Maricopa County
Air Quality Department

April 25, 2006

RECEIVED
APR 26 2006
OFFICE OF THE PRESIDENT

Honorable Ken Bennett
The Senate of Arizona
1700 W. Washington Street
Phoenix, AZ 85007

Subject: Voluntary Vehicle Repair and Retrofit Program
Third Quarter Report – Fiscal Year 2005/2006
ADEQ Grant EV06-0008

Dear Senator Bennett:

Enclosed for your review and reference is the Maricopa County, Voluntary Vehicle Repair & Retrofit (VVR&R) Program, Third Quarter Progress Report for the 2005/2006 Fiscal Year. This report is prepared and submitted in accordance with ARS §49-474.03.G.

The Third Quarter results indicate that from January through March 2006, Maricopa County repaired and/or retrofitted 244 high-emitting vehicles. Vehicle pollution was reduced by 58 metric tons at a calculated cost to Maricopa County of $999 per metric ton.

Should you have any questions, comments or require any additional information regarding this document or the VVR&R Program, please contact me at (602) 506-6936.

Sincerely,

A. Neil Yockey
Environmental Program Manager

Voluntary Vehicle Repair & Retrofit Program
1001 North Central Avenue, Suite 500, Phoenix, Arizona 85004

Telephone: (602) 506-6750 Facsimile: (602) 506-7303
Web: http://www.maricopa.gov/aq/divisions/trip/veh_rep.aspx

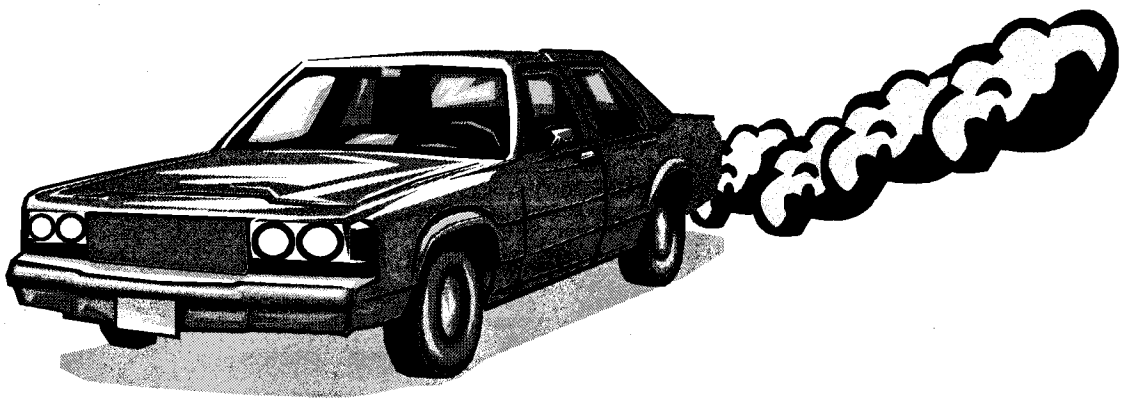
Maricopa County
Air Quality Department

Voluntary Vehicle Repair & Retrofit Program

FY 2005/2006

Third Quarter Report
January 1, 2006 – March 31, 2006

ADEQ Contract EV06-0008



Voluntary Vehicle Repair & Retrofit Program
1001 North Central Avenue, Suite 500
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Telephone: (602) 506-6750 Facsimile: (602) 506-7303
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Executive Summary

The Third Quarter FY06 (January - March 2006) report for Maricopa County's Voluntary Vehicle Repair and Retrofit (VVR&R) Program reflects continued success for the program. It achieves its goal of reducing vehicle emissions in a cost-effective manner. The program offers the citizens of Maricopa County the option to voluntarily repair and retrofit their high-emitting older vehicles with newer technology.

Summary of Results

	FY06 1st Qtr	FY06 2nd Qtr	FY06 3rd Qtr	FY06 4th Qtr	FYTD Total	FY05 Total
Average Amount Spent by Customers & Maricopa County Per Vehicle Repaired	$792	$765	$749		$769	$760
Average Amount Spent by Maricopa County Per Vehicle Repaired	$522	$520	$512		$518	$517
Total Number of Vehicles Repaired	264	179	244		687	937
Number of Vehicles with Retrofit Kits Installed	3	3	3		9	28
Total Amount Spent by Customers & Maricopa County for Vehicles Repaired	$208,219	$136,884	$182,715		$527,818	$709,674
Total Amount Spent by Maricopa County for Vehicles Repaired	$137,236	$93,034	$124,874		$355,144	$482,112
Administrative Costs	$25,197	$41,580	$40,331		$107,108	$131,437

Emissions Reductions

Basic Idle & Loaded Testing

Emissions reduction calculations vary depending on the type of test used. Older vehicles (1967 – 1980) and some newer trucks use the basic idle and loaded methods for emissions testing. Because of how the hydrocarbons and carbon monoxide are measured, there is not a formula available to determine cost effectiveness with these vehicles. Below is the average percent reduction for each pollutant:

	Idle Test		Loaded Test	
	HC	CO	HC	CO
1st Quarter FY06	66%	81%	61%	74%
2nd Quarter FY06	65%	54%	71%	83%
3rd Quarter FY06	67%	74%	74%	77%
4th Quarter FY06				
FYTD – Total	66%	74%	68%	77%
FY05 – Total	67%	71%	66%	77%

Emissions Reductions
IM Testing

Newer vehicles (1981-1992) calculate emissions using the IM Test. The grid below shows the average percent reduction in pollutants:

	HC	CO	NOx
1st Quarter FY06	76%	85%	54%
2nd Quarter FY06	76%	85%	53%
3rd Quarter FY06	73%	82%	55%
4th Quarter FY06			
FYTD – Total	76%	85%	53%
FY05 – Total	75%	83%	53%

Because the IM Test measures each pollutant in grams per mile, a cost effectiveness formula can be applied, taking into account the tons reduced and the average miles driven:

	FY06 1st Qtr	FY06 2nd Qtr	FY06 3rd Qtr	FY06 4th Qtr	FYTD Total	FY05 Total
Metric Tons Reduced	77	51	58		187	251
Maricopa County Cost Per Metric Ton	$803	$834	$999		$873	$871
Customer & Maricopa County Cost Per Metric Ton	$1,230	$1,226	$1,464		$1,302	$1,279

Costs are annualized over two years, assuming the VVR&R Program's benefits will be realized over at least that length of time. In comparison with other programs, it is generally assumed a program is cost effective if a ton of reduction costs $2,000.

Customer Satisfaction

Customers are provided a self-addressed stamped survey postcard after their vehicle is repaired. Using the following scale, customers are asked to rank how well the program requirements were explained to them, as well as, to rank their satisfaction with the repair process and the service received by their participating garage.

1- Extremely Disagree
2- Disagree
3- No Opinion/Okay
4- Agree
5- Extremely Agree

Of the 244 vehicles repaired during the Third Quarter, 35 customers returned their surveys resulting in a 14.3% response rate. The following chart reflects the collective, average response rates from all surveys received during this period:

Question	Second Quarter Average Scores
When I called, the program was thoroughly explained.	4.54
My experience with the repair facility was satisfactory.	4.71
I am satisfied with the repairs made to my vehicle.	4.71

Vehicle Repair Summary

The number of vehicles repaired and number of retrofit kits installed are detailed in the grid below for the Third Quarter, FY06 (January – March 2006) and for the current, cumulative Program (July 2000 – March 2006).

Vehicle Year	Number of Vehicles Repaired		Number of Retrofit Kits Installed	
	Third Quarter	*Program*	*Third Quarter*	*Program*
1967	0	22		
1968	1	24		
1969	0	22		
1970	0	18		
1971	2	20		
1972	1	37		
1973	1	33		
1974	0	28		
1975	0	23		16
1976	2	47	1	20
1977	3	47	1	22
1978	0	71		45
1979	1	84	1	58
1980	0	57		35
1981	4	135		2
1982	8	140		
1983	6	217		1
1984	8	289		2
1985	11	445		
1986	15	652		
1987	22	628		1
1988	27	595		1
1989	16	550		2
1990	16	491		
1991	28	341		
1992	20	236		
1993	25	138		
1994	27	27		
Total	244	5,417	3	205

Repeat Customers

In February 2004, the VVR&R Program Advisory Committee determined that since the intent of the program is to reduce tailpipe emissions on as many vehicles as possible, eligibility was extended to include the same owner, entering the same vehicle, through the program more than once. Below, the number of Repeat Customers is broken down by quarter for FY06:

	1st QTR	2nd QTR	3rd QTR	4th QTR
Number of Repeat Customers	15	11	12	

Program Summary

	Dates	Number of Vehicles Repaired	Number of Retrofit Kits Installed	Metric Tons/Year Reduced	Cost Per Metric Ton
Pilot	1/99 – 6/00	1,662	37	425	$591
Current Program	7/00 – 3/06	5,417	205	1,379	$874

Funding History

Year	Amount	Source
Pilot	$640,000	SB1427
FY01	$1,920,000	SB1504
FY01	$92,800	ADEQ's Catalytic Converter Replacement Program
FY02	$320,000	HB2538
FY03	-0-	HB2538 Allocation removed during Special Legislative Session
FY04	$399,534	ADEQ Contract 99-0089 Amendment #7
FY05	$725,000	ADEQ Contract EV05-0013
FY06	$725,000	ADEQ Contract EV06-0008

Program Parameters

In order to qualify for the program, vehicles must meet the following criteria established by ARS § 49-474.03 and the VVR&R Program's Advisory Committee:

- The owner must be willing to participate and the vehicle must be functionally operational
- The vehicle must be titled in Arizona
- The vehicle must have been registered during the immediately preceding 12 months. It cannot have been unregistered for more than 60 days
- The vehicle must have failed a required emissions test in the "Emissions Inspection Results" within the past 60 days; failures in the "Equipment or Pressure & Purge Inspection Results" are not eligible
- The emissions control system has not been tampered with, removed, or disabled
- Work must be done at a participating garage
- One vehicle per owner
- Motor homes, motorcycles, salvage vehicles and fleet vehicles are not eligible
- If the vehicle is eligible for a retrofit kit (most 1975-1980 vehicles and some newer model year trucks), one must be installed
- There are no reimbursements available for work already done
- Some vehicles may not be eligible for assistance if they are in extremely poor condition

Process
The primary method of communication regarding this program is located on various pamphlets people receive as they proceed through the registration and emissions testing process. Information on the program is included on the pamphlet entitled "Car Care – Important Emissions Testing Information" which is sent to all owners due to re-register their vehicles.

If they fail the emissions test, customers receive a pamphlet from the emissions station entitled "Car Care – Failed Vehicle Information." In addition, banners have been installed at each of Maricopa County's thirteen testing stations. Customers may call the VVR&R helpline or go directly to the Maricopa County Air Quality Department website to locate an authorized repair facility.

When customers take their vehicle to the repair facility, they bring their title, current proof of registration, and the emissions failure notice. Customers sign an agreement sheet and a vehicle diagnostic is performed. The customers are informed about necessary repairs and associated costs. If customers continue in the program, they pay the first $150 to the repair facility. Maricopa County Air Quality Department pays, up to, an additional $550 for repairs to address the specific emission failure or, up to, an additional $650 for repair and retrofit kit installation. If the cost to bring the vehicle to emission standards exceeds these amounts, owners may opt to pay the additional expense or withdraw their vehicle from the program. If they choose to withdraw from the program, they are charged a $50 diagnostic fee.

Repairs generally take a day, after which the mechanic takes the vehicle to an emission station to obtain a pass notice. The facility forwards all paperwork (customer agreement, invoices with balances noted, and copies of title, registration, failure and pass notices) to Kachina Automotive. Kachina Automotive then submits copies of this information, along with a final invoice, to Maricopa County. Maricopa County pays Kachina Automotive who then distributes payment to each repair facility.

Checks & Balances
A system of checks and balances has been established, with the help of the State of Arizona Waiver Facilities, to ensure repairs are properly completed as indicated on the invoices and money is spent appropriately. Each customer is given a self-addressed stamped postcard with survey questions on the process and the service. This allows the program to gather immediate feedback. If customers call with complaints, they may be referred to a waiver station. There, technicians compare the invoiced repairs with what was actually done to the vehicles and test the vehicles to be sure they are passing the emissions test. Most vehicles receive positive reports from the waiver stations. Those that do not, are referred back to the garages; to this point, all vehicles have been repaired to everyone's satisfaction.

Retrofit Kits
The retrofit kits utilized in this program are supplied by Neutronics Enterprises, Inc. The kit converts vehicles originally built with open loop carburetor or fuel injection systems and oxidation catalysts into closed-loop (feedback) systems with three-way

catalysts. The exclusive Neutronics representative in Maricopa County is Kachina Automotive Equipment, Inc. Kachina as an authorized vendor for Maricopa County is responsible for maintaining an inventory of the retrofit kits. In addition, Maricopa County subcontracts with Kachina to oversee all aspects of selecting and training of the repair facilities. The VVR&R Program currently has six authorized repair facilities in the Valley. Currently, facilities are located in Avondale, Mesa, Central Phoenix, North Phoenix, North-East Phoenix, and Central-West Phoenix.

Advisory Committee

The Advisory Committee, established under ARS § 49-588.34, meets as needed to advise and make recommendations on the development and implementation of the VVR&R Program. Members include representatives from the Arizona Department of Transportation, the Arizona Department of Environmental Quality, automobile hobbyists, and the automotive aftermarket products industry.

Voluntary Vehicle Repair and Retrofit Program

Loaded Emission Reduction Results
From 1/6/2006 Through 4/5/2006

Run Date:
Monday, April 10, 2006

Run Time
10:55 AM

Year	Total # Vehicles	Total Before HC (ppm)	Total Before CO (%)	Total After HC (ppm)	Total After CO (%)	Total Reduction HC (ppm)	Total Reduction CO (%)	Total After HC (ppm)	Total After CO (%)	Maricopa County Costs Total Cost	Maricopa County Costs Avg Cost	Total (County + Cust) Total Cost	Total (County + Cust) Avg Cost
1968	1	211.00	4.71	96.00	1.19	115.00	3.52	54.50	74.73	$550.00	$550.00	$832.87	$832.87
1971	2	1440.00	22.40	422.00	1.71	1018.00	20.69	70.69	92.37	$805.10	$402.55	$1,105.10	$552.55
1972	1	503.00	4.01	182.00	2.68	321.00	1.33	63.82	33.17	$213.56	$213.56	$363.56	$363.56
1973	1	506.00	0.53	119.00	0.84	387.00	-0.31	76.48	-58.49	$138.61	$138.61	$288.61	$288.61
1976	2	324.01	0.81	110.01	0.03	214.00	0.78	66.05	96.30	$912.93	$456.46	$1,266.52	$633.26
1977	3	500.00	9.55	112.00	0.22	388.00	9.33	77.60	97.70	$1,848.90	$616.30	$2,806.92	$935.64
1979	1	31.00	0.13	7.00	0.00	24.00	0.13	77.42	100.00	$650.00	$650.00	$970.87	$970.87
1985	1	62.00	0.45	121.00	2.78	-59.00	-2.33	-95.16	-517.78	$498.43	$498.43	$648.43	$648.43
1986	1	24.00	0.39	49.00	0.67	-25.00	-0.28	-104.17	-71.79	$390.96	$390.96	$540.96	$540.96
1988	1	259.00	0.58	13.00	0.01	246.00	0.57	94.98	98.28	$546.37	$546.37	$696.37	$696.37
1989	1	1096.00	0.07	60.00	0.01	1036.00	0.06	94.53	85.71	$469.96	$469.96	$619.96	$619.96
1991	1	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	$531.37	$531.37	$681.37	$681.37
1994	2	0.02	0.02	0.02	0.02	0.00	0.00	0.00	0.00	$1,060.52	$530.26	$1,473.80	$736.90
Totals:	18	4956.04	43.66	1291.04	10.17	3665.00	33.49	73.95	76.71	$8,616.71	$5,994.84	$12,295.34	$8,501.35

Voluntary Vehicle Repair and Retrofit Program

Idle Emission Reduction Results
From 1/6/2006 Through 4/5/2006

Run Date:
Monday, April 10, 2006

Run Time
10:55 AM

Year	Total # Vehicles	Total Before HC (ppm)	Total Before CO (%)	Total After HC (ppm)	Total After CO (%)	Total Reduction HC (ppm)	Total Reduction CO (%)	Total After HC (ppm)	Total After CO (%)	Maricopa County Costs Total Cost	Maricopa County Costs Avg Cost	Total (County + Cust) Total Cost	Total (County + Cust) Avg Cost
1968	1	703.00	9.99	97.00	1.26	606.00	8.73	86.20	87.39	$550.00	$550.00	$832.87	$832.87
1971	2	1034.00	15.16	495.00	3.37	539.00	11.79	52.13	77.77	$805.10	$402.55	$1,105.10	$552.55
1972	1	573.00	7.04	234.00	2.72	339.00	4.32	59.16	61.36	$213.56	$213.56	$363.56	$363.56
1973	1	391.00	0.58	205.00	4.13	186.00	-3.55	47.57	-612.07	$138.61	$138.61	$288.61	$288.61
1976	2	979.00	13.14	490.00	0.63	489.00	12.51	49.95	95.21	$912.93	$456.46	$1,266.52	$633.26
1977	3	944.00	4.50	180.00	0.21	764.00	4.29	80.93	95.33	$1,848.90	$616.30	$2,806.92	$935.64
1979	1	202.00	5.65	48.00	0.86	154.00	4.79	76.24	84.78	$650.00	$650.00	$970.87	$970.87
1985	1	842.00	0.07	201.00	0.16	641.00	-0.09	76.13	-128.57	$498.43	$498.43	$648.43	$648.43
1986	1	491.00	0.10	113.00	2.24	378.00	-2.14	76.99	-2140.0	$390.96	$390.96	$540.96	$540.96
1988	1	449.00	8.50	57.00	0.69	392.00	7.81	87.31	91.88	$546.37	$546.37	$696.37	$696.37
1989	1	295.00	0.01	57.00	0.40	238.00	-0.39	80.68	-3900.0	$469.96	$469.96	$619.96	$619.96
1991	1	301.00	1.25	63.00	0.22	238.00	1.03	79.07	82.40	$531.37	$531.37	$681.37	$681.37
1994	2	632.00	2.12	330.00	1.01	302.00	1.11	47.78	52.36	$1,060.52	$530.26	$1,473.80	$736.90
Totals:	18	7836.00	68.11	2570.00	17.90	5266.00	50.21	67.2	73.72	$8,616.71	$5,994.84	$12,295.34	$8,501.35

Maricopa County Voluntary Vehicle Repair and Retrofit Program

IM147 Emission Reduction Results - January through March 2006

Third Quarter FY2006 (January 6 - April 5, 2006)

	Total # of	Total Before (grams/mile)			Total After (grams/mile)			Total Reduction (grams/mile)			Total Reduction (%)		
	Vehicles	HC	CO	Nox	HC	CO	Nox	HC	CO	Nox	HC	CO	Nox
Total	**226**	**438.71**	**7,218.14**	**681.19**	**117.12**	**1,278.00**	**304.17**	**321.59**	**5,940.14**	**377.02**	**73.30**	**82.29**	**55.35**
1981	4	19.80	152.01	14.48	3.35	46.73	8.92	16.45	105.28	5.56	83.08	69.26	38.40
1982	8	23.45	352.20	35.48	7.05	106.79	15.24	16.40	245.41	20.24	69.94	69.68	57.05
1983	6	18.71	327.23	20.67	3.72	49.44	10.36	14.99	277.79	10.31	80.12	84.89	49.88
1984	8	39.26	669.06	25.00	9.38	101.59	22.42	29.88	567.47	2.58	76.11	84.82	10.32
1985	10	27.34	419.06	32.63	8.33	107.34	15.80	19.01	311.72	16.83	69.53	74.39	51.58
1986	14	27.89	430.02	45.66	6.46	87.11	18.33	21.43	342.91	27.33	76.84	79.74	59.86
1987	22	39.41	891.44	55.09	13.06	115.60	28.46	26.35	775.84	26.63	66.86	87.03	48.34
1988	26	37.33	837.66	84.11	11.95	155.53	39.18	25.38	682.13	44.93	67.99	81.43	53.42
1989	15	34.87	606.12	33.79	8.62	89.79	18.92	26.25	516.33	14.87	75.28	85.19	44.01
1990	16	21.03	402.99	41.63	7.45	76.00	22.74	13.58	326.99	18.89	64.57	81.14	45.38
1991	27	38.07	673.56	74.33	9.92	78.92	26.02	28.15	594.64	48.31	73.94	88.28	64.99
1992	20	30.70	497.94	57.68	7.84	75.12	19.23	22.86	422.82	38.45	74.46	84.91	66.66
1993	25	36.89	453.20	76.40	10.16	100.90	30.51	26.73	352.30	45.89	72.46	77.74	60.07
1994	25	43.96	505.65	84.24	9.83	87.14	28.04	34.13	418.51	56.20	77.64	82.77	66.71

* For ease in calculations, only light duty gas vehicle mileage is used.
This information is generated from the (LDV-M6/LDGT-M6) Mobile6 model.

The numbers highlighted in blue are entered from the IM147 report from VVR&R SQL database
The numbers highlighted in red are calculated numbers entered into the reports

Maricopa County Voluntary Vehicle Repair and Retrofit Program

IM147 Emission Reduction Results - January through March 2006

Average Miles per Year*	Total Reduction (metric tons/year)			Total Reduction Per Vehicle Year (metric tons/year)	Maricopa County Costs			Total Cost (County + Customer)		
	HC	CO	Nox		Total Cost Per Vehicle Year	Cost Per Metric Ton**	Average Cost of Repair	Total Cost Per Vehicle Year	Cost Per Metric Ton**	Average Cost of Repair
119,094	**2.82**	**51.85**	**3.53**	**58.20**	**$116,256.79**	**$998.77**	**$514.41**	**$170,419.51**	**$1,464.08**	**$754.07**
5,997	0.10	0.63	0.03	0.76	**$2,052.45**	$1,344.36	$513.11	**$3,498.46**	$2,291.49	$874.62
6,308	0.10	1.55	0.13	1.78	**$4,307.71**	$1,210.59	$538.46	**$6,145.03**	$1,726.94	$768.13
6,636	0.10	1.84	0.07	2.01	**$3,179.72**	$790.46	$529.95	**$4,604.22**	$1,144.59	$767.37
6,980	0.21	3.96	0.02	4.19	**$4,094.66**	$488.91	$511.83	**$7,145.86**	$853.23	$893.23
7,342	0.14	2.29	0.12	2.55	**$4,984.61**	$976.69	$498.46	**$7,050.38**	$1,381.46	$705.04
7,723	0.17	2.65	0.21	3.02	**$7,213.30**	$1,192.33	$515.24	**$10,500.75**	$1,735.74	$750.05
8,124	0.21	6.30	0.22	6.73	**$11,475.55**	$852.14	$521.62	**$16,937.21**	$1,257.71	$769.87
8,546	0.22	5.83	0.38	6.43	**$12,590.89**	$979.02	$484.27	**$19,134.83**	$1,487.85	$735.96
8,989	0.24	4.64	0.13	5.01	**$7,677.33**	$766.06	$511.82	**$12,092.13**	$1,206.58	$806.14
9,456	0.13	3.09	0.18	3.40	**$8,017.51**	$1,179.37	$501.09	**$12,859.06**	$1,891.56	$803.69
9,947	0.28	5.91	0.48	6.68	**$13,847.40**	$1,037.19	$512.87	**$19,597.63**	$1,467.89	$725.84
10,463	0.24	4.42	0.40	5.07	**$10,434.51**	$1,029.97	$521.73	**$14,278.16**	$1,409.37	$713.91
11,006	0.29	3.88	0.51	4.68	**$13,160.43**	$1,407.03	$526.42	**$18,502.74**	$1,978.20	$740.11
11,577	0.40	4.85	0.65	5.89	**$13,220.72**	$1,122.14	$528.83	**$18,073.05**	$1,534.00	$722.92

**This is cost annualized over two years.

It is assumed, that benefits though paid for in one year, will be realized over two or more years.

Voluntary Vehicle Repair and Retrofit Program

Loaded Emission Reduction Results
From 8/2/2005 Through 4/5/2006

Run Date:
Monday, April 10, 2006

Run Time
10:59 AM

Year	Total # Vehicles	Total Before HC (ppm)	Total Before CO (%)	Total After HC (ppm)	Total After CO (%)	Total Reduction HC (ppm)	Total Reduction CO (%)	Total After HC (ppm)	Total After CO (%)	Maricopa County Costs Total Cost	Maricopa County Costs Avg Cost	Total (County + Cust) Total Cost	Total (County + Cust) Avg Cost
1968	6	1832.00	22.92	531.00	6.53	1301.00	16.39	71.02	71.51	$2,478.14	$413.02	$3,511.01	$585.17
1969	1	721.00	3.23	298.00	0.68	423.00	2.55	58.67	78.95	$550.00	$550.00	$720.26	$720.26
1970	1	149.00	3.75	128.00	1.20	21.00	2.55	14.09	68.00	$550.00	$550.00	$961.92	$961.92
1971	4	1974.00	33.41	698.00	6.48	1276.00	26.93	64.64	80.60	$1,510.87	$377.72	$2,110.87	$527.72
1972	3	1151.00	14.99	409.00	4.73	742.00	10.26	64.47	68.45	$1,257.52	$419.17	$2,266.71	$755.57
1973	2	690.00	5.24	283.00	1.98	407.00	3.26	58.99	62.21	$227.36	$113.68	$527.36	$263.68
1975	2	237.00	3.94	46.00	0.00	191.00	3.94	80.59	100.00	$1,205.87	$602.94	$1,505.87	$752.94
1976	4	476.01	3.21	185.01	0.62	291.00	2.59	61.13	80.69	$2,006.42	$501.60	$2,660.01	$665.00
1977	5	693.00	11.37	214.00	0.65	479.00	10.72	69.12	94.28	$3,048.90	$609.78	$4,484.84	$896.97
1978	2	500.00	5.37	129.00	1.24	371.00	4.13	74.20	76.91	$1,021.86	$510.93	$1,491.97	$745.98
1979	4	578.00	7.83	268.00	0.27	310.00	7.56	53.63	96.55	$2,398.34	$599.58	$3,316.18	$829.04
1980	3	457.00	10.40	92.00	0.19	365.00	10.21	79.87	98.17	$1,576.74	$525.58	$2,026.74	$675.58
1984	1	178.00	0.19	94.00	0.20	84.00	-0.01	47.19	-5.26	$538.34	$538.34	$688.34	$688.34
1985	4	710.00	11.42	373.00	6.90	337.00	4.52	47.46	39.58	$2,022.16	$505.54	$3,029.49	$757.37
1986	3	200.00	1.10	168.00	1.53	32.00	-0.43	16.00	-39.09	$1,408.52	$469.51	$1,858.52	$619.51
1988	3	767.00	7.86	39.01	0.52	727.99	7.34	94.91	93.38	$1,635.97	$545.32	$2,106.57	$702.19
1989	1	1096.00	0.07	60.00	0.01	1036.00	0.06	94.53	85.71	$469.96	$469.96	$619.96	$619.96
1990	1	458.00	3.65	47.00	1.16	411.00	2.49	89.74	68.22	$547.69	$547.69	$697.69	$697.69
1991	4	0.04	0.04	0.04	0.04	0.00	0.00	0.00	0.00	$2,179.98	$545.00	$3,477.76	$869.44
1992	1	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	$550.00	$550.00	$1,422.75	$1,422.7
1993	1	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	$500.76	$500.76	$650.76	$650.76
1994	2	0.02	0.02	0.02	0.02	0.00	0.00	0.00	0.00	$1,060.52	$530.26	$1,473.80	$736.90
Totals:	58	12867.09	150.03	4062.10	34.97	8804.99	115.06	68.43	76.69	$28,745.92	$10,976.38	$41,609.38	$16,144.74

Voluntary Vehicle Repair and Retrofit Program

Idle Emission Reduction Results
From 8/2/2005 Through 4/5/2006

Run Date:
Monday, April 10, 2006

Run Time
10:59 AM

Year	Total # Vehicles	Total Before HC (ppm)	Total Before CO (%)	Total After HC (ppm)	Total After CO (%)	Total Reduction HC (ppm)	Total Reduction CO (%)	Total After HC (ppm)	Total After CO (%)	Maricopa County Costs Total Cost	Maricopa County Costs Avg Cost	Total (County + Cust) Total Cost	Total (County + Cust) Avg Cost
1968	6	2870.00	24.94	1180.00	8.05	1690.00	16.89	58.88	67.72	$2,478.14	$413.02	$3,511.01	$585.17
1969	1	775.00	2.04	499.00	4.79	276.00	-2.75	35.61	-134.80	$550.00	$550.00	$720.26	$720.26
1970	1	249.00	5.89	376.00	0.17	-127.00	5.72	-51.00	97.11	$550.00	$550.00	$961.92	$961.92
1971	4	2213.00	22.48	971.00	7.07	1242.00	15.41	56.12	68.55	$1,510.87	$377.72	$2,110.87	$527.72
1972	3	1256.00	16.63	478.00	3.55	778.00	13.08	61.94	78.65	$1,257.52	$419.17	$2,266.71	$755.57
1973	2	581.00	1.61	417.00	4.30	164.00	-2.69	28.23	-167.08	$227.36	$113.68	$527.36	$263.68
1975	2	651.00	7.53	125.00	0.00	526.00	7.53	80.80	100.00	$1,205.87	$602.94	$1,505.87	$752.94
1976	4	1571.00	13.60	604.00	2.13	967.00	11.47	61.55	84.34	$2,006.42	$501.60	$2,660.01	$665.00
1977	5	1641.00	7.83	419.00	1.63	1222.00	6.20	74.47	79.18	$3,048.90	$609.78	$4,484.84	$896.97
1978	2	722.00	5.32	165.00	0.12	557.00	5.20	77.15	97.74	$1,021.86	$510.93	$1,491.97	$745.98
1979	4	848.00	19.58	322.00	0.97	526.00	18.61	62.03	95.05	$2,398.34	$599.58	$3,316.18	$829.04
1980	3	1267.00	15.10	95.00	0.18	1172.00	14.92	92.50	98.81	$1,576.74	$525.58	$2,026.74	$675.58
1984	1	583.00	0.12	265.00	0.25	318.00	-0.13	54.55	-108.33	$538.34	$538.34	$688.34	$688.34
1985	4	2605.00	10.16	864.00	4.75	1741.00	5.41	66.83	53.25	$2,022.16	$505.54	$3,029.49	$757.37
1986	3	1675.00	3.92	404.00	7.60	1271.00	-3.68	75.88	-93.88	$1,408.52	$469.51	$1,858.52	$619.51
1988	3	1102.00	10.78	160.00	0.76	942.00	10.02	85.48	92.95	$1,635.97	$545.32	$2,106.57	$702.19
1989	1	295.00	0.01	57.00	0.40	238.00	-0.39	80.68	-3900.0	$469.96	$469.96	$619.96	$619.96
1990	1	238.00	0.15	14.00	0.00	224.00	0.15	94.12	100.00	$547.69	$547.69	$697.69	$697.69
1991	4	1833.00	10.68	359.00	0.35	1474.00	10.33	80.41	96.72	$2,179.98	$545.00	$3,477.76	$869.44
1992	1	529.00	5.07	138.00	1.18	391.00	3.89	73.91	76.73	$550.00	$550.00	$1,422.75	$1,422.7
1993	1	345.00	4.84	118.00	0.47	227.00	4.37	65.80	90.29	$500.76	$500.76	$650.76	$650.76
1994	2	632.00	2.12	330.00	1.01	302.00	1.11	47.78	52.36	$1,060.52	$530.26	$1,473.80	$736.90
Totals:	58	24481.00	190.40	8360.00	49.73	16121.00	140.67	65.85	73.88	$28,745.92	$10,976.38	$41,609.38	$16,144.74

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Maricopa County Voluntary Vehicle Repair and Retrofit Program

IM147 Emission Reduction Results - July 2005 through March 2006

FY06 YTD - Cumulative Results for First, Second and Third Quarters (July 2005 - March 2006 (08/02/2005 - 04/05/2006))

	Total # of	Total Before (grams/mile)			Total After (grams/mile)			Total Reduction (grams/mile)			Total Reduction (%)		
	Vehicles	HC	CO	Nox	HC	CO	Nox	HC	CO	Nox	HC	CO	Nox
Total	**628**	**1,277.24**	**23,366.16**	**1,677.47**	**317.71**	**3,762.07**	**771.38**	**959.53**	**19,604.09**	**906.09**	**75.13**	**83.90**	**54.02**
1981	10	40.00	582.99	24.93	8.04	127.88	17.92	31.96	455.11	7.01	79.90	78.06	28.12
1982	16	58.93	927.41	52.44	15.21	207.13	27.37	43.72	720.28	25.07	74.19	77.67	47.81
1983	13	48.98	1,050.19	36.07	9.28	148.79	22.50	39.70	901.40	13.57	81.05	85.83	37.62
1984	19	84.29	1,423.22	51.09	17.95	209.13	42.52	66.34	1,214.09	8.57	78.70	85.31	16.77
1985	31	79.40	1,823.19	74.36	23.09	313.36	45.57	56.31	1,509.83	28.79	70.92	82.81	38.72
1986	49	110.39	2,221.42	137.25	30.26	372.26	67.86	80.13	1,849.16	69.39	72.59	83.24	50.56
1987	64	141.38	2,995.47	132.90	36.43	396.75	87.10	104.95	2,598.72	45.80	74.23	86.76	34.46
1988	52	109.12	2,033.14	149.41	24.35	309.38	71.65	84.77	1,723.76	77.76	77.69	84.78	52.04
1989	48	85.33	1,565.99	126.43	23.29	308.11	55.45	62.04	1,257.88	70.98	72.71	80.32	56.14
1990	68	109.54	2,086.31	174.03	29.63	289.68	79.65	79.91	1,796.63	94.38	72.95	86.12	54.23
1991	82	134.66	2,437.59	215.51	31.75	331.71	76.99	102.91	2,105.88	138.52	76.42	86.39	64.28
1992	73	115.67	1,981.40	193.55	28.22	330.01	63.89	87.45	1,651.39	129.66	75.60	83.34	66.99
1993	78	115.59	1,732.19	225.26	30.38	330.74	84.87	85.21	1,401.45	140.39	73.72	80.91	62.32
1994	25	43.96	505.65	84.24	9.83	87.14	28.04	34.13	418.51	56.20	77.64	82.77	66.71

* For ease in calculations, only light duty gas vehicle mileage is used.
This information is generated from the (LDV-M6/LDGT-M6) Mobile6 model.

The numbers highlighted in blue are entered from the IM147 report from SQL
The numbers highlighted in red are calculated numbers entered into the reports

Maricopa County Voluntary Vehicle Repair and Retrofit Program

IM147 Emission Reduction Results - July 2005 through March 2006

Average Miles per Year*	Total Reduction (metric tons/year)			Total Reduction Per Vehicle Year (metric tons/year)	Maricopa County Costs			Total Cost (County + Customer)		
	HC	CO	Nox		Total Cost Per Vehicle Year	Cost Per Metric Ton**	Average Cost of Repair	Total Cost Per Vehicle Year	Cost Per Metric Ton**	Average Cost of Repair
119,094	**8**	**170**	**9**	**186.71**	**$325,847.17**	**$872.59**	**$518.86**	**$486,208.18**	**$1,302.02**	**$774.22**
5,997	0.19	2.73	0.04	2.96	**$4,805.95**	$810.99	$480.60	**$7,922.48**	$1,336.90	$792.25
6,308	0.28	4.54	0.16	4.98	**$8,707.16**	$874.66	$544.20	**$14,724.36**	$1,479.11	$920.27
6,636	0.26	5.98	0.09	6.34	**$7,011.28**	$553.36	$539.33	**$10,130.80**	$799.57	$779.29
6,980	0.46	8.47	0.06	9.00	**$10,143.11**	$563.68	$533.85	**$16,460.00**	$914.73	$866.32
7,342	0.41	11.09	0.21	11.71	**$16,059.60**	$685.72	$518.05	**$23,138.67**	$987.99	$746.41
7,723	0.62	14.28	0.54	15.44	**$25,349.35**	$821.12	$517.33	**$38,227.35**	$1,238.27	$780.15
8,124	0.85	21.11	0.37	22.34	**$33,520.86**	$750.35	$523.76	**$51,487.90**	$1,152.54	$804.50
8,546	0.72	14.73	0.66	16.12	**$26,474.10**	$821.15	$509.12	**$39,763.09**	$1,233.33	$764.67
8,989	0.56	11.31	0.64	12.50	**$24,586.00**	$983.22	$512.21	**$37,584.82**	$1,503.06	$783.02
9,456	0.76	16.99	0.89	18.64	**$34,660.32**	$929.88	$509.71	**$52,795.77**	$1,416.42	$776.41
9,947	1.02	20.95	1.38	23.35	**$41,976.88**	$898.91	$511.91	**$62,068.35**	$1,329.16	$756.93
10,463	0.91	17.28	1.36	19.55	**$38,498.56**	$984.61	$527.38	**$55,011.51**	$1,406.94	$753.58
11,006	0.94	15.42	1.55	17.91	**$40,833.28**	$1,140.13	$523.50	**$58,820.03**	$1,642.35	$754.10
11,577	0.40	4.85	0.65	5.89	**$13,220.72**	$1,122.14	$528.83	**$18,073.05**	$1,534.00	$722.92

**This is cost annualized over two years.

It is assumed, that benefits though paid for in one year, will be realized over two or more years.

Voluntary Vehicle Repair and Retrofit Program

Loaded Emission Reduction Results
From 7/1/2000 Through 4/5/2006

Run Date:
Monday, April 10, 2006

Run Time
10:57 AM

Year	Total # Vehicles	Total Before HC (ppm)	Total Before CO (%)	Total After HC (ppm)	Total After CO (%)	Total Reduction HC (ppm)	Total Reduction CO (%)	Total After HC (ppm)	Total After CO (%)	Maricopa County Costs Total Cost	Maricopa County Costs Avg Cost	Total (County + Cust) Total Cost	Total (County + Cust) Avg Cost
1967	22	6549.00	93.69	3591.00	34.66	2958.00	59.03	45.17	63.01	$7,940.03	$360.91	$12,064.85	$548.40
1968	24	7982.00	83.14	3089.00	24.31	4893.00	58.83	61.30	70.76	$7,938.01	$330.75	$11,833.62	$493.07
1969	22	5644.00	73.74	3162.00	21.88	2482.00	51.86	43.98	70.33	$9,136.10	$415.28	$14,796.80	$672.58
1970	18	5017.00	52.55	2555.00	20.29	2462.00	32.26	49.07	61.39	$6,927.09	$384.84	$10,041.01	$557.83
1971	20	7044.00	98.45	3337.00	24.66	3707.00	73.79	52.63	74.95	$7,494.93	$374.75	$11,923.19	$596.16
1972	37	10797.00	110.98	4636.00	32.53	6161.00	78.45	57.06	70.69	$14,436.35	$390.17	$23,997.54	$648.58
1973	33	10448.00	101.16	4413.00	35.07	6035.00	66.09	57.76	65.33	$14,000.53	$424.26	$21,129.67	$640.29
1974	28	8905.00	75.14	3747.00	31.53	5158.00	43.61	57.92	58.04	$10,107.65	$360.99	$19,726.88	$704.53
1975	23	4706.00	44.34	835.00	5.03	3871.00	39.31	82.26	88.66	$12,391.58	$538.76	$18,566.75	$807.25
1976	47	8580.01	134.01	3059.01	22.15	5521.00	111.86	64.35	83.47	$24,900.34	$529.79	$35,678.94	$759.13
1977	47	10908.00	129.17	2692.00	20.00	8216.00	109.17	75.32	84.52	$24,995.52	$531.82	$37,473.33	$797.30
1978	71	16165.00	144.33	4007.00	20.89	12158.00	123.44	75.21	85.53	$39,370.11	$554.51	$54,492.61	$767.50
1979	84	14784.00	160.65	3092.00	13.38	11692.00	147.27	79.09	91.67	$48,021.23	$571.68	$72,514.60	$863.27
1980	57	9720.00	131.31	1478.00	4.79	8242.00	126.52	84.79	96.35	$32,116.78	$563.45	$45,760.41	$802.81
1981	2	162.00	1.17	110.00	0.87	52.00	0.30	32.10	25.64	$711.96	$355.98	$1,019.77	$509.88
1982	4	885.00	10.11	268.00	3.33	617.00	6.78	69.72	67.06	$2,099.60	$524.90	$3,231.28	$807.82
1983	4	1200.00	17.61	264.00	4.71	936.00	12.90	78.00	73.25	$1,854.00	$463.50	$2,745.31	$686.33
1984	5	551.00	8.57	252.00	4.80	299.00	3.77	54.26	43.99	$2,172.61	$434.52	$3,210.49	$642.10
1985	18	2801.00	26.98	1566.00	22.90	1235.00	4.08	44.09	15.12	$7,907.26	$439.29	$12,528.24	$696.01
1986	22	4329.00	49.63	1440.00	23.51	2889.00	26.12	66.74	52.63	$9,287.48	$422.16	$13,068.06	$594.00
1987	4	1356.00	14.99	106.00	1.21	1250.00	13.78	92.18	91.93	$2,200.00	$550.00	$3,603.25	$900.81
1988	10	2014.00	19.96	409.01	2.51	1604.99	17.45	79.69	87.42	$4,993.15	$499.32	$6,984.89	$698.49
1989	6	2026.00	2.02	83.00	0.32	1943.00	1.70	95.90	84.16	$3,066.99	$511.16	$5,398.94	$899.82
1990	5	1509.00	10.19	132.00	1.41	1377.00	8.78	91.25	86.16	$2,508.65	$501.73	$3,406.19	$681.24
1991	7	412.05	8.68	179.05	1.13	233.00	7.55	56.55	86.98	$3,172.26	$453.18	$5,195.40	$742.20
1992	1	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	$550.00	$550.00	$1,422.75	$1,422.7
1993	2	0.02	0.02	0.02	0.02	0.00	0.00	0.00	0.00	$1,050.76	$525.38	$1,576.56	$788.28
1994	2	0.02	0.02	0.02	0.02	0.00	0.00	0.00	0.00	$1,060.52	$530.26	$1,473.80	$736.90
Totals:	625	144494.11	1602.62	48502.12	377.92	95991.99	1224.70	66.43	76.42	$302,411.49	$13,093.34	$454,865.13	$20,465.36

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Voluntary Vehicle Repair and Retrofit Program

Idle Emission Reduction Results
From 7/1/2000 Through 4/5/2006

Run Date:
Monday, April 10, 2006

Run Time
10:57 AM

Year	Total # Vehicles	Total Before HC (ppm)	Total Before CO (%)	Total After HC (ppm)	Total After CO (%)	Total Reduction HC (ppm)	Total Reduction CO (%)	Total After HC (ppm)	Total After CO (%)	Maricopa County Costs Total Cost	Maricopa County Costs Avg Cost	Total (County + Cust) Total Cost	Total (County + Cust) Avg Cost
1967	22	12702.00	131.11	4894.00	48.83	7808.00	82.28	61.47	62.76	$7,940.03	$360.91	$12,064.85	$548.40
1968	24	12664.00	111.15	5291.00	51.88	7373.00	59.27	58.22	53.32	$7,938.01	$330.75	$11,833.62	$493.07
1969	22	12155.00	84.74	4317.00	28.59	7838.00	56.15	64.48	66.26	$9,136.10	$415.28	$14,796.80	$672.58
1970	18	11371.00	67.25	3745.00	29.41	7626.00	37.84	67.07	56.27	$6,927.09	$384.84	$10,041.01	$557.83
1971	20	11702.00	84.15	4999.00	33.24	6703.00	50.91	57.28	60.50	$7,494.93	$374.75	$11,923.19	$596.16
1972	37	20582.00	137.63	7391.00	69.15	13191.00	68.48	64.09	49.76	$14,436.35	$390.17	$23,997.54	$648.58
1973	33	14786.00	97.79	5400.00	51.17	9386.00	46.62	63.48	47.67	$14,000.53	$424.26	$21,129.67	$640.29
1974	28	15965.00	118.20	5025.00	43.21	10940.00	74.99	68.52	63.44	$10,107.65	$360.99	$19,726.88	$704.53
1975	23	8338.00	54.35	1359.00	6.71	6979.00	47.64	83.70	87.65	$12,391.58	$538.76	$18,566.75	$807.25
1976	47	18346.00	177.90	4978.00	26.27	13368.00	151.63	72.87	85.23	$24,900.34	$529.79	$35,678.94	$759.13
1977	47	16447.00	98.02	3949.00	22.24	12498.00	75.78	75.99	77.31	$24,995.52	$531.82	$37,473.33	$797.30
1978	71	28232.00	201.92	5253.00	31.33	22979.00	170.59	81.39	84.48	$39,370.11	$554.51	$54,492.61	$767.50
1979	84	29153.00	186.10	3611.00	6.67	25542.00	179.43	87.61	96.42	$48,021.23	$571.68	$72,514.60	$863.27
1980	57	22374.00	125.77	1322.00	3.60	21052.00	122.17	94.09	97.14	$32,116.78	$563.45	$45,760.41	$802.81
1981	2	1093.00	7.14	110.00	2.35	983.00	4.79	89.94	67.09	$711.96	$355.98	$1,019.77	$509.88
1982	4	2028.00	12.50	629.00	6.30	1399.00	6.20	68.98	49.60	$2,099.60	$524.90	$3,231.28	$807.82
1983	4	2462.00	15.63	306.00	1.03	2156.00	14.60	87.57	93.41	$1,854.00	$463.50	$2,745.31	$686.33
1984	5	2507.00	11.53	691.00	6.20	1816.00	5.33	72.44	46.23	$2,172.61	$434.52	$3,210.49	$642.10
1985	18	10917.00	26.94	2912.00	23.28	8005.00	3.66	73.33	13.59	$7,907.26	$439.29	$12,528.24	$696.01
1986	22	9074.00	61.95	2803.00	32.15	6271.00	29.80	69.11	48.10	$9,287.48	$422.16	$13,068.06	$594.00
1987	4	2713.00	15.17	278.00	1.76	2435.00	13.41	89.75	88.40	$2,200.00	$550.00	$3,603.25	$900.81
1988	10	3654.00	42.90	598.00	2.35	3056.00	40.55	83.63	94.52	$4,993.15	$499.32	$6,984.89	$698.49
1989	6	2451.00	15.68	172.00	3.78	2279.00	11.90	92.98	75.89	$3,066.99	$511.16	$5,398.94	$899.82
1990	5	1995.00	3.57	126.00	0.21	1869.00	3.36	93.68	94.12	$2,508.65	$501.73	$3,406.19	$681.24
1991	7	3046.00	26.59	597.00	1.83	2449.00	24.76	80.40	93.12	$3,172.26	$453.18	$5,195.40	$742.20
1992	1	529.00	5.07	138.00	1.18	391.00	3.89	73.91	76.73	$550.00	$550.00	$1,422.75	$1,422.7
1993	2	540.00	6.98	245.00	0.89	295.00	6.09	54.63	87.25	$1,050.76	$525.38	$1,576.56	$788.28
1994	2	632.00	2.12	330.00	1.01	302.00	1.11	47.78	52.36	$1,060.52	$530.26	$1,473.80	$736.90
Totals:	625	278458.00	1929.85	71469.00	536.62	206989.00	1393.23	74.33	72.19	$302,411.49	$13,093.34	$454,865.13	$20,465.36

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Maricopa County Voluntary Vehicle and Retrofit Program

IM147 Emission Reduction Results - Cumulative Program

FY06 - Cumulative Results for Program Years July 2000 - March 2006 (07/01/2000 - 04/05/2006)

	Total # of Vehicles	Total Before (grams/mile)			Total After (grams/mile)			Total Reduction (grams/mile)			Total Reduction (%)		
		HC	CO	Nox	HC	CO	Nox	HC	CO	Nox	HC	CO	Nox
Total	**4,791**	**10,051.89**	**191,759.79**	**13,660.10**	**2,713.31**	**35,538.91**	**6,567.58**	**7,338.58**	**156,220.88**	**7,092.52**	**73.01**	**81.47**	**51.92**
1981	**133**	**389.45**	**7,673.42**	**367.76**	**106.54**	**1,814.36**	**199.44**	282.91	5,859.06	168.32	72.64	76.36	45.77
1982	**136**	**412.90**	**7,689.31**	**398.24**	**123.23**	**1,809.59**	**229.71**	289.67	5,879.72	168.53	70.16	76.47	42.32
1983	**213**	**586.11**	**12,495.25**	**650.69**	**168.29**	**2,504.44**	**354.57**	417.82	9,990.81	296.12	71.29	79.96	45.51
1984	**284**	**843.14**	**17,255.44**	**807.35**	**212.98**	**3,148.44**	**522.69**	630.16	14,107.00	284.66	74.74	81.75	35.26
1985	**427**	**1,164.10**	**24,912.65**	**1,305.69**	**332.88**	**4,671.49**	**737.47**	831.22	20,241.16	568.22	71.40	81.25	43.52
1986	**629**	**1,377.63**	**26,128.91**	**1,864.35**	**370.30**	**4,571.73**	**910.89**	1,007.33	21,557.18	953.46	73.12	82.50	51.14
1987	**624**	**1,203.69**	**22,440.76**	**1,876.35**	**346.47**	**4,263.54**	**874.58**	857.22	18,177.22	1,001.77	71.22	81.00	53.39
1988	**585**	**1,252.55**	**23,939.72**	**1,569.02**	**307.55**	**3,980.60**	**770.22**	945.00	19,959.12	798.80	75.45	83.37	50.91
1989	**544**	**979.58**	**18,169.89**	**1,465.73**	**272.10**	**3,526.77**	**717.18**	707.48	14,643.12	748.55	72.22	80.59	51.07
1990	**486**	**736.27**	**13,309.64**	**1,329.15**	**190.11**	**2,148.56**	**518.25**	546.16	11,161.08	810.90	74.18	83.86	61.01
1991	**333**	**501.44**	**8,225.61**	**892.53**	**125.32**	**1,394.70**	**330.66**	376.12	6,830.91	561.87	75.01	83.04	62.95
1992	**235**	**345.38**	**5,820.81**	**660.95**	**95.43**	**1,053.12**	**235.03**	249.95	4,767.69	425.92	72.37	81.91	64.44
1993	**137**	**215.69**	**3,192.73**	**388.05**	**52.28**	**564.43**	**138.85**	163.41	2,628.30	249.20	75.76	82.32	64.22
1994	**25**	**43.96**	**505.65**	**84.24**	**9.83**	**87.14**	**28.04**	34.13	418.51	56.20	77.64	82.77	66.71

* For ease in calculations, only light duty gas vehicle mileage is used.
This information is generated from the (LDV-M6/LDGT-M6) Mobile6 model.

The numbers highlighted in blue are entered from the IM147 report from SQL
The numbers highlighted in red are calculated numbers entered into the reports

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Maricopa County Voluntary Vehicle and Retrofit Program

IM147 Emission Reduction Results - Cumulative Program

Average Miles per Year*	Total Reduction (metric tons/year)			Reduction Per Vehicle Year (metric	Maricopa County Costs			Total Cost (County + Customer)		
	HC	CO	Nox		Total Cost Per Vehicle Year	Cost Per Metric Ton**	Cost of Repair	Total Cost Per Vehicle Year	Cost Per Metric Ton**	Cost of Repair
119,094	**60**	**1,259**	**60**	**1,379.15**	**$2,410,953.93**	**$874.07**	**$503.23**	**$3,673,713.94**	**$1,331.87**	**$766.79**
5,997	1.70	35.14	1.01	37.84	**$66,664.33**	$880.81	$501.24	**$103,955.56**	$1,373.52	$781.62
6,308	1.83	37.09	1.06	39.98	**$69,023.10**	$863.23	$507.52	**$109,145.88**	$1,365.02	$802.54
6,636	2.77	66.30	1.97	71.04	**$107,804.29**	$758.79	$506.12	**$171,708.71**	$1,208.59	$806.14
6,980	4.40	98.47	1.99	104.85	**$142,427.16**	$679.18	$501.50	**$228,918.02**	$1,091.62	$806.05
7,342	6.10	148.61	4.17	158.89	**$214,440.53**	$674.83	$502.20	**$339,540.93**	$1,068.51	$795.18
7,723	7.78	166.49	7.36	181.63	**$313,224.83**	$862.26	$497.97	**$490,605.88**	$1,350.57	$779.98
8,124	6.96	147.67	8.14	162.77	**$310,199.45**	$952.85	$497.11	**$469,576.52**	$1,442.42	$752.53
8,546	8.08	170.57	6.83	185.47	**$293,354.51**	$790.83	$501.46	**$451,785.16**	$1,217.93	$772.28
8,989	6.36	131.63	6.73	144.72	**$273,688.71**	$945.61	$503.10	**$411,648.30**	$1,422.27	$756.71
9,456	5.16	105.54	7.67	118.37	**$243,864.02**	$1,030.08	$501.78	**$359,112.57**	$1,516.89	$738.91
9,947	3.74	67.95	5.59	77.28	**$170,095.18**	$1,100.55	$510.80	**$244,722.42**	$1,583.41	$734.90
10,463	2.62	49.88	4.46	56.96	**$121,378.01**	$1,065.54	$516.50	**$173,899.64**	$1,526.61	$740.00
11,006	1.80	28.93	2.74	33.47	**$71,569.09**	$1,069.21	$522.40	**$101,021.30**	$1,509.21	$737.38
11,577	0.40	4.85	0.65	5.89	**$13,220.72**	$1,122.14	$528.83	**$18,073.05**	$1,534.00	$722.92

**This is cost annualized over two years.

It is assumed, that benefits though paid for in one year, will be realized over two or more years.