

Santa Barbara County Air Pollution Control District (SBCAPCD) 2006 Old Car Buyback Implementation Plan

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A. Purpose

Light-duty vehicles¹ are major contributors to California's ozone and Particulate Matter (PM) air pollution. Although emissions from light-duty vehicles are decreasing with the implementation of stricter emission control standards, light-duty vehicles contribute about half of the ozone producing emissions from all on-road vehicles. In 2005, the estimated number of light-duty vehicles in California was over 21 million vehicles and is forecast to exceed 23 million by 2010 (2005 CMP).

Older, light-duty vehicles (pre-1990 model years) account for 56 percent of the Reactive Organic Gases (ROG) and 41 percent of the Oxides of Nitrogen (NOx) emissions from all light-duty vehicles in 2005 despite accounting for only 19 percent of the vehicle population and less than 13 percent of the vehicle miles traveled (VMT). Generally, these older vehicles emit more pollutants because of less restrictive emission standards and increased wear and tear on drive train and emission control components. Additionally, the subset of older vehicles that are not

¹ Light-duty vehicles include passenger cars and light-duty trucks such as pick-up trucks, sport utility vehicles (SUVs), and vans.

well maintained has a higher probability of being high emitters. As a result, older vehicles tend to be major contributors to ozone and PM air pollution in California (2005 CMP). The goal of an Old Car Buyback program, also known as a Voluntary Accelerated Vehicle Retirement (VAVR) program, is to retire older, higher polluting vehicles earlier than their expected lifetime, thereby eliminating air pollution emissions associated with their operation. Real emission reductions can be achieved from this strictly voluntary program as the target vehicles are still fully operational and have a useful life remaining. Vehicles meeting the eligibility requirements of the program must be retired by crushing the vehicle to such a degree that the vehicle and its parts are rendered unusable.

B. History

An Old Car Buyback program was in place in Santa Barbara County from 1993 to 1996 and successfully purchased over 1,200 vehicles. The program paid \$500 for each pre-1981 automobile retired. This program, funded for \$930,000 and administered by Parsons Engineering Science Inc. under contract to the SBCAPCD was highly successful providing emission reductions at approximately \$5,000 per ton (NO_x and ROG). Additionally, Parsons was originally selected by the SBCAPCD Board in 1996 to operate a Motor Vehicle Surcharge funded old car buyback program, which was not implemented due to budgetary considerations.

On February 18, 1999 the SBCAPCD Board approved another contract with Parsons to implement the SBCAPCD Old Car Buyback Program. The voluntary Old Car Buyback Program proposed by the SBCAPCD was patterned after the earlier one, except the program limited the vehicle model year to 1973 and older light duty vehicles that are were exempt from the Smog Check Program. Vehicle owners, after satisfying certain administrative requirements, voluntarily sold their vehicle to the SBCAPCD and were paid \$500 for each vehicle. A professional automobile dismantler² then crushed the purchased vehicles.

On January 18, 2001 the SBCAPCD Board approved a Grant Agreement with AMEC Earth and Environmental, Inc. ("AMEC") in an amount up to \$250,000 to continue implementing the Old Car Buyback Program. This program, an integral part of Santa Barbara County's overall strategy to attain and maintain the federal one-hour ozone standard, generated a vigorous public response and was successful. From the program inception in May 1999 until the end of August 2001, the SBCAPCD has purchased and permanently dismantled over 350 vehicles. The cost-effectiveness of this portion of the program was about \$4,500 per ton of NO_x + ROG.

AMEC was originally awarded the Grant Agreement in 2001 because their project manager, Mr. Antoine Assioun, has successfully managed the current buyback program since 1999, as well as the SBCAPCD's earlier vehicle buyback program from 1993-1996. However, due to downsizing, Mr. Assioun was no longer employed by AMEC and his duties were transferred to another project manager. Mr. Assioun then started his own consulting firm, Environmental Engineering

² "dismantler" means the person or business, defined and licensed according to the requirements of the California Vehicle Code §220, §221, §11500, et seq., and other business codes and the regulations of the Department of Motor Vehicles, who dismantles or otherwise removes from service those vehicles obtained as part of a voluntary accelerated vehicle retirement enterprise

Studies (EES). Based on our previous experience with Mr. Assioun and his extensive knowledge of the program the AMEC grant was transferred to EES.

C. Environmental Justice

The SBCAPCD recognizes that Santa Barbara County, like other areas of California has portions of the population that are more impacted by exposure to air pollutants from light-duty motor-vehicles than others. As a result the SBCAPCD will structure the Old Car Buy Back program so that everyone in the county will have a fair and equal opportunity to participate in this voluntary program. There will be three Buyback facilities located throughout the County, strategically located to maximize proximity to a majority of the County's population. Outreach efforts will be focused on a County-wide scale, and will be multi-media (e.g. newspaper ads, SBCAPCD website postings, radio ads, mailings, etc.) and bi-lingual.

D. County Vehicle Population Analysis

In 2002 the Santa Barbara County Association of Governments (SBCAG) published a report on the commuter profile for Santa Barbara, San Luis Obispo and Ventura Counties. The report summarized the results of a survey of residents 18 years and older who work 35 hours a week or more. Nearly 3,000 randomly selected households were contacted by telephone for the survey (2002 SBCAG).

The survey showed that about 79% of the households surveyed in Santa Barbara listed driving alone as their primary transportation mode of choice. The survey also showed that 14% of the Santa Barbara County households contacted listed a vehicle with Model Year 1988 or older as their primary vehicle. About 90% of Santa Barbara County commuters live and work within the county. US Census Worker data for Santa Barbara County shows that 179,432 Santa Barbara county residents commute to work (total including residents who commute to other counties). Applying the results of the survey to the Census worker data the total number of pre-1988 model year vehicles owned by Santa Barbara County residents is estimated to be 19,845 for the year 2002 analysis (2002 SBCAG).

E. Emission Reductions

Emission reductions from the Old Car Buyback program shall be calculated in accordance with the methodology specified in ARB's VAVR regulations. Emission reductions, by model year of vehicle retired, are shown in Appendix 3. The default project life for all vehicles retired will be three years and the Carl Moyer calculations will be used to determine the cost-effectiveness of the projects. A sample calculation of emission reductions and cost-effectiveness can be found in Appendix 4.

F. Vehicle Eligibility Requirements

1. Vehicle must be a model year 1988 or older passenger car, light or medium-duty pickup truck, or van.
2. The vehicle to be retired must be currently registered with the Department of Motor Vehicles (DMV) as an operating vehicle and must have been registered for at least 24 consecutive months in Santa Barbara County prior to the final date of the sale to a VAVR enterprise to an address, or addresses, within the district in which the VAVR enterprise is operated.
3. Smog Checks must be performed as required by the DMV in order for the vehicle to be considered registered.
 - a. A vehicle may also be eligible if the owner of the vehicle placed the vehicle in planned non-operational status per Vehicle Code section 4604, et seq., for a total of 2 months during the continuous 24 month registration period, occurring at least 3 months prior to the date of sale to the VAVR enterprise.
 - b. A vehicle may also be eligible if the registration has lapsed for a period not to exceed 180 days during the previous 24 months and all appropriate registration fees and late penalties have been paid to the DMV, provided that the vehicle is registered for at 90 days immediately prior to its date of sale to a VAVR enterprise.
4. The vehicle to be retired shall be driven to the VAVR enterprise purchase site under its own power and shall pass a functional and equipment eligibility inspections as specified in the ARB's VAVR regulation.
5. The vehicle to be retired shall not be operating under a Smog Check repair cost waiver.
6. If a vehicle volunteered for retirement is within 60 days of its next required Smog Check inspection, the vehicle shall pass the Smog Check inspection without receiving a repair cost waiver or economic hardship extension prior to acceptance by a VAVR enterprise operator³.
7. If a vehicle volunteered for retirement is within 61-90 days of its next required Smog Check inspection, the district shall verify that the vehicle has not failed a Smog Check inspection during this time frame.

³ Enterprise Operator is a person who conducts a voluntary accelerated vehicle retirement enterprise according to Title 13, California Code of Regulations, Chapter 13, Article 1, Sections 2600 - 2610. The enterprise operator purchases vehicles, arranges for a vehicle's permanent removal from operation, and receives any emission reduction credit generated.

G. Offering Vehicles/ Parts to the Public

1. The Contractor must inform the district of the vehicles that are ready for dismantling.
2. The district must provide a detailed description of the vehicle to interested parties including collectors and enthusiasts. Upon receiving a list of vehicles ready for dismantling from the Contractor the district will post the list of eligible vehicles on the incentives part of the SBCAPCD website (<http://www.sbcapcd.org/itg/itg.htm>) so that car collectors and enthusiasts will be aware of the vehicles available. There will also be information posted on how to contact the enterprise operator and would include any deadlines to ensure that interested parties know who has what vehicle, where the vehicle is located and how long it will be available. An OCBB section on this webpage will be designed and active by the start of this program. This information will also be made available in the lobby of our building for those without internet access.
3. The Contractor must wait a minimum of 10 days after the vehicle information is made publicly available before submitting a Notice to Dismantle to the DMV.
4. If an interested person contacts the Contractor, the Contractor must hold the vehicle for an additional, minimum of 7 days.
5. Non-emission-related and non-drive train parts from the vehicle may be sold at the sole discretion of the Contractor.
6. Engine, emission-related parts, transmission, and drive train parts must be removed from the vehicle and destroyed after the 10 day waiting period but prior to offering the remaining parts for sale. (Emission-related and drive train parts are defined in the VAVR regulation.)
7. If a vehicle or its emission-related or drive train parts are sold instead of retired, no emission reductions will be generated, and Carl Moyer Program funds may to be used for retiring the vehicle.

H. Vehicle Retirement Procedure

There will be three buy-back facilities with one each in Santa Maria, Lompoc and Santa Barbara.

1. **Owner** calls test facility to schedule an appointment
2. **Test Facility** records vehicle owner's name, phone number, vehicle year, make, and model, and appointment day and time
3. **Test Facility** faxes the Contractor the schedule at the end of the day
4. **Owner** takes vehicle to test station for qualification
5. **Test Station** inspects and qualifies the vehicle. Test facility makes copies of the vehicle's title and registration showing a minimum of two years in the county
6. **Test Station** issues Certificate of Eligibility to qualified vehicle or disqualification form to disqualified vehicle
7. **Test Station** requests the owner to obtain non-revivable junk receipt from local DMV office **after and only after** receiving notification to proceed from the test station (test station will call the owner after receiving the \$800 check)

8. **Test Station** faxes the Contractor a list of qualified, disqualified, or no-show vehicles by the end of the day
9. **Contractor** prepares a check for \$800 and mail to test station
10. **Test Station**, after receiving the \$800 check, calls owner of qualified vehicle to inform them to go to DMV and obtain non-revivable junk receipt and bill of sale and to bring the vehicle with the junk receipt, bill of sale and eligibility certificate to the station. **NO NEED FOR AN APPOINTMENT AT THIS POINT**
11. **Owner** goes to DMV to obtain non-revivable junk receipt and bill of sale.
12. **Owner** takes qualified vehicle, the non-revivable junk receipt, bill of sale and certificate of eligibility to the test station.
13. **Test Station** receives the qualified vehicle, junk receipt, bill of sale and certificate of eligibility.
14. **Test Station** has the owner sign a Release of Liability Form and gives the owner the \$800 check
15. **Test Station** calls local dismantler to pick up the qualified vehicle
16. **Dismantler** signs a Vehicle Acceptance Form and provides Permanent Dismantling Date Form when the vehicle is permanently destroyed.
17. **Test Station** sends the Contractor copies of the following:
 - a. Release of Liability Form
 - b. Dismantler Vehicle Acceptance Form
 - c. Copy of vehicle registration for the last two years in the County
 - d. Signed bill of sale
 - e. Copy of vehicle title
 - f. Original non-revivable junk receipt
 - g. Certificate of Eligibility
 - h. Equipment and Functional Checklist (See Appendix 2)
 - i. Disqualification Form (as applicable)

I. SBCAPCD Responsibilities

1. **Initial Program Startup**
 - a. Release RFP for contractor selection
 - b. Develop program implementation plan
 - c. Submit plan to ARB for review and approval
 - d. Bring plan to SBCAPCD board for approval
 - e. Bring Grant agreement for Contractor to SBCAPCD Board for approval
 - f. Begin outreach efforts and program implementation

2. **Payments** – SBCAPCD will issue an initial grant agreement with the Contractor to get the program started and will increase the program funding if the program demand exceeds the original budgeted amount.
3. **Recordkeeping** - For each vehicle retired, the SBCAPCD shall retain the following information for three years beyond the project life:
 - a. Vehicle Identification Number (VIN)
 - b. Vehicle license plate number
 - c. Vehicle model year
 - d. Vehicle odometer reading
 - e. Vehicle make and model
 - f. Name, address, and phone number of legal owner selling vehicle to the Contractor
 - g. Name and business address of inspector conducting the vehicle's eligibility inspection, if the VAVR Contractor contracts with an ARB-approved inspection entity to perform the vehicle functional and equipment eligibility inspection
 - h. Date of purchase of vehicle by Contractor
 - i. Date of vehicle retirement
 - j. Emission reduction claimed
4. **Audits**- District staff may perform audits of the inspection and dismantling facilities at any point during the operation of the program.

J. Contractor Responsibilities

The role of the Contractor will be to assist the SBCAPCD staff in handling the responsibilities of the Enterprise Operator. The Contractor selected will be responsible for coordinating the Old Car buyback program which includes performing the following tasks:

1. **Recordkeeping** – Provide to the SBCAPCD copies of all paperwork for each vehicle as proof of eligibility and purchase, and permanent dismantling. The Contractor will retain these records for the life of the project plus an additional three years.
 - a. Reproduction of California Certificate of Title and registration, as signed-off by the seller at time of final sale to the VAVR enterprise.
 - b. Reproduction of the applicable certificate of functional and equipment eligibility;
 - c. Reproduction of the applicable Notice to Dismantler (DMV Registration 42 form).
 - d. Reproduction of written documentation from the DMV verifying that a vehicle meets the vehicle registration requirements of the ARB's VAVR regulations.
 - e. If the retired vehicle was within 60 days of its next required Smog Check inspection, a reproduction of documentation that the vehicle passed its
 - f. Smog Check inspection.
2. **Program operation** – As necessary, the Contractor will offer technical training to all program subcontractors covering the scope of work, including proper procedures and contract requirements. The Contractor will also ascertain that all subcontractors comply

with all program requirements, including but not limited to performing the required eligibility verifications and vehicle dismantling. The Contractor will be responsible for payment to the vehicle dismantlers, buy-back facilities and the scrapped vehicle owners.

3. **Vehicle disposal** – The Contractor will subcontract with a state-licensed auto dismantler who will permanently dismantle the vehicle in compliance with all program terms and conditions and all federal, state and local rules and regulations. Non-emission-related and non-drive train parts from the vehicle may be sold at the sole discretion of the contractor. The dismantler will permanently destroy the vehicle within ninety (90) days of purchase by the buyback facility.
4. **Audit** – The Contractor will perform independent unannounced audits of the buy-back facilities to ensure only eligible vehicles are qualified for the program. A minimum of 15% of the vehicles deemed eligible by the buy-back facilities will be audited.
5. **Reporting Requirements** – The Contractor shall submit quarterly narrative reports to SBCAPCD. The reports shall include the name and address of Contractor and for each vehicle qualified and purchased by the program, provide:
 - a. Vehicle Identification Number (VIN)
 - b. License plate number
 - c. Odometer reading
 - d. Vehicle make, model and model year
 - e. Contact information for legal vehicle seller:
 1. Name
 2. Address
 3. Phone Number
 - f. Contact information for inspector assessing the vehicle's eligibility:
 1. Name
 2. Business address
 3. Phone number
 - g. Date of purchase of vehicle
 - h. Date vehicle is permanently scrapped by the dismantler
 - i. Emission reductions claimed
 - j. For those vehicles disqualified from participating in the program, the Vehicle Identification number, license plate number, make, model year and model and the reason for the disqualification.

- k. Results of any QA/QC audits performed by the Contractor
- l. Discussion of any problems with implementing the program.

K. Financial Analysis

Program funding will come from either Carl Moyer funds or AB 923 Motor Vehicle fee funds that will be used to meet the SBCAPCD Moyer match requirement. This funding will provide \$800 per vehicle scrapped to the vehicle owner and also cover the vehicle inspection and scrap fee (\$70). The total per vehicle cost eligible for funding under the Moyer guidelines is \$870. The Contractor fees (\$145 per vehicle) will be paid with AB 923 Motor Vehicle fee funds or \$4 DMV funds but will not be included in the cost-effectiveness calculations.

The initial program allocation will follow the format of the 2001 program in an amount of \$150,000 and will provided the SBCAPCD Control Officer the authority to increase this amount to \$250,000 to maintain the program should there be a continuing demand. This funding will be obligated to the Contractor in the form of a grant agreement. Using the cost analysis performed above this initial funding allocation will be able to retire 168 vehicles in Santa Barbara County.

L. Outreach

Outreach efforts for Old Car Buyback program will be responsibility of the SBCAPCD with minimal support from the Contractor. Outreach efforts will include direct mailings, public notices, newspaper advertisements, and advertisements on the SBCAPCD website (<http://www.sbcapcd.org/>).

M. Program Timeline

January 18, 2006	Release RFP for program contractor
January 26, 2006	Submit Implementation Plan to ARB for approval
February 10, 2006	Contractor proposals due
February 14, 2006	EES Selected as Contractor
March 16, 2006	Program implementation plan and contractor grant agreement goes to SBCAPCD board for approval. Program start-up begins.
April/ May 2006	Program begins purchasing vehicles for retirement
July 2006	4 th Quarter FY2005 report from contractor due

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October 2006	1 st Quarter FY2006 report from contractor due
January 2007	2 nd Quarter FY2006 report from contractor due
April 2007	3 rd Quarter FY2006 report from contractor due
April/ May 2007	Annual program analysis/ review

N. Contact Information

SBCAPCD

Anthony Fournier
260 N. San Antonio Rd. (Suite A)
Santa Barbara, CA 93110
Ph: 805-961-8874
Fx: 805-961-8801
Email: adf@sbcapcd.org

Frances Gilliland
260 N. San Antonio Rd. (Suite A)
Santa Barbara, CA 93110
Ph: 805-961-8838
Fx: 805-961-8801
Email: feg@sbcapcd.org

Contractor

Environmental Engineering Studies, Inc.
7981 Paseo Membrillo
Carlsbad, CA 92009
Attn: Antoine Assioun
Email: antoinea@sbcglobal.net

CARB

Tom Roemer
Mobile Source Control Division (MSCD)
Sacramento, CA
Ph: 916-322-1520
Email: troemer@arb.ca.gov

Dismantlers

Grave Yards Auto Recyclers
891 South Kellogg Ave.
Goleta, CA 93117
Owner: Daniel Olivos
DMV Vehicle Dismantler License #: 53977

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Bedlo Inc.

3052 Harris Grade Rd.

Lompoc, CA 93436

Owner: George Pelletier

DMV Vehicle Dismantler License #: 09375

Black Road Auto

1500 South Black Rd.

Santa Maria, CA 93453

Owner: Lorne Leeds

DMV Vehicle Dismantler License #: 05772

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References

(CCR) California Code of Regulations (CCR). *Title 13, California Code of Regulations, Division 3, Chapter 13, Article 1, Sections 2600 – 2610, “Voluntary Accelerated Vehicle Retirement Enterprises.”*

http://weblinks.westlaw.com/Find/Default.wl?DB=CA%2DADC%2DTC%3BADCCATOC&DocName=13CAADCS2600&FindType=W&AP=&fn=_top&trailtype=26&vr=2.0&rs=WEBL5.12&spa=CCR-1000

(2002 SBCAG) Prepared for Santa Barbara County Association of Governments (SBCAG) by Strategic Consulting and Research. *2002 Commute Profile for Santa Barbara, San Luis Obispo and Ventura Counties.* August 2002.

<http://www.sbcag.org/PDFs/publications/2002CommuterProfileSurvey.pdf>

(2005 CMP) California Air Resources Board (CARB). *2005 Carl Moyer Program Guidelines.* January 6, 2006. <http://www.arb.ca.gov/msprog/moyer/guidelines/revisions05.htm>

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Appendix 1- Contractor Contract

(To be attached when contractor is selected)

Appendix 2- Sample of Inspection Checklist

APCD OLD CAR BUYBACK PROGRAM

VEHICLE FUNCTIONAL AND EQUIPMENT CHECKLIST

Owner(s) Information

Legal Owner Name _____

Legal Owner Address _____

Legal Owner Phone Number _____

If the Registered Owner is different from the Legal Owner, provide the following:

Registered Owner Name _____

Registered Owner Address _____

Registered Owner Phone Number _____

Vehicle Information

Vehicle Identification Number (VIN) _____

Vehicle License Plate Number _____

Vehicle Make _____

Model _____

Vehicle Model Year _____

Odometer Reading _____

EQUIPMENT CHECK

Failure of any item disqualifies vehicle

O.K. Fail

_____	_____	The vehicle is either a passenger car or a light-duty truck.
_____	_____	All doors are present and in place.
_____	_____	The hood is present and in place.
_____	_____	The dashboard is be in place.
_____	_____	Windshield is present and in place.
_____	_____	One bumper and all side and/or quarter panels are present and in place. Vehicle driveability must not be affected by any body, steering or suspension damage. Exhaust shall be present.
_____	_____	One headlight, one taillight and one brake light are present and in place.
_____	_____	One side window glass is present and in place.
_____	_____	The driver's seat is present and in place.
_____	_____	Interior pedals are operational.

FUNCTIONAL CHECK

Failure of any item disqualifies vehicle

O.K. Fail

_____	_____	Vehicle is driven under its own power to inspection/test facility.
_____	_____	Vehicle engine starts using keyed ignition system. The vehicle must start readily through ordinary means without the use of starting fluids or external booster batteries.
_____	_____	The vehicle shall be driven forward for a minimum of 25 feet under its own power. The vehicle shall be driven in reverse for a minimum of 25 feet under its own power.

DOCUMENTATION (first visit)

Have you collected the following information?

Yes

- _____ Copy of registration for the last two (2) years
- _____ Copy of clear title
- _____ Owner Waiver to List the Vehicle for the Public to Purchase
- _____ Have the following smog check requirements been met:
 1. The vehicle shall not be operating under a Smog Check repair cost waiver or economic hardship extension;
 2. If a vehicle volunteered for retirement is within sixty (60) days of its next required Smog Check inspection, the following criteria must be met:
 - a. The vehicle shall pass the Smog Check inspection without receiving a repair cost waiver or economic hardship extension prior to acceptance.
 - b. Owners of vehicles requiring Smog Check inspections pursuant to s2603(a)(6) shall be required to submit documentation issued by a licensed Smog Check station demonstrating compliance with s2603(a)(6)(A). The documentation shall be submitted to the person performing the functional and equipment eligibility inspection pursuant to s2603(b).

DOCUMENTATION (second visit)

Have you collected the following information?

Yes

- _____ Certificate of vehicle functional and equipment eligibility (from owner)
- _____ DMV non-revivable junk receipt
- _____ Signed DMV Bill of Sale.
- _____ Release of Liability Form signed by the owner
- _____ Date of purchase and complete transaction

INSPECTION STATION STATEMENT

“I have inspected this vehicle according to the requirements of the Santa Barbara County APCD’s Old Car Buyback Program. I have found it **to meet** / **not to meet** (circle one) the equipment and functional eligibility requirements for participation in the Old Car Buyback Program.”

Station Name _____

Station Address _____

Station Phone Number _____ Date _____

Print and Sign Name _____

Certificate of Eligibility No. _____ issued

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Appendix 3- Carl Moyer Light-Duty Default Emission Factors

Voluntary Accelerated Light-Duty Vehicle Retirement Program
Emission Reductions for Calendar Year 2006*
 Total Pounds Per Vehicle Over 3 Year Credit Life

Model Year	Emission Reductions (pounds) – 3 Year Credit Life			
	NOx	ROG**	CO	PM10
65 and earlier	151	496	2,757	0.68
66	145	471	2,552	0.67
67	148	477	2,611	0.65
68	156	492	2,731	0.81
69	162	504	2,841	0.56
70	169	438	2,971	0.99
71	172	449	2,990	0.95
72	177	458	3,037	0.83
73	180	469	3,082	0.64
74	159	401	2,859	1.20
75	145	345	2,861	1.17
76	130	222	2,673	1.04
77	108	183	2,546	1.13
78	107	186	2,493	1.10
79	95	168	1,625	0.90
80	85	129	1,373	1.13
81	62	108	1,092	1.22
82	66	101	1,085	1.36
83	73	85	934	1.22
84	73	74	883	1.05
85	69	59	575	0.89
86	71	61	527	0.91
87	67	71	468	0.92
88	67	65	430	0.85
89	50	46	492	0.84
90	38	45	529	0.81
91	38	42	514	0.76
92	40	41	510	0.71
93	35	31	279	0.64
94	19	17	21	0.54

* Table is repeated in Appendix B, Table B-21

** Includes exhaust and evaporative emissions

Source: EMFAC2002, Version 2.2, statewide, annual average. Assumes average 1965 through 2006 vehicle as replacement vehicle for vehicles retired in calendar year 2006.

Appendix 4- Sample Cost-Effectiveness Calculation

The SBCAPCD pays \$870 to retire a 1988 model year light-duty vehicle during calendar year 2006. Please note that the cost of \$870 is the cost paid by the district with Carl Moyer Program or AB 923 funds to: inspect and dismantle the vehicle (\$70) and pay the vehicle owner (\$800). The fees paid to the Contractor are not to be paid with Carl Moyer Program funds and are therefore not included in the cost-effectiveness calculation.

1. Annual Emissions Reduction Calculations:

Appendix 3 lists the emission reductions over the 3 year project life in pounds of pollutants.

$$\begin{aligned} \text{NOx} \\ &= 67 \text{ pounds over 3 years (from Appendix 3)} \\ &= (67 \text{ lb}) / [(3 \text{ yrs}) * (2,000 \text{ lb/ton})] = \mathbf{0.011 \text{ tons/yr NOx}} \end{aligned}$$

$$\begin{aligned} \text{ROG} \\ &= 65 \text{ pounds over 3 years (from Appendix 3)} \\ &= (65 \text{ lb}) / [(3 \text{ yrs}) * (2,000 \text{ lb/ton})] = \mathbf{0.011 \text{ tons/yr ROG}} \end{aligned}$$

$$\begin{aligned} \text{PM10} \\ &= 0.85 \text{ pounds over 3 years (from Appendix 3)} \\ &= (0.85 \text{ lb}) / [(3 \text{ yrs}) * (2,000 \text{ lb/ton})] = \mathbf{0.00014 \text{ tons/yr PM10}} \end{aligned}$$

2. Carl Moyer Cost-Effectiveness Calculation: Annual Weighted Surplus Emission Reductions

$$\begin{aligned} &= \text{NOx reductions (tons/yr)} + \text{ROG reductions (tons/yr)} + [20 * (\text{PM10 reductions (tons/yr)})] \\ &= 0.011 + 0.011 + 20 * (0.00014) = \mathbf{0.02483 \text{ weighted tons/yr}} \end{aligned}$$

Annualized Cost:

Project life: 3 years
CRF = 0.360

$$\begin{aligned} \text{Total cost: } \$870 \\ \text{Annualized cost} &= \text{CRF} * \text{Total Cost} \\ &= 0.360 * \$870 = \$313 / \text{yr} \end{aligned}$$

Cost-Effectiveness:

$$\begin{aligned} &\text{Formula C-1: Cost-Effectiveness of Weighted Surplus Emission Reductions (\$/ton)} \\ &(\$313 / \text{yr}) / (0.02483 \text{ weighted tons/yr}) \\ &= \mathbf{\$12,605 / \text{weighted ton of surplus emissions reduced}^4} \end{aligned}$$

⁴ ARB Carl Moyer guidelines set a project cost-effectiveness limit of \$14,300 per ton of weighted ton of pollutants reduced.