQAC)

In January 1977 the State Air Pollution Control Division requested the Region 11 COG to nominate a local committee to address air quality standards and draft a Plan. The Grand Junction AQAC has been meeting on a monthly basis since June, 1977. The major responsibility of this committee has been to provide local review of the technical analysis of the area's air quality and alternative control measures to reduce particulate pollution, and to recommend the most desirable control measures.

IV. POTENTIAL CONTROL MEASURES FOR GRAND JUNCTION

The Committee considered at least seven control measures for inclusion in a particulate control strategy for Grand Junction, including the following:

- A) Paving and stabilizing unpaved roads and alleys
- B) Controlling major mud and dirt carryout sources
- C) Improved street cleaning
- D) Controlling major cleared areas
- E) Bikeway program
- F) Carpooling program
- G) Mass transit plan

A) Paving and stabilizing unpaved roads and alleys. The most common method for abating dust control from existing roads is

through the creation of Road Improvement Districts. In addition, the Colorado Air Pollution Control regulations prohibit granting a state permit for construction or operation of any new unpaved road, either public or private, unless the road is used by fewer than 165 vehicles per day over a consecutive 3-day period. Study results indicate that either a one-time paving program (at a cost of approximately \$170,000) or an annual chemical stabilization program (at about \$7,000/year) within the non-attainment area would accomplish approximately an 11% reduction in this type of emissions.

B) Control of major mud and dirt carryout sources. A control strategy for major mud carryout sources would be directed primarily at sources that are privately owned. These include construction sites, sand and gravel operations, truck terminals, lumber yards, ready-mix plants, and other commercial operations that indirectly contribute a significant amount of traffic-related fugitive dust as a result of mud and dirt tracked from their premises. Existing local ordinances don't currently require any significant degree of control over this source. One conceivable control measure would require that the owner or operator take whatever measures are necessary to prevent deposition of mud or dirt on paved streets adjacent to his property.

For temporary sources such as construction sites, it could be a condition of the building or construction permit that the access street to the site be kept clean. For permanent sources such as concrete ready-mix plants and truck terminals, the local agency could require operators of problem sources to submit a compliance plan on how they intend to control trackout. The potential improvement in air quality would be achieved within a relatively limited area (an approximate radius of 1000 feet), but the nature of this particular problem source is similarly confined in area.

C) Improved Street Cleaning. From an air quality perspective, the ideal street cleaning program includes daily flushing of all streets in the area, followed with broom sweeping every other day on all heavily travelled streets. One of the major costs of this control measure would be the capital cost of a flusher, which typically costs about \$30,000. The uncertainties associated with the emissions data are such that any street cleaning program should be implemented on a test basis only.

D) Control of emissions from cleared areas. Emissions from cleared areas are almost entirely a function of wind erosion. The four potentially viable control measures for this source are windbreaks, soil stabilization with chemicals, resurfacing with vegetation, and watering. Chemical stabilization is predicted to reduce emissions from cleared areas by more than 50% at a cost of \$40,000 to \$111,000 annually, whereas watering is predicted to achieve similar results at a cost of \$36,000, plus water costs.

E) Bikeway program.

F) Carpooling program.

G) Mass Transit Plan.

VIII. RECOMMENDED CONTROL MEASURES

At the May 19th meeting, the Advisory Committee adopted five (5) control measures to be included in the draft SIP proposal. The five measures are:

1. Improved Street Cleaning - A pilot program to investigate various street cleaning programs and equipment should be initiated. Annual cost - about \$12,000.
2. Control of Mud and Dirt Carryout Sources - An ordinance and/or resolution setting up special requirements to reduce the amount of dirt tracked off of construction sites and permanent facilities (parking lots, etc.).
3. Bikeway Program - A bikeway plan should be developed and processed for adoption by the City of Grand Junction and Mesa County by December 1979.
4. Carpooling Program - An analysis of alternative methods of implementing a carpooling program should be completed by August 1979. The best alternative should also be processed for adoption by that date.
5. Mass Transit Plan - A mass transit plan should be developed and processed for adoption by October 1979.

PEDCo Environmental has performed preliminary analyses on each of the above five (5) measures and has indicated that implementation of the measures should allow the area to attain and maintain the required air quality standards.

IX. LOCAL GOVERNMENT SUPPORT NEEDED

The Advisory Committee has generally defined the recommended solution to the particulate problem in the Grand Junction area. Review and support from the City of Grand Junction and Mesa County is needed before the Advisory Committee adopts and submits to the State a final Plan proposal. The key questions regarding the proposed control measures are their fiscal, economic, and social implications. Adoption of resolutions supporting the 5 control measures would indicate to the AQAC, the State and EPA that local governments in the non-attainment area are committed to solving the problem.

