

8. SUMMARY OF OUTREACH EFFORTS

This chapter presents summaries of existing efforts in the region to inform and educate the public and the construction industry about the consequences of continuing nonattainment status, the urgent need for dust control, and successful ways of mitigating fugitive dust generation. Air quality related outreach efforts being conducted outside Maricopa County, as well as outreach programs oriented towards workplace safety and other goals, are also documented. These outreach efforts contain elements and concepts that could be adapted for use in a PM₁₀ outreach program for the Maricopa County nonattainment area.

MARICOPA COUNTY SMALL BUSINESS ENVIRONMENTAL ASSISTANCE PROGRAM (SBEAP)

The Maricopa County SBEAP has developed guidelines for the control of fugitive dust at construction projects and to assist contractors in preparing sites for compliance inspections. Construction activities that cause fugitive dust to be ejected into the atmosphere include earthmoving, land clearing, loading, storage piles, vehicular trackout, and haul roads. Dust control practices are discussed in detail on the SBEAP Web site and also are taught in community college courses.^[23]

Community College Courses

The Environmental Health and Safety Technology program at Paradise Valley Community College offers a Reducing Air Pollution from Construction course that briefly surveys PM₁₀ and other air quality issues. The course is offered each semester on campus. In addition, the half-day course can be scheduled for presentation to large groups of employees of an organization onsite. A sample seminar agenda is shown in table 28.

**TABLE 28. SAMPLE AGENDA -
REDUCING AIR POLLUTION FROM CONSTRUCTION SEMINAR**

Time Allotted	Agenda Topics
9:00 a.m. - 9:05 a.m.	Review of resource materials and course objectives
9:05 a.m. - 9:10 a.m.	Background information
9:10 a.m. - 9:50 a.m.	Overview of reducing air pollution from construction
9:50 a.m. - 10:00 a.m.	Break
10:00 a.m. - 10:15 a.m.	Continuation of overview
10:15 a.m. - 10:30 a.m.	Permit form and fees
10:40 a.m. - 10:50 a.m.	Survey of guidebook
10:50 a.m. - 11:00 a.m.	Break
11:50 a.m. - 12:00 Noon	Q & A and awarding of certificates

Source: Paradise Valley Community College, Environmental Health and Safety Technology Program

Attendees receive a bound handout that includes the text of Maricopa County Rule 310 and Earthmoving Permit application forms. The handout also includes the September 2000 version of the Dust Devil Academy handbook, including background information on PM₁₀, useful Web sites, and other related information. Attendees receive a Certificate of Completion suitable for framing.

Mr. Robert R. Treloar, who conducts the seminar for the college, indicates that the agenda for the session varies depending on the makeup of the class. During the first hour, PM₁₀ standards developed by the EPA are discussed, together with the health effects of PM₁₀ and various regulatory options and approaches. During the second hour, Maricopa County air quality staff discuss the construction permit form and fees and the Rule 310 that governs fugitive dust emissions in the county. In the third hour, a slide show presents examples of both acceptable and unacceptable construction activities with respect to fugitive dust emission and control.

Mr. Treloar also instructs an Introduction to Hazardous Materials Technology (HMT 101) course at the college. The one semester, three-credit course is designed to introduce the student to the environmental hazardous materials technology area. The course consists of 11 modules, one of which pertains to air quality. This course is part of the Dust Devil Academy (see below).

Dust Devil Academy

The Dust Devil Academy is a joint effort of ADOT, SBEAP, ASU Del E. Webb School of Construction Alliance for Construction Excellence (ACE), and Del E. Webb School of Construction's Industry Advisory Council. The Dust Devil Academy consists of a three-section document that is accessible through both the SBEAP and ACE Web sites. In addition, key elements of the document are available for online viewing on the SBEAP site, together with supportive interactive elements suited to the Web environment such as an online quiz and an animated depiction of 20 percent opacity. The community college course described in the preceding section is considered part of the Dust Devil Academy, as well. The Dust Devil Academy represents a significant effort at outreach with respect to the PM₁₀ issue. This ADOT outreach research project builds upon the Dust Devil Academy work done previously by ASU and SBEAP.

The Dust Devil Academy Document

The 154-page document is presented on both the ACE and SBEAP Web sites in Adobe Acrobat format and is available for downloading. The first section contains the following subsections:

- Executive Summary.
- Background. This section explains the status of the Maricopa County Nonattainment Area and the sources of PM₁₀.
- What is PM₁₀?
- How Does PM₁₀ Affect Us?
- What Can I Do to Prevent Fugitive Dust?
- What Am I Legally Required To Do? –This section introduces the concepts of formulating and implementing dust control plans and maintaining a log of earthmoving activity.
- Whom Do I Call If I Have Questions?
- Consequences of Noncompliance.
- Common Violations Found During Inspections.
- Glossary.
- Maricopa County Air Pollution Control Rules and Regulations. –This section introduces Rules 100, 110, 200, and 310.
- Compliance Strategies. This section discusses issues such as trackout, watering, the use of palliatives, bulk material handling, and site maintenance.

Section 2 includes Appendices 1 through 8. Appendix 1 contains instructions for completing an Earthmoving Permit application, and Appendix 2 is a blank Dust Control Log form. Appendix 3 discusses the use of soil stabilizers and dust palliatives, Appendix 4 contains formulas for calculating the surface area of storage piles, and Appendix 5 describes aggregate-hauling vehicle requirements. Appendices 6, 7, and 8, are the texts of Rules 100, 110, and 200.

Section 2 contains the text of Rule 310 and Appendix C, which addresses test methods for stabilization and the visual determination of opacity.

The county has also produced a video “Effective Dust Control and Overview of Rule 310,” which has been used to introduce the Dust Devil Academy material.

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

The Arizona Department of Environmental Quality (ADEQ) has not officially adopted an outreach program, however, ADEQ has an outreach procedure to which it adheres. Whenever a regulatory change, such as a modification to a SIP, is called for, a list of affected stakeholders is first identified and compiled. Stakeholders are typically individuals representing regulated sources of air pollution.

The ADEQ has a contract with a communications company that faxes notices of the stakeholder meeting with background material on the proposed regulation, to each of the stakeholders. The meetings are conducted in one of two ways:

- An open forum where participants are provided with hard copies of the regulation with the proposed changes underlined. Stakeholders discuss the changes and make recommendations. After the meeting, ADEQ personnel edit the regulation to incorporate the changes agreed upon and distribute to the stakeholders.
- A regulation-modifying charrette where, by means of a laptop computer and an attached projector, the language to be modified is projected using a word processing application with the “track edits” feature enabled. Proposed changes are entered into the document “live” and discussed during the meeting. After a consensus is reached, the meeting adjourns, and participants are subsequently mailed a hard copy.

After the stakeholders meeting, the regulatory changes are posted on the ADEQ Web site for future reference and further dissemination.

Governor’s Agricultural Best Management Practices Committee

In 1998, the Arizona Legislature created an Agricultural Best Management Practices Committee consisting of the ADEQ Director, the director of the Department of Agriculture, a soil specialist from the University of Arizona College of Agriculture, and representative producers of citrus, vegetables, cotton, alfalfa, and grain. In May 2000, the committee adopted a set of best management practices to control fugitive dust produced by agricultural activities within the Maricopa County PM₁₀ nonattainment area. The committee developed an outreach document, “Guide to Agricultural PM₁₀ Best Management Practices,” that effectively summarizes the PM₁₀ issue and, in clear and concise terms, presents the best management practices for a variety of agricultural activities. This document could serve as a model for a “Guide to Construction PM₁₀ Best Management Practices” developed along similar lines.

The committee also produced a two-page brochure called “How Agriculture is Improving Maricopa County’s Air Quality.” This brochure addresses the following questions: What is PM₁₀? Why Should I Be Concerned About PM₁₀? How Can We Reduce the Levels of Dust in Maricopa County? What Does the General Permit Require? When Will Farmers Have to Comply with the General Permit? Where Can I Learn More?

In addition, the Natural Resources Conservation District and other stakeholders sponsored two workshops to inform Maricopa County farmers of the new PM₁₀ requirements. A brochure called “Farmers Must Comply...New Air Quality Regulations” was prepared to invite local farmers to attend the workshops. The topics addressed in this brochure were: What is PM₁₀? What Do the New Regulations Require? Why? Who Has to Comply? When? Workshops were conducted in Mesa on February 20, 2000, for East Valley farmers and in Avondale on March 1, 2000, for West Valley farmers. More than 300 farmers attended these two events.

ARIZONA LOCAL TECHNICAL ASSISTANCE PROGRAM

The National LTAP was established in 1981 as the Rural Technical Assistance Program by the Federal Highway Administration (FHWA) to help local transportation agencies learn about maintaining and improving their roads and about state-of-the-art technology in the construction and maintenance of roadways and bridges.

ADOT partners with the FHWA to provide technology transfer assistance for local road and bridge agencies through Arizona's LTAP.

The LTAP program has the following objectives:

1. To establish a system to improve the exchange of information between local agencies, ADOT, FHWA, private transportation entities and universities.
2. To encourage implementation of effective procedures and technology at the local level.

Arizona LTAP provides the following outreach services:

- A membership database for newsletter and technical material distribution.
- The bimonthly *Tapping In* newsletter and informational brochures.
- A library with publications and more than 500 videos covering every aspect of the road and bridge profession, with particular emphasis on safety. The dust control-related videos in the LTAP library are listed in table 29.
- Professional training in many formats.
- A local agency link between state, national, and international pending, current and completed research.
- The development, participation in, and coordination of the distribution of a variety of transportation safety-related programs and products
- Web site and online discussion group

CONSTRUCTION INDUSTRY OUTREACH

An essential part of preparing an outreach effort targeting a specific industry is the assessment of industry attitudes toward the proposed outreach messages, as well as the documentation of outreach efforts currently being conducted by the industry itself. Project team members interviewed executives of the following construction industry organizations:

- Arizona Builders Alliance.
- Arizona Contractors Association.
- Home Builders Association of Central Arizona.
- Arizona Chapter, Associated General Contractors.

TABLE 29. DUST CONTROL-RELATED VIDEOS IN ARIZONA LTAP VIDEO LIBRARY

Video No.	Title	Source	Length	Synopsis
DR09	Soil Erosion and Sediment Control	Illinois Environmental Inc.	16 Minutes	Erosion of sediments from construction jobs is causing problems for our environment. Failure to control this erosion results in higher construction costs. This tape will show proper procedures in controlling and minimizing soil erosion and to control runoff of sediments.
EV02	Controlling Dust on Unpaved Roads	Costal	30 Minutes	This video covers the problems that lost dust can create to dirt roads over time, such as rutting and potholes. After numerous tests, calcium chloride is found to be more effective than other dust control agents and how it will minimize maintenance and maintenance costs.
EV03	Dust Control	New Mexico LTAP	16 Minutes	This video shows how controlling dusty roads, proper drainage, and proper crowning will be effective and efficient in keeping roads in better condition for a longer time.
EV04	Dust Control with Calcium	Dow Chemical Company	16 Minutes	This video covers the problems that lost dust can create to dirt roads over time, such as rutting and potholes. After numerous tests, calcium chloride is found to be more effective than other dust control agents.
GI01	Air Quality Conformity in Transportation Planning	Federal Highway Administration	20 Minutes	This video describes types of air pollution in general and specifically transportation related air pollutants. The video emphasizes conformity with state air pollution control plans and how lapses in conformity can impact Federal funding for transportation related projects.
GI41	Technology Update: Road Oyl Resin Modified Emulsion Soil Stabilization	Soil Stabilization Products Company Inc.	15 Minutes	This video explains the newest road oyl resin. This product is used as a soil stabilizer. It can be used in either unpaved or paved roads.
GV07	Stabilization, Holding the Road	Iowa State University	22 Minutes	This video shows how to build a high grade, soil stabilized road that will last longer with less dust.

Source: Arizona Local Technical Assistance Program

In addition to the outreach being conducted by construction industry organizations, some construction firms are conducting their own outreach efforts. Kitchell Contractors, which is represented on the Technical Advisory Committee by Jeff Lange, provides an example of these efforts. Summaries of the findings from the team interviews of the four associations and Kitchell Contractors follow.

Arizona Builders Alliance (ABA)

Mark Minter, the Executive Director of the ABA, was interviewed concerning the PM₁₀ outreach project. Mr. Minter believes that the most effective outreach tools would be:

- A comprehensive Web site that clearly explained the basics of Rule 310 and provided instructions for implementing the best practice for each dust generating activity.
- Supporting materials to “drive persons” to the Web site.

The ABA contends that outreach, per se, is only part of the issue. The association believes that dust control procedures must be included in the design of projects. Contractors wishing to comply with new regulations are leery of submitting a bid that includes the extra cost of dust control for fear of being underbid by those planning to cut corners. The architect, engineering, and development communities have a responsibility to require dust control in all plans just as safety has become the norm since creation of the Occupational Safety and Health Administration.

According to Mr. Minter, the emphasis, with respect to enforcement, should be on whether best practices have been adhered to, not opacity levels. Dust control is analogous to safety. If all safety measures are taken as required and an injury still occurs, the contractor is not held accountable by OSHA. The same should be true in dust control. However, should it prove possible to develop a practical and affordable means of objectively estimating opacity, the industry would be receptive.

Project team members attended an ABA Safety Committee meeting to brief Safety Committee members on the scope and progress of the project and to obtain feedback and suggestions with respect to outreach. Many of the comments received from committee members present reinforced the assertions made by Mr. Minter during his interview. The top management of construction companies need to be “sold” on the importance of complying with Rule 310, both to avoid being fined and to assist the nonattainment area in achieving compliance by the deadline in accordance with the Serious Area PM₁₀ Plan approved by the EPA on January 14, 2002. Committee members reiterated the need for dust control to be integrated into all of the aspects of project development, including the design and engineering phases, analogous to what has taken place in the safety arena since the adoption of OSHA regulations. Dust control provisions should be incorporated into architectural and engineering drawings as are provisions for stormwater pollution prevention. Specific outreach suggestions made by ABA Safety Committee members included widespread use of the new “Effective Dust Control and Overview of Rule 310” videos, as well as the design of a poster outlining the “Dirty Dozen” actions to avoid, in pursuit of dust

control. The outreach message should be couched in terms of “here is what we are trying to achieve and here is how to achieve it.”

Arizona Contractors Association (ACA)

Mr. Brent Jones, director of governmental affairs and safety, for the ACA was interviewed by telephone. In the past several years, members of the ACA have had thousands of dollars levied against them for apparent dust control violations. According to Mr. Jones, contractors found to be in violation have been willing to comply with dust control standards set by Maricopa County, but have lacked sufficient information on procedures and practices for mitigating the generation of fugitive dust at their construction sites.

The Association was contacted by its member contractors with their concerns and asked for help. The Association responded by contacting the county and requesting information on how to help its members comply with the rules and regulations set by the county. Through diligent coordination, the Arizona Contractors Association and Maricopa County set up a "Membership Mixer" for Association members and county officials to discuss in a relaxed atmosphere the issues surrounding PM₁₀ dust control compliance.

In addition, the Association scheduled other meetings to educate its members on PM₁₀ by inviting county officials to lead discussions on the subject. The Association makes use of its newsletter to inform its members on PM₁₀ issues as changes in regulation or management practices occur. The ACA obtains current information from various public sector Web sites for dissemination to its membership by means of the newsletter, word-of-mouth, and other methods. Pinal County contacted the Association and volunteered information on its standards for PM₁₀ that was also conveyed to ACA members.

The ACA does not have a structured outreach program, as such, but makes use of membership mixers, other meetings, newsletters, and Web sites to inform its members.

Home Builders Association of Central Arizona (HBACA)

Project team members interviewed Ms. Connie Wilhelm, executive director of the HBACA. The HBACA does not conduct a formal outreach program targeting dust control, but has implemented a comprehensive general outreach program including a 17-week superintendent training program addressing issues such as safety, legal issues, and industry practices into which a dust control module could possibly be incorporated. The association has developed both English and Spanish versions of a “pocket flip book” containing basic job site safety rules and procedures illustrated with cartoons.

The association recently received a supply of the “Effective Dust Control and Overview of Rule 310” videos to distribute to HBACA members on request. The HBACA has also been proactively involved in resolving dust control disputes involving members who have been fined.

Ms. Wilhelm makes the following recommendations concerning dust control outreach:

- The dust control classes must be taught in both English and Spanish.
- The classes must be offered in different parts of the Valley near where the laborers live.
- Outreach must be verbal or graphic in nature to reach personnel who are illiterate.

Associated General Contractors (AGC)—Arizona Chapter

Members of the project team interviewed Mr. David Martin, president of the Arizona Chapter, Associated General Contractors. Nearly all of the firms that perform contract work for ADOT are members of the AGC, and AGC anticipates that its membership will be more immediately impacted by ADOT adoption and implementation of a dust control outreach program than those of other construction industry associations.

Mr. Martin suggested that the project team become familiar with the outreach approach used by the National Safety Council. He explained that the AGC currently conducts safety-related outreach training as a service to AGC membership for a fee, which represents supplemental income to the AGC. Assuming that the county is the entity that retains jurisdiction over the enforcement of dust control, the county could establish training guidelines and a curriculum for the training course, AGC and the other construction industry associations could offer the course program to their members.

Mr. Martin suggested that a series of five-minute video modules, available in English and Spanish, be developed as components in the outreach effort, covering topics such as “What is Particulate Matter” and “Health effects of PM₁₀,” for presentation to personnel.

Kitchell Contractors

Mr. Jeff Lange, safety and risk manager for Kitchell Contractors, is a member of the TAC for this project. He is also a member of the ABA Safety Committee. Project team members have interviewed him in person, by telephone, and by e-mail concerning the extensive dust control outreach that he has been conducting on Kitchell’s behalf.

Figure 30 on page 94, “Example of Shaker Device,” depicts and discusses a trackout control device designed by Mr. Lange for use on Kitchell projects. The device is portable, reusable, can be transported by pickup truck, is easy to assemble, and can have any number of sections added to it to extend its length. The device can be secured with gravel or can be staked to the ground or to a paved surface. Additional information is available at www.trackoutcontrol.com.

In addition to developing and promoting the trackout control device, Jeff Lange has guided the development of an “Environmental Construction Management Program” (ECMP).^[24] This program was developed in cooperation with the Maricopa County Environmental

Services Department in association with the ADEQ and the EPA. Kitchell indicates that the ECMP will generate the following benefits for the construction industry:

- Add value to the community.
 - ✓ Avoid complaints.
 - ✓ Promote a “good neighbor” approach to construction.
- Aid in identifying avoidable costs.
 - ✓ Remediation fees.
 - ✓ Litigation fees.
 - ✓ Down-time losses.
 - ✓ Avoid liquidated damages.
 - ✓ Insurance premiums.
 - ✓ Workers compensation.
 - ✓ Loss time.
- Minimize the health risks associated with dust and airborne particulates.
- Protect the community’s environment.

The ECMP will consist of six prime areas of focus: air quality, hazardous waste, solid waste, wastewater, education and training, and tracking. The air quality element includes the implementation of dust control measures. The education and training element provides for use of site safety plans, the publishing of a corporate safety manual, and the incorporation of ECMP training into safety meetings. A “Dust Control (Minimize Airborne Dust)” matrix included in the plan is shown in table 30.

Mr. Lange is also in the process of developing a PowerPoint presentation that addresses the dust control elements of the ECMP with emphasis on the use of the trackout control device he designed.

YAVAPAI AIR AWARE

In 1999, the Yavapai Area Governments and Prescott College participated in a pilot air quality sustainability study, sponsored by ADOT that identified an educational/outreach program as an important strategy to sustain clean air in Central Yavapai County.

TABLE 30. DUST CONTROL (MINIMIZE AIRBORNE DUST) MATRIX INCLUDED IN KITCHELL ECMP PLAN

Item	Activity	Objective	Measurable Targets	Operational Control
1.	Vehicles and mobile equipment	<ul style="list-style-type: none"> Stabilize all offroad traffic and parking areas Stabilize all haul routes Designate and control traffic flow in and around the site Do not drag soil offsite Identify locations of access, lay-down yards, and roads to minimize airborne dust, noise, exhaust, surrounding lighting pollution, and vibration 	<ul style="list-style-type: none"> Limit vehicle speeds to 15 mph Apply paving as soon as possible to all future roadway areas Apply water to haul roads Restrict access to site as soon as possible by installing signs, curbs, fences, gates, posts, shrubs, and/or trees Construct fences or 3'-5' high wind barriers with fence fabric adjacent to roadways or urban areas that reduce the amount of windblown material leaving a site Load all haul trucks such that the freeboard is not less than 3 inches Prevent spillage of material from haul trucks Whether empty or loaded, before the haul truck leaves the site, cover the cargo compartment 	<ul style="list-style-type: none"> Train all personnel Give a copy of the project site rules to haul truck drivers and to commercial drivers/operators
2.	Excavation	<ul style="list-style-type: none"> Minimize airborne dust 	<ul style="list-style-type: none"> Reduce the amount of vegetation on each site Leave live perennial vegetation and desert pavement, where possible, for areas without continuing construction Prewater site with water truck Spray, hose, or wet dirt prior to loading trucks with dirt Use water hose when loading truck with dirt Crust spoils while waiting for caisson or while waiting to spread footings 	<ul style="list-style-type: none"> Train all personnel Give a copy of the project site rules to subcontractors, supervisors, and onsite personnel Post a copy of the project site rules in English and in Spanish where rules will be visible Phase project, so soil disturbance is minimized Limit the amount of area graded at any one time
3.	Trenching and compaction	<ul style="list-style-type: none"> Minimize airborne dust 	<ul style="list-style-type: none"> Spray, hose, or wet dirt before digging trench Damp, moist, or crust spoils pile while digging trench Damp, moist, or crust spoils pile after trench has been dug 	<ul style="list-style-type: none"> Train all personnel Phase project, so soil disturbance is minimized Give a copy of the project site rules to subcontractors, supervisors, and onsite personnel Post a copy of the project site rules in English and in Spanish where rules will be visible

TABLE 30. DUST CONTROL (MINIMIZE AIRBORNE DUST) MATRIX INCLUDED IN KITCHELL ECMP PLAN
(Continued)

Item	Activity	Objective	Measurable Targets	Operational Control
4.	Install trackout control device	<ul style="list-style-type: none"> • Prevent mud, silt, and soil trackout onto paved roads • Clean up trackout immediately, if spill extends more than 50 feet • Clean up trackout by end of workday, if spill extends less than 50 feet 	<ul style="list-style-type: none"> • Reduce the number of haul trucks entering and exiting sites by 10% each year for 3 years and reevaluate • Install effective protective barriers on unprotected routes • Maintain trackout control device in effective condition. <p>Install gravel pads consisting of 1" to 3" rough diameter, clean, well-graded gravel or crushed rock (location of gravel pads must be identified on dust control plan). Minimum dimensions must be 30 feet wide by 3 inches deep, and, at minimum, 50' or the length of the longest haul truck, whichever is greater</p> <ul style="list-style-type: none"> • Rescreen, wash, or apply additional rock in gravel pad to maintain effectiveness. • Pave construction activities roadways as early as possible 	<ul style="list-style-type: none"> • Train all personnel • Monitor the number of haul trucks entering and exiting sites • Develop semipermanent staging areas to reduce the amount of disturbed area
5.	Backfill	<ul style="list-style-type: none"> • Minimize airborne dust 	<ul style="list-style-type: none"> • Water backfill material to maintain material moisture or to form crust, when not actively handling • Cover or enclose backfill material, when not actively handling • Mix backfill soil with water, prior to moving • Dedicate water truck or large hose to backfilling equipment and apply water as needed • Water to form crust on soil immediately following backfilling • Empty loader slowly • Minimize drop height from loader bucket 	<ul style="list-style-type: none"> • Train all personnel

Source: Kitchell Contractors, *Environmental Construction Management Program*^[24]

Yavapai County “Air Aware,” also funded by ADOT, is the effort to develop and implement the educational/outreach program recommended by the pilot air quality sustainability study. The program is sponsored by Central Yavapai County governments, including the City of Prescott, the Towns of Prescott Valley and Chino Valley, and the Yavapai-Prescott Indian Tribe. Air Aware encourages voluntary efforts on the part of individuals, businesses, and local governments to keep the air of the area clean, even as significant population growth in the region is anticipated over the next 20 years. The goal is to avoid the adverse medical, environmental, lifestyle, and economic impacts of unhealthy air.

Outreach tools developed—or being developed—by Yavapai Air Aware include:

- A comprehensive Web site hosted by ADOT.
- Mass mailings.
- Curriculum materials for educators.
- Public service announcements.
- Field manuals.
- Speakers’ bureau.
- Outreach database.
- Press releases.

Area jurisdictions represented are also encouraged to adopt an ordinance that would ban wood-burning fireplaces (unless they are clean-burning by EPA standards) in new residential construction. Additional Air Aware sponsors include the Central Yavapai Transportation Planning Organization, the Prescott Chamber of Commerce, and Prescott Alternative Transportation, a private-sector advocacy group.

PINAL COUNTY

In 1967, the Pinal County Board of Supervisors formed the Pinal County Air Quality Control District (PCAQCD), which bears primary responsibility for the administration of the county's air quality program. The PCAQCD is an operating division of the Pinal County Health and Human Services Department.

In 1994, Pinal County adopted a “synthetic minor” permit program that allows a source of emissions to “apply voluntarily for limits on emissions, production or operation to be placed in its permit to limit the source's total potential emissions.”^[25]

Since 1997, the PCAQCD has developed an "exceptional events policy" in accordance with EPA guidance intended to prevent naturally occurring dust storms and other wind events from triggering a "nonattainment" designation for particulate matter in the agricultural areas of the county. The district also petitioned the EPA Administrator to correct the inclusion of Apache Junction in the Phoenix planning area PM₁₀ nonattainment area.

“Area A” refers to the portion of urbanized Maricopa County for which a number of air quality measures apply. A portion of Pinal County adjacent to the Maricopa County nonattainment area, is also designated as being in nonattainment status for PM₁₀. Effective

December 31, 2000, in accordance with Arizona Revised Statutes (A.R.S.) Section 49-541, Area A was expanded to include the area north of Arizona Farms Road and extending 12 miles east from the Maricopa/Pinal county line in the Apache Junction area. Area A includes Apache Junction, Gold Canyon, Queen Creek, San Tan Mountains, and most of what is characterized as Johnson Ranch. The following programs were implemented in Area A of Pinal County:

- An earthmoving activity program, which helps minimize local nuisances and possible impacts to Area A and the particulate matter concentrations.
- A Trip Reduction Program, which helps major employers in Area A to implement reductions in vehicle miles traveled by employees.
- A "No Burn Ordinance" in Area A for days when the CO levels in adjacent Maricopa County may exceed the NAAQS for CO. This restriction applies to residential wood combustion and permitted open burning.
- A fireplace restriction ordinance that requires clean burning fireplace standards for new fireplaces or woodstoves.
- Stage I and stage II vapor recovery systems are required at some gas dispensing sites
- Mandatory emission testing for all vehicles used by residents in Area A and those who commute to work in Area A.

Those who inquire about PM₁₀ issues or earthmoving permits are provided with a packet of information including a "Dust Control" brochure, and a brochure of information about the "Reducing Air Pollution from Construction" classes (Dust Devil Academy) offered at Paradise Valley Community College. Also included in the packet are a hardcopy of the home page of the PCAQCD Web site, a map of Area A, a hardcopy of a PowerPoint presentation explaining an Earthmoving Activity Registration Orientation Program available to area contractors, applicable county regulations, and a registration application.

Pinal County's air quality Web site home page contains links to the following:

- A or B Permit Procedures.
- Air Quality Status.
- Asbestos Program (PDF File).
- Definitions.
- Nonattainment Map.
- Organizational Chart.
- What's New?
- Accomplishments.
- Area A Map.
- Code of Regulations.
- Legal Authority.
- Objectives.
- Programs.
- Workload/Performance.

In addition, the following forms are available for downloading in either Adobe Acrobat or Microsoft Word format:

- Earthmoving Registration.
- Class A or B Permit.
- Asbestos Notification.
- Burn Permit Application.
- Emission Source form.

CLARK COUNTY DEPARTMENT OF AIR QUALITY MANAGEMENT

The Clark County Department of Air Quality Management has conducted a class on “Fugitive Dust Control for Construction Activities” since September 1997. The course includes a description of particulate pollution, health and quality of life impacts, sources, regulations and plans, specific requirements of the Clark County dust control rule for construction, test methods, and enforcement, as well as sample dust control permits and mitigation plans.

Construction site supervisors, foremen, and other designated onsite representatives of the project developer, as well as the water truck/pull drivers, are required to successfully complete the dust control class. All required personnel must sign up for the class within seven days of dust control permit issuance and attend within 30 days. Dust class certificates/cards, issued upon successful completion of the course, are valid for three years. Although the course was initially free, \$30 is now charged to defray the cost of materials.

Dust control enforcement officers can require onsite representatives to repeat the class. Classes are scheduled on the average of twice each week. If 15 or more individuals require training, classes can be scheduled at special times and places, such as the contractor’s site. More than 8,000 people have attended the three-hour course in the past four years.

Examples of those attending the training in Clark County include: homebuilders, building inspectors, public works directors, Nevada Department of Transportation, city rapid response/neighborhood service teams, utility companies, grading companies, dust suppressant vendors, U.S. Occupational Health Services, water districts, and environmental groups. The course is also offered as continuing education credit for construction management personnel. Exhibits on dust control have been set up at expos and trade shows sponsored by such groups as the homebuilders and water authority.

The class was originally developed for Clark County by a consultant, using an outline, photographs, and other materials provided by the Department of Air Quality Management. Since its initial development, the class syllabus has been updated periodically to reflect changes in regulations. The class was completely redesigned recently to coordinate with provisions of the revised SIP for particulates, submitted to EPA in July 2001.

ARIZONA BLUE STAKE

Since its inception, Blue Stake has been successful in achieving widespread recognition among the general public and almost complete penetration of the construction industry market. Ms. Kristen Ouwerkerk, the director of public services for Arizona Blue Stake, was interviewed by telephone to learn of specific outreach approaches that Blue Stake has used and to obtain suggestions based on Blue Stake's experience.

Blue Stake is owned by the utility industries and was developed as a means of avoiding inconvenient or even dangerous accidents caused by inadvertent cutting of water, gas, electrical, and communications lines during excavation activity. Persons planning to excavate are asked to call Blue Stake 48 hours in advance. Blue Stake, in turn, advises the utilities that serve the property where the excavation is planned. The utilities then mark the location of their lines in the area so that the property owner or contractor can avoid them.

As a part of the utility industry, Blue Stake has had the resources from the beginning to promote the Blue Stake concept and has consistently carried out relatively intense advertising and promotion activities. Blue Stake also targets the construction industry. Ms. Ouwerkerk mentioned the following activities as being effective in reaching Blue Stake's audience:

- Maintenance of a Web site.
- Conduct of targeted mailings.
- Maintenance of database of property owners who have requested blue staking.
- Maintenance of database of contractors obtained from the Registrar of Contractors Web site.
- Participation in industry-related forums such as safety committees and associates meetings sponsored by the Arizona Chapter of the Associated General Contractors and the Utility and Transportation Contractors Association (UTCA).

Ms. Ouwerkerk reports that the AGC have been very supportive of Blue Stake efforts to inform AGC membership about changes in regulations such as, for example, a recent decision to use the color purple to designate lines carrying reclaimed water. The AGC has faxed Blue Stake-related announcements to its members and has included announcements in newsletters as needed. Other potential audiences for Blue Stake (and dust control) include construction industry associations such as the Arizona Builders Alliance, landscaping associations, and employee meetings of the larger developers.

Blue Stake has also been successful using giveaways to reinforce the message of its presentations. Items imprinted with a Blue Stake message or slogan and a phone number for information that appear to be popular with construction industry personnel include:

- Pens.
- Lunch coolers.
- Clipboards.
- Small tools.
- Small notebooks.
- Travel mugs.
- Portfolios.

Caps and hats are less effective because persons tend to wear a favorite cap regardless of the slogan it carries and may prefer one with their company's own logo. In addition, slogans on caps are not visible to the wearer during use.

SAFETY-RELATED OUTREACH

OSHA was established by the federal government in 1971 and has helped drastically reduce workplace-related deaths and injuries during the 30 years that have passed since its formation. Many of these workplace safety accomplishments are directly related to outreach efforts developed or mandated by OSHA. The market penetration of OSHA safety standards and practices has been almost complete, and safety-related outreach efforts are worth examining as possible models for PM₁₀ outreach.

Arizona Division of Occupational Safety and Health (ADOSH)

The Arizona Division of Occupational Safety and Health is a division of the Industrial Commission of Arizona and has been authorized by the U.S. Department of Labor to oversee all occupational safety and health issues within Arizona, except those pertaining to mining operations, tribal communities, and Federal employees. The ADOSH responsibilities cover approximately 1.8 million employees and 104,000 public and private establishments.

The ADOSH efforts address four specific areas: safety and health compliance, consultation and training, elevators, and boilers.

The Consultation and Training Programs of the ADOSH

The ADOSH provides free consultation to employers who request assistance in attaining compliance with occupational safety and health standards. Employers may request these services for a specific operation or for the entire workplace.

ADOSH also provides free training programs to businesses and organizations within the State. Organizations and businesses may also check out films from the ADOSH film library to supplement their own safety and health programs.

The ADOSH also administers the OSHA's Voluntary Protection Program (VPP) in Arizona. The VPP star program recognizes employers who have provided and maintained excellent safety and health programs at their workplaces. The ADOSH maintains an informative Web site and currently offers safety and health-related courses at various locations throughout Arizona. The courses are listed in Table 31.

Arizona Contractors Association

In addition to its fugitive dust control efforts, the ACA offers a variety of safety outreach products shown in Table 32. Many of these products, such as the bilingual videos and posters, clearly suggest analogous dust control products.

**TABLE 31. ARIZONA OCCUPATIONAL SAFETY AND HEALTH
2002 OUTREACH COURSES**

Date	Course	Location	Date	Course	Location
1/8	Excavation Safety Awareness	Phoenix	2/14	Forklift Train-the-trainer	Phoenix
1/9	Forklift Train-the-Trainer	Tucson	2/15	OSHA in the Medical Office	Flagstaff
1/15	Excavation Safety Awareness	Prescott	2/20	OSHA in the Medical Office	Tempe
1/22	Forklift Train-the-trainer	Avondale	2/21	OSHA in the Medical Office	Tucson
1/22	Back Injury Prevention	Prescott	2/28	Respiratory Protection	Avondale
1/24	Forklift Train-the-trainer	Flagstaff	2/28	Record Keeping	Tucson
1/24	Record Keeping	Tucson	2/7	Excavation Safety Awareness	Tucson
1/29	Safety Management	Sedona	2/7	Fall Protection	Phoenix
1/30	Excavation Safety Awareness	Tucson	2/12	Scaffold Safety	Prescott
2/6	Safety Management	Tucson	2/20	Scaffold Safety	Tucson
2/7	Excavation Safety Awareness	Yuma	2/21	Construction SafetyManagement	Lake Havasu City
2/12	OSHA in the Medical Office	Yuma	2/28	Record Keeping	Tucson
2/13	Forklift Train-the-Trainer	Tucson			

Source: Industrial Commission of Arizona, Division of Occupational Safety and Health

TABLE 32. ARIZONA CONTRACTORS ASSOCIATION SAFETY PRODUCTS*

• ACA Bilingual Booklet for Safe Work Practices, \$15 per copy for members.
• All-In-One Safety Poster (available in Spanish), \$20 per poster.
• All-In-One Labor Law Poster (available in Spanish), \$20 per poster.
• 1996 OSHA Construction Industry Standards, \$20 per copy.
• Hazard Communication Program, \$75.
• Toolbox Talks (available in Spanish).
• ACA Injury & Illness Prevention Program, \$200. (Requires a visit with ACA safety director.)
• Informal Work Site Visits. (Performed by ACA staff).
• Company Safety Program Analysis.
• Safety Audits.

*Products are available to ACA Members only.

Source: Arizona Contractors Association

Associated Safety Engineers of Arizona (ASEA)

The ASEA consists of safety professionals, consultants, safety coordinators, and business managers concerned and involved with safety and injury prevention in the workplace. The structure of ASEA suggests another approach to fugitive dust control outreach, the creation of an organization dedicated to fugitive dust control made up of representatives of industries engaged in regulated dust generating activities. Such a group need not necessarily be limited to representatives of the construction industry, but could also include agricultural and mining members, as well as persons representing regulatory agencies such as ADEQ and the county.

The ASEA publishes a monthly newsletter that is mailed to ASEA members and is also available online in Adobe Acrobat format at the ASEA Web site at www.azsafety.org. The December 2001 issue of the newsletter has an article entitled "Effective Safety and Health Training," which could serve as a template for the development of effective fugitive dust control training.

According to ASEA, the key elements of effective training are:

- Job analysis. Conduct a "needs analysis" before any training, to determine what employee's duties and hazards are involved in the job.
- Thorough evaluation and testing. After training is completed, you should confirm the employees learned the material.
- Ongoing evaluation and motivation. Ensure that your workers learned the material and ensure they are following the training given.

The ASEA recommends the following seven-step training guidelines:

1. Determining if training is needed.
2. Identifying training needs.
3. Identifying goals and objectives.
4. Developing learning activities.
5. Conducting the training.
6. Evaluating program effectiveness.
7. Improving the program.

Arizona Training Partnership in Occupational Health and Safety

Through the Arizona Training Partnership in Occupational Health and Safety, it is possible to obtain a professional certificate in Occupational Health and Safety from the University of California at San Diego, by taking classes in Phoenix. All courses that comprise the two-year certification program are offered through the OSHA Training Institute Region IX Education Center at various locations in Phoenix.

The partnership is sponsored by the following organizations:

- American Society of Safety Engineers.
- Arizona Chapter of Associated General Contractors.
- Arizona Division of Occupational Safety and Health.
- Associated Safety Engineers of Arizona.
- Environmental Training Center.
- GateWay Community College (Maricopa County District).
- National Safety Council.
- Southwest Safety Training Alliance.

Safety courses offered by the Partnership in 2002 are shown in table 33.

TABLE 33. 2002 ARIZONA TRAINING PARTNERSHIP SAFETY COURSES

Course Title	Dates	Spons or
OSHA #521: OSHA Guide to Industrial Hygiene	February 11-14	ETC
OSHA #500: Trainer Course in Occupational Safety & Health Standards for the Construction Industry	March 18-21	ASSE
Workplace Safety Inspection Techniques	May 16-17	ETC
OSHA #501: Trainer Course in Occupational Safety & Health Standards for General Industry	June 17-20	ASSE
OSHA #500: Trainer Course in Occupational Safety & Health Standards for the Construction Industry	August 19-22	ASSE
OSHA #204A: Machinery and Machine Guarding Standards	September 16-19	NSC
OSHA #501: Trainer Course in Occupational Safety & Health Standards for General Industry	October 28-31	ASSE
OSHA #201A: Hazardous Materials	November 18-21	ETC

The courses cost between \$295 and \$595 depending on the length of the course and the nature of the take-home materials provided.