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February 8, 2007

TO: Members of the MAG Air Quality Technical Advisory Committee

FROM: Stephen S. Cleveland, Goodyear City Manager, Chairman

SUBJECT: MEETING NOTIFICATION AND TRANSMITTAL OF TENTATIVE AGENDA

Thursday, February 15, 2007 - 1:30 p.m.
MAG Office, Suite 200 - Saguaro Room
302 North 1st Avenue, Phoenix

Please park in the garage underneath the building. Bring your ticket to the meeting; parking will be validated. For those using transit, the Regional Public Transportation Authority will provide transit tickets for your trip. For those using bicycles, please lock your bicycle in the bike rack in the garage.

Pursuant to Title II of the Americans with Disabilities Act (ADA), MAG does not discriminate on the basis of disability in admissions to or participation in its public meetings. Persons with a disability may request a reasonable accommodation, such as a sign language interpreter, by contacting Jason Stephens at the MAG office. Requests should be made as early as possible to allow time to arrange the accommodation.

Members of the MAG Air Quality Technical Advisory Committee may attend in person, via videoconference or by telephone conference call. Those attending by videoconference must notify the MAG site three business days prior to the meeting. Those attending by telephone conference call are requested to call (602) 261-7510 between 1:25 p.m. and 1:30 p.m. on the date of the meeting. After the prompt, please enter the meeting ID number 27822 (on your telephone key pad) followed by the pound key. If you have a problem or require assistance, dial 0 after calling the number above.

Please be advised that under procedures approved by the MAG Regional Council, all MAG committees need to have a quorum to conduct the meeting. A quorum is a simple majority of the membership. If you are unable to attend the meeting, please make arrangements for a proxy from your entity to represent you.

A Voluntary Association of Local Governments in Maricopa County

City of Apache Junction ▲ City of Avondale ▲ Town of Buckeye ▲ Town of Carefree ▲ Town of Cave Creek ▲ City of Chandler ▲ City of El Mirage ▲ Fort McDowell Yavapai Nation ▲ Town of Fountain Hills ▲ Town of Gila Bend
Gila River Indian Community ▲ Town of Gilbert ▲ City of Glendale ▲ City of Goodyear ▲ Town of Guadalupe ▲ City of Litchfield Park ▲ Maricopa County ▲ City of Mesa ▲ Town of Paradise Valley ▲ City of Peoria ▲ City of Phoenix
Town of Queen Creek ▲ Salt River Pima-Maricopa Indian Community ▲ City of Scottsdale ▲ City of Surprise ▲ City of Tempe ▲ City of Tolleson ▲ Town of Wickenburg ▲ Town of Youngtown ▲ Arizona Department of Transportation

TENTATIVE AGENDA

COMMITTEE ACTION REQUESTED

1. Call to Order

2. Call to the Audience

An opportunity will be provided to members of the public to address the Air Quality Technical Advisory Committee on items not scheduled on the agenda that fall under the jurisdiction of MAG, or on items on the agenda for discussion but not for action. Members of the public will be requested not to exceed a three minute time period for their comments. A total of 15 minutes will be provided for the Call to the Audience agenda item, unless the Air Quality Technical Advisory Committee requests an exception to this limit. Please note that those wishing to comment on action agenda items will be given an opportunity at the time the item is heard.

3. Approval of the February 1, 2007 Meeting Minutes

4. Description of the Preliminary Draft Comprehensive List of Measures to Reduce PM-10 Particulate Matter

Sierra Research, MAG consultant, is in the process of preparing descriptions of the Preliminary Draft Comprehensive List of Measures to Reduce PM-10 Particulate Matter for use by the Committee in evaluating possible control measures. At this meeting, the description of the measures will be continued.

In addition, MAG will conduct a workshop on Friday, February 16, 2007 at 9:00 a.m. at the MAG office on the Preliminary Draft List of Measures and the PM-10 Source Attribution and Deposition Study. The workshop will afford an opportunity to discuss the measures and study with Sierra Research.

2. For information.

3. Review and approve the February 1, 2007 meeting minutes.

4. For information and discussion.

For your convenience, the bolding and strikeouts have been removed from the Preliminary Draft Comprehensive List dated February 5, 2007 which is the most recent version of the list. Please refer to the enclosed material.

5. Status Report on Agricultural Measures

The Governor's Agricultural Best Management Practices Committee has been evaluating possible measures to reduce PM-10 emissions from agriculture. A status report will be given by a representative from the agricultural community.

6. CMAQ Annual Report

In accordance with federal guidance, the 2006 Congestion Mitigation and Air Quality Improvement Funds Annual Report describes how funds have been spent and the expected air quality benefits. The report was prepared by MAG in cooperation with the Arizona Department of Transportation. The report is in the electronic format required by the Federal Highway Administration. Please refer to the enclosed material.

7. Legislative Update

A brief update will be provided on air quality legislation introduced this session.

8. Call for Future Agenda Items

The next meeting of the Committee has been tentatively scheduled for **Thursday, March 1, 2007 at 1:30 p.m.** The Chairman will invite the Committee members to suggest future agenda items.

5. For information and discussion.

6. For information and discussion.

7. For information and discussion.

8. For information and discussion.

MINUTES OF THE
MARICOPA ASSOCIATION OF GOVERNMENTS
AIR QUALITY TECHNICAL ADVISORY COMMITTEE MEETING

Thursday, February 1, 2007
MAG Office
Phoenix, Arizona

MEMBERS PRESENT

Stephen Cleveland, City of Goodyear, Chairman
#Jess Segovia for Michael Powell, Avondale
Michael Salisbury for Lucky Roberts, Buckeye
Jim Weiss, Chandler
*Jamie McCullough, El Mirage
Lisa Taraborelli for Tami Ryall, Gilbert
Doug Kukino, Glendale
Scott Bouchie, Mesa
Joe Gibbs for Gaye Knight, Phoenix
Larry Person, Scottsdale
#Antonio DeLaCruz, Surprise
Oddvar Tveit, Tempe
Larry Crisafulli for Walter Bouchard, Citizen
Representative
Corey Woods, American Lung Association of Arizona
Barbara Sprungl, Salt River Project
*Brian O'Donnell, Southwest Gas Corporation
Mark Hajduk for Jim Mikula, Arizona Public Service
Company
#Gina Grey, Western States Petroleum Association
*Randi Alcott, Valley Metro
Dave Berry, Arizona Motor Transport Association
Jeannette Fish, Maricopa County Farm Bureau
Russell Bowers, Arizona Rock Products Association
*Michelle Rill, Greater Phoenix Chamber of Commerce

Amanda McGennis, Associated General
Contractors
Spencer Kamps for Connie Wilhelm-Garcia,
Homebuilders Association of Central Arizona
*Stephen J. Andros, American Institute of
Architects - Central Arizona
*Mannie Carpenter, Valley Forward
Kai Umeda for Patrick Clay, University of Arizona
Cooperative Extension
Beverly Chenausky, Arizona Department of
Transportation
Peter Hyde, Arizona Department of Environmental
Quality
Wienke Tax, Environmental Protection Agency
Jo Crumbaker, Maricopa County Air Quality
Department
Duane Yantorno, Arizona Department of Weights
and Measures
#Ed Stillings, Federal Highway Administration
*Judi Nelson, Arizona State University
*Christella Armijo for B. Bobby Ramirez, Salt River
Pima-Maricopa Indian Community
*David Rueckert, Citizen Representative

*Members neither present nor represented by proxy.
#Participated via telephone conference call.
+Participated via video conference call.

OTHERS PRESENT

Lindy Bauer, Maricopa Association of Governments
Cathy Arthur, Maricopa Association of Governments
Taejoo Shin, Maricopa Association of Governments
Dean Giles, Maricopa Association of Governments
Diane Arnst, Arizona Department of Environmental
Quality
David Lillie, Arizona Department of Environmental
Quality
Johanna Kuspert, Maricopa County Air Quality
Department
Bob Kard, Maricopa County Air Quality Department
Bob Downing, Maricopa County Air Quality
Department

Holly Ward, Maricopa County Air Quality
Department
Merry Ellen Boom, Converse Consultants
Scott Di Biase, Pinal County Air Quality
Don Gabrielson, Pinal County Air Quality
Steve Trussell, Arizona Rock Products Association
Bob Dulla, Sierra Research
Albert Acken, Lewis and Roca
Nick Simonetta, Jennings, Strouss & Salmon, PLC
Porter O'Doherty, EPI
Colleen McKaughan, Environmental Protection
Agency
#Doris Lo, Environmental Protection Agency

1. Call to Order

A meeting of the MAG Air Quality Technical Advisory Committee was conducted on February 1, 2007. Stephen Cleveland, City of Goodyear, Chair, called the meeting to order at approximately 1:30 p.m. Antonio DeLaCruz, City of Surprise; Gina Grey, Western States Petroleum Association; Jess Segovia, City of Avondale; Ed Stillings, Federal Highway Administration; and Doris Lo, Environmental Protection Agency, attended the meeting via telephone conference call.

2. Call to the Audience

Mr. Cleveland stated that, according to the MAG public comment process, members of the audience who wish to speak are requested to fill out comment cards, which are available on the table adjacent to the doorway inside the meeting room. Citizens are asked not to exceed a three minute time period for their comments. Public comment is provided at the beginning of the meeting for nonagenda items and nonaction agenda items. Mr. Cleveland noted that no public comment cards had been received.

3. Approval of the January 11, 2007 Meeting Minutes

The Committee reviewed the minutes from the January 11, 2007 meeting. Joe Gibbs, City of Phoenix, moved and Doug Kukino, City of Glendale, seconded and the motion to approve the January 11, 2007 meeting minutes carried unanimously.

4. Approval of the January 19, 2007 Meeting Minutes

The Committee reviewed the minutes from the January 19, 2007 meeting. Mr. Kukino moved and Larry Person, City of Scottsdale, seconded and the motion to approve the January 19, 2007 meeting minutes carried unanimously.

5. Maricopa County Public Education Campaign to Reduce Particulates in the Air

Holly Ward, Maricopa County Air Quality Department, provided an overview of the new Maricopa County Public Education Campaign designed to inform the public about what they can do to reduce particulate pollution. The campaign is called Bring Back Blue. She provided a timeline of the campaign and discussed the research, which included four focus groups and a telephone survey. The discussions focused on emissions rather than particulates and virtually all participants claimed to personally have problems or know someone with problems such as asthma or respiratory disease. Ms. Ward mentioned key points from the research. There was confusion between pollution and allergies and many remembered when pollution was not a problem. She stated that people were interested in what they could do for the community, especially children and the elderly. Education and awareness was determined to be key.

Ms. Ward mentioned that the Maricopa County Board of Supervisors hosted the Bring Back Blue Campaign Kickoff on January 16, 2007. She provided pictures of the Bring Back Blue banner on the 201 West Jefferson building in downtown Phoenix. Ms. Ward discussed outdoor advertising for the campaign and mentioned the six billboard locations. She indicated that the advertising points back to www.BringBackBlue.org, which provides continuous education. The website educates the public on what is particulate matter, how it affects the public, and what can be done about it. Ms. Ward provided images from www.BringBackBlue.org.

Ms. Ward stated that in meeting with stakeholders, it was determined that there are two sides to air quality: regulatory and individual. The regulatory side is developing the Five Percent Plan for PM-10. She stated that the public needs education. Ms. Ward indicated that the campaign contains a list of twelve actions called "The Dirty Dozen" that the public can do to reduce particulate pollution. She stated that the website also includes a page where the public can take a pledge and indicate what actions they will take to help reduce particulate pollution. Ms. Ward provided examples of print and television advertising. She indicated that television ads are in English and Spanish. Ms. Ward provided the Committee with campaign materials and offered to supply cities and towns with the materials.

Gina Grey, Western States Petroleum Association, mentioned negative comments in *The Arizona Republic* at the initiation of the campaign relative to the banner. She asked if the media is part of the campaign in terms of education. Ms. Ward responded that she was not aware of negative remarks on the banner; however, there have been good and bad comments received on the campaign. She stated that it is good people are talking about it. Ms. Ward indicated that there is an air quality problem with particulates and everyone needs to be paying attention. She referred to editorials in *The Arizona Republic* that have not been flattering. Ms. Grey asked if there is an intent to educate the media. Ms. Ward replied that there has been some media education and Maricopa County is looking at ways to continue to educate. She stated that it is an ongoing process.

6. Status of the Maricopa County 2005 PM-10 Emissions Inventory

Bob Downing, Maricopa County Air Quality Department, provided a status report on the Maricopa County 2005 PM-10 Emissions Inventory. He indicated that the draft inventory was made available on the County website on January 23, 2007 for public review and comment. Mr. Downing presented the sources of PM-10 emissions by source category in 2005 for the PM-10 nonattainment area. He stated that the source categories have not changed from the Preliminary 2005 PM-10 Emissions Inventory presented at the December 7, 2006 Committee meeting; however, some of the percentages have changed. Mr. Downing indicated that windblown fugitive dust data was not available for the December 7, 2006 meeting, but has since been included. He provided the Maricopa County web address where the 248 page document is located, which can be downloaded as one file or by chapter. Mr. Downing stated that there is a 30 day public comment period on the draft inventory and written comments will be accepted through February 22, 2007.

Russell Bowers, Arizona Rock Products Association, asked if vacant lots/lands are included in the larger source categories. Mr. Downing referred to the windblown fugitive dust category. He stated that Maricopa County had a contract with ENVIRON Corporation to apply the windblown dust model to the County and PM-10 nonattainment area. Mr. Downing indicated the ENVIRON was provided with updated land use data and meteorological data. The initial results are included in the draft inventory. He stated that the report from ENVIRON is part of the appendices. Mr. Downing mentioned that the County will be reviewing the information over the next few weeks.

7. Description of the Preliminary Draft Comprehensive List of Measures to Reduce PM-10 Particulate Matter

Lindy Bauer, Maricopa Association of Governments, stated that MAG has appreciated the comments received from the Committee on the Preliminary Draft Comprehensive List of Measures to Reduce PM-10 Particulate Matter. She indicated that adjustments have been made to the list of preliminary draft measures based on feedback from the Committee. The recommendations from the consultants

for the MAG PM-10 Source Attribution and Deposition Study have also been added to the list. Ms. Bauer indicated that it is still a work-in-progress. She introduced Bob Dulla, Sierra Research, who has been working on descriptive information for the measures.

Mr. Dulla presented the analysis of 18 preliminary draft measures. He indicated that the measures are needed to provide five percent annual reductions, model attainment, and achieve attainment at the monitors. Mr. Dulla mentioned the history of PM-10 control measure analysis in Maricopa County. He stated most sources of fugitive dust are currently regulated. Mr. Dulla indicated that the challenge will be improving rule effectiveness for measures already in place. He stated that there are also a few categories of emissions that are not being captured.

Mr. Dulla discussed the approach for the analysis, which included contacting agencies implementing proposed measures and local agencies implementing current programs. He indicated that the approach also included reviewing dust control literature and the 2005 PM-10 Emissions Inventory, preparing cost effectiveness estimates, and interpreting results. Mr. Dulla stated that information currently available for many measures is incomplete and the estimates are likely to change. Measures one through five are related to programs in Clark County (Las Vegas, Nevada).

Mr. Dulla mentioned preliminary draft measure number one, public education and outreach with assistance from local governments. He discussed the comprehensive outreach programs in place in several nonattainment areas and indicated that there is limited quantification of program benefits available. Mr. Dulla stated that Clark County has a combined effectiveness for preliminary draft measures one through five, but no estimate for the individual measures. He indicated that travel reduction credits may conflict with County Trip Reduction Program benefits. Mr. Dulla stated that when the Sacramento benefit was applied to this region, there was a PM-10 reduction of 0.4 tons per day with a cost effectiveness of \$7,900 per ton of PM-10 removed. He noted that compliance is voluntary and the Environmental Protection Agency (EPA) limits credits for benefits of voluntary mobile source reductions.

Mr. Cleveland inquired about the cost effectiveness in relation to the high, medium, and low rankings in the table of preliminary draft measures. Mr. Dulla replied that cost per ton is one measure of effectiveness. He stated that the rankings in the table are looking at the amount of PM-10 reduced.

Mr. Dulla discussed preliminary draft measure number two, extensive dust control training program. The goal is to adopt a Clark County type program. Currently, Maricopa County offers nonmandatory training. He discussed the mandatory Clark County Program. Mr. Dulla indicated that there was no measure of training program benefits available. The analysis assumed education would lead to an increase in on-site watering and control efficiency from 50 percent to 70 percent. He stated that the cost effectiveness for the measure is estimated to be \$12,494 per ton of PM-10 removed. It is not clear if additional enforcement would be required to implement the program.

Mr. Dulla discussed preliminary draft measure number three, core dust control training program with video distribution. The goal of the measure is to develop a core set of training materials to augment an existing training program. Mr. Dulla indicated that Clark County currently distributes training videos. He mentioned that there was no measure of training program benefits available. The analysis assumed that increased education would lead to an increase in on-site watering and control efficiency from 50 percent to 62 percent. He indicated that he is open to any information available on compliance from industry about how much change in effectiveness would result from training.

The cost effectiveness is estimated to be \$9,990 per ton of PM-10 removed. Mr. Dulla added that the analysis assumed the videos would be distributed free of charge.

Mr. Dulla discussed preliminary draft measure number four, dust managers required at construction sites of 50 acres and greater. The goal is to adopt the Clark County Dust Control Monitor requirements. Mr. Dulla stated that Clark County requires full time Dust Control Monitors for projects with 50 acres of actively disturbed soil, which can apply to multiple sites. He mentioned the training requirements for a Dust Control Monitor. Mr. Dulla stated that in Clark County, everyone pays for their own training. He indicated that there was no measure of training program benefits available. The analysis assumed education would lead to an increase in on-site water and control efficiency from 50 percent to 70 percent (same as measure two). Mr. Dulla stated that the cost effectiveness is estimated to be \$14,285 per ton of PM-10 removed. He noted that centralized dust control planning responsibility is expected to provide better Rule 310 compliance than measures two and three.

Mr. Dulla discussed preliminary draft measure number five, dedicated enforcement coordinator for unpaved roads and vacant lots. The goal is to establish a position focused solely on unpaved roads and parking lots. In Maricopa County, the responsibility for unpaved roads and parking lots is currently distributed across inspection staff. Vacant lot enforcement is proactive and unpaved road enforcement is complaint driven. Mr. Dulla indicated that Clark County has placed substantial emphasis on controlling emissions from unpaved roads and vacant lots.

Mr. Dulla stated that unpaved roads are 9.3 percent of the Draft 2005 PM-10 Emissions Inventory. He noted that the estimates assume the source is uncontrolled. Mr. Dulla discussed the Rule 310.01 requirements for unpaved roads. He stated that there are two elements of cost: enforcement and compliance with Rule 310.01 requirements. He mentioned that a Maricopa County Department of Transportation (MCDOT) study recently indicated palliatives have attractive cost effectiveness. The cost effectiveness for measure five is estimated to be \$534 per ton of PM-10 removed. Mr. Dulla indicated that concerns include not being clear if palliatives can withstand higher traffic levels without multiple applications, stabilized roads will induce higher speeds, higher speeds will bring increased liability, and distribution of traffic levels on unpaved roads is unclear.

Mr. Dulla discussed preliminary draft measure six, strengthen stringency and enforcement of the trackout provisions of Rule 310 and Rule 310.01. The goal is to improve rule effectiveness of provisions addressing trackout. He indicated that paved roads are responsible for 15 percent of PM-10 emitted in the Draft 2005 PM-10 Emissions Inventory. Mr. Dulla discussed Rule 310 trackout requirements and stated that this measure would reduce allowable trackout/spillage distance by 50 percent and increase frequency of inspections at locations with a history of violations. The two elements of cost are increased enforcement and frequent sweeping. He stated that the cost effectiveness is estimated to be \$2.5 million per ton of PM-10 removed. Mr. Dulla indicated that part of the reason for the high cost effectiveness is using silt estimates based on a trackout rate measured under dry soil summer conditions. He mentioned that once the SCAMPER data is available, there will be more representative rates of silt loadings and therefore better benefits. Mr. Dulla indicated that the analysis also assumes full compliance with Rule 310, which significantly deflates amount of material tracked out. He noted that the assumption for effectiveness may need to be adjusted.

Mr. Dulla discussed preliminary draft measure nine, revise Rule 310 tarping requirements to include empty backhaul. The goal is to revise Rule 310 tarping requirements to make them more

enforceable. He mentioned the existing requirements and stated that current practice provides uneven coverage between tarp and bed. The analysis assumed compliance could be achieved by spending extra time in extending the tarp to properly cover the compartment. Mr. Dulla stated that the cost effectiveness is estimated to be \$14,963 per ton of PM-10 removed. Discussions with Maricopa County indicated that automated systems must be redesigned to comply with suggested requirements. Therefore, higher cost of redesign will worsen cost effectiveness.

Dave Berry, Arizona Motor Transport Association, asked if the measure contemplates tarping an empty truck. Mr. Dulla responded that is correct. Mr. Berry suggested changing the measure to say revise Rule 310 tarping requirements to include empty return trip versus backhaul. He indicated that backhaul means loaded.

Mr. Dulla discussed preliminary draft measure 24, ban or discourage use of leaf blowers on High Pollution Advisory days. The goal is to improve attainment prospects on days with high concentrations. He stated that leaf blowers are estimated to produce one percent of PM-10 emitted in the Draft 2005 PM-10 Emissions Inventory. Mr. Dulla indicated that the options to comply include delaying use until a nonadvisory day (no annual benefit), delay use until next scheduled maintenance (annual benefit), or use a broom. He mentioned that UC Riverside tests indicate no emission reduction for using a broom on concrete. The cost effectiveness can only be computed for reductions on an advisory day. The estimated cost effectiveness is \$21,851 per ton of PM-10 removed. Mr. Dulla noted that the dispersed nature of the activity suggests enforcement would be difficult and options for compliance indicate benefits are uncertain.

Mr. Berry asked if the UC Riverside study addressed leaf vacuums. Mr. Dulla replied that the study did address leaf vacuums and there is no benefit. He stated that leaf vacuums do not have an industrial fabric filter. The vacuums are designed to stop leaves, not dust. According to the study, the only time there is a benefit is when the bag fills with leaves, which trap the dust. Mr. Cleveland asked if leaf vacuums would be more effective if manufacturers were required to produce a vacuum bag that would contain the dust. Mr. Dulla discussed ramifications of changing the vacuum bags.

Spencer Kamps, Homebuilders Association of Central Arizona, asked if the study was conducted on concrete or desert landscaping. Mr. Dulla responded that the study looked at different surfaces. For using a broom on asphalt, there is a slight benefit since some material binds to asphalt. He indicated that he will report back as to whether the study looked at desert landscaping.

Mr. Berry commented that leaf blowers produce a cloud of dust. When using a broom the dust is typically picked up. He commented on the possibility of further studies. Mr. Dulla indicated that the consultant for the study is also working on the SCAMPER study. He will speak with the consultant. Mr. Kamps commented that it is a normal practice for landscapers to use leaf blowers on rock and desert landscaping, which is increasing in the region.

Mr. Dulla discussed preliminary draft measure 25, encourage use of leaf vacuums to replace blowers. The measure is based on the assumption that leaf vacuums have lower emissions than leaf blowers. Mr. Dulla indicated that earlier analyses assumed vacuum bags have high collection efficiency. He mentioned the recent UC Riverside testing that indicates leaf vacuums have the same particulate emissions as leaf blowers and restated that vacuum bags do not appear to be designed to collect dust. There is no emissions benefit for this measure.

Mr. Dulla discussed preliminary draft measure 27, create fund to provide incentives to retrofit nonroad diesel engines and encourage early replacement with advanced technologies. The goal is

to establish a fund that distributes incentives for voluntary repower/retrofit projects meeting specific criteria. He indicated that many areas have established incentive programs. Mr. Dulla stated that there is a wide range of nonroad diesel engines used in a variety of applications which could be retrofit or repowered. To illustrate potential benefits and cost effectiveness the analysis looked at repowering by assuming it meets EPA's Tier 3 emissions standards or retrofitting by either a diesel oxidation catalyst or diesel particulate filter. The target equipment included tractors, loaders and backhoes (160 horsepower). Mr. Dulla stated that retrofit costs include equipment, fuel economy penalty, and increased fuel expense. The repower costs include engine and installation expenses. He indicated that the retrofit cost effectiveness is estimated to range from \$44,000 to \$52,000 per ton of PM-2.5 removed. For repower, the cost effectiveness is \$150,000 per ton of PM-2.5 removed. Mr. Dulla stated that incentive applications need to be carefully reviewed to ensure retrofit devices are used for appropriate vehicle applications.

Mr. Berry commented on measure 27 reducing PM-2.5. He asked if the PM-2.5 benefit can be counted toward PM-10 reductions. Mr. Dulla responded yes, PM-2.5 is part of PM-10.

Mr. Dulla discussed preliminary draft measure 28, update the statutes to require ultra-low sulfur diesel fuels for nonroad equipment. The goal is to accelerate the date when ultra-low sulfur fuel is used in nonroad equipment. He mentioned the current specs and EPA regulation requirements. The analysis assumed this measure would mandate 15 ppm fuel in 2008 for nonroad equipment. Mr. Dulla mentioned that the cost effectiveness is estimated to be \$16,000 per ton of sulfur dioxide and sulfate removed. He stated that the conversion rate from sulfur to PM will need to be discussed. Mr. Dulla noted that the refining industry has indicated that there may be supply issues with accelerating the distribution of 15 ppm diesel, which would lead to price increases.

Mr. Dulla discussed preliminary draft measure 30, retrofit onroad diesel engines with particulate filters. The goal is to reduce PM-10 emissions from onroad diesel engines by retrofitting them with filters and oxidation catalysts. He mentioned that EPA tests indicate diesel particulate filters reduce PM-2.5 emissions by 20 to 30 percent and diesel oxidation catalysts reduce PM-2.5 emissions by 85 to 90 percent. Retrofit costs include equipment (\$2,375 to \$11,875) and fuel economy penalty (one to three percent). Mr. Dulla discussed the assumptions for retrofit vehicles and indicated that the cost effectiveness is estimated to range from \$107,000 to \$133,000 per ton of PM-2.5 removed. He noted that care is needed to ensure that retrofit devices are properly matched with appropriate vehicle applications. Mr. Dulla restated that PM-2.5 is a component of PM-10.

Mr. Gibbs commented that the measure would not create a fund as is being proposed for nonroad diesel engines. He asked if it would be a required target. Mr. Dulla replied that a fund for this measure was not assumed; however, could be put in place. He stated that creating a fund would not change the cost effectiveness for the measure.

Ms. Fish asked if the measure would be for older vehicles made before a specific date. Mr. Dulla responded that a target range could be set, such as vehicles at least five years old.

Mr. Dulla discussed preliminary draft measure 32, pave or stabilize existing unpaved parking lots. The goal is to apply City of Phoenix zoning requirements for off street parking to unpaved parking lots throughout the PM-10 nonattainment area. According to the Draft 2005 PM-10 Emissions Inventory, unpaved parking lots are responsible for three percent of the PM-10 emitted. Mr. Dulla stated that Rule 310.01 requires one of three controls for unpaved parking lots. He indicated that the City of Phoenix zoning requires nonsingle family homes/duplexes to use dustproof paving and

single family homes/duplexes to use a dustproof surface (dust palliative options). The cost effectiveness for paving is \$1,754 per ton of PM-10 reduced and \$11,292 per ton for palliative options. He stated that unpaved parking lots are assumed to be uncontrolled in the Draft 2005 PM-10 Emissions Inventory; therefore, there is a big benefit for control applied to unpaved parking lots. Mr. Dulla noted that there is no enforcement costs included in the analysis.

Mr. Kamps inquired about the control effectiveness factor. Mr. Dulla responded that control effectiveness is approximately 22 percent for the palliative options. For paving, the factor is about 70 percent. Mr. Kamps asked about the baseline effectiveness. Mr. Dulla replied that the baseline effectiveness was matched with the Draft 2005 PM-10 Emissions Inventory. For unpaved parking lots, the source is uncontrolled; therefore, the baseline effectiveness was zero.

Mr. Kukino commented on Maricopa County regulations on unpaved parking lots. He asked if the City of Phoenix zoning requirements would be stricter than County requirements and if the cost effectiveness presented is the difference between the current County requirements and the City of Phoenix requirements. Mr. Dulla responded that the analysis is tied to the Draft 2005 PM-10 Emissions Inventory, which shows no benefit for the County requirements. He indicated that the rule effectiveness analysis showed a 50 percent benefit. Mr. Dulla mentioned that one approach would be that the draft inventory include the benefit. Mr. Kukino suggested a comparison between the County and an alternative (City of Phoenix) requirement for unpaved parking lots in terms of cost effectiveness. Mr. Dulla discussed implementation and enforcement. Mr. Kukino stated that the solution may be that the County needs to increase enforcement. Mr. Dulla indicated that he does not know the enforcement level for unpaved lots at this point. He commented on the inconsistency with the draft inventory.

Mr. Dulla discussed preliminary draft measure 33, pave or stabilize existing dirt roads and alleys. The goal is to extend Rule 310.01 unpaved road requirements for 150 plus vehicles per day to roads with lower traffic levels. He stated that unpaved roads are 9.3 percent of the Draft 2005 PM-10 Emissions Inventory. The estimates assume the source is uncontrolled. Mr. Dulla discussed the current requirements of Rule 310.01. He indicated that the analysis assumed no additional enforcement expenses (to distinguish from measure five) and compliance assumed roads with 120 vehicles per day would use palliatives. Mr. Dulla stated that the estimated cost effectiveness is \$159 per ton. He noted that concerns include not being clear if palliatives can withstand higher traffic levels without multiple applications, stabilized roads will induce higher speeds, higher speeds will bring increased liability, and distribution of traffic levels on unpaved roads is unclear.

Mr. Kukino asked if there have been any concerns with using palliatives in regards to stormwater and water quality from runoff. Mr. Dulla responded that a number of studies are looking at the effects of palliatives. He commented on palliatives that use salt. Amanda McGennis, Associated General Contractors, mentioned nonwater soluble dust suppressants.

Mr. Kamps commented on EPA-recommended dust palliatives and findings on water quality issues. Wienke Tax, Environmental Protection Agency, responded that EPA does not recommend specific brands. She indicated that she will report back on the issue. Mr. Dulla added that the material provided on most palliatives does not include much information on dust control benefits and a lot of information on water impacts. He referred to Environmental Stabilization Solutions (EnSSo). Ms. McGennis indicated that she will provide EnSSo materials regarding dust control benefits.

Peter Hyde, Arizona Department of Environmental Quality, inquired about the difference in cost effectiveness between measures 32 and 33. Mr. Dulla responded that he will report back on the question. He indicated that there was an enforcement cost difference between measures 5 and 33.

Mr. Dulla discussed preliminary cost measure 34, limit speeds to 15 miles per hour on high traffic dirt roads. The goal is to reduce fugitive dust on unpaved roads by reducing vehicle speeds. He stated that it is his understanding that speeds are not actively enforced on unpaved roads. Mr. Dulla indicated that the MCDOT has a policy of not posting speed limit signs on dirt roads since the surface changes too frequently for them to have any engineering basis to establish speed. He stated that the State of Arizona and other counties have similar policies. Mr. Dulla also referred to a County legal opinion indicating that speeds cannot be enforced on unpaved roads.

Mr. Gibbs asked if there has been any research on washboarding. Mr. Dulla replied that MCDOT has indicated that they are unwilling to install speed barriers due to liability concerns. Mr. Person stated that the City of Scottsdale installed speed bumps on unpaved roads; however, residents drove around them onto neighboring property.

Mr. Dulla indicated that Rule 310 requires owners/operators of unpaved haul roads that have not been stabilized to restrict speeds to 15 miles per hour. He stated that measure 34 would extend those requirements to roads with 120 plus vehicles per day. There are two elements of cost: signage (every quarter mile) and enforcement (sheriff issuing four tickets per day). The cost effectiveness is estimated to be \$3,337 per ton of PM-10 removed. Mr. Dulla reiterated the implementation issues.

Mr. Dulla discussed preliminary draft measure 35, prohibit new dirt roads including those associated with lot splits. The goal is to eliminate growth in miles of unpaved roads. He stated that there are no restrictions on construction of new unpaved roads. Mr. Dulla indicated that there are several PM-10 nonattainment areas that have implemented similar measures. He mentioned different ways the measure can be implemented. The analysis assumed compliance through paving and the cost effectiveness is estimated to be \$2,464 per ton of PM-10 removed. Mr. Dulla noted that the high cost of paving may encourage use of palliatives in new developments if stabilization is allowed as an alternative compliance method. In subsequent years, however, there are no enforcement rights since it is on private property and the benefits will degrade unless the surface is maintained.

Mr. Dulla discussed preliminary draft measure 36, pave or stabilize unpaved shoulders. The goal is to decrease inventory of unpaved shoulders along paved roads. He stated that unpaved shoulders are a major source of emissions and fugitive dust from unpaved shoulders comes from the bow wake of moving vehicles and trackout from vehicles crossing onto paved roads. Mr. Dulla discussed the MCDOT analysis that examined benefits of alternate shoulder treatments. He stated that the most cost effective measure in the analysis was curb and gutter, which is very expensive. Mr. Dulla indicated that he did not want to set a precedent of establishing the most expensive option as the one to be considered. He mentioned that he selected the second most cost effective measure, which was paving eight foot shoulders. The cost effectiveness is estimated to be \$18,452 per ton of PM-10 reduced. Mr. Dulla noted that little data is available on bow wake emissions and these assumptions are required to evaluate control measure benefits.

Mr. Dulla discussed preliminary draft measure 37, pave or stabilize unpaved access to paved roads. The goal is to reduce fugitive dust from trackout. He indicated that trackout is a significant source of emissions and paved roads are responsible for 15 percent of PM-10 emitted in the Draft 2005 PM-10 Emissions Inventory. Mr. Dulla mentioned the requirements in Rule 310 to clean up and

prevent trackout. He stated that this measure would reduce the length of the trackout requiring rapid cleanup by 50 percent, double the length of gravel pad, or combine gravel pad and grizzly. Mr. Dulla indicated that Rule 310 requires something to be in place, so the assumption was that there was a 100 foot paved surface at the point of access. He stated that control effectiveness may need to be adjusted. The cost effectiveness is estimated to be \$2.25 million per ton of PM-10 removed for rapid cleanup, \$179,133 per ton for a doubled gravel pad, and \$168,025 per ton for a gravel pad and grizzly.

Mr. Kamps inquired about trackout through a trackout control device. Mr. Dulla replied that it is 100 feet prior to the access point for paving, 50 feet for gravel, and 24 feet for a grizzly. Mr. Kamps asked if the requirements are only for sources that have to obtain a permit. He commented on trackout by businesses in South Phoenix.

Mr. Gibbs inquired about the two factors for high cost effectiveness. Mr. Dulla replied that the factors are low silt loading estimates based on a trackout rate measured under dry soil summer conditions and the baseline effectiveness. He stated that the assumption of 100 feet of paved surface at the point of access was included in the baseline. Mr. Dulla indicated that may need to be adjusted if a lot of businesses do not have 100 feet of paved surface at the points of access. The assumption of full compliance with Rule 310 significantly deflates the amount of material tracked out.

Mr. Dulla provided the preliminary draft measures ranked by increasing cost effectiveness. He noted that the cost effectiveness for the measures will likely change. Mr. Berry asked if the total tons per day were calculated. Mr. Dulla responded that the analysis is computing cost effectiveness which is different than tons of PM-10. He indicated that tons can be provided for source categories included in the Draft 2005 PM-10 Emissions Inventory. Mr. Berry inquired about how close the region is to the five percent reductions in emissions using the preliminary draft measures, based on the draft inventory. Mr. Dulla commented that the key is to link the measures to the draft inventory. He discussed implementation issues. Mr. Berry asked if a combination of the measures will achieve five percent reductions per year. Mr. Dulla replied that increases in rule effectiveness in terms of tonnage offer a large benefit. He added that attainment is also needed at the monitors.

Barbara Sprungl, Salt River Project, asked for clarification on how the cost per ton is calculated without knowing the tonnage reduced. Mr. Dulla provided the example of an unpaved parking lot. The current rule states that an unpaved parking lot of one-tenth acre is required to be paved. He stated that the cost for paving the lot and benefit can be calculated for the controlled versus uncontrolled situation. The difference is the economic efficiency of the measure.

Mr. Kukino commented that the Committee needs to know what is causing the violations at the monitors. The Committee could then work backward to determine which measures would be effective for attainment at the monitors. Mr. Dulla responded that the best estimate available is the inventory included in the Salt River Plan for PM-10 since it focused on the Salt River Area. He stated that the recent study with T&B Systems indicates that changes need to be made to the inventory estimates. There is not an inventory at this point that accurately represents all the emission sources that are impacting the monitors during design days.

Ms. Bauer stated that Mr. Dulla will provide descriptive information for the remaining preliminary draft measures at the February 15, 2007 meeting and comments are welcomed. She noted that some of the cost effectiveness numbers may change. Ms. Bauer indicated that some members of the Committee expressed an interest in looking at the data from the MAG PM-10 Source Attribution and

Deposition Study again and have an opportunity to ask the consultant questions. A workshop will be scheduled for Friday, February 16, 2007 at 9:00 a.m at the MAG office. Ms. Bauer stated that it will also be an opportunity to ask questions on the descriptive information provided on the measures. Ms. Grey requested the presentation electronically. Mr. Cleveland indicated that the presentation will be provided to the Committee members attending by telephone conference call.

8. Status Report on Agricultural Measures

Ms. Fish provided a status report on agricultural measures. She stated that the technical working group evaluated twelve San Joaquin Conservation Management Practices and recommended six. On January 25, 2007, the Governor's Agricultural Best Management Practices (BMPs) Committee took action to add four of the six recommended Best Management Practices to the list of control measures available to farmers. Ms. Fish discussed the four new BMPs, which are precision farming, transgenic crops, green chop, and integrated pest management. She indicated that the measures with the highest efficiency factors were chosen. Ms. Fish mentioned that the four measures will be effective in the tillage and harvest category.

Ms. Fish mentioned other actions taken by the Governor's Agricultural BMPs Committee on January 25, 2007. One action was a request to the Arizona Cotton Research & Protection Council and Arizona Department of Agriculture to consider eliminating or adjusting the plow-down schedule for growers who plant only bT cotton. The current plow-down date is February 15. Action was also taken to send a letter to farmers in Area A (west and southwest of the PM-10 nonattainment area) asking them to voluntarily adopt BMPs (and remind them of the impact of being pulled into the PM-10 nonattainment area). Ms. Fish stated that the Governor's Agricultural BMPs Committee referred to the technical working group for recommendation on a suggestion that farmers be required to adopt two BMPs per category, instead of one, and a suggestion that another new BMP be added that would suspend night tillage or harvest activities on stagnant air days. She indicated that some harvest activities, such as baling hay, have to be done at night in the desert and that more research is necessary.

Ms. Fish indicated that a survey was conducted by Maricopa County that showed many farmers are implementing more than one BMP per category. In addition, the Arizona Department of Environmental Quality inspector has indicated that farmers have been responsive. She stated that agriculture's "ultimate sacrifice" is that farmland is being developed into subdivisions, warehouses and commercial developments; paved over and never again to provide green, open space that produces food or fiber, or oxygen from all the plants. Ms. Fish indicated that there has been approximately a 75 percent reduction in farmland in the Salt River Area in the past ten years.

Ms. McGennis asked if agriculture is regulated to clean up trackout or limit speeds on haul roads. Ms. Fish replied that limiting speeds on farm roads is a BMP in the noncropland category. According to Maricopa County, agriculture falls under Rule 310 for trackout. Jo Crumbaker, Maricopa County Air Quality Department, stated that the County has issued notices to farmers for trackout onto public paved roads.

Mr. Kamps asked if notices of violation (NOVs) have been issued for trackout. Ms. Crumbaker replied that is correct. Mr. Kamps asked if a NOV for trackout could be issued to a business that has an unpaved parking lot that tracks out onto a paved road. Ms. Crumbaker responded that the County would issue NOVs in severe cases, but commonly does not, due to the total number of businesses that would have no other reason for the visit. Mr. Kamps asked if the County has the authority to

issue NOVs to businesses for trackout. Ms. Crumbaker replied that the County has the authority; however, there are practical implications and resource issues.

Mr. Gibbs referred to the possible new BMP that would suspend night tillage or harvest activities on stagnant air days. He inquired about the agricultural activities that occur during November and December. Ms. Fish responded that tillage and harvesting can occur during those months. Mr. Gibbs inquired about harvesting at night. Ms. Fish replied that cotton cannot be harvested at night due to moisture.

Mr. Bowers asked if the law mandates plow-down to occur to eliminate the pink bollworm by a certain date. Ms. Fish responded that the law requires that all of the stock be pulled out of the ground and plowed-under by February 15. She stated that there needs to be 30 days before the farmer can replant. Mr. Bowers commented on this timing relative to the stagnant conditions in the region. He inquired about moving the February 15 deadline to account for High Pollution Advisory days or strong inversions. Ms. Fish mentioned high PM-10 values at the Buckeye monitor in February 2006 and indicated that there were many farmers in the field working against the February 15 deadline.

Ms. Bauer asked if plow-downs will gradually be phased out with the eradication of the pink bollworm. Ms. Fish replied that if the pink bollworm is successfully eradicated, plow-down deadlines could be phased out.

9. Call for Future Agenda Items

Mr. Cleveland announced that the next meeting of the Committee is tentatively scheduled for February 15, 2007. With no further comments, the meeting was adjourned.

**PRELIMINARY DRAFT COMPREHENSIVE LIST OF
MEASURES TO REDUCE PM-10 PARTICULATE MATTER**

February 5, 2007

**PRELIMINARY DRAFT COMPREHENSIVE LIST OF MEASURES
TO REDUCE PM-10 PARTICULATE MATTER**

MEASURE	FIVE PERCENT REDUCTION IN EMISSIONS	MODELING ATTAINMENT DEMONSTRATION	ATTAINMENT AT THE MONITORS	POTENTIAL IMPLEMENTING ENTITY
Agriculture				
The Governor's Agricultural Best Management Practices Committee is in the process of evaluating potential measures to further reduce PM-10 emissions from agriculture for consideration for the Five Percent Plan for PM-10. This Committee was established by law in 1998 (Arizona Revised Statutes, Title 49-457) to develop an agricultural PM-10 general permit that would address the need for controls on agricultural operations. The potential agricultural measures will be presented to the MAG Air Quality Technical Advisory Committee for consideration.				
Fugitive Dust Control Rules				
1. Public education and outreach (e.g., Clark County) with assistance from local governments	H (increasing Rule 310 effectiveness)	H (increasing Rule 310 effectiveness)	L	County, local govts
2. Extensive Dust Control Training Program (e.g., Clark County)	H (increasing Rule 310 effectiveness)	H (increasing Rule 310 effectiveness)	M	County, private sector
3. Core Dust Control Training Program with video provided to local governments and private sector	H (increasing Rule 310 effectiveness)	H (increasing Rule 310 effectiveness)	M	County, local govts, private sector
4. Dust Managers required at construction sites of 50 acres and greater (e.g., Clark County)	H (increasing Rule 310 effectiveness)	H (increasing Rule 310 effectiveness)	M	County
5. Dedicated enforcement coordinator for unpaved roads and vacant lots (e.g., Clark County)	H (increasing Rule 310.01 effectiveness)	H (increasing Rule 310.01 effectiveness)	M	County
6. Strengthen the stringency and enforcement of the trackout provisions	H (increasing Rule 310 & 310.01 effectiveness)	H (increasing Rule 310 & 310.01 effectiveness)	H	County
7. Increase fines for dust control violations and continue to publish the list of violators	H (increasing Rule 310 & 310.01 compliance)	H (increasing Rule 310 & 310.01 compliance)	H	County

MEASURE	FIVE PERCENT REDUCTION IN EMISSIONS	MODELING ATTAINMENT DEMONSTRATION	ATTAINMENT AT THE MONITORS	POTENTIAL IMPLEMENTING ENTITY
8. Establish a certification program for Dust Free Developments to serve as an industry standard	H (increasing Rule 310 effectiveness)	H (increasing Rule 310 effectiveness)	L	State, County
9. Better defined tarping requirements in Rule 310 to include enclosure of the bed	H (increasing Rule 310 effectiveness)	H (increasing Rule 310 effectiveness)	M	County
10. Conduct just-in-time grading (i.e., once a parcel of land is cleared, stabilization or work on the parcel would be required within a certain number of days)	H (increasing Rule 310 effectiveness)	H (increasing Rule 310 effectiveness)	M	County
11. Establish continuous monitoring requirements for permitted sources larger than 50 acres	H (increasing Rule 310 effectiveness)	H (increasing Rule 310 effectiveness)	H	County
12. Conduct mobile monitoring to measure PM-10 and issue NOV's	H (increasing Rule 310 effectiveness)	H (increasing Rule 310 effectiveness)	H	County
13. Cease dust generation activities during stagnant conditions	H (increasing Rule 310 effectiveness)	H (increasing Rule 310 effectiveness)	H	County
14. Establish maintenance requirements for paved roads and parking lots	H (increasing Rule 310 effectiveness)	H (increasing Rule 310 effectiveness)	H	County
15. Conduct nighttime inspections	H (increasing Rule 310 effectiveness)	H (increasing Rule 310 effectiveness)	H	County
16. Increase inspection frequency for permitted facilities	H (increasing Rule 310 effectiveness)	H (increasing Rule 310 effectiveness)	H	County

MEASURE	FIVE PERCENT REDUCTION IN EMISSIONS	MODELING ATTAINMENT DEMONSTRATION	ATTAINMENT AT THE MONITORS	POTENTIAL IMPLEMENTING ENTITY
17. Increase number of proactive inspections in areas of highest PM-10 emissions densities - intensify training and education - incentive program for compliance	H (increasing Rule 310 effectiveness)	H (increasing Rule 310 effectiveness)	H	County
18. Notify violators more rapidly to promote immediate compliance	L	L	H	County
Industry				
19. Fully implement Rule 316	L	L	H	County, private sector
20. Require private companies to use PM-10 certified street sweepers on paved areas including parking lots (e.g., Clark County)	L	L	H	State
21. Shift hours of operation during stagnant conditions in November through February	N/A	H	H	State
22. Model cumulative impacts for new or modified existing sources	L	L	M	State
23. Conduct night time and weekend inspections	L	M	M	County
Nonroad Activities				
24. Ban or discourage use of leaf blowers on high pollution advisory days	L	L	L	State, County
25. Encourage use of leaf vacuums to replace blowers	L	L	L	State, County
26. Reduce off-road vehicle use in areas with high off-road vehicle activity (e.g., Goodyear Ordinance) - impoundment or confiscation of vehicles for repeat violators	M	L	L	State, County, local govts

MEASURE	FIVE PERCENT REDUCTION IN EMISSIONS	MODELING ATTAINMENT DEMONSTRATION	ATTAINMENT AT THE MONITORS	POTENTIAL IMPLEMENTING ENTITY
27. Create a fund to provide incentives to retrofit nonroad diesel engines and encourage early replacements with advanced technologies	L	L	L	State
28. Update the statutes to require ultra-low sulfur diesel fuels for nonroad equipment	L	L	L	State
Paved Roads				
29. Sweep streets with PM-10 certified street sweepers	M	M	M	County, local govts
30. Retrofit onroad diesel engines with particulate filters	L	L	L	State, County, local govts
31. Repave or overlay paved roads with rubberized asphalt	L	L	L	State, County, local govts
Unpaved Parking Lots				
32. Pave or stabilize existing unpaved parking lots (e.g., upgrade to Phoenix Parking Code) - strengthen enforcement	M	M	M	County, local govts
Unpaved Roads				
33. Pave or stabilize existing dirt roads and alleys	H	M	M	County, local govts
34. Limit speeds to 15 miles per hour on high traffic dirt roads	H	M	M	County, local govts
35. Prohibit new dirt roads including those associated with lot splits	N/A	N/A	M	State, County
Unpaved Shoulders				
36. Pave or stabilize unpaved shoulders	H	M	M	County, local govts

MEASURE	FIVE PERCENT REDUCTION IN EMISSIONS	MODELING ATTAINMENT DEMONSTRATION	ATTAINMENT AT THE MONITORS	POTENTIAL IMPLEMENTING ENTITY
Unpaved Access Points				
37. Pave or stabilize unpaved access to paved roads	M	M	M	County, local govts
Vacant Lots				
38. Strengthen and increase enforcement of Rule 310.01 for vacant lots	H (increasing Rule 310.01 effectiveness)	L	M	County
39. Restrict vehicular use and parking on vacant lots (e.g., Phoenix)	H (increasing Rule 310.01 effectiveness)	L	M	County, local govts
40. Enhanced enforcement of trespass ordinances and codes	H (increasing Rule 310.01 effectiveness)	L	M	County, local govts
41. Vacant lots stabilized by County if owners do not respond, liens put on property if necessary (e.g., Clark County)	H (increasing Rule 310.01 effectiveness)	H	M	State, County
Traffic Flow Improvements				
42. Schedule improvements on parallel streets to retain alternate route options along major north/south and east/west corridors	L	L	L	Local govts
Transit				
43. Build park and ride lots earlier	L	L	L	Local govts
44. Coordinate public transit services with Pinal County	L	L	L	Local govts
Woodburning				
45. Increase fines for open burning (currently \$25)	L	L	H	County

CMAQ DETAILED PROJECT LISTING REPORT (FY 2006)													
09-February-2007													
Fiscal Year = '2006' and Status Selection Criteria = 'ALL' and State = 'Arizona'													
STATE	Appropriation ments	APPORTION. AMOUNT	OBLIGATED AMOUNT	OBLIG. %	PROJECT AMOUNT	PROJECT TYPE	PROJECT TITLE & DESCRIPTION	VOC (Kg/ Day)	CO (Kg/ Day)	NOx (Kg/ Day)	PM 10 (Kg/ Day)	PM 2.5 (Kg/ Day)	CONTINUING PROJECT?
Arizona	11/20/2010	\$32,950,007	\$37,997,644	115 %									
Arizona					\$1,867,091	I/M and Other TCMs	MAG: PM-10 Certified Street Sweeper Program PM-10 Certified Street Sweeper Program	2	1	1	1	3,974	
Arizona					\$201,772	I/M and Other TCMs	MAG: Regional Videoconferencing System and Hub Site Support & Administration Regional Videoconferencing System	2	1	1	1		
Arizona					\$117,903	I/M and Other TCMs	MAG: Regional System Planning Regional System Planning	QA	QA	QA	QA		
Arizona					\$2,240,000	Pedestrian/Bicycle	Phoenix: Construct underpass at 51st Ave. and Arizona Canal Diversion Construct multiuse underpass	2	21	1	1		
Arizona					\$1,658,000	Pedestrian/Bicycle	Mesa: Construct South Canal multiuse path between McKellips Rd and McDowell Rd Construct multiuse path	1	12	1	1		
Arizona					\$51,414	Pedestrian/Bicycle	MAG: Regional Pedestrian Planning Regional Pedestrian Planning	QA	QA	QA	QA		
Arizona					\$50,000	Pedestrian/Bicycle	Avondale: Pedestrian improvements on McDowell Rd. - Agua Fria River to 119th Ave Design pedestrian improvements	1	2	1	1		
Arizona					\$2,253,629	Shared Ride	Tempe: Construct regional park-and-ride at Loop 101 and Apache Blvd Construct regional park-and-ride	1	8	1	1		
Arizona					\$2,220,300	Shared Ride	Chandler: Design regional park-and-ride near Loop 202 and Arizona Avenue Design regional park-and-ride	3	33	2	3		

CMAQ DETAILED PROJECT LISTING REPORT (FY 2006)

Fiscal Year = '2006' and Status Selection Criteria = 'ALL' and State = 'Arizona'

STATE	Apportionments	APPORTION AMOUNT	OBLIGATED AMOUNT	OBLIG. %	PROJECT AMOUNT	PROJECT TYPE	PROJECT TITLE & DESCRIPTION	VOC (Kg/Day)	CO (Kg/Day)	NOx (Kg/Day)	PM 10 (Kg/Day)	PM 2.5 (Kg/Day)	CONTINUING PROJECT?
Arizona					\$910,000	Shared Ride	MAG: Trip Reduction Program Trip Reduction Program	447	4,651	349	357		
Arizona					\$695,565	Shared Ride	Masa: Acquire right-of-way for regional park-and-ride at Loop 202 and Power Rd Acquire right-of-way for regional park-and-ride	4	43	3	3		
Arizona					\$660,000	Shared Ride	MAG: Regional Rideshare Program Regional Rideshare Program	312	3,243	244	249		
Arizona					\$623,700	Shared Ride	Valley Metro: Purchase 22 vanpool vehicles to expand fleet Purchase vanpool vehicles	5	51	4	4		
Arizona					\$300,000	Shared Ride	MAG/Valley Metro: Telework & Ozone Outreach Program Telework & Ozone Outreach Program	579	6,023	452	462		
Arizona					\$135,000	Shared Ride	MAG: Travel Reduction Program Travel Reduction Program	4	41	3	3		
Arizona					\$1,890,000	Traffic Flow Improvements	ADOT: Install fiber-optic cable on Loop 101 between I-10 and I-17 Install fiber-optic cable	438	1,269	70			
Arizona					\$1,869,373	Traffic Flow Improvements	MAG: Traffic Signal Optimization Program Traffic Signal Optimization Program and Regional Community Network Implementation and Coordinate Regional Smart Corridor	QA	QA	QA			
Arizona					\$1,410,000	Traffic Flow Improvements	ADOT: Construct interchange improvements at I-10 and 43rd Ave and 51st Ave Construct traffic interchange improvements	1	1	1			
Arizona					\$845,600	Traffic Flow Improvements	Phoenix: Install wireless communications in areas citywide Install wireless communications	63	173	45			

CMAQ DETAILED PROJECT LISTING REPORT (FY 2006)

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STATE	Apportionments	APPORTION AMOUNT	OBLIGATED AMOUNT	OBLIG. %	PROJECT AMOUNT	PROJECT TYPE	PROJECT TITLE & DESCRIPTION	VOC (K\$/Day)	CO (K\$/Day)	NOx (K\$/Day)	PM10 (K\$/Day)	PM 2.5 (K\$/Day)	CONTINUING PROJECT?
Arizona					\$665,000	Traffic Flow Improvements	Glendale: Install signal system on Bell Rd. from 51st Ave. to 83rd Ave. Install computerized signal system	7	-13	4			
Arizona					\$664,607	Traffic Flow Improvements	ADOT: Construct traffic interchange improvements at Interstate-10 and Ray Rd. Construct traffic interchange improvements	1	2	1			
Arizona					\$100,294	Traffic Flow Improvements	Tempe: Install connections between ADOT FMS and 22 traffic interchanges Install ITS connections	49	99	37			
Arizona					\$94,300	Traffic Flow Improvements	Chandler: Design fire and police department signal system integration Design signal system integration and variable message signs	1	3	1			
Arizona					\$11,763,536	Transit	METRO: Construct fixed guideway Central Phoenix - East Valley Construct fixed guideway and intermodal transfer facility	102	1,036	81	82		
Arizona					\$2,040,000	Transit	Valler Metro: Purchase 6 standard buses to replace older buses Purchase buses	1	4		1		
Arizona					\$1,810,560	Transit	Phoenix: Purchase 6 standard buses to replace older buses Purchase buses	1	4		1		
Arizona					\$550,000	Transit	Scottsdale: Design Arizona State University - Scottsdale Transit Center Design transit center	1	11	2	1		
Arizona					\$300,000	Transit	Scottsdale: Purchase 1 trolley Purchase trolley	0	3	1	1		
Nationwide Totals		\$32,950,007	\$37,987,644	115 %									

09-February-2007

CMAQ DETAILED PROJECT LISTING REPORT (FY 2006)

Fiscal Year = '2006' and Status Selection Criteria = 'ALL' and State = 'Arizona'

STATE	Apportionments	APPORTION. AMOUNT	OBLIGATED AMOUNT	OBLIG. %	PROJECT AMOUNT	PROJECT TYPE	PROJECT TITLE & DESCRIPTION	VOC (Kg/Day)	CO (Kg/Day)	NOx (Kg/Day)	PM 10 (Kg/Day)	PM 2.5 (Kg/Day)	CONTINUING PROJECT?
States without ozone or CO Nonattainment or maintenance areas			QA - Qualitative Assessment areas		PR - Previously Reported	c - Changed benefit from previous year report							