

**COMPARISON OF POTENTIAL PM₁₀ EMISSIONS REDUCTIONS
FROM IMPLEMENTATION OF MARICOPA COUNTY AGRICULTURAL BMPS
AND SAN JOAQUIN CONSERVATION MEASURE PRACTICES**

**Air Quality Division
ADEQ**

January 22, 2007

TABLE OF CONTENTS

BACKGROUND 1

METHODOLOGY 1

 1. Estimation of Crop Acres in Maricopa County PM₁₀ Nonattainment Area:..... 1

 2. Calculation of Uncontrolled PM₁₀ Emissions by Crop & Agricultural Activity..... 2

 3. Calculation of PM₁₀ Emissions Reduction by Crop and Control Measure: 3

RESULTS: 5

REFERENCES 35

LIST OF TABLES

Table 1 – Emission Factors and Adjustment Factors 4

Table 2 - Ranking of Potential PM₁₀ Emission Reductions From BMPs and CMPs 5

Table 3 – Potential PM₁₀ Emission Reductions by Control Measure and Associated Crop..... 9

LIST OF FIGURES

Figure 1. Ranking of Maricopa County BMPs and San Joaquin CMPs..... 8

BACKGROUND:

ADEQ Air Quality Division staff performed an analysis comparing potential PM₁₀ emissions reductions from implementation of San Joaquin Conservation Management Practices (CMPs) with existing Maricopa County Agricultural Best Management Practices (BMPs) for the Maricopa County PM₁₀ Nonattainment Area. This comparison is a continuation of the work that was done for the June 27, 2006, Agricultural BMP Workgroup meeting which compared percent control efficiencies between Maricopa County BMPs and San Joaquin CMPs. The sources of data for the CMPs and BMPs:

- “Conservation Management Practices Program Report for 2005”, San Joaquin Valley Air Pollution Control District, January 19, 2006; and
- “Technical Support Document for Quantification of Agricultural Best Management Practices, Revised Final Draft”, ADEQ Contract No. 98-0159-BF, URS Corporation and Eastern Research Group, Inc., June 8, 2001.

Note: The emissions and emissions reduction data listed in this report are for comparison purposes only to evaluate the potential effectiveness of different agricultural control measures. These data should not be construed as an emissions inventory for agricultural operations since it was necessary to estimate the number of acres by crop in the Maricopa County PM₁₀ Nonattainment Area and make general assumptions about the application of the different control measures.

METHODOLOGY:

The following steps were used to estimate potential uncontrolled PM₁₀ emissions and potential PM₁₀ emission reductions from implementation of Maricopa County Agricultural BMPs and San Joaquin CMPs.

1. Estimation of Crop Acres in Maricopa County PM₁₀ Nonattainment Area:

$$\text{Crop}_{\text{Nonattainment Area}} = \text{Crop}_{\text{Maricopa County}} * (\text{Ag Acres}_{\text{Nonattainment Area}} / \text{Ag Acres}_{\text{Maricopa County}})$$

Where:

Crop_{Nonattainment Area} = Area of a specific crop in the Maricopa County PM₁₀ Nonattainment Area (acres)

Crop_{Maricopa County} = Area of a specific crop in the Maricopa County (acres)
(Source: Arizona Agricultural Statistics, 2004)

Ag Acres_{Nonattainment Area} = Total agricultural area in Maricopa County PM₁₀ Nonattainment Area (acres)
(Source: Maricopa Association of Government’s 2004 Population and Employment data)

Ag Acres_{Maricopa County} = Total agricultural area in Maricopa County (acres)

Example - Acres of Cotton in Maricopa County PM₁₀ Nonattainment Area:

Given:

$$\text{Crop}_{\text{Nonattainment Area}} = \text{Acres of cotton in the Maricopa County PM}_{10} \text{ Nonattainment Area}$$

$$\text{Crop}_{\text{Maricopa County}} = 20,500 \text{ acres of cotton in Maricopa County}$$

$$\text{Ag Acres}_{\text{Nonattainment Area}} = 223,624 \text{ total agricultural acres in Maricopa County PM}_{10} \text{ Nonattainment Area}$$

$$\text{Ag Acres}_{\text{Maricopa County}} = 465,833 \text{ total agricultural acres in Maricopa County}$$

Then:

$$\text{Crop}_{\text{Nonattainment Area}} = \text{Crop}_{\text{Maricopa County}} * (\text{Ag Acres}_{\text{Nonattainment Area}} / \text{Ag Acres}_{\text{Maricopa County}})$$

$$\text{Cotton}_{\text{Nonattainment Area}} = 20,500 \text{ acres} * (223,624 \text{ acres} / 465,833 \text{ acres})$$

$$\text{Cotton}_{\text{Nonattainment Area}} = 20,500 \text{ acres} * 0.48 = 9,841 \text{ acres}$$

2. Calculation of Uncontrolled PM₁₀ Emissions by Crop & Agricultural Activity in Maricopa County PM₁₀ Nonattainment Area:

$$E_{\text{Crop Activity}} = EF_{\text{Crop Activity}} * A$$

Where:

$$E_{\text{Crop Activity}} = \text{Emissions for a specific crop and activity (lbs PM}_{10} / \text{year)}$$

$$EF_{\text{Crop Activity}} = \text{Emissions factor for a specific crop and activity (lbs PM}_{10} / \text{acre / year)}$$

$$A = \text{Area of crop (acres)}$$

Example – Land Preparation / Cultivation for Cotton:

Given:

$$E_{\text{Crop Activity}} = \text{Emissions for land preparation / cultivation for cotton in Maricopa County PM}_{10} \text{ Nonattainment Area (lbs PM}_{10} / \text{year)}$$

$$EF_{\text{Crop Activity}} = 8.90 \text{ lbs PM}_{10} / \text{acre / year for land preparation for cotton.}$$

$$A = 9,841 \text{ acres of cotton in Maricopa County PM}_{10} \text{ Nonattainment Area}$$

Then:

$$E_{\text{Crop Activity}} = EF_{\text{Crop Activity}} * A$$

$$E_{\text{Crop Activity}} = 8.90 \text{ lbs PM}_{10} / \text{acre} / \text{year} * 9,841 \text{ acres}$$

$$E_{\text{Crop Activity}} = 87,585 \text{ lbs PM}_{10} / \text{year}$$

3. Calculation of PM₁₀ Emissions Reduction by Crop and Control Measure:

$$ER = E_{\text{Uncontrolled Emissions}} * CE$$

Where:

ER = Emissions reduction for a specific crop and activity after application of a control measure (lbs PM₁₀ / year)

E_{Uncontrolled Emissions} = Uncontrolled emissions for a specific crop and activity (lbs PM₁₀ / year)

CE = Control effectiveness of a specific control measure (decimal reduction, e.g. 0.25 = 25% reduction)

Example – Integrated Pest Management Control Measure Applied to Cotton Tilling:

Given:

ER = Emissions reduction for cotton land preparation / cultivation tilling after application of Integrated Pest Management control measure (lbs PM₁₀ / year)

E_{Uncontrolled Emissions} = Uncontrolled Emissions for cotton land preparation / cultivation (lbs PM₁₀ / year)

CE = 19% = 0.19

Then:

$$ER = E_{\text{Uncontrolled Emissions}} * CE$$

$$ER = 87,585 \text{ lbs PM}_{10} / \text{year} * 0.19$$

$$ER = 16,641 \text{ lbs PM}_{10} / \text{year}$$

Table 1 lists the emission factors and adjustment factors that were used to estimate potential PM₁₀ emissions by crop and agricultural activities for comparison of Maricopa County BMPs with San Joaquin CMPs. Note: the emission factors listed in Table 1 are composite emission factors that combine data for a number of emission generating activities into one emission factor by crop and category. For example, the composite emission factor for the Land Preparation / Cultivation category for Cotton combines emission factors for the following agricultural activities: rip field, primary discing, list beds, make ditch, spray and incorporate herbicide, irrigate, close ditch, cultivate preplant, plant, uncap beds, and cultivate.

Table 1 – Emission Factors and Adjustment Factors								
Crop Type	Land Preparation^a	Harvest^a	Wind Erosion^b	Wind Erosion^b	Wind Erosion^b	Unpaved Road and Unpaved Vehicle / Equipment Areas^a		
						Vehicle Miles Traveled (VMT)^a	VMT Emission Factor^a	Vehicle Travel Emission Factor^c
	(lbs PM₁₀ / acre/yr)	(lbs PM₁₀ / acre/yr)	Cropland (lbs PM₁₀ / acre/yr)	Non Cropland (lbs PM₁₀ / acre/yr)	Unpaved Roads (lbs PM₁₀ / acre/yr)	(VMT/acre/yr)	(lbs PM₁₀ / VMT)	(lbs PM₁₀ / acre/yr)
Alfalfa	4.00	0.24	0	0.33	4.31	0.40	2	0.80
Citrus	0.07	0.14	122.24	1.33	2.88	1.23	2	2.46
Corn	6.90	0.43	108.05	1.33	2.88	0.4	2	0.8
Cotton	8.90	3.37	128.84	3.33	3.60	0.4	2	0.8
Onions	6.50	1.68	122.24	1.33	2.88	2.4	2	4.8
Wheat	4.45	3.45	0	1.33	2.88	1.4	2	2.8
Barley	4.45	3.45	0	1.33	2.88	1.4	2	2.8
Lettuce	12.75	0.23	122.24	1.33	2.88	2.4	2	4.8
Melons	5.70	0.23	122.24	1.33	2.88	2.4	2	4.8
Vegetables	9.05	0.23	122.24	1.33	2.88	2.4	2	4.8

Sources of Data:
^a “Conservation Management Practices Program Report for 2005”, San Joaquin Valley Air Pollution Control District, January 19, 2006.
^b “Technical Support Document For Quantification Of Agricultural Best Management Practices, Final”, Prepared for Arizona Department of Environmental Quality by URS Corporation and Eastern Research Group, Inc., June 8, 2001.
^c Vehicle Travel Emission Factor was calculated by multiplying Vehicle Miles Traveled by VMT Emission Factor.

RESULTS:

Table 2 ranks the sixty-seven Maricopa County Agricultural BMPs and San Joaquin CMPs from largest to smallest potential PM₁₀ emission reductions for the Maricopa County PM₁₀ Nonattainment Area. As can be seen from Table 2, those control measures that reduce wind erosion on cropland have the highest potential PM₁₀ emission reductions, ranging from 1,034 tons to 453 tons of PM₁₀ reduced per year. Note: The number listed at the end of each control measure in the Control Measure Category of Table 2 is a cross reference to Table 3 which lists the crops associated with each Control Measure Category. (Example: “Cropland – Other Activities – 8” refers to “CO – 8” in Table 3.) Figure 1 displays those Maricopa County Agricultural BMPs and San Joaquin CMPs that have annual PM₁₀ emission reductions of 10 tons or more.

Table 2 - Ranking of Potential PM₁₀ Emission Reductions From Maricopa County Agricultural BMPs and San Joaquin CMPs				
	Organization	Control Measure Category	Control Measure	PM₁₀ Emission Reduction (Tons/Year)
1	Maricopa County BMP	Cropland - Other Activities - 8	Cross-Wind Ridges (reduces wind erosion on cropland)	1,034
2	Maricopa County BMP	Cropland - Other Activities - 28	Surface Roughening (reduces wind erosion of cropland)	816
3	Maricopa County BMP	Cropland - Other Activities - 30a	Wind Barrier – Artificial (reduces wind erosion of cropland)	816
4	Maricopa County BMP	Cropland - Other Activities - 30b	Wind Barrier – Natural (reduces wind erosion of cropland)	453
5	San Joaquin CMP	Cropland - Other Activities - 11	Grinding / Chipping / Shredding	130
6	San Joaquin CMP	Cropland - Other Activities - 26	Soil Incorporation	130
7	Maricopa County BMP	Cropland - Other Activities - 24	Sequential Cropping	102
8	Maricopa County BMP	Unpaved Roads & Non Cropland - 8	Wind Barrier - Artificial (reduces wind erosion of unpaved roads and non cropland)	87
9	Maricopa County BMP	Cropland - Land Prep / Cultivation - 6	Conservation Tillage	83
10	Maricopa County BMP	Cropland - Land Prep / Cultivation - 21	Time of Planting	73
11	San Joaquin CMP	Unpaved Roads & Non Cropland -3	Paving	70
12	San Joaquin CMP	Cropland - Other Activities - 1	Alternate Tilling	66
13	Maricopa County BMP	Cropland - Land Prep / Cultivation - 8	Equipment Changes/Technological Improvements	66
14	Maricopa County BMP	Unpaved Roads & Non Cropland - 6	Track Out Control	64
15	San Joaquin CMP	Unpaved Roads & Non Cropland - 1d	Road Oil	54
16	San Joaquin CMP	Unpaved Roads & Non Cropland - 1c	Polymers	52
17	Maricopa County BMP	Unpaved Roads & Non Cropland - 7	Water Application	51
18	Maricopa County BMP	Unpaved Roads & Non Cropland - 9	Wind Barrier – Natural (reduces wind erosion of unpaved roads and non cropland)	49

Table 2 - Ranking of Potential PM₁₀ Emission Reductions From Maricopa County Agricultural BMPs and San Joaquin CMPs

	Organization	Control Measure Category	Control Measure	PM₁₀ Emission Reduction (Tons/Year)
19	Maricopa County BMP	Cropland - Other Activities - 15	Mulching	47
20	San Joaquin CMP	Cropland - Other Activities - 25	Soil Amendments	41
21	San Joaquin CMP	Unpaved Roads & Non Cropland - 1f	Gravel	33
22	San Joaquin CMP	Cropland - Land Prep / Cultivation - 17	Organic Practices	32
23	San Joaquin CMP	Cropland - Other Activities - 20	Organic Practices	32
24	Maricopa County BMP	Unpaved Roads & Non Cropland - 5a-d	Reducing speed on unpaved roads	30
25	Maricopa County BMP	Cropland – Harvest - 4	Equipment Changes/Technological Improvements	26
26	Maricopa County BMP	Cropland - Land Prep / Cultivation - 12	Limited Activity During a High-Wind Event	25
27	Maricopa County BMP	Cropland - Other Activities - 16	Multi-Year Crop	24
28	San Joaquin CMP	Unpaved Roads & Non Cropland - 1a	Chips/mulch	24
29	San Joaquin CMP	Unpaved Roads & Non Cropland - 1b	Organic materials/vegetation	24
30	San Joaquin CMP	Unpaved Roads & Non Cropland - 1e	Sand	24
31	San Joaquin CMP	Cropland – Land Prep / Cultivation - 19	Precision Farming	20
32	San Joaquin CMP	Cropland - Land Prep / Cultivation - 20	Tillage Based on Soil Moisture	20
33	San Joaquin CMP	Cropland - Other Activities - 12	Integrated Pest Management	19
34	San Joaquin CMP	Cropland - Other Activities - 2	Application Efficiencies	19
35	San Joaquin CMP	Cropland - Other Activities - 29	Transgenic Crops	18
36	San Joaquin CMP	Cropland - Land Prep / Cultivation - 5	Conservation Irrigation	17
37	San Joaquin CMP	Cropland - Other Activities - 6	Conservation Irrigation	17
38	San Joaquin CMP	Cropland - Land Prep / Cultivation - 2	Bed/Row Size or Spacing	16
39	Maricopa County BMP	Cropland - Land Prep / Cultivation - 14	Multi-Year Crop	16
40	San Joaquin CMP	Cropland - Land Prep / Cultivation - 15	Night Farming	13
41	Maricopa County BMP	Cropland – Harvest - 2	Combined Operations	13
42	San Joaquin CMP	Cropland – Harvest - 14	Shuttle System / Larger Carrier	13
43	San Joaquin CMP	Cropland – Harvest - 7	Green Chop	13
44	San Joaquin CMP	Cropland - Land Prep / Cultivation - 13	Mulching	12
45	Maricopa County BMP	Cropland - Land Prep / Cultivation - 22	Timing of Tillage Operation	12
46	San Joaquin CMP	Cropland - Land Prep / Cultivation - 23	Transgenic Crops	11

Table 2 - Ranking of Potential PM₁₀ Emission Reductions From Maricopa County Agricultural BMPs and San Joaquin CMPs

	Organization	Control Measure Category	Control Measure	PM₁₀ Emission Reduction (Tons/Year)
47	San Joaquin CMP	Cropland - Land Prep / Cultivation - 11	Integrated Pest Management	11
48	Maricopa County BMP	Cropland - Land Prep / Cultivation - 4	Combining land preparation operations	9
49	San Joaquin CMP	Cropland - Land Prep / Cultivation - 3	Chemigation/Fertigation	9
50	San Joaquin CMP	Cropland - Other Activities - 5	Chemigation/Fertigation	9
51	San Joaquin CMP	Cropland – Harvest - 1	Baling/Large Balers	7
52	San Joaquin CMP	Cropland - Other Activities - 3	Baling/Large Balers	7
53	Maricopa County BMP	Cropland - Other Activities - 23	Residue Management	7
54	San Joaquin CMP	Unpaved Roads & Non Cropland - 4	Restricted Access	7
55	San Joaquin CMP	Cropland - Land Prep / Cultivation - 16	Non-Tillage/Chemical Tillage	6
56	San Joaquin CMP	Cropland - Other Activities - 19	Non-Tillage/Chemical Tillage	6
57	San Joaquin CMP	Cropland – Harvest - 9	Night Harvesting	5
58	Maricopa County BMP	Cropland – Harvest - 12	Reduced Harvest Activity	5
59	San Joaquin CMP	Cropland - Other Activities - 17	Night Farming / Night Harvesting	3
60	San Joaquin CMP	Cropland – Harvest - 11	Pre-Harvest Soil Preparation	2
61	San Joaquin CMP	Cropland - Land Prep / Cultivation - 24	Transplanting	1
62	San Joaquin CMP	Cropland – Harvest - 8	Hand Harvesting	1
63	San Joaquin CMP	Cropland – Harvest - 13	Shed Packing	0.14
64	Maricopa County BMP	Cropland - Land Prep / Cultivation - 7	Cover Crops	0.07
65	San Joaquin CMP	Cropland - Other Activities - 7	Cover Crops	0.04
66	San Joaquin CMP	Cropland - Other Activities - 22	Reduced Pruning	0.01
67	Maricopa County BMP	Cropland - Land Prep / Cultivation - 18	Planting Based on Soil Moisture	0.01

Ranking of Maricopa County BMPs and San Joaquin CMPs PM10 Emission Reductions (Tons/Year)

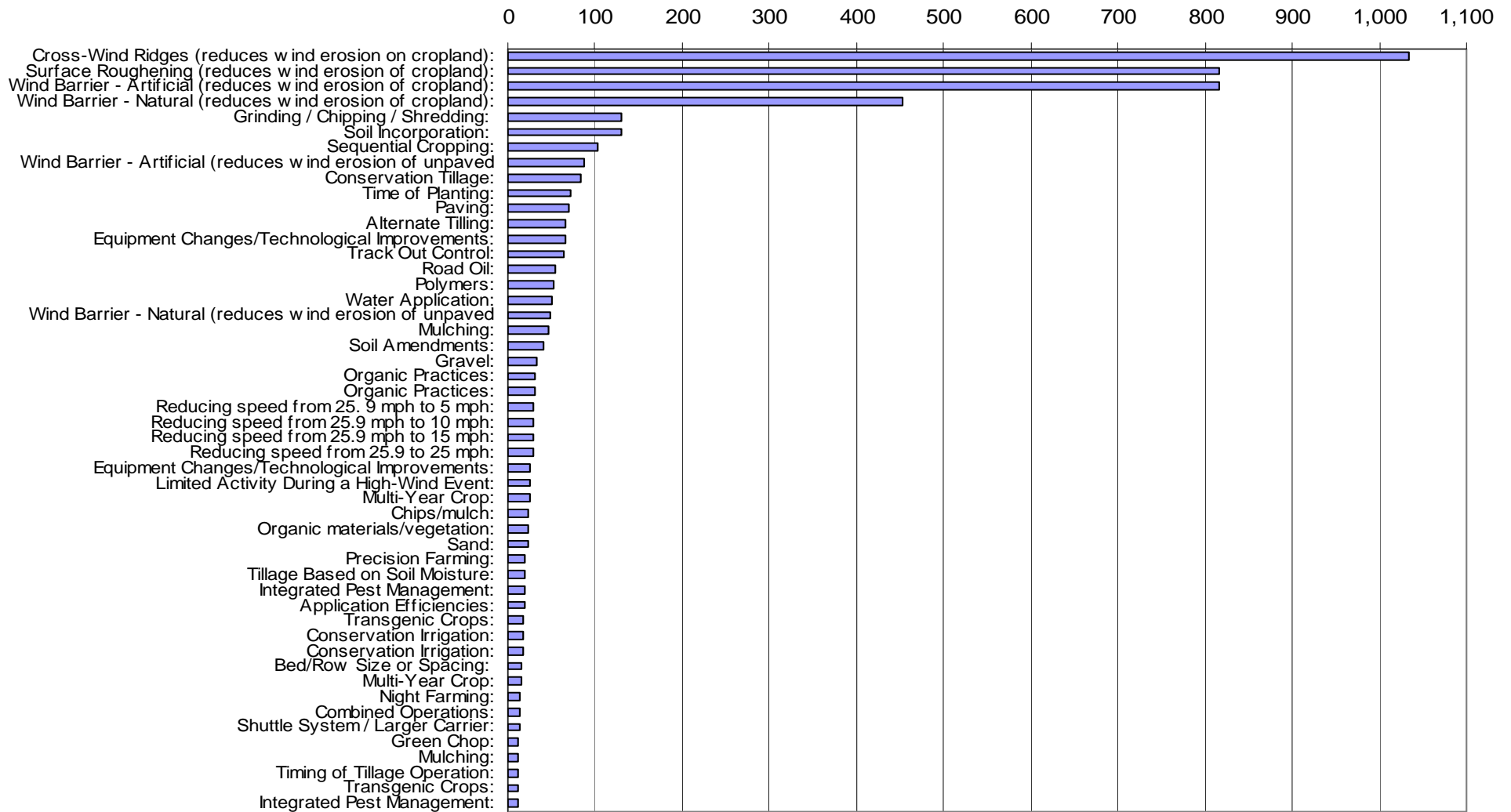


Figure 1. Ranking of Maricopa County Agricultural BMPs and San Joaquin CMPs

Table 3 – Potential PM₁₀ Emission Reductions by Control Measure and Associated Crop

ID	Control Measure by Associated Crop	Acres by Crop / Land Use (Maricopa County PM₁₀ Nonattainment Area)	PM₁₀ Emission Factor (lbs / acre /yr)	Uncontrolled PM₁₀ Emissions (lbs/yr)	Maricopa BMP Control Efficiency (%)	San Joaquin CMP Control Efficiency (%)	PM₁₀ Emission Reduction From Maricopa BMPs (lbs/yr)	PM₁₀ Emission Reduction From San Joaquin CMPs (lbs/yr)
CL	CROPLAND – LAND PREPARATION / CULTIVATION							
CL-2	Bed/Row Size or Spacing:		(EF - Land Prep)		--			32,696
	Citrus	4,464	0.07	312	0%	9%	0	28
	Corn	6,241	6.90	43,063	0%	12%	0	5168
	Cotton	9,841	8.90	87,585	0%	9%	0	7883
	Onions	336	6.50	2,184	0%	12%	0	262
	Wheat	18,200	4.45	80,990	0%	16%	0	12958
	Barley	7,537	4.45	33,540	0%	16%	0	5366
	Lettuce	96	12.75	1,224	0%	6%	0	73
	Melons	6,529	5.70	37,215	0%	2%	0	744
	Vegetables	2,352	9.05	21,286	0%	1%	0	213
CL-3	Chemigation /Fertigation:		(EF - Land Prep)		No data at this time	--		17,555
	Alfalfa	36,004	4.00	144,016	0%	2%	0	2880
	Citrus	4,464	0.07	312	0%	9%	0	28
	Corn	6,241	6.90	43,063	0%	1%	0	431
	Cotton	9,841	8.90	87,585	0%	9%	0	7883
	Onions	336	6.50	2,184	0%	6%	0	131
	Wheat	8,737	4.45	38,880	0%	8%	0	3110
	Barley	7,537	4.45	33,540	0%	8%	0	2683
	Lettuce	96	12.75	1,224	0%	3%	0	37
	Melons	6,529	5.70	37,215	0%	1%	0	372

Table 3 – Potential PM₁₀ Emission Reductions by Control Measure and Associated Crop

ID	Control Measure by Associated Crop	Acres by Crop / Land Use (Maricopa County PM ₁₀ Nonattainment Area)	PM₁₀ Emission Factor (lbs / acre /yr)	Uncontrolled PM₁₀ Emissions (lbs/yr)	Maricopa BMP Control Efficiency (%)	San Joaquin CMP Control Efficiency (%)	PM₁₀ Emission Reduction From Maricopa BMPs (lbs/yr)	PM₁₀ Emission Reduction From San Joaquin CMPs (lbs/yr)
CL-4	Combined Operations:						18,621	
	Combining land preparation operations		(EF - Land Prep)					
	Cotton	9,841	8.9	87,585	8%		7007	
	Wheat	8,737	4.45	38,880	8%		3110	
	Barley	7,537	4.45	33,540	8%		2683	
	Corn	6,241	6.9	43,063	8%		3445	
	Vegetables	2,352	9.05	21,286	11%		2341	
	Citrus	4,464	0.07	312	11%		34	
CL-5	Conservation Irrigation:		(EF - Land Prep)		--	--		34,599
	Alfalfa	36,004	4.00	144,016	0%	6%	0	8641
	Citrus	4,464	0.07	312	0%	9%	0	28
	Corn	6,241	6.90	43,063	0%	12%	0	5168
	Cotton	9,841	8.90	87,585	0%	9%	0	7883
	Onions	336	6.50	2,184	0%	12%	0	262
	Wheat	8,737	4.45	38,880	0%	16%	0	6221
	Barley	7,537	4.45	33,540	0%	16%	0	5366
	Lettuce	96	12.75	1,224	0%	6%	0	73
	Melons	6,529	5.70	37,215	0%	2%	0	744
	Vegetables	2,352	9.05	21,286	0%	1%	0	213
CL-6	Conservation Tillage:		(EF - Land Prep)		25% - 100% (Reduced Tillage)	--	166,935	
	Corn	6,241	6.90	43,063	63%	35%	27,130	15072
	Cotton	9,841	8.90	87,585	63%	28%	55178	24524
	Onions	336	6.50	2,184	63%	4%	1376	87

Table 3 – Potential PM₁₀ Emission Reductions by Control Measure and Associated Crop

ID	Control Measure by Associated Crop	Acres by Crop / Land Use (Maricopa County PM ₁₀ Nonattainment Area)	PM₁₀ Emission Factor (lbs / acre /yr)	Uncontrolled PM₁₀ Emissions (lbs/yr)	Maricopa BMP Control Efficiency (%)	San Joaquin CMP Control Efficiency (%)	PM₁₀ Emission Reduction From Maricopa BMPs (lbs/yr)	PM₁₀ Emission Reduction From San Joaquin CMPs (lbs/yr)
	Wheat	8,737	4.45	38,880	63%	16%	24494	6221
	Barley	7,537	4.45	33,540	63%	16%	21130	5366
	Lettuce	96	12.75	1,224	63%	5%	771	61
	Melons	6,529	5.70	37,215	63%	4%	23446	1489
	Vegetables	2,352	9.05	21,286	63%	35%	13410	7450
CL-7	Cover Crops:		(EF - Land Prep)		--	--	134	
	Citrus	4,464	0.07	312	43%	27%	134	84
CL-8	Equipment Changes/Technological Improvements:		(EF - Land Prep)		50%	50%	132,644	
	Citrus	4,464	0.07	312	50%	50%	156	156
	Corn	6,241	6.90	43,063	50%	50%	21531	21531
	Cotton	9,841	8.90	87,585	50%	50%	43792	43792
	Onions	336	6.50	2,184	50%	50%	1092	1092
	Wheat	8,737	4.45	38,880	50%	50%	19440	19440
	Barley	7,537	4.45	33,540	50%	50%	16770	16770
	Lettuce	96	12.75	1,224	50%	50%	612	612
	Melons	6,529	5.70	37,215	50%	50%	18608	18608
	Vegetables	2,352	9.05	21,286	50%	50%	10643	10643
CL-11	Integrated Pest Management:		(EF - Land Prep)		--	--		21,809
	Corn	6,241	6.90	43,063	0%	12%	0	5168
	Cotton	9,841	8.90	87,585	0%	19%	0	16641
CL-	Limited Activity		(EF - Land				49,887	

Table 3 – Potential PM₁₀ Emission Reductions by Control Measure and Associated Crop

ID	Control Measure by Associated Crop	Acres by Crop / Land Use (Maricopa County PM ₁₀ Nonattainment Area)	PM₁₀ Emission Factor (lbs / acre /yr)	Uncontrolled PM₁₀ Emissions (lbs/yr)	Maricopa BMP Control Efficiency (%)	San Joaquin CMP Control Efficiency (%)	PM₁₀ Emission Reduction From Maricopa BMPs (lbs/yr)	PM₁₀ Emission Reduction From San Joaquin CMPs (lbs/yr)
12	During a High-Wind Event:		Prep)					
	Cotton	9,841	8.9	87,585	9%		7883	
	Wheat	8,737	4.45	38,880	9%		3499	
	barley	7,537	4.45	33,540	9%		3019	
	Corn	6,241	6.9	43,063	9%		3876	
	Alfalfa	36,004	4	144,016	20%		28803	
	Vegetables	2,352	9.05	21,286	13%		2767	
	Citrus	4,464	0.07	312	13%		41	
CL-13	Mulching:		(EF - Land Prep)		--	--		23,930
	Corn	6,241	6.9	43,063	0%	12%	0	5,168
	Onions	336	6.5	2,184	0%	18%	0	393
	Wheat	8,737	4.45	38,880	0%	0.80%	0	311
	Barley	7,537	4.45	33,540	0%	8%	0	2683
	Lettuce	96	12.75	1,224	0%	9%	0	110
	Melons	6,529	5.7	37,215	0%	21%	0	7815
	Vegetables	2,352	9.05	21,286	0%	35%	0	7450
CL-14	Multi-Year Crop:		(EF - Land Prep)				32,491	
	Cotton	9,841	8.9	87,585	16%		14014	
	Wheat	8,737	4.45	38,880	16%		6221	
	Barley	7,537	4.45	33,540	16%		5366	
	Corn	6,241	6.9	43,063	16%		6890	
CL-15	Night Farming:		(EF - Land Prep)					26,529

Table 3 – Potential PM₁₀ Emission Reductions by Control Measure and Associated Crop

ID	Control Measure by Associated Crop	Acres by Crop / Land Use (Maricopa County PM ₁₀ Nonattainment Area)	PM₁₀ Emission Factor (lbs / acre /yr)	Uncontrolled PM₁₀ Emissions (lbs/yr)	Maricopa BMP Control Efficiency (%)	San Joaquin CMP Control Efficiency (%)	PM₁₀ Emission Reduction From Maricopa BMPs (lbs/yr)	PM₁₀ Emission Reduction From San Joaquin CMPs (lbs/yr)
	Citrus	4,464	0.07	312		10%		31
	Corn	6,241	6.90	43,063		10%		4306
	Cotton	9,841	8.90	87,585		10%		8758
	Onions	336	6.50	2,184		10%		218
	Wheat	8,737	4.45	38,880		10%		3888
	Barley	7,537	4.45	33,540		10%		3354
	Lettuce	96	12.75	1,224		10%		122
	Melons	6,529	5.70	37,215		10%		3722
	Vegetables	2,352	9.05	21,286		10%		2129
CL-16	Non-Tillage/Chemical Tillage:		(EF - Land Prep)		--	--		11,615
	Alfalfa	36,004	4	144,016	0%	8%	0	11521
	Citrus	4,464	0.07	312	0%	30%	0	94
CL-17	Organic Practices:		(EF - Land Prep)		--	--		63,398
	Alfalfa	36,004	4.00	144,016	0%	9%	0	12961
	Citrus	4,464	0.07	312	0%	14%	0	44
	Corn	6,241	6.90	43,063	0%	17%	0	7321
	Cotton	9,841	8.90	87,585	0%	18%	0	15765
	Onions	336	6.50	2,184	0%	18%	0	393
	Wheat	8,737	4.45	38,880	0%	16%	0	6221
	Barley	7,537	4.45	33,540	0%	16%	0	5366
	Lettuce	96	12.75	1,224	0%	5%	0	61
	Melons	6,529	5.70	37,215	0%	21%	0	7815
	Vegetables	2,352	9.05	21,286	0%	35%	0	7450
CL-18	Planting Based on Soil Moisture:		(EF - Land Prep)		30%	--	19	

Table 3 – Potential PM₁₀ Emission Reductions by Control Measure and Associated Crop

ID	Control Measure by Associated Crop	Acres by Crop / Land Use (Maricopa County PM ₁₀ Nonattainment Area)	PM₁₀ Emission Factor (lbs / acre /yr)	Uncontrolled PM₁₀ Emissions (lbs/yr)	Maricopa BMP Control Efficiency (%)	San Joaquin CMP Control Efficiency (%)	PM₁₀ Emission Reduction From Maricopa BMPs (lbs/yr)	PM₁₀ Emission Reduction From San Joaquin CMPs (lbs/yr)
	Citrus	4,464	0.07	312	6%		19	
	Corn	6,241	6.90	43,063				
	Cotton	9,841	8.90	87,585				
	Onions	336	6.50	2,184				
	Wheat	8,737	4.45	38,880				
	Barley	7,537	4.45	33,540				
	Lettuce	96	12.75	1,224				
	Melons	6,529	5.70	37,215				
	Vegetables	2,352	9.05	21,286				
CL-19	Precision Farming:		(EF - Land Prep)					39,793
	Citrus	4,464	0.07	312		15%		47
	Corn	6,241	6.90	43,063		15%		6459
	Cotton	9,841	8.90	87,585		15%		13138
	Onions	336	6.50	2,184		15%		328
	Wheat	8,737	4.45	38,880		15%		5832
	Barley	7,537	4.45	33,540		15%		5031
	Lettuce	96	12.75	1,224		15%		184
	Melons	6,529	5.70	37,215		15%		5582
	Vegetables	2,352	9.05	21,286		15%		3193
CL-20	Tillage Based on Soil Moisture:		(EF - Land Prep)		90%	--		39,793
	Citrus	4,464	0.07	312		15%		47
	Corn	6,241	6.90	43,063		15%		6459
	Cotton	9,841	8.90	87,585		15%		13138
	Onions	336	6.50	2,184		15%		328
	Wheat	8,737	4.45	38,880		15%		5832
	Barley	7,537	4.45	33,540		15%		5031

Table 3 – Potential PM₁₀ Emission Reductions by Control Measure and Associated Crop

ID	Control Measure by Associated Crop	Acres by Crop / Land Use (Maricopa County PM ₁₀ Nonattainment Area)	PM₁₀ Emission Factor (lbs / acre /yr)	Uncontrolled PM₁₀ Emissions (lbs/yr)	Maricopa BMP Control Efficiency (%)	San Joaquin CMP Control Efficiency (%)	PM₁₀ Emission Reduction From Maricopa BMPs (lbs/yr)	PM₁₀ Emission Reduction From San Joaquin CMPs (lbs/yr)
	Lettuce	96	12.75	1,224		15%		184
	Melons	6,529	5.70	37,215		15%		5582
	Vegetables	2,352	9.05	21,286		15%		3193
CL-21	Time of Planting:		(EF - Land Prep)		50 % - 60% (Timing of Tillage Operation)	No data at this time	145,737	
	Corn	6,241	6.90	43,063	55%		23685	
	Cotton	9,841	8.90	87,585	55%		48172	
	Onions	336	6.50	2,184	55%		1201	
	Wheat	8,737	4.45	38,880	55%		21384	
	Barley	7,537	4.45	33,540	55%		18447	
	Lettuce	96	12.75	1,224	55%		673	
	Melons	6,529	5.70	37,215	55%		20468	
	Vegetables	2,352	9.05	21,286	55%		11707	
CL-22	Timing of Tillage Operation:		(EF - Land Prep)				23,928	
	Cotton	9,841	8.9	87,585	10%		8758	
	Wheat	8,737	4.45	38,880	15%		5832	
	Barley	7,537	4.45	33,540	15%		5031	
	Corn	6,241	6.9	43,063	10%		4306	
CL-23	Transgenic Crops:				--	--		21,823
	Alfalfa	36,004	4	144,016	0%	2%	0	2880

Table 3 – Potential PM₁₀ Emission Reductions by Control Measure and Associated Crop

ID	Control Measure by Associated Crop	Acres by Crop / Land Use (Maricopa County PM ₁₀ Nonattainment Area)	PM₁₀ Emission Factor (lbs / acre /yr)	Uncontrolled PM₁₀ Emissions (lbs/yr)	Maricopa BMP Control Efficiency (%)	San Joaquin CMP Control Efficiency (%)	PM₁₀ Emission Reduction From Maricopa BMPs (lbs/yr)	PM₁₀ Emission Reduction From San Joaquin CMPs (lbs/yr)
	Corn	6,241	6.90	43,063	0%	12%	0	5168
	Cotton	9,841	8.90	87,585	0%	9%	0	7883
	Onions	336	6.50	2,184	0%	12%	0	262
	Wheat	8,737	4.45	38,880	0%	4%	0	1555
	Barley	7,537	4.45	33,540	0%	4%	0	1342
	Lettuce	96	12.75	1,224	0%	6%	0	73
	Melons	6,529	5.70	37,215	0%	2%	0	744
	Vegetables	2,352	9.05	21,286	0%	9%	0	1916
CL-24	Transplanting:				--			2,996
	Onions	336	6.5	2,184	0%	12%	0	262
	Lettuce	96	12.75	1,224	0%	6%	0	73
	Melons	6,529	5.7	37,215	0%	2%	0	744
	Vegetables	2,352	9.05	21,286	0%	9%	0	1916
CH	CROPLAND – HARVEST							
CH-1	Baling/Large Balers:		(EF - Harvest)		--	--		14,987
	Alfalfa	36,004	0.24	8,641	0%	11%	0	951
	Wheat	8,737	3.45	30,143	0%	25%	0	7536
	Barley	7,537	3.45	26,003	0%	25%	0	6501
CH-2	Combined Operations:		(EF - Harvest)				26,036	
	Cotton	9,841	3.37	33,164	17%		5638	

Table 3 – Potential PM₁₀ Emission Reductions by Control Measure and Associated Crop

ID	Control Measure by Associated Crop	Acres by Crop / Land Use (Maricopa County PM ₁₀ Nonattainment Area)	PM₁₀ Emission Factor (lbs / acre /yr)	Uncontrolled PM₁₀ Emissions (lbs/yr)	Maricopa BMP Control Efficiency (%)	San Joaquin CMP Control Efficiency (%)	PM₁₀ Emission Reduction From Maricopa BMPs (lbs/yr)	PM₁₀ Emission Reduction From San Joaquin CMPs (lbs/yr)
	Wheat	8,737	3.45	30,143	34%		10249	
	Barley	7,537	3.45	26,003	34%		8841	
	Corn	6,241	0.43	2,684	34%		912	
	Vegetables	2,352	0.23	541	34%		184	
	Citrus	4,464	0.14	625	34%		212	
CH-4	Equipment Changes/Technological Improvements:		(EF - Harvest)		50%	50%	51,674	
	Alfalfa	36,004	0.24	8,641	50%	50%	4320	4320
	Citrus	4,464	0.14	625	50%	50%	312	312
	Corn	6,241	0.43	2,684	50%	50%	1342	1342
	Cotton	9,841	3.37	33,164	50%	50%	16582	16582
	Onions	336	1.68	564	50%	50%	282	282
	Wheat	8,737	3.45	30,143	50%	50%	15071	15071
	Barley	7,537	3.45	26,003	50%	50%	13001	13001
	Lettuce	96	0.23	22	50%	50%	11	11
	Melons	6,529	0.23	1,502	50%	50%	751	751
CH-7	Green Chop:		(EF - Harvest)		--	--		25,025
	Alfalfa	36,004	0.24	8,641		10%		864
	Corn Grain and Silage	13,000	0.43	5,590		17%		922
	Dry Beans, Cereal Grains, Safflower, Wheat, and Barley	33,900	3.45	116,955		20%		23239
CH-8	Hand Harvesting:		(EF - Harvest)		--			1,959
	Citrus	4,464	0.14	625	0%	33%	0	206
	Corn	6,241	0.43	2,684	0%	33%	0	886

Table 3 – Potential PM₁₀ Emission Reductions by Control Measure and Associated Crop

ID	Control Measure by Associated Crop	Acres by Crop / Land Use (Maricopa County PM₁₀ Nonattainment Area)	PM₁₀ Emission Factor (lbs / acre /yr)	Uncontrolled PM₁₀ Emissions (lbs/yr)	Maricopa BMP Control Efficiency (%)	San Joaquin CMP Control Efficiency (%)	PM₁₀ Emission Reduction From Maricopa BMPs (lbs/yr)	PM₁₀ Emission Reduction From San Joaquin CMPs (lbs/yr)
	Onions	336	1.68	564	0%	33%	0	186
	Lettuce	96	0.23	22	0%	33%	0	7
	Melons	6,529	0.23	1,502	0%	33%	0	496
	Vegetables	2,352	0.23	541	0%	33%	0	179
CH-9	Night Harvesting:		(EF - Harvest)					10,335
	Alfalfa	36,004	0.24	8,641		10%		864
	Citrus	4,464	0.14	625		10%		62
	Corn	6,241	0.43	2,684		10%		268
	Cotton	9,841	3.37	33,164		10%		3316
	Onions	336	1.68	564		10%		56
	Wheat	8,737	3.45	30,143		10%		3014
	Barley	7,537	3.45	26,003		10%		2600
	Lettuce	96	0.23	22		10%		2
	Melons	6,529	0.23	1,502		10%		150
CH-11	Pre-Harvest Soil Preparation:		(EF - Harvest)		--			4,919
	Alfalfa	36,004	0.24	8,641	0%	7%	0	605
	Citrus	4,464	0.14	625	0%	10%	0	62
	Corn	6,241	0.43	2,684	0%	5%	0	134
	Cotton	9,841	3.37	33,164	0%	12%	0	3980
	Onions	336	1.68	564	0%	10%	0	56
	Wheat	8,737	3.45	30,143	0%	0%	0	0
	Barley	7,537	3.45	26,003	0%	0%	0	0
	Lettuce	96	0.23	22	0%	0%	0	0
	Melons	6,529	0.23	1,502	0%	0%	0	0
	Vegetables	2,352	0.23	541	0%	15%	0	81

Table 3 – Potential PM₁₀ Emission Reductions by Control Measure and Associated Crop

ID	Control Measure by Associated Crop	Acres by Crop / Land Use (Maricopa County PM ₁₀ Nonattainment Area)	PM₁₀ Emission Factor (lbs / acre /yr)	Uncontrolled PM₁₀ Emissions (lbs/yr)	Maricopa BMP Control Efficiency (%)	San Joaquin CMP Control Efficiency (%)	PM₁₀ Emission Reduction From Maricopa BMPs (lbs/yr)	PM₁₀ Emission Reduction From San Joaquin CMPs (lbs/yr)
CH-12	Reduced Harvest Activity:		(EF - Harvest)				10,089	
	Cotton	9,841	3.37	33,164	20%		6633	
	Alfalfa	36,004	0.24	8,641	40%		3456	
CH-13	Shed Packing:		(EF - Harvest)		--	--		274
	Onions	336	1.68	564	0%	12%	0	68
	Lettuce	96	0.23	22	0%	7%	0	2
	Melons	6,529	0.23	1,502	0%	10%	0	150
	Vegetables	2,352	0.23	541	0%	10%	0	54
CH-14	Shuttle System / Larger Carrier:		(EF - Harvest)		--	--		25,289
	Alfalfa	36,004	0.24	8,641	0%	17%	0	1469
	Citrus	4,464	0.14	625	0%	17%	0	106
	Corn	6,241	0.43	2,684	0%	17%	0	456
	Cotton	9,841	3.37	33,164	0%	40%	0	13266
	Onions	336	1.68	564	0%	17%	0	96
	Wheat	8,737	3.45	30,143	0%	17%	0	5124
	Barley	7,537	3.45	26,003	0%	17%	0	4420
	Lettuce	96	0.23	22	0%	17%	0	4
	Melons	6,529	0.23	1,502	0%	17%	0	255
	Vegetables	2,352	0.23	541	0%	17%	0	92
CO	CROPLAND ACTIVITIES - OTHER							
CO-1	Alternate Tilling:		(EF - Land Prep)			32.50%		132,922

Table 3 – Potential PM₁₀ Emission Reductions by Control Measure and Associated Crop

ID	Control Measure by Associated Crop	Acres by Crop / Land Use (Maricopa County PM ₁₀ Nonattainment Area)	PM₁₀ Emission Factor (lbs / acre /yr)	Uncontrolled PM₁₀ Emissions (lbs/yr)	Maricopa BMP Control Efficiency (%)	San Joaquin CMP Control Efficiency (%)	PM₁₀ Emission Reduction From Maricopa BMPs (lbs/yr)	PM₁₀ Emission Reduction From San Joaquin CMPs (lbs/yr)
	Alfalfa	36,004	4	144,016		32.50%		46805
	Corn	6,241	6.90	43,063		32.50%		13995
	Cotton	9,841	8.90	87,585		32.50%		28465
	Onions	336	6.50	2,184		32.50%		710
	Wheat	8,737	4.45	38,880		32.50%		12636
	Barley	7,537	4.45	33,540		32.50%		10900
	Lettuce	96	12.75	1,224		32.50%		398
	Melons	6,529	5.70	37,215		32.50%		12095
	Vegetables	2,352	9.05	21,286		32.50%		6918
CO-2	Application Efficiencies:		(EF - Land Prep)					37,451
	Alfalfa	36,004	4	144,016	0%	8%	0	11521
	Corn	6,241	6.90	43,063	0%	12%	0	5168
	Cotton	9,841	8.90	87,585	0%	9%	0	7883
	Onions	336	6.50	2,184	0%	12%	0	262
	Wheat	8,737	4.45	38,880	0%	16%	0	6221
	Barley	7,537	4.45	33,540	0%	16%	0	5366
	Lettuce	96	12.75	1,224	0%	6%	0	73
	Melons	6,529	5.70	37,215	0%	2%	0	744
	Vegetables	2,352	9.05	21,286	0%	1%	0	213
CO-3	Baling/Large Balers:		(EF - Harvest)					14,987
	Alfalfa	36,004	0.24	8,641	0%	11%	0	951
	Wheat	8,737	3.45	30,143	0%	25%	0	7536
	Barley	7,537	3.45	26,003	0%	25%	0	6501

Table 3 – Potential PM₁₀ Emission Reductions by Control Measure and Associated Crop

ID	Control Measure by Associated Crop	Acres by Crop / Land Use (Maricopa County PM ₁₀ Nonattainment Area)	PM₁₀ Emission Factor (lbs / acre /yr)	Uncontrolled PM₁₀ Emissions (lbs/yr)	Maricopa BMP Control Efficiency (%)	San Joaquin CMP Control Efficiency (%)	PM₁₀ Emission Reduction From Maricopa BMPs (lbs/yr)	PM₁₀ Emission Reduction From San Joaquin CMPs (lbs/yr)
CO-5	Chemigation /Fertigation:		(EF - Land Prep)					17,555
	Alfalfa	36,004	4.00	144,016	0%	2%	0	2880
	Citrus	4,464	0.07	312	0%	9%	0	28
	Corn	6,241	6.90	43,063	0%	1%	0	431
	Cotton	9,841	8.90	87,585	0%	9%	0	7883
	Onions	336	6.50	2,184	0%	6%	0	131
	Wheat	8,737	4.45	38,880	0%	8%	0	3110
	Barley	7,537	4.45	33,540	0%	8%	0	2683
	Lettuce	96	12.75	1,224	0%	3%	0	37
	Melons	6,529	5.70	37,215	0%	1%	0	372
	Vegetables	2,352	9.05	21,286	0%	0%	0	0
CO-6	Conservation Irrigation:		(EF - Land Prep)					34,599
	Alfalfa	36,004	4.00	144,016	0%	6%	0	8641
	Citrus	4,464	0.07	312	0%	9%	0	28
	Corn	6,241	6.90	43,063	0%	12%	0	5168
	Cotton	9,841	8.90	87,585	0%	9%	0	7883
	Onions	336	6.50	2,184	0%	12%	0	262
	Wheat	8,737	4.45	38,880	0%	16%	0	6221
	Barley	7,537	4.45	33,540	0%	16%	0	5366
	Lettuce	96	12.75	1,224	0%	6%	0	73
	Melons	6,529	5.70	37,215	0%	2%	0	744
	Vegetables	2,352	9.05	21,286	0%	1%	0	213
CO-7	Cover Crops:		(EF - Land Prep)		20% - 66%	--		84
	Citrus	4,464	0.07	312	43%	27%	134	84
CO-	Cross-Wind Ridges		(EF - Wind		20% - 93%	--	2,067,022	

Table 3 – Potential PM₁₀ Emission Reductions by Control Measure and Associated Crop

ID	Control Measure by Associated Crop	Acres by Crop / Land Use (Maricopa County PM ₁₀ Nonattainment Area)	PM₁₀ Emission Factor (lbs / acre /yr)	Uncontrolled PM₁₀ Emissions (lbs/yr)	Maricopa BMP Control Efficiency (%)	San Joaquin CMP Control Efficiency (%)	PM₁₀ Emission Reduction From Maricopa BMPs (lbs/yr)	PM₁₀ Emission Reduction From San Joaquin CMPs (lbs/yr)
8	(reduces wind erosion on cropland):		Erosion Cropland)					
	Citrus	4,464	122.24	545,679	57%		311037	
	Corn	6,241	108.05	674,340	57%		384374	
	Cotton	9,841	128.84	1,267,914	57%		722711	
	Onions	336	122.24	41,073	57%		23411	
	Wheat	8,737	0	0	57%		0	
	Barley	7,537	0	0	57%		0	
	Lettuce	96	122.24	11,735	57%		6689	
	Melons	6,529	122.24	798,105	57%		454920	
	Vegetables	2,352	122.24	287,508	57%		163880	
CO-11	Grinding / Chipping / Shredding:		(EF - Land Prep)					260,109
	Citrus	4,464	0.07	312		90%		283
	Cotton	9,841	8.9	87,585		90%		79221
	Alfalfa (under soil incorporation)	36,004	4	144,016		97%		139033
	Corn (under soil incorporation)	6,241	6.9	43,063		97%		41573
CO-12	Integrated Pest Management:		(EF - Land Prep)					37,479
	Alfalfa	36,004	4.00	144,016	0%	8%	0	11521
	Citrus	4,464	0.07	312	0%	9%	0	28
	Corn	6,241	6.90	43,063	0%	12%	0	5168
	Cotton	9,841	8.90	87,585	0%	9%	0	7883
	Onions	336	6.50	2,184	0%	12%	0	262
	Wheat	8,737	4.45	38,880	0%	16%	0	6221
	Barley	7,537	4.45	33,540	0%	16%	0	5366
	Lettuce	96	12.75	1,224	0%	6%	0	73

Table 3 – Potential PM₁₀ Emission Reductions by Control Measure and Associated Crop

ID	Control Measure by Associated Crop	Acres by Crop / Land Use (Maricopa County PM ₁₀ Nonattainment Area)	PM₁₀ Emission Factor (lbs / acre /yr)	Uncontrolled PM₁₀ Emissions (lbs/yr)	Maricopa BMP Control Efficiency (%)	San Joaquin CMP Control Efficiency (%)	PM₁₀ Emission Reduction From Maricopa BMPs (lbs/yr)	PM₁₀ Emission Reduction From San Joaquin CMPs (lbs/yr)
	Melons	6,529	5.70	37,215	0%	2%	0	744
	Vegetables	2,352	9.05	21,286	0%	1%	0	213
CO-15	Mulching:		(EF - Land Prep)		50% - 55%	32.50%	94,017	
	Corn	6,241	6.9	43,063	53%	32.50%	22823	13995
	Onions	336	6.5	2,184	53%	32.50%	1158	710
	Wheat	8,737	4.45	38,880	53%	32.50%	20606	12636
	Barley	7,537	4.45	33,540	53%	32.50%	17776	10900
	Lettuce	96	12.75	1,224	53%	32.50%	649	398
	Melons	6,529	5.7	37,215	53%	32.50%	19724	12095
	Vegetables	2,352	9.05	21,286	53%	32.50%	11281	6918
CO-16	Multi-Year Crop:		(EF - Land Prep)				48,736	
	Cotton	9,841	8.9	87,585	24%		21020	
	Wheat	8,737	4.45	38,880	24%		9331	
	Barley	7,537	4.45	33,540	24%		8050	
	Corn	6,241	6.9	43,063	24%		10335	
CO-17	Night Farming / Night Harvesting:		(EF - Harvest)			5%		5,194
	Alfalfa	36,004	0.24	8,641		5%		432
	Citrus	4,464	0.14	625		5%		31
	Corn	6,241	0.43	2,684		5%		134
	Cotton	9,841	3.37	33,164		5%		1658
	Onions	336	1.68	564		5%		28
	Wheat	8,737	3.45	30,143		5%		1507
	Barley	7,537	3.45	26,003		5%		1300
	Lettuce	96	0.23	22		5%		1

Table 3 – Potential PM₁₀ Emission Reductions by Control Measure and Associated Crop

ID	Control Measure by Associated Crop	Acres by Crop / Land Use (Maricopa County PM ₁₀ Nonattainment Area)	PM₁₀ Emission Factor (lbs / acre /yr)	Uncontrolled PM₁₀ Emissions (lbs/yr)	Maricopa BMP Control Efficiency (%)	San Joaquin CMP Control Efficiency (%)	PM₁₀ Emission Reduction From Maricopa BMPs (lbs/yr)	PM₁₀ Emission Reduction From San Joaquin CMPs (lbs/yr)
	Melons	6,529	0.23	1,502		5%		75
	Vegetables	2,352	0.23	541		5%		27
CO-19	Non-Tillage/Chemical Tillage:		(EF - Land Prep)					11,615
	Alfalfa	36,004	4	144,016	0%	8%	0	11521
	Citrus	4,464	0.07	312	0%	30%	0	94
CO-20	Organic Practices:		(EF - Land Prep)					63,398
	Alfalfa	36,004	4.00	144,016	0%	9%	0	12961
	Citrus	4,464	0.07	312	0%	14%	0	44
	Corn	6,241	6.90	43,063	0%	17%	0	7321
	Cotton	9,841	8.90	87,585	0%	18%	0	15765
	Onions	336	6.50	2,184	0%	18%	0	393
	Wheat	8,737	4.45	38,880	0%	16%	0	6221
	Barley	7,537	4.45	33,540	0%	16%	0	5366
	Lettuce	96	12.75	1,224	0%	5%	0	61
	Melons	6,529	5.70	37,215	0%	21%	0	7815
	Vegetables	2,352	9.05	21,286	0%	35%	0	7450
CO-22	Reduced Pruning:		(EF - Land Prep)					28
	Citrus	4,464	0.07	312		9%		28
CO-23	Residue Management:		(EF - Harvest)				14,408	
	Cotton	9,841	3.37	33,164	12%		3980	
	Wheat	8,737	3.45	30,143	18%		5426	
	Barley	7,537	3.45	26,003	18%		4680	
	Corn	6,241	0.43	2,684	12%		322	

Table 3 – Potential PM₁₀ Emission Reductions by Control Measure and Associated Crop

ID	Control Measure by Associated Crop	Acres by Crop / Land Use (Maricopa County PM ₁₀ Nonattainment Area)	PM₁₀ Emission Factor (lbs / acre /yr)	Uncontrolled PM₁₀ Emissions (lbs/yr)	Maricopa BMP Control Efficiency (%)	San Joaquin CMP Control Efficiency (%)	PM₁₀ Emission Reduction From Maricopa BMPs (lbs/yr)	PM₁₀ Emission Reduction From San Joaquin CMPs (lbs/yr)
CO-24	Sequential Cropping:		(EF - Land Prep)		50%		204,652	
	Alfalfa	36,004	4.00	144,016	50%		72008	
	Citrus	4,464	0.07	312	50%		156	
	Corn	6,241	6.90	43,063	50%		21531	
	Cotton	9,841	8.90	87,585	50%		43792	
	Onions	336	6.50	2,184	50%		1092	
	Wheat	8,737	4.45	38,880	50%		19440	
	Barley	7,537	4.45	33,540	50%		16770	
	Lettuce	96	12.75	1,224	50%		612	
	Melons	6,529	5.70	37,215	50%		18608	
	Vegetables	2,352	9.05	21,286	50%		10643	
CO-25	Soil Amendments:		(EF - Land Prep)			20%		81,861
	Alfalfa	36,004	4.00	144,016		20%		28803
	Citrus	4,464	0.07	312		20%		62
	Corn	6,241	6.90	43,063		20%		8613
	Cotton	9,841	8.90	87,585		20%		17517
	Onions	336	6.50	2,184		20%		437
	Wheat	8,737	4.45	38,880		20%		7776
	Barley	7,537	4.45	33,540		20%		6708
	Lettuce	96	12.75	1,224		20%		245
	Melons	6,529	5.70	37,215		20%		7443
	Vegetables	2,352	9.05	21,286		20%		4257
CO-26	Soil Incorporation:		(EF - Land Prep)					260,109
	Citrus	4,464	0.07	312		90%		283

Table 3 – Potential PM₁₀ Emission Reductions by Control Measure and Associated Crop

ID	Control Measure by Associated Crop	Acres by Crop / Land Use (Maricopa County PM ₁₀ Nonattainment Area)	PM₁₀ Emission Factor (lbs / acre /yr)	Uncontrolled PM₁₀ Emissions (lbs/yr)	Maricopa BMP Control Efficiency (%)	San Joaquin CMP Control Efficiency (%)	PM₁₀ Emission Reduction From Maricopa BMPs (lbs/yr)	PM₁₀ Emission Reduction From San Joaquin CMPs (lbs/yr)
	Cotton	9,841	8.9	87,585		90%		79221
	Alfalfa (under soil incorporation)	36,004	4	144,016		97%		139033
	Corn (under soil incorporation)	6,241	6.9	43,063		97%		41573
CO-28	Surface Roughening (reduces wind erosion of cropland):		(EF - Wind Erosion Cropland)		15% - 75%	64%	1,631,860	
	Alfalfa	36,004	0	0	45%	64%	0	0
	Citrus	4,464	122.24	545,679	45%	64%	245556	349235
	Corn	6,241	108.05	674,340	45%	64%	303453	431578
	Cotton	9,841	128.84	1,267,914	45%	64%	570561	811465
	Onions	336	122.24	41,073	45%	64%	18483	26286
	Wheat	8,737	0	0	45%	64%	0	0
	Barley	7,537	0	0	45%	64%	0	0
	Lettuce	96	122.24	11,735	45%	64%	5281	7510
	Melons	6,529	122.24	798,105	45%	64%	359147	510787
	Vegetables	2,352	122.24	287,508	45%	64%	129379	184005
CO-29	Transgenic Crops:		(EF - Land Prep)					36,159
	Alfalfa	36,004	4	144,016	0%	8%	0	11521
	Corn	6,241	6.9	43,063	0%	12%	0	5168
	Cotton	9,841	8.9	87,585	0%	9%	0	7883
	Wheat	8,737	4.45	38,880	0%	16%	0	6221
	Barley	7,537	4.45	33,540	0%	16%	0	5366
CO-30a	Wind Barrier - Artificial (reduces wind erosion of		(EF - Wind Erosion Cropland)		0% - 90% (Artificial Wind)	30%	1,631,860	

Table 3 – Potential PM₁₀ Emission Reductions by Control Measure and Associated Crop

ID	Control Measure by Associated Crop	Acres by Crop / Land Use (Maricopa County PM ₁₀ Nonattainment Area)	PM₁₀ Emission Factor (lbs / acre /yr)	Uncontrolled PM₁₀ Emissions (lbs/yr)	Maricopa BMP Control Efficiency (%)	San Joaquin CMP Control Efficiency (%)	PM₁₀ Emission Reduction From Maricopa BMPs (lbs/yr)	PM₁₀ Emission Reduction From San Joaquin CMPs (lbs/yr)
	cropland):				Barrier)			
	Alfalfa	36,004	0	0	45%	30%	0	0
	Citrus	4,464	122.24	545,679	45%	30%	245556	163704
	Corn	6,241	108.05	674,340	45%	30%	303453	202302
	Cotton	9,841	128.84	1,267,914	45%	30%	570561	380374
	Onions	336	122.24	41,073	45%	30%	18483	12322
	Wheat	8,737	0	0	45%	30%	0	0
	Barley	7,537	0	0	45%	30%	0	0
	Lettuce	96	122.24	11,735	45%	30%	5281	3521
	Melons	6,529	122.24	798,105	45%	30%	359147	239431
	Vegetables	2,352	122.24	287,508	45%	30%	129379	86253
CO-30b	Wind Barrier - Natural (reduces wind erosion of cropland):		(EF - Wind Erosion Cropland)		(Tree, Shrub, or Windbreak Planting) 25%	30%	906,589	
	Alfalfa	36,004	0	0	25%	30%	0	0
	Citrus	4,464	122.24	545,679	25%	30%	136420	163704
	Corn	6,241	108.05	674,340	25%	30%	168585	202302
	Cotton	9,841	128.84	1,267,914	25%	30%	316979	380374
	Onions	336	122.24	41,073	25%	30%	10268	12322
	Wheat	8,737	0	0	25%	30%	0	0
	Barley	7,537	0	0	25%	30%	0	0
	Lettuce	96	122.24	11,735	25%	30%	2934	3521
	Melons	6,529	122.24	798,105	25%	30%	199526	239431
	Vegetables	2,352	122.24	287,508	25%	30%	71877	86253
CU	CROPLAND – UNPAVED ROADS and UNPAVED							

Table 3 – Potential PM₁₀ Emission Reductions by Control Measure and Associated Crop

ID	Control Measure by Associated Crop	Acres by Crop / Land Use (Maricopa County PM ₁₀ Nonattainment Area)	PM₁₀ Emission Factor (lbs / acre /yr)	Uncontrolled PM₁₀ Emissions (lbs/yr)	Maricopa BMP Control Efficiency (%)	San Joaquin CMP Control Efficiency (%)	PM₁₀ Emission Reduction From Maricopa BMPs (lbs/yr)	PM₁₀ Emission Reduction From San Joaquin CMPs (lbs/yr)
	VEHICLE EQUIPMENT AREA							
CU-1	Dust Suppressants:							
CU-1a	<i>Chips/mulch:</i>		(EF - Vehicle Traffic)					47,164
	Alfalfa	36,004	0.8	28,803		33%	0	9,505
	Citrus	4,464	2.46	10,981		33%	0	3,624
	Corn	6,241	0.8	4,993		33%	0	1,648
	Cotton	9,841	0.8	7,873		33%	0	2,598
	Onions	336	4.8	1,613		33%	0	532
	Wheat	8,737	2.8	24,464		33%	0	8,073
	Barley	7,537	2.8	21,104		33%	0	6,964
	Lettuce	96	4.8	461		33%	0	152
	Melons	6,529	4.8	31,339		33%	0	10,342
	Vegetables	2,352	4.8	11,290		33%	0	3,726
CU-1b	<i>Organic materials/vegetation:</i>		(EF - Vehicle Traffic)				0	47,164
	Alfalfa	36,004	0.8	28,803		33%	0	9,505
	Citrus	4,464	2.46	10,981		33%	0	3,624
	Corn	6,241	0.8	4,993		33%	0	1,648
	Cotton	9,841	0.8	7,873		33%	0	2,598
	Onions	336	4.8	1,613		33%	0	532
	Wheat	8,737	2.8	24,464		33%	0	8,073
	Barley	7,537	2.8	21,104		33%	0	6,964
	Lettuce	96	4.8	461		33%	0	152
	Melons	6,529	4.8	31,339		33%	0	10,342
	Vegetables	2,352	4.8	11,290		33%	0	3,726

Table 3 – Potential PM₁₀ Emission Reductions by Control Measure and Associated Crop

ID	Control Measure by Associated Crop	Acres by Crop / Land Use (Maricopa County PM ₁₀ Nonattainment Area)	PM₁₀ Emission Factor (lbs / acre /yr)	Uncontrolled PM₁₀ Emissions (lbs/yr)	Maricopa BMP Control Efficiency (%)	San Joaquin CMP Control Efficiency (%)	PM₁₀ Emission Reduction From Maricopa BMPs (lbs/yr)	PM₁₀ Emission Reduction From San Joaquin CMPs (lbs/yr)
CU-1c	<i>Polymers:</i>		(EF - Vehicle Traffic)		47% - 99%		104,331	114,336
	Alfalfa	36,004	0.8	28,803	73%	80%	21,026	23,043
	Citrus	4,464	2.46	10,981	73%	80%	8,016	8,785
	Corn	6,241	0.8	4,993	73%	80%	3,645	3,994
	Cotton	9,841	0.8	7,873	73%	80%	5,747	6,298
	Onions	336	4.8	1,613	73%	80%	1,177	1,290
	Wheat	8,737	2.8	24,464	73%	80%	17,858	19,571
	Barley	7,537	2.8	21,104	73%	80%	15,406	16,883
	Lettuce	96	4.8	461	73%	80%	336	369
	Melons	6,529	4.8	31,339	73%	80%	22,878	25,071
	Vegetables	2,352	4.8	11,290	73%	80%	8,241	9,032
CU-1d	<i>Road Oil:</i>		(EF - Vehicle Traffic)					108,619
	Alfalfa	36,004	0.8	28,803		76%	0	21,890
	Citrus	4,464	2.46	10,981		76%	0	8,346
	Corn	6,241	0.8	4,993		76%	0	3,795
	Cotton	9,841	0.8	7,873		76%	0	5,983
	Onions	336	4.8	1,613		76%	0	1,226
	Wheat	8,737	2.8	24,464		76%	0	18,592
	Barley	7,537	2.8	21,104		76%	0	16,039
	Lettuce	96	4.8	461		76%	0	350
	Melons	6,529	4.8	31,339		76%	0	23,818
	Vegetables	2,352	4.8	11,290		76%	0	8,580
CU-1e	<i>Sand:</i>		(EF - Vehicle			33%	0	47,164

Table 3 – Potential PM₁₀ Emission Reductions by Control Measure and Associated Crop

ID	Control Measure by Associated Crop	Acres by Crop / Land Use (Maricopa County PM ₁₀ Nonattainment Area)	PM₁₀ Emission Factor (lbs / acre /yr)	Uncontrolled PM₁₀ Emissions (lbs/yr)	Maricopa BMP Control Efficiency (%)	San Joaquin CMP Control Efficiency (%)	PM₁₀ Emission Reduction From Maricopa BMPs (lbs/yr)	PM₁₀ Emission Reduction From San Joaquin CMPs (lbs/yr)
			Traffic)					
	Alfalfa	36,004	0.8	28,803		33%	0	9,505
	Citrus	4,464	2.46	10,981		33%	0	3,624
	Corn	6,241	0.8	4,993		33%	0	1,648
	Cotton	9,841	0.8	7,873		33%	0	2,598
	Onions	336	4.8	1,613		33%	0	532
	Wheat	8,737	2.8	24,464		33%	0	8,073
	Barley	7,537	2.8	21,104		33%	0	6,964
	Lettuce	96	4.8	461		33%	0	152
	Melons	6,529	4.8	31,339		33%	0	10,342
	Vegetables	2,352	4.8	11,290		33%	0	3,726
CU-1f	Gravel:		(EF - Vehicle Traffic)		Variable – depends on silt content	46%	0	65,743
	Alfalfa	36,004	0.8	28,803		46%	0	13,249
	Citrus	4,464	2.46	10,981		46%	0	5,051
	Corn	6,241	0.8	4,993		46%	0	2,297
	Cotton	9,841	0.8	7,873		46%	0	3,621
	Onions	336	4.8	1,613		46%	0	742
	Wheat	8,737	2.8	24,464		46%	0	11,253
	Barley	7,537	2.8	21,104		46%	0	9,708
	Lettuce	96	4.8	461		46%	0	212
	Melons	6,529	4.8	31,339		46%	0	14,416
	Vegetables	2,352	4.8	11,290		46%	0	5,193
CU-3	Paving:		(EF - Vehicle Traffic)				0	140,061
	Alfalfa	36,004	0.8	28,803		98%	0	28,227
	Citrus	4,464	2.46	10,981		98%	0	10,762

Table 3 – Potential PM₁₀ Emission Reductions by Control Measure and Associated Crop

ID	Control Measure by Associated Crop	Acres by Crop / Land Use (Maricopa County PM ₁₀ Nonattainment Area)	PM₁₀ Emission Factor (lbs / acre /yr)	Uncontrolled PM₁₀ Emissions (lbs/yr)	Maricopa BMP Control Efficiency (%)	San Joaquin CMP Control Efficiency (%)	PM₁₀ Emission Reduction From Maricopa BMPs (lbs/yr)	PM₁₀ Emission Reduction From San Joaquin CMPs (lbs/yr)
	Corn	6,241	0.8	4,993		98%	0	4,893
	Cotton	9,841	0.8	7,873		98%	0	7,715
	Onions	336	4.8	1,613		98%	0	1,581
	Wheat	8,737	2.8	24,464		98%	0	23,974
	Barley	7,537	2.8	21,104		98%	0	20,682
	Lettuce	96	4.8	461		98%	0	452
	Melons	6,529	4.8	31,339		98%	0	30,712
	Vegetables	2,352	4.8	11,290		98%	0	11,064
CU-4	Restricted Access:		(EF - Vehicle Traffic)				2,858	14,292
	Alfalfa	36,004	0.8	28,803	2%	10%	576	2,880
	Citrus	4,464	2.46	10,981	2%	10%	220	1,098
	Corn	6,241	0.8	4,993	2%	10%	100	499
	Cotton	9,841	0.8	7,873	2%	10%	157	787
	Onions	336	4.8	1,613	2%	10%	32	161
	Wheat	8,737	2.8	24,464	2%	10%	489	2,446
	Barley	7,537	2.8	21,104	2%	10%	422	2,110
	Lettuce	96	4.8	461	2%	10%	9	46
	Melons	6,529	4.8	31,339	2%	10%	627	3,134
	Vegetables	2,352	4.8	11,290	2%	10%	226	1,129
CU-5	Speed Limits:							
CU-5a	Reducing speed from 25.9 mph to 5 mph:		(EF - Vehicle Traffic)				60,026	115,765
	Alfalfa	36,004	0.8	28,803	42%	81%	12,097	23,331
	Citrus	4,464	2.46	10,981	42%	81%	4,612	8,895
	Corn	6,241	0.8	4,993	42%	81%	2,097	4,044

Table 3 – Potential PM₁₀ Emission Reductions by Control Measure and Associated Crop

ID	Control Measure by Associated Crop	Acres by Crop / Land Use (Maricopa County PM ₁₀ Nonattainment Area)	PM₁₀ Emission Factor (lbs / acre /yr)	Uncontrolled PM₁₀ Emissions (lbs/yr)	Maricopa BMP Control Efficiency (%)	San Joaquin CMP Control Efficiency (%)	PM₁₀ Emission Reduction From Maricopa BMPs (lbs/yr)	PM₁₀ Emission Reduction From San Joaquin CMPs (lbs/yr)
	Cotton	9,841	0.8	7,873	42%	81%	3,307	6,377
	Onions	336	4.8	1,613	42%	81%	677	1,306
	Wheat	8,737	2.8	24,464	42%	81%	10,275	19,816
	Barley	7,537	2.8	21,104	42%	81%	8,864	17,094
	Lettuce	96	4.8	461	42%	81%	194	373
	Melons	6,529	4.8	31,339	42%	81%	13,162	25,385
	Vegetables	2,352	4.8	11,290	42%	81%	4,742	9,145
CU-5b	<i>Reducing speed from 25.9 mph to 10 mph:</i>		(EF - Vehicle Traffic)			58%	60,026	82,894
	Alfalfa	36,004	0.8	28,803	42%	58%	12,097	16,706
	Citrus	4,464	2.46	10,981	42%	58%	4,612	6,369
	Corn	6,241	0.8	4,993	42%	58%	2,097	2,896
	Cotton	9,841	0.8	7,873	42%	58%	3,307	4,566
	Onions	336	4.8	1,613	42%	58%	677	935
	Wheat	8,737	2.8	24,464	42%	58%	10,275	14,189
	Barley	7,537	2.8	21,104	42%	58%	8,864	12,240
	Lettuce	96	4.8	461	42%	58%	194	267
	Melons	6,529	4.8	31,339	42%	58%	13,162	18,177
	Vegetables	2,352	4.8	11,290	42%	58%	4,742	6,548
CU-5c	<i>Reducing speed from 25.9 mph to 15 mph:</i>		(EF - Vehicle Traffic)			58%	60,026	82,894
	Alfalfa	36,004	0.8	28,803	42%	42%	12,097	12,097
	Citrus	4,464	2.46	10,981	42%	42%	4,612	4,612
	Corn	6,241	0.8	4,993	42%	42%	2,097	2,097
	Cotton	9,841	0.8	7,873	42%	42%	3,307	3,307
	Onions	336	4.8	1,613	42%	42%	677	677
	Wheat	8,737	2.8	24,464	42%	42%	10,275	10,275

Table 3 – Potential PM₁₀ Emission Reductions by Control Measure and Associated Crop

ID	Control Measure by Associated Crop	Acres by Crop / Land Use (Maricopa County PM₁₀ Nonattainment Area)	PM₁₀ Emission Factor (lbs / acre /yr)	Uncontrolled PM₁₀ Emissions (lbs/yr)	Maricopa BMP Control Efficiency (%)	San Joaquin CMP Control Efficiency (%)	PM₁₀ Emission Reduction From Maricopa BMPs (lbs/yr)	PM₁₀ Emission Reduction From San Joaquin CMPs (lbs/yr)
	Barley	7,537	2.8	21,104	42%	42%	8,864	8,864
	Lettuce	96	4.8	461	42%	42%	194	194
	Melons	6,529	4.8	31,339	42%	42%	13,162	13,162
	Vegetables	2,352	4.8	11,290	42%	42%	4,742	4,742
CU-5d	<i>Reducing speed from 25.9 to 25 mph:</i>		(EF - Vehicle Traffic)				60,026	4,288
	Alfalfa	36,004	0.8	28,803	42%	3%	12,097	864
	Citrus	4,464	2.46	10,981	42%	3%	4,612	329
	Corn	6,241	0.8	4,993	42%	3%	2,097	150
	Cotton	9,841	0.8	7,873	42%	3%	3,307	236
	Onions	336	4.8	1,613	42%	3%	677	48
	Wheat	8,737	2.8	24,464	42%	3%	10,275	734
	Barley	7,537	2.8	21,104	42%	3%	8,864	633
	Lettuce	96	4.8	461	42%	3%	194	14
	Melons	6,529	4.8	31,339	42%	3%	13,162	940
	Vegetables	2,352	4.8	11,290	42%	3%	4,742	339
CU-6	Track Out Control:		(EF - Vehicle Traffic)		(85% - 95%)	(No data at this time)	128,628	0
	Alfalfa	36,004	0.8	28,803	90%		25,923	0
	Citrus	4,464	2.46	10,981	90%		9,883	0
	Corn	6,241	0.8	4,993	90%		4,494	0
	Cotton	9,841	0.8	7,873	90%		7,086	0
	Onions	336	4.8	1,613	90%		1,452	0
	Wheat	8,737	2.8	24,464	90%		22,017	0
	Barley	7,537	2.8	21,104	90%		18,993	0

Table 3 – Potential PM₁₀ Emission Reductions by Control Measure and Associated Crop

ID	Control Measure by Associated Crop	Acres by Crop / Land Use (Maricopa County PM ₁₀ Nonattainment Area)	PM₁₀ Emission Factor (lbs / acre /yr)	Uncontrolled PM₁₀ Emissions (lbs/yr)	Maricopa BMP Control Efficiency (%)	San Joaquin CMP Control Efficiency (%)	PM₁₀ Emission Reduction From Maricopa BMPs (lbs/yr)	PM₁₀ Emission Reduction From San Joaquin CMPs (lbs/yr)
	Lettuce	96	4.8	461	90%		415	0
	Melons	6,529	4.8	31,339	90%		28,205	0
	Vegetables	2,352	4.8	11,290	90%		10,161	0
CU-7	Water Application:		(EF - Vehicle Traffic)		(50% - 93%)		102,902	100,044
	Alfalfa	36,004	0.8	28,803	72%	70%	20,738	20,162
	Citrus	4,464	2.46	10,981	72%	70%	7,907	7,687
	Corn	6,241	0.8	4,993	72%	70%	3,595	3,495
	Cotton	9,841	0.8	7,873	72%	70%	5,668	5,511
	Onions	336	4.8	1,613	72%	70%	1,161	1,129
	Wheat	8,737	2.8	24,464	72%	70%	17,614	17,125
	Barley	7,537	2.8	21,104	72%	70%	15,195	14,773
	Lettuce	96	4.8	461	72%	70%	332	323
	Melons	6,529	4.8	31,339	72%	70%	22,564	21,937
	Vegetables	2,352	4.8	11,290	72%	70%	8,129	7,903
CU-8	Wind Barrier - Artificial (reduces wind erosion of unpaved roads and non cropland):		(EF - Wind Erosion of Unpaved Roads & Non Cropland)		0% - 90% (Artificial Wind Barrier)	30%	174,621	116,414
	Alfalfa	36,004	4.64	167,059	45%	30%	75,176	50,118
	Citrus	4,464	4.21	18,793	45%	30%	8,457	5,638
	Corn	6,241	4.21	26,275	45%	30%	11,824	7,882
	Cotton	9,841	6.93	68,198	45%	30%	30,689	20,459
	Onions	336	4.21	1,415	45%	30%	637	424
	Wheat	8,737	4.21	36,783	45%	30%	16,552	11,035

Table 3 – Potential PM₁₀ Emission Reductions by Control Measure and Associated Crop								
ID	Control Measure by Associated Crop	Acres by Crop / Land Use (Maricopa County PM₁₀ Nonattainment Area)	PM₁₀ Emission Factor (lbs / acre /yr)	Uncontrolled PM₁₀ Emissions (lbs/yr)	Maricopa BMP Control Efficiency (%)	San Joaquin CMP Control Efficiency (%)	PM₁₀ Emission Reduction From Maricopa BMPs (lbs/yr)	PM₁₀ Emission Reduction From San Joaquin CMPs (lbs/yr)
	Barley	7,537	4.21	31,731	45%	30%	14,279	9,519
	Lettuce	96	4.21	404	45%	30%	182	121
	Melons	6,529	4.21	27,487	45%	30%	12,369	8,246
	Vegetables	2,352	4.21	9,902	45%	30%	4,456	2,971
CU-9	Wind Barrier - Natural (reduces wind erosion of unpaved roads and non cropland):		(EF - Wind Erosion of Unpaved Roads & Non Cropland)		Tree, Shrub, or Windbreak Planting) 25%		97,012	116,414
	Alfalfa	36,004	4.64	167,059	25%	30%	41,765	50,118
	Citrus	4,464	4.21	18,793	25%	30%	4,698	5,638
	Corn	6,241	4.21	26,275	25%	30%	6,569	7,882
	Cotton	9,841	6.93	68,198	25%	30%	17,050	20,459
	Onions	336	4.21	1,415	25%	30%	354	424
	Wheat	8,737	4.21	36,783	25%	30%	9,196	11,035
	Barley	7,537	4.21	31,731	25%	30%	7,933	9,519
	Lettuce	96	4.21	404	25%	30%	101	121
	Melons	6,529	4.21	27,487	25%	30%	6,872	8,246
	Vegetables	2,352	4.21	9,902	25%	30%	2,475	2,971

REFERENCES

2004 Arizona Agricultural Statistics Bulletin, September 2005

“Conservation Management Practices Program Report for 2005”, San Joaquin Valley Air Pollution Control District, January 19, 2006

Maricopa Association of Government’s 2004 Population and Employment Data

“Technical Support Document for Quantification of Agricultural Best Management Practices, Revised Final Draft”, ADEQ Contract No. 98-0159-BF, URS Corporation and Eastern Research Group, Inc., June 8, 2001