

EXECUTIVE SUMMARY

The Pima Association of Governments (PAG) with financial support from the Pima County Department of Environmental Quality (PDEQ) contracted with Environmental Sciences, Inc. to investigate ozone pollution in Pima County. Two specific questions were posed: (1) What are the likely costs if Pima County violates the federal standard for ozone? and (2) What steps could be taken to delay or prevent a violation? The Ozone Attainment Advisory Committee (OAAC) served as an oversight committee for the study. Following are the OAAC's conclusions and recommendations based on the consultant's findings.

Perspective

This study addressed a fairly limited set of questions. Only one aspect of air pollution – ozone – was considered, and the time horizon was short – the next few years. Measures and actions that were not deemed significant in this context may well be promising in the broader context of air quality planning and management in Pima County. In particular, coordinated land use, transportation and air quality initiatives likely will be needed to achieve Pima County's long-term air quality objectives. (See Section 2.8.)

Conclusions

- Costs to the Tucson community could be more than \$55 million per year, if Pima County violates the 8-hour National Ambient Air Quality Standard for ozone and thus is classified as "nonattainment". (See Section 2.5.)
- It is possible that the 8-hour ozone standard will be violated within the next few years although it is not likely for at least the next two years. (See Section 2.1.)
- Several candidate proactive measures to reduce emissions of ozone precursors appear promising, but their effect on reducing ozone levels must be ascertained before their ability to delay or prevent possible nonattainment can be judged. (See Section 2.6.)
- Relationships between ozone and its precursors are complex. (See Section 2.4.)
- Based on current emission inventories of ozone precursors, mobile sources (vehicles) appear to account for roughly 2/3 of all "man-made" emissions in Pima County. Natural sources of certain precursors may also be significant. Forecasts of future emissions from on-road vehicles indicate a downward trend in the medium-to-long term primarily due to increasingly stringent emission standards for new vehicles. (See Sections 2.2 and 2.3.)
- Better information is needed on the sources of ozone precursors and the quantities of emissions. (See Section 2.2.)

- Increases or decreases in precursor emissions may not produce proportional changes in ozone levels. (See Section 2.4.)

Recommendations

- Due to the uncertainties in emission inventories, future emission trends and the relationship between emissions and ozone air quality, the OAAC was unable to reach a consensus recommendation on implementing any specific proactive measures at this time. (See Section 3.)
- Instead, promising proactive measures for reducing emissions of ozone precursors should be evaluated using a photochemical air quality model and forecasts of future emissions to determine the effectiveness of each measure in lowering levels of ozone. (See Section 3.2.)
- Before an ozone air quality model is run, basic input data need to be expanded and improved. These include the stationary and mobile source emission inventories, meteorological data and monitored levels of various air pollutants. (See Section 3.1.)
- The Urban Airshed Model appears to be the logical choice for an ozone air quality model and should be deployed as the analytical tool for assessing control measures. (See Section 3.2.)
- Promising control measures should also be evaluated using an expanded list of criteria in addition to cost and effectiveness. (See Section 3.3.)

The estimated cost to implement all these recommendations is \$1.6 million and the estimated time to complete the program is 3 years. The table on the next page summarizes the recommended program of additional investigations. Note that partial funding has already been obtained, although some commitments are tentative.

In addition to these recommendations, the OAAC strongly supports continuation of PAG, PDEQ and the City of Tucson air quality and related programs designed to reduce travel and decrease congestion. These include: the Clean Air Program, RideShare, the Travel Reduction Program, the Mobility Management Plan, Intelligent Transportation System initiatives, and enhanced Sun Tran bus service. (See Section 2.7.)

Furthermore, the OAAC encourages PAG and PDEQ to develop two new initiatives now under consideration (see Section 2.7):

- Develop methods for forecasting days of high ozone.
- Initiate a voluntary ozone action plan, which would be used together with the forecasting model and public education to encourage voluntary emission reductions on expected high ozone days.

Summary of Recommended Investigations

Study	Description	Cost	Funding Commitments	Timeline (months)						
				0	6	12	18	24	30	36
Mobile Source Emissions	Through-Region Travel	\$ 90,000	\$75,000	_____						
Mobile Source Emissions	External Travel	\$ 75,000	\$75,000	_____						
Mobile Source Emissions	Off-Road Vehicle Usage	\$ 75,000	None	_____						
Mobile Source Emissions	Within-Region Travel Survey	\$ 80,000	\$80,000	_____						
Mobile Source Emissions	Within-Region Vehicle Registration	\$20,000	None	_____						
Stationary Source Emissions	Point and Area Source Inventory Improvements	\$300,000	None	_____						
Air Monitoring	Monitoring Additional Pollutants	\$500,000	\$350,000 (tentative)	_____						
Meteorological Data	Collection of Additional Data	\$ 10,000	None	_____						
Assess Control Measures	Use UAM to Assess Effectiveness	\$400,000	None	_____						
Further Assess Control Measures	Assess Measures Using Additional Criteria	\$ 50,000	None	_____						
TOTAL		\$1,600,000	\$580,000							