

State of California
AIR RESOURCES BOARD

STAFF REPORT: INITIAL STATEMENT OF REASONS

**PROPOSED REGULATIONS FOR
VOLUNTARY ACCELERATED LIGHT-DUTY VEHICLE
RETIREMENT ENTERPRISES**

This report has been reviewed by the staff of the California Air Resources Board and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the Air Resources Board, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

Date of Release: October 23, 1998
Scheduled for Consideration: December 10, 1998

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
I. <u>INTRODUCTION</u>	2
II. <u>BACKGROUND</u>	3
A. California's State Implementation Plan for Ozone	3
B. SIP Measure M1	3
1. The M1 Program	3
2. M1's Inclusion in the SIP	4
C. Statutory Authority: Senate Bill 501 and Assembly Bill 208	5
D. M1 Program Funding	6
E. Mobile Source Emission Reduction Credit Programs	7
F. Bureau of Automotive Repair's Inspection and Maintenance Program	8
III. <u>SUMMARY OF PROPOSED REGULATIONS</u>	9
A. §2602: The Districts' Role in Implementing VAVR Enterprises	9
B. §2603: Vehicle Eligibility Requirements	10
C. §2604: VAVR Enterprise Operator Requirements	12
1. VAVR Enterprise Operator Criteria	12
2. Generating Emission Reduction Credits	13
a. Eligibility for Generating Emission Reduction Credits	13
b. Vehicle Parts Resale and Reuse	14
c. Vehicle Disposal Requirements	14
D. §2605: Offering Vehicles to the Public	15
1. Public Workshop on August 15, 1996	15
2. Public Workshops on March 7, 1997	16
3. Mechanisms for Vehicle Purchase by the Public	16
a. Vehicle Purchase Before Completion of Sale to VAVR Enterprise ..	16
b. Vehicle Purchase After Completion of Sale to VAVR Enterprise ..	17
E. §2607: Emission Reduction Credits	18
1. Calculation of Credits	18
2. Determination of the Credit Calculation Variables	20
a. Exhaust Emissions	20
b. Evaporative Emissions	22
F. §2608: Records, Auditing, and Enforcement	22
G. §2609: Pilot Program	22
H. §2610: Procurement of Credits for SIP Measure M1	23
IV. <u>ISSUES OF CONTROVERSY</u>	24
A. Prohibitions on Parts Resale and Reuse	24
B. Emission Reduction Credit Calculation Methodologies	25

V.	<u>REGULATORY ALTERNATIVES</u>	25
VI.	<u>ECONOMIC IMPACTS</u>	26
	A. Legal Requirement	26
	B. Affected Businesses	26
	C. Potential Impacts on Business	26
	D. Potential Impact on Business Competitiveness	27
	E. Potential Impact on Employment	28
	F. Potential Impact on Business Creation, Elimination, or Expansion	28
	G. Potential Costs to Local and State Agencies	28
VII.	<u>ENVIRONMENTAL IMPACTS AND COST-EFFECTIVENESS</u>	29
	A. Air Quality Benefits	29
	1. Ozone SIP Benefits	29
	2. Statewide Emission Reductions	29
	B. Other Environmental Impacts	31
	1. Air Quality	32
	2. Water Quality	32
	3. Water Consumption	32
	4. Risk of Upset/Human Health	32
	5. Transportation/Circulation	33
	6. Energy	33
	7. Solid Waste	33
	C. Cost-Effectiveness	33
VIII.	<u>SUMMARY AND STAFF RECOMMENDATION</u>	35
	A. Summary	35
	B. Recommendation	35
IX.	<u>REFERENCES</u>	36
	APPENDIX A: REGULATIONS	
	APPENDIX B: VOLUNTARY ACCELERATED LIGHT-DUTY VEHICLE RETIREMENT PROGRAM EMISSION REDUCTIONS	
	APPENDIX C: VOLUNTARY ACCELERATED VEHICLE RETIREMENT CERTIFICATE OF FUNCTIONAL AND EQUIPMENT ELIGIBILITY INSPECTION FORM	
	APPENDIX D: LETTERS FROM THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY	
	APPENDIX E: LETTER FROM THE STATE OF CALIFORNIA AUTO DISMANTLERS ASSOCIATION	

EXECUTIVE SUMMARY

In 1994, the Air Resources Board (ARB) approved a State Implementation Plan (SIP) for Ozone. As required by the Clean Air Act, the SIP outlines ARB's plans for achieving the health-based federal one-hour ozone standard in the six regions in California with the most serious ozone problem. Of these six areas, the South Coast Air Basin (SCAB) faces the greatest challenge in meeting its clean air goals. The SIP contains measure M1 (commonly referred to as the M1 program), which calls for the voluntary accelerated retirement of large numbers of older, higher-emitting vehicles in the SCAB. In 1995, Governor Wilson signed Senate Bill 501 (SB 501) adding sections 44100 et seq., Article 10, to the California Health and Safety Code. These sections require the ARB to adopt regulations governing the implementation of voluntary accelerated vehicle retirement (VAVR) enterprises in the SCAB for the purpose of meeting measure M1's emission reduction goals. In addition, SB 501 requires the regulations to be applicable to other VAVR enterprises operating throughout California. The implementation of VAVR enterprises is discretionary; it is not mandatory. This report presents the staff's proposal to fulfill the requirements of SB 501.

The main elements of the staff's proposal are based on specific requirements contained in SB 501. Specifically: 1) the regulations shall provide for privately-operated, market-based VAVR enterprises to purchase and retire eligible vehicles in order to generate mobile source emission reduction credits; 2) selling a vehicle to a VAVR enterprise shall be strictly voluntary for the consumer; 3) the regulatory design should be sensitive to the concerns of car collectors and of consumers for whom older vehicles provide affordable transportation; and 4) the regulatory design should provide for VAVR programs that are as seamless as practicable, from the consumer's standpoint, with respect to the Bureau of Automotive Repair's (BAR) Smog Check II program. A particularly important component of the staff's proposal is the requirement that the entire vehicle must be destroyed (i.e., no vehicle parts may be removed for resale and reuse) in order to generate mobile source emission reduction credits.

Local air pollution control and air quality management districts that authorize mobile source emission reduction credit generation and use from VAVR enterprises would be required to use the proposed regulations, when adopted, for implementing such programs. Mobile source emission reduction credits may be used by businesses and industries as an alternative compliance option to meet emissions requirements at a cost lower than that of traditional control strategies. The emission reductions resulting from VAVR enterprises may also be used exclusively to achieve an air quality benefit. In the SCAB, mobile source emission reduction credits would be available for purchase by the State of California, depending on available funding, to meet the emission reduction goals of measure M1. Unfortunately, the M1 program is unfunded at this time. Without adequate funding, the M1 program cannot achieve the M1 emission reduction commitments called for in the 1994 SIP.

The staff recommends that the Board adopt the proposed regulations for VAVR enterprises operating throughout California.

I. INTRODUCTION

The Air Resources Board (ARB) staff is proposing regulations governing the operation of voluntary accelerated light-duty vehicle retirement enterprises. Voluntary accelerated vehicle retirement (VAVR) enterprises seek to encourage the early retirement of portions of the older vehicle fleet. By providing owners of eligible vehicles with a monetary incentive to retire their older vehicles sooner than would have occurred naturally, normal fleet turnover is accelerated. Vehicle-miles-traveled (VMT) from the retired vehicle are transferred to newer model year vehicles using cleaner, more advanced emission control technology, or to alternative modes of transportation, such as public transit. Primary candidate vehicles for VAVR enterprises covered by this regulatory proposal are older vehicles that contribute significantly higher emissions relative to newer vehicles meeting more stringent emission standards. In most cases, these older vehicles are properly maintained; however, because they use less advanced emission control technology, they emit at levels many times higher than properly maintained newer vehicles with better emission control systems. Emission reduction benefits from VAVR enterprises result when the VMT by the retired vehicle are transferred to a replacement vehicle that is lower-emitting on a gram-per-mile basis than the retired vehicle.

Senate Bill 501 (SB 501), signed by Governor Wilson in 1995, added sections 44100 et seq., Article 10, to the California Health and Safety Code. These sections require the ARB to adopt regulations governing the implementation of market-based, privately-operated VAVR enterprises (i.e., VAVR programs) in the South Coast Air Basin (SCAB) for the purpose of meeting the emission reduction goals of measure M1 (also referred to as the M1 program) in the 1994 State Implementation Plan (SIP) for Ozone. The SCAB, which has an ozone attainment target date of 2010, is the only area in the state designated as a federal extreme ozone nonattainment area. Due to changes in legislation enacted in 1997 that affected the Smog Check II program, the M1 program is essentially unfunded at this time. If funding is obtained, however, the M1 program has the potential to provide a portion of the emission reductions necessary for achieving the federal one-hour ozone standard in the SCAB. The sections of this report that discuss air quality benefits and cost-effectiveness provide information regarding the emission reductions that could be expected based on potential levels of funding.

As required by SB 501, the proposed regulations would also be applicable to other VAVR enterprises operating throughout California. Local air pollution control and air quality management districts (districts) that authorize mobile source emission reduction credit generation and use from VAVR enterprises would be required to use the proposed regulations, when adopted, for implementing such programs, including programs conducted solely to achieve an air quality benefit. Districts that choose not to authorize the implementation of VAVR enterprises would not be required to have such programs. The current M1 program funding constraints do not affect the implementation of district VAVR programs.

II. BACKGROUND

A. California's State Implementation Plan for Ozone

Air quality in California has improved dramatically over the past 30 years, largely due to state and federal initiatives to control pollution from motor vehicles. However, air quality still does not meet health-based ambient air quality standards in several areas of California. Mobile sources are responsible for well over half the ozone-forming emissions that contribute to the air quality problems in these areas of the state. Of these emissions, on-road light-duty vehicles are responsible for a significant portion.

State and federal law require the implementation of emission control strategies to attain the ambient air quality standards as expeditiously as practicable. The 1990 amendments to the federal Clean Air Act (CAA) require attainment of the federal one-hour ozone standard in all areas of California no later than 2010. Under the CAA, states are required to produce a SIP to ensure attainment of the federal standard by specified deadlines.

California's SIP, adopted by the Board in November of 1994, outlines ARB's plans for achieving the federal one-hour ozone standard in California's six areas with the most serious ozone problem. Of these six areas, the SCAB faces the greatest challenges in meeting its clean air goals. To overcome these challenges, the SIP relies on a variety of strategies to achieve the necessary reductions in ozone-forming emissions. It is important to realize that ozone attainment can only be achieved in the SCAB through reductions in emissions from all sources. While some of the SIP measures provide for significantly more emission reductions than others, the implementation of each measure (or a comparable replacement) is crucial to the efforts for achieving healthful air in the SCAB.

B. SIP Measure M1

1. The M1 Program

Measure M1 calls for the accelerated voluntary retirement of a large number of older, higher-emitting vehicles in the SCAB. This measure was developed to reduce the significant emissions contributions of vehicles equipped with older, less advanced emission control technology. With the implementation of existing control strategies, light-duty vehicles eight years old and older, for example, will contribute more than half of all light-duty vehicle emissions of reactive organic gases (ROG) in the SCAB in 2010 (ARB, 1994a). This will occur because newer model year vehicles will be emitting at the stringent emission levels established by the Low-Emission Vehicle regulations, while remaining older vehicles will still be emitting at rates many times higher. The M1 program, to be implemented from 1999 to 2010 in the SCAB, is intended to encourage the early voluntary retirement of portions of the older vehicle fleet -- that is, it is intended to voluntarily remove from service older vehicles sooner than would have occurred

naturally, and to accelerate the overall fleet turnover to newer, lower-emitting models.

Under the M1 program, the mobile source emission reduction credits resulting from the accelerated retirement of older vehicles would be eligible for purchase by the State of California, depending on available funding. The mobile source emission reduction credits purchased by the state would be used to achieve the clean air goals in the SIP. Measure M1 calls for specified reductions of ozone-forming emissions -- ROG and oxides of nitrogen (NOx) -- for each year from 1999 through 2010. Table I presents the emission reduction goals of the M1 program, as contained in the SIP. These reductions are essential for ozone attainment in the SCAB. The actual emission benefits obtained will depend on the level of funding secured. Funding issues are discussed in detail in Section II. D., "M1 Program Funding."

TABLE I

Emission Reduction Goals of SIP Measure M1 (Tons per Day)			
YEAR	ROG (tpd)	NOx (tpd)	TOTAL (tpd)
1999-2001	5	4	9
2002-2004	8	6	14
2005-2006	11	9	20
2007-2009	12	10	22
2010	14	11	25

2. M1's Inclusion in the SIP

As originally proposed in the SIP, measure M1 was not designed as an accelerated vehicle retirement program. The staff's original proposal for measure M1 relied on a strategy to reduce the light-duty fleet average emission standard for non-methane organic gases by nearly 60 percent from the standard required in 2003. This reduction would be achieved through market forces and incentives to purchase large numbers of vehicles meeting or exceeding ultra-low emission vehicles standards, zero-emission vehicles, and hybrid electric vehicles (ARB, 1994b).

The original M1 strategy proposal was opposed by a broad-based coalition of businesses and industries lead by the Western States Petroleum Association (WSPA) and the California Chamber of Commerce. As a result, WSPA and other VAVR program advocates strongly endorsed the inclusion of a vehicle retirement strategy in the SIP in lieu of the original M1 proposal. To support its recommendation, WSPA commissioned an analysis that showed that a

long-term vehicle retirement program could achieve emission reductions equivalent to those required in the original M1 proposal. The ARB approved the coalition's recommendation for inclusion in the final SIP, provided that WSPA, along with the coalition of other VAVR program advocates, secure the funding to implement the revised measure M1.

Of critical importance in the development of measure M1 as a voluntary accelerated vehicle retirement strategy was the WSPA-commissioned analysis estimating that up to 75,000 vehicles would need to be retired annually from 1999 through 2010 in the SCAB to meet the M1 emission reduction goals. The analysis also estimated that up to \$75 million annually would be necessary to implement the M1 program. However, this 1994 analysis was developed before the California Bureau of Automotive Repair's (BAR) Smog Check II program was fully defined, and it assumed that large numbers of vehicles failing the Smog Check test would be eligible for retirement in the M1 program. As the Smog Check program was more clearly defined and as the ARB staff worked with a Technical Advisory Group for M1 program development, it became evident that including vehicles failing Smog Check would result in the double-counting of emission reductions. As a result, revised estimates developed by the ARB staff indicated that well in excess of 75,000 vehicles, perhaps as many as 150,000 vehicles, would need to be retired annually from 1999 through 2010 to meet M1's emission reduction goals. Instead of Smog Check failure vehicles, primary candidate vehicles for the M1 program would be older vehicles that passed their last Smog Check test but still contribute significantly higher emissions due to their less advanced emission control technology.

Revised M1 program costs are now estimated to be well in excess of \$75 million annually and could be as high as \$150 million annually. However, measure M1 is currently unfunded. Funding issues are discussed later in this report.

C. Statutory Authority: Senate Bill 501 and Assembly Bill 208

In October 1995 Governor Wilson signed SB 501 which, in part, requires ARB to develop and adopt regulations for the implementation of measure M1 in the SCAB. Senate Bill 501 requires the regulations to be applicable to other VAVR enterprises operating throughout California as well. This issue is discussed further in the Section II. E., "Mobile Source Emission Reduction Credit Programs." In addition, SB 501 provided a funding mechanism, the High Polluter Repair or Removal Account (HPRRA), to be used for the implementation of measure M1. While the HPRRA never provided full funding for the M1 program, it was an attempt by the coalition of M1 program advocates to meet its obligation agreed upon during the development of the SIP -- to secure sufficient funds to successfully implement the M1 program in the SCAB.

Explicit in SB 501 are specific requirements, several of which are presented below, that are addressed in this regulatory proposal:

- The regulations will provide for the creation, use, and retirement of mobile source emission reduction credits through privately-operated, market-based VAVR

enterprises in which enterprise operators purchase and retire eligible vehicles. In the SCAB, the State of California will purchase emission reduction credits and apply those toward the emission reduction goals of SIP measure M1.

- Selling a vehicle to a VAVR enterprise shall be strictly voluntary for the consumer;
- The regulatory design should be sensitive to the concerns of car collectors and of consumers for whom older vehicles provide affordable transportation; and
- The regulatory design should provide for VAVR programs that are as seamless as practicable, from the consumer's standpoint, with respect to BAR's Smog Check II program.

In October 1997 Governor Wilson signed Assembly Bill 208 (AB 208). While AB 208 primarily affected the Smog Check II program, it did create two important changes for the VAVR regulations provided for in SB 501. First, it extended the deadline for the adoption of regulations to December 31, 1998, from the June 30, 1997, deadline in SB 501. Second, it virtually eliminated any funding for the implementation of the M1 program in the SCAB by shifting funds to support the implementation of the new, enhanced Smog Check II program, another program critical to achieving clean air standards. This is discussed further in the following section.

D. M1 Program Funding

Prior to the passage of AB 208 (which became effective January 1, 1998), HPRRA funding for the M1 program was generated via a \$39 "opt-out" fee that owners of new vehicles could choose to pay in lieu of the vehicle's first required Smog Check test. Under this funding mechanism, the HPRRA was expected to generate approximately \$7 million annually statewide. However, not all of this funding was available to purchase and retire emission reduction credits for application to the M1 program air quality goals. Approximately 20 percent of the \$7 million annually was available for the M1 program. The remaining funds were for use for repair assistance or vehicle retirement within BAR's Smog Check II program. ARB staff estimated that M1 funding under SB 501 would generate about \$1.5 million annually through 2010; the SIP estimated that up to \$75 million annually would be needed through 2010 for full implementation of the M1 program. As discussed previously, revised estimates indicate that well in excess of \$75 million would be needed each year to achieve the full emission reduction goals of measure M1.

The passage of AB 208 repealed the "opt-out" fee as the funding mechanism for the HPRRA and established a new primary funding source through the diversion of smog impact fees (fees levied on out-of-state vehicles registered for the first time in California) from the General Fund to the HPRRA beginning July 1, 1998. While the new funding mechanism increases revenues in the HPRRA (approximately \$50 million annually versus \$7 million annually), it significantly erodes the portion allocated to M1 funding, which is now limited to just

\$1 million/year for the fiscal years 1997-1998 and 1998-1999. This could only provide for retiring about 1500 vehicles each year for the two year period. No new additional funding sources have been secured or even identified by the coalition of M1 program advocates. As a result, there is currently no funding available to purchase emission reductions to meet M1 program goals during the 2000 - 2010 time frame .

The staff anticipates that if the coalition of M1 program advocates does not identify and secure additional funding for the M1 program, the ARB may need to consider alternative strategies in order to achieve the needed emission reductions from the mobile source sector. Of the three market-based measures included in the final 1994 SIP, only measure M4, incentives for the early introduction of low-emitting heavy-duty vehicles, has had some success. Measure M7, voluntary accelerated vehicle retirement for heavy-duty vehicles, was withdrawn in February 1998 due to lack of funding and technical challenges. At the time M7 was withdrawn, it was replaced with measure M17. The M17 strategy expands on the heavy-duty vehicle in-use compliance program by adding testing for excessive NOx emissions and relies on additional incentive money, if available, to accelerate the introduction of low-emitting heavy-duty vehicles.

E. Mobile Source Emission Reduction Credit Programs

Mobile source emission reduction credits are created when emission reductions from cars, buses, heavy-duty trucks, and other mobile sources exceed the emission reductions required by federal, state, and local laws. Voluntary accelerated vehicle retirement is just one method of generating mobile source emission reduction credits. Regardless of whether emission reductions are generated through vehicle retirement or through other approved methods, they must meet the following basic criteria in order to qualify for use as mobile source emission reduction credits: 1) the reductions are not required by law, regulation, or otherwise assumed to occur as part of a regional air quality plan, i.e., the reductions are surplus; 2) the reductions must be real, permanent, and quantifiable to an acceptable degree of certainty; and 3) the life of the reductions must be reasonably established and commensurate with the proposed use of the credits.

Several districts have adopted rules governing local VAVR enterprises that generate marketable mobile source emission reduction credits. Generally, the goal of these credit generating programs is to provide businesses and industries with alternative compliance options for meeting emissions requirements at a cost lower than that of traditional control strategies. Businesses and industries must still meet all federal, state, and local emissions requirements -- mobile source emission reduction credit programs just provide them with another means for compliance. Additionally, some districts use a portion of their funding that comes from motor vehicle registration fees to purchase and retire vehicles exclusively for an air quality benefit.

An important element of all mobile source emission reduction credit programs, but specifically VAVR programs, is that they are strictly voluntary. Businesses are not required to use mobile source emission reduction credits to meet their emissions requirements, nor are owners of eligible older vehicles required to participate in VAVR enterprises. Eligible vehicle owners

only participate in these programs at their discretion. This concept has always been a major principle of all VAVR enterprises in California and would continue to be with the adoption of the proposed regulations.

As proposed, the regulations would require district rules, and the VAVR enterprises governed by these rules, to follow all the requirements set forth in the regulations. Districts may either implement these regulations or adopt them as their own. As discussed above, the emission reduction credits generated through these enterprises would be eligible for purchase by businesses and industries seeking alternative compliance options. In the SCAB, these emission reduction credits would also be eligible for purchase by the State of California, depending on the availability of funds from the HPRRA or other approved sources, for the purpose of retiring the credits to meet the emission reduction goals of measure M1. Because SB 501 requires the implementation of measure M1 to incorporate market principles, this means that if funding is available, the State of California may be competing with businesses and industries to purchase available emission reduction credits.

F. Bureau of Automotive Repair's Inspection and Maintenance Program

The SIP relies heavily on BAR's Inspection and Maintenance Program (commonly referred to as Smog Check II) as a strategy for achieving needed emission reductions throughout California. The Smog Check II program is designed to identify and correct high-emitting and gross-polluting vehicles through vehicle repair. Certain vehicles that are not repaired to meet the Smog Check II emissions requirements may be eligible for BAR's vehicle retirement program. While they are distinct programs, the relationship between VAVR enterprises that would be governed by the proposed regulations and the Smog Check II program is important for two reasons.

First, the emission reductions attributable to VAVR enterprises covered under this regulatory proposal must be surplus to the reductions to be achieved in the Smog Check II program. The SIP relies on the Smog Check II program as a vital strategy for reducing ozone-forming emissions from the in-use vehicle fleet and achieving California's clean air goals. Resulting emission reductions must be attributed to achieving the mandated Inspection and Maintenance Program's performance standard established by the United States Environmental Protection Agency (U.S. EPA). The reductions from the Smog Check II program cannot be used for any other purposes, such as for use as marketable mobile source emission reduction credits or for use in achieving the emission reduction goals of measure M1. This concept is important for all VAVR enterprises in that a portion of the emission reductions achieved from retiring vehicles that have previously failed the Smog Check II test without subsequent repair, or would fail the next scheduled test, must be attributed to that program, rather than to any emission reduction credits generated through VAVR enterprises. The methodology for calculating emission reduction credits resulting from VAVR enterprises, presented in Section III. E., "§2607: Emission Reduction Credits," is designed to ensure that the emission reductions are surplus to those required under Smog Check II.

Second, BAR has developed its own statewide vehicle retirement component as part of the Smog Check II program. This voluntary component of BAR's program, expected to be in effect beginning in late 1998, will provide an opportunity for California residents to retire certain registered, operable high-polluting vehicles as an alternative to making costly vehicle repairs. Vehicles that have failed the Smog Check test and did not obtain a Certificate of Compliance will be eligible if they meet registration and other program requirements. The BAR's vehicle retirement option will not generate any marketable mobile source emission reduction credits -- any emission reductions associated with this option will be attributed to the Smog Check II program performance goals and the SIP.

III. SUMMARY OF PROPOSED REGULATIONS

The staff recommends that the Board adopt the proposed regulations governing the implementation of voluntary accelerated light-duty vehicle retirement enterprises. Adoption of this proposal would add the regulations as a new chapter in Title 13, California Code of Regulations: "Chapter 13, Voluntary Accelerated Vehicle Retirement Enterprises; Article 1, Voluntary Accelerated Light-Duty Vehicle Retirement Enterprises; Sections 2600-2610." The proposed regulations are contained in Appendix A. The major provisions of the staff's regulatory proposal are summarized below.

A. §2602: The Districts' Role in Implementing VAVR Enterprises

The staff proposes that local air quality management and air pollution control districts continue the direct responsibility for implementing VAVR enterprises. The Health and Safety Code currently provides districts with the authority to adopt mobile source emission reduction credit programs to be used as a component of their rules, regulations, and credit banking programs. Several districts already have implemented various mobile source emission reduction credit programs, including VAVR enterprises. It therefore makes practical sense for districts that have such programs to continue performing direct implementation and auditing functions, including maintenance of required records.

Districts that currently authorize the generation and use of mobile source emission reduction credits from accelerated vehicle retirement enterprises would be required to adopt ARB's regulations, within six months of adoption by the ARB, for use in administering such enterprises. In the absence of such an action, ARB's regulations would automatically take effect in any district that does not conduct its own rulemaking procedure for the purpose of adopting ARB's regulations. Districts, however, that do not authorize the generation and use of mobile source emission reduction credits from accelerated vehicle retirement enterprises would not be required to adopt ARB's regulations. Simply put, any district that authorizes credit generation from VAVR enterprises must use ARB's regulations for implementing such programs. Districts that choose not to authorize VAVR enterprises will not be required to have such programs.

B. §2603: Vehicle Eligibility Requirements

All VAVR enterprises must ensure that they generate real emission reduction credits. This means that the enterprises must a) purchase and retire vehicles that are actually driven in the air district in which the accelerated vehicle retirement enterprise is operated; and b) purchase and retire vehicles that are fully operational and would not otherwise be immediately retired. An equally important criterion in this regulatory proposal (and one that is required by SB 501) is the voluntary component for both the vehicle owner and the vehicle purchaser (VAVR enterprise operator). Owners of eligible vehicles are not required, under any circumstance, to sell their vehicles to VAVR enterprise operators; this is strictly a personal decision. Likewise, eligible business entities are not required to engage in VAVR operations; this is strictly a business decision.

Additionally, SB 501 requires the VAVR enterprises addressed under this proposal to be as seamless as practicable to BAR's Smog Check II program. While these are distinct programs, one way to provide for "seamlessness" is to require that the pool of candidate vehicles for possible inclusion in VAVR enterprises is the same as the pool of vehicles subject to the Smog Check II requirements. However, the passage of Senate Bill 42 in late 1997 exempted certain portions of the vehicle fleet, beginning January 1, 1998, that had once been subject to Smog Check. Prior to January 1, 2003, motor vehicles manufactured before 1974 are exempt from biennial and change-of-ownership Smog Check requirements. Beginning January 1, 2003, any vehicle that is 30 or more years old is exempt. Allowing these vehicles to participate in VAVR enterprises covered under this regulatory proposal provides an opportunity to achieve emission reductions surplus to those that can be achieved through the Smog Check II program. Therefore, these vehicles are also eligible for participation in VAVR enterprises covered under this regulatory proposal. The staff also proposes that light-duty diesel vehicles, which are exempt from the Smog Check II program, are eligible for participation in VAVR enterprises.

Below is a brief summary of the staff's proposed eligibility requirements for all vehicles purchased by enterprise operators for the purpose of generating emission reduction credits for use in district programs or the M1 program.

- 1) An eligible vehicle must be registered with the California Department of Motor Vehicles (DMV) as an operable vehicle for at least 24 consecutive months, prior to the date of sale, to an address in the air district in which the VAVR enterprise is being conducted. This regulatory proposal also provides some degree of flexibility for vehicles registered as planned nonoperational, or for vehicles with registration that has temporarily lapsed due to an administrative delay in processing the normal vehicle registration renewal.
- 2) An eligible vehicle must be a passenger car or light-duty truck.
- 3) An eligible vehicle must not be flagged as an unrepaired high-emitter or unrepaired gross-polluter in BAR's Smog Check database, and shall not be operating with a Smog Check repair cost waiver or economic hardship extension. Any emission reductions associated with retiring an unrepaired high-emitter or gross-polluter, or a vehicle operating with a

repair cost waiver or economic hardship extension, in the programs covered by these regulations would not be surplus to the reductions already required in the Smog Check II program.

- 4) If an eligible vehicle is volunteered for retirement within 90 days of its next required Smog Check inspection, it must pass the Smog Check test. This is necessary to eliminate any overlap with the Smog Check II program.
- 5) Prior to purchase by a VAVR enterprise, each candidate vehicle must pass a functional and equipment eligibility inspection performed by a BAR Smog Check referee station inspector or another ARB-approved inspector. After successful completion of the inspection, a certificate of functional and equipment eligibility will be issued. A master copy of this document, proposed for use by all ARB-approved inspectors, is contained in Appendix C. Operators of VAVR enterprises will be required to contract with Smog Check referee stations, or another ARB-approved inspection entity, to provide inspector services to perform the vehicle functional and equipment eligibility inspections on-site at VAVR enterprise locations. The staff estimates that VAVR enterprise operators may incur costs of \$20.00 - \$25.00 for each vehicle on which a functional and equipment eligibility inspection is performed.

The purpose of this inspection is to verify that a candidate vehicle meets the full functional and equipment eligibility requirements contained in the proposed regulations. The eligibility requirements for program participation are based on meeting three objectives. First, the eligibility inspection should eliminate those vehicles from program participation that have signs of little or no useful remaining life. Examples of these types of vehicles would be those that have critical components that are in extremely poor condition or are nonfunctional, such as an engine hood that is held closed with ropes. Second, the eligibility inspection should eliminate from participation those vehicles that have one or more defects that could potentially interfere with its operation and potential for future mileage accumulation. Examples of these types of vehicles would be those in which the brake pedal drops to the floor when the vehicle is attempting to stop, or one in which the engine shuts down after a keyed ignition start. Finally, the eligibility inspection should eliminate any vehicle from participation if other government rules and regulations would result in that vehicle's natural retirement. For example, any vehicle that failed its last Smog Check test and was deemed by the owner as not cost-effective to repair would not be eligible (SCAQMD, 1998b).

The requirements of the functional and equipment eligibility inspection are derived, in part, from the South Coast Air Quality Management District's (SCAQMD) Rule 1610 -- Old Vehicle Scrapping (SCAQMD, 1998a). The specific components and operational requirements proposed for inclusion in the eligibility inspection are based directly on the experiences of SCAQMD enforcement staff and VAVR enterprise operators already doing business in the SCAB under Rule 1610. The ARB staff worked closely with the SCAQMD staff in developing the eligibility requirements and believes that those requirements incorporated in this regulatory proposal

represent the best approach for qualifying vehicles for program participation. Some districts, however, may wish to incorporate more stringent vehicle eligibility requirements in their VAVR rules. They may do so as long as the eligibility requirements in this regulatory proposal are included as a district's core requirements, i.e., a district may adopt additional requirements or a more stringent version of an individual requirement; it may not, however, omit any of the vehicle eligibility requirements in this regulatory proposal. As discussed earlier in this report, all districts, including the SCAQMD, will need to adopt all the protocols contained in this regulatory proposal, once adopted by the Board.

C. §2604: VAVR Enterprise Operator Requirements

Proposed §2604, Title 13, California Code of Regulations, addresses issues related to VAVR enterprise operator requirements. Summarized here are the major components of §2604 in this regulatory proposal: 1) VAVR Enterprise Operator Criteria; and 2) Generating Emission Reduction Credits.

1. VAVR Enterprise Operator Criteria

The VAVR enterprise operator must meet specific criteria to be eligible to generate emission reduction credits through accelerated vehicle retirement. Implementation of the criteria, presented below, will ensure that vehicles and vehicle components, including hazardous waste materials such as engine oil, transmission fluid, and chlorofluorocarbon cooling agents, are dismantled, destroyed, recovered, and/or recycled in accordance with applicable federal, state, and local laws.

- 1) The VAVR enterprise operator must be an auto dismantler licensed according to the requirements of the California Vehicle Code, applicable business codes, and the California DMV; or
- 2) The VAVR enterprise operator must have a binding agreement with an authorized auto dismantler, licensed according to the above criterion, for the purpose of vehicle disposal after purchase; and
- 3) The enterprise operator must notify the local district of his/her intent to conduct a voluntary accelerated vehicle retirement enterprise at least

30 days prior to engaging in such activities. If the enterprise operator does not meet the requirements of these regulations, once adopted, or any applicable district rules, the district may refuse permission to generate emission reduction

credits through voluntary accelerated vehicle retirement.

- 4) The enterprise operator will be required to contract with Smog Check referee stations, or another ARB-approved inspection entity, to provide inspector services to perform the vehicle functional and equipment eligibility inspections on-site at VAVR enterprise locations.

2. Generating Emission Reduction Credits

Senate Bill 501 authorizes the issuance of emission reduction credits to private entities (eligible VAVR enterprise operators) that purchase and retire vehicles in accordance with the regulations that are ultimately adopted. Senate Bill 501 then authorizes the resale of those credits, either for use in meeting the emission reduction requirements of SIP measure M1 in the SCAB, or for use as mobile source emission reduction credits as currently authorized by the districts and approved by ARB. Any credits that the State of California purchases in the SCAB must be retired toward meeting the clean air goals of measure M1.

The following subsections discuss eligibility requirements for generating emission reduction credits, prohibitions on the resale and reuse of vehicle parts and engine components, and vehicle disposal requirements. These requirements would ensure that a retired vehicle never pollutes again and that its parts and engine components are not available for use to extend the life of another older vehicle with less advanced emission control technology.

a. Eligibility for Generating Emission Reduction Credits

For any vehicle purchased by a VAVR enterprise operator, emission reduction credits will only be granted if the vehicle meets the eligibility requirements of §2603 in the regulatory proposal (summarized here in the Section III. B., “§2603: Vehicle Eligibility Requirements”) and is permanently destroyed. The VAVR enterprise operator will be responsible for determining that a vehicle meets all the registration requirements through the methods contained in this regulatory proposal. For purposes of this proposal, a vehicle is considered destroyed when: 1) it has been crushed or shredded or otherwise rendered permanently and irreversibly incapable of functioning as originally intended; and 2) when all appropriate records maintained by the DMV have been

modified to reflect that the vehicle has been acquired by a licensed auto dismantler for the purposes of dismantling.

Emission reduction credits will not be granted for any vehicle purchased by a VAVR enterprise that is not retired in accordance with this regulatory proposal and is resold to a member of the public or has vehicle parts or engine components removed for resale and reuse. Specifically, Health and Safety Code Section 44120(b), as created by SB 501, states that “...No emission reduction credits shall be generated for vehicles that are resold to the public...” Regarding prohibitions on the resale and reuse of vehicle parts and engine components, these are discussed in the subsection below.

b. Vehicle Parts Resale and Reuse

For any vehicle from which emission reduction credits are generated, vehicle parts and engine components may not be removed for resale and reuse. The only allowable use for any parts from a vehicle retired to generate emission reduction credits is as a source of scrap metal and other scrap material. The staff believes this approach best implements the basic principle of an effective VAVR enterprise -- to accelerate fleet turnover to vehicles using cleaner, more advanced technology. Removing the entire vehicle from service not only eliminates the emissions of the retired vehicle, but it also renders that vehicle's parts unavailable for use in keeping another older, more polluting vehicle on the road longer than would normally occur through natural attrition. Full emission reductions will not be achieved if a vehicle is retired, but its parts are used to enable other older vehicles to continue operating longer. Furthermore, for those VAVR programs that rely on public funds, such as the M1 program or district programs using motor vehicle registration money, the staff believes it is not a judicious use of public funds to allow parts resale. Doing so may reduce the achievable emission reductions and subsidize the auto dismantlers' abilities to profit from reselling parts at the taxpayers' expense.

The staff's position regarding parts resale and reuse is more stringent than the U.S. EPA's position. However, the U.S. EPA does support the total destruction of the engine and all emission related components from vehicles for which emission reductions are generated. In two recent letters from U.S. EPA to the SCAQMD (letters dated June 23, 1998, and August 12, 1998, are attached as Appendix D) regarding Rule 1610 approvability issues, the U.S. EPA stated that it will not approve any vehicle retirement rule that does not include the total destruction of the engine and all emission related components from vehicles for which emission reductions are generated. Failure to include such provisions in a rule or regulation will result in the U.S. EPA's disapproval of such a rule or regulation.

An equally important component of the staff's proposal regarding prohibitions on vehicle parts resale and reuse is the concept that engines and/or vehicles of collector value may be purchased and returned to service. Both the U.S. EPA and the ARB staff recognize the concerns of the car enthusiast community and believe that it is beneficial to provide members of the public access to desirable engines and vehicles. However, no emission reductions can be generated for any vehicle or engine that is purchased for the purpose of reusing parts or restoring for on-road use. This regulatory proposal does include mechanisms to provide members of the public access to desirable engines and vehicles. These provisions are discussed further in Section III. D., "§2605: Offering Vehicles to the Public."

c. Vehicle Disposal Requirements

The staff proposes that the following actions must be performed to permanently destroy all vehicles for which credit is granted, thus ensuring that these vehicles are never driven again and that their parts are not available for resale and reuse:

- 1) The VAVR enterprise operator must destroy the license plates and fulfill applicable California DMV procedures for “electronically” retiring a vehicle; and
- 2) The VAVR enterprise operator must permanently destroy the entire vehicle within 90 days of its purchase by an enterprise operator.

D. §2605: Offering Vehicles to the Public

Proposed §2605, Title 13, California Code of Regulations, includes mechanisms to allow members of the public to purchase vehicles that are either scheduled to be purchased by VAVR enterprises or that have already been purchased by VAVR enterprises. These mechanisms, summarized in section 3 below, take into consideration some of the issues important to individuals and groups interested in collecting and preserving certain vehicles, and to consumers for whom older vehicles provide affordable transportation. Senate Bill 501 contains provisions that specifically direct ARB to consider these issues. These provisions are: 1) Health and Safety Code Section 44100(e)(3), which states that “Participation by the vehicle owner shall be entirely voluntary and the program design should be sensitive to the concerns of car collectors and to consumers for whom older vehicles provide affordable transportation”; and 2) Health and Safety Code Section 44120(b), which states, in part, that early vehicle retirement enterprises implemented through the adopted regulations shall “Set aside and resell to the public any vehicles with special collector interest.”

In addition to the above provisions, SB 501 states that the regulations should define the term “collector interest vehicle.” For purposes of this regulation, the staff proposes to define a collector interest vehicle as “any vehicle purchased by a car collector or car enthusiast primarily for its historic or esthetic value, rather than primarily as a means of transportation.” By using this definition, staff is not making a distinction regarding which specific vehicles have collector value and which do not.

1. Public Workshop on August 15, 1996

On August 15, 1996, the staff conducted a public workshop to specifically discuss issues important to car collectors and other car enthusiasts. Individual car enthusiasts and members of various collector car organizations attended the workshop, along with current VAVR enterprise operators, to provide information regarding what is desired for the interests of car collectors and what is necessary for the operation of a practical VAVR program. This information was important in shaping certain components of the ARB's proposed regulations.

Major concerns raised at this workshop included: 1) the need to publicly publish lists of vehicles scheduled to be sold to VAVR enterprises; and 2) the need to preserve engine components, such as blocks, reciprocating components, and cylinder heads. The staff responded to the first concern by including in this regulatory proposal a mechanism that will allow members of the public the opportunity to review lists of vehicles scheduled for sale to VAVR enterprises.

This mechanism allows members of the public to purchase these vehicles, under certain conditions. Regarding the second concern, the staff believes the mechanisms in this regulatory proposal for public purchase of vehicles, either before or after sale to a VAVR enterprise, can be used to provide members of the public access to desirable engine components. The staff also anticipates that members of the public who want to purchase desirable engine components will negotiate directly with VAVR enterprise operators for the opportunity to purchase them. Under this proposal, VAVR enterprise operators will be free to sell any engine component or any other vehicle part that is not prohibited for resale by current laws (e.g., catalyts); nothing in the proposed regulations precludes them from doing this. They will not, however, be able to "double-dip", i.e., generate emission reduction credits and also resell the parts from those same vehicles.

2. Public Workshops on March 7, 1997

On March 7, 1997, ARB staff conducted two workshops to discuss the proposed regulations for implementing VAVR enterprises. The first workshop focused on the draft regulations in their entirety. The second workshop, as did the August 15, 1996, workshop, focused strictly on issues of importance to car collectors and other car enthusiasts and was well attended by interested members of the car collector/car enthusiast community. The main topic of discussion at this workshop was the provision in the draft regulations requiring the total destruction of the engine in order to generate emission reduction credits. Again, many participants expressed concerns with this requirement. The staff's position on this issue, however, remains unchanged. The engine is the core polluting unit of a vehicle; allowing its return to service, regardless of whether it is lower-emitting than when retired, will violate the "permanent" criterion necessary for mobile source emission reduction credit generation. The basic tenets of mobile source emission reduction credit programs are that the reductions must be real, permanent, surplus, and quantifiable to an acceptable degree of certainty. If the engine is resold, the emission reductions could not be considered "permanent." Furthermore, as discussed in the section regarding parts resale and reuse, the U.S. EPA's current position is to require total engine destruction from vehicles for which emission reduction credit is generated.

3. Mechanisms for Vehicle Purchase by the Public

Described here are the two mechanisms in this regulatory proposal that allow members of the public to purchase vehicles that are either scheduled to be purchased by a VAVR enterprise or have already been purchased by a VAVR enterprise.

a. Vehicle Purchase Before Completion of Sale to VAVR Enterprise

Current VAVR enterprises operating under the SCAQMD's Rule 1610 use a "set aside" mechanism to allow members of the public to purchase special vehicles of interest. Under this mechanism, which is really a "code of conduct" that the VAVR enterprises have agreed to follow (it is not contained in Rule 1610), up to three percent of vehicles procured for voluntary accelerated vehicle retirement may be set aside for purchase by members of the public. Because this type of mechanism is not practical for the implementation of a large-scale VAVR program

that could occur in the SCAB if funding is secured for the M1 program, the staff developed an alternative mechanism for inclusion in this regulatory proposal. The main component of this mechanism, the use of lists to notify members of the public of vehicles scheduled for retirement, is based on input received at the public workshops.

The staff proposes that there should be a minimum period of 14 days between the time a vehicle is first offered for sale into a VAVR enterprise (i.e., when a vehicle owner makes initial contact with a VAVR enterprise operator for the purpose of participating in the program) and the time the sale transaction is completed. The VAVR enterprise operator will use this time period to conduct any necessary steps related to the purchase of vehicles for accelerated retirement purposes (e.g., verification of registration eligibility). Additionally, this waiting period will be used to notify interested members of the public, including local car collector organizations, of the vehicles that are scheduled for purchase by VAVR enterprises.

With the vehicle owner's permission, the VAVR enterprise operator will submit a brief description of the vehicle, including the Vehicle Identification Number, to the local district. This description should include the date and approximate time when the vehicle will be delivered for sale to the VAVR enterprise. The district, in turn, will make this information available to the public for a minimum of 10 days. The intent of this provision is to provide interested members of the public the opportunity to view available cars as they arrive at a VAVR enterprise. Interested individuals may then negotiate directly with a vehicle owner, at the time and place of vehicle delivery, for the purchase of his/her vehicle before it is sold to a VAVR enterprise. It is important to note that VAVR enterprise operators will not be legally obligated to provide the space for these third party contacts.

Because this purchase mechanism primarily serves the interests of car collectors, enthusiasts, and others interested in purchasing vehicles, some constraints must be in place in order to protect the privacy and rights of the vehicle owners. For this reason, published vehicle descriptions will not include any owner information (i.e., name, phone number, etc.). Additionally, a vehicle owner is free to deny the VAVR enterprise operator permission to provide his/her vehicle description to the local district. In this case, the minimum 14 day waiting period prior to completion of the sale transaction is not required and the VAVR enterprise operator may immediately purchase any vehicle after it has been granted a certificate of functional and equipment eligibility and has been verified as meeting the vehicle registration requirements. A vehicle owner who does allow his/her vehicle description to be publicly distributed is not obligated to negotiate with any member of the public that may approach him/her as a result of this process.

b. Vehicle Purchase After Completion of Sale to VAVR Enterprise

Once a vehicle has been sold to a VAVR enterprise, the enterprise operator may make that vehicle available for sale to the public, subject to applicable requirements of the DMV and the California Vehicle Code, unless the person selling the vehicle to the VAVR enterprise specifically

requests that the vehicle not be resold. Some vehicle owners may wish to sell their vehicles to VAVR enterprises as their personal contribution to improving air quality; these individuals should have control over whether their vehicles are put back into service or not. As stated previously, any vehicle purchased by a VAVR enterprise operator that is subsequently resold is not eligible to earn emission reduction credits.

E. §2607: Emission Reduction Credits

As a supplement to ARB's customary rule development process and as part of its regulatory development under SB 501, ARB staff invited representatives of various industries, environmental groups, and local governments to participate in a Technical Advisory Group (TAG). The TAG's sole function was to advise the ARB on the appropriate emission reduction calculation methodologies for the purpose of credit generation. Working with the staff, the TAG developed and approved emission reduction credit calculation methodologies that ensured that any emission reductions achievable through the M1 program, or any other VAVR program, were surplus to those reductions achievable through the Smog Check II program. The emission reduction calculation methodologies in this regulatory proposal are those developed and approved by the TAG.

The available emission reduction credits resulting from accelerated vehicle retirement and calculated according to the methodologies presented here are contained in Appendix B entitled "Voluntary Accelerated Light-Duty Vehicle Retirement Program Emission Reductions." The emission reductions presented in Appendix B are calculated on a statewide basis for the calendar years 1999 and 2000. Emission reductions for calendar years 2001 and beyond will be added to the "Voluntary Accelerated Light-Duty Vehicle Retirement Program Emission Reductions" document as necessary.

The emission reduction calculation process is the calculation of the retired vehicle's emissions (expressed in units of mass) over the expected remaining life minus the replacement vehicle's emissions over the same time period. The emissions of both the retired vehicle and the replacement vehicle are the product of some measure of each vehicle's expected emission rate and expected activity level. Using a fleet average vehicle (a vehicle with an emission rate equal to the average emission rate of the entire in-use vehicle fleet) as the replacement vehicle, the difference in the emissions can be used as an emission reduction credit.

1. Calculation of Credits

For exhaust (tailpipe) emissions, the following equation is proposed to calculate emission reduction credits. Exhaust emission reduction credits may be generated from reductions in NO_x, ROG, carbon monoxide (CO), and particulate matter (PM):

$$ExhReduction = [(ER_{retired} \times VMT_{retired}) - (ER_{replacement} \times VMT_{replacement})] \times LIFE_{retired}$$

where:

$ExhReduction$ = total emission reduction for tailpipe emissions (grams/life);

$ER_{retired}$ = the retired vehicle emission rate (grams/mile);

$VMT_{retired}$ = the retired vehicle miles traveled(miles/year);

$LIFE_{retired}$ = the retired vehicle remaining life (years);

$ER_{replacement}$ = the replacement vehicle emission rate (grams/mile);

$VMT_{replacement}$ = the replacement vehicle miles traveled (miles/year);

For evaporative emissions, the following equation is proposed to calculate emission reduction credits. Evaporative emission reduction calculations apply only to ROG emissions:

$EvapReduction =$

$$\begin{aligned} & [(ER_{runloss})_{retired} - (ER_{runloss})_{replacement}] \times VMT_{retired} \\ & + [(ER_{hotsoak})_{retired} - (ER_{hotsoak})_{replacement}] \times Trips_{retired} \\ & + [(ER_{diurnal})_{retired} - (ER_{diurnal})_{replacement}] \times 365days/year \\ & + [(ER_{resting})_{retired} - (ER_{resting})_{replacement}] \times 365days/year \\ & \qquad \qquad \qquad \times Life_{retired} \end{aligned}$$

where:

$EvapReduction$ = total lifetime reduction of evaporative ROG emissions (grams/life);

$ER_{runloss}$ = running loss evaporative emission rate (grams/mile);

$ER_{hotsoak}$ = evaporative emission rate attributed to hot soak after shut down (grams/trip);

$ER_{diurnal}$ = emission rate for evaporative emissions occurring while vehicle is not operating and during periods of ambient temperature increase (grams/day);

$ER_{resting}$ = emission rate for evaporative emissions occurring while vehicle is not operating and during periods of constant or decreasing ambient temperature (grams/day);

$Trips_{retired}$ = number of trips per year expected from retired vehicle;

For upstream emissions, including refinery, transport, and refueling emissions, it is assumed that the emissions of the retired vehicle and the replacement vehicle are approximately equivalent. Therefore, mobile source emission reduction credits for reductions in upstream emissions are not available.

2. Determination of the Credit Calculation Variables

The issue of calculating VAVR emission reductions is really comprised of the several more fundamental issues regarding what values to use in the above equations. Presented below are the proposed methods for determining those values. These recommendations follow the direction of Health and Safety Code, Article 10, Section 44101(a), as added by SB 501, which states, in part, “In all cases, the numerical value of the credits shall reflect the useful life expectancies and the projected in-use emissions of the retired vehicle in a manner consistent with the assumptions used in determining the emissions inventory.”

Accordingly, these recommendations incorporate the use of data from ARB’s motor vehicle emission inventory model, MVEI 7G 1.0c. This model accounts for the Inspection and Maintenance Program, therefore including the emission benefits from the Smog Check II program. The methods used for determining the values for each component of the calculations ensure that the reductions achievable through the implementation of VAVR enterprises are surplus to those that must be achieved through Smog Check II. The ARB staff continuously evaluates available new emissions data and incorporates them into the model when appropriate. For example, data obtained through the implementation of an M1 pilot program, discussed in Section III. G., “§2609: Pilot Program”, will be evaluated for incorporation into the model and therefore into the emission reduction calculation methodologies.

a. Exhaust Emissions

For determining $ER_{retired}$, SB 501 allowed for the use of three options: 1) the use of direct testing for every vehicle; 2) the use of data from sampling a statistically significant portion of vehicles; or 3) the use of emission rates derived from the ARB’s emission inventory model. The TAG approved the use of emission inventory modeling estimates, with supplemental testing of select retired vehicles during the pilot program, to provide data for model validation and possible adjustment, if necessary. Vehicle model-year will be used to correlate inventory model emission rates with individual vehicles. The method approved by the TAG provides a reasonable compromise between high test costs associated with the direct testing of every vehicle and the need for accurate information. It also provides a data smoothing effect that reduces vehicle-to-vehicle uncertainties. In addition, avoiding the use of specific test data for each individual vehicle

removes the incentive for tampering with vehicles to artificially increase their emissions in an effort to increase the resulting credit amount.

For determining $VMT_{retired}$, this regulatory proposal relies on the use of inventory model-based average VMT, again correlated by vehicle model year. The emission inventory model's VMT data are derived from biennial Smog Check odometer readings. While it could be possible to use individual vehicle odometer data directly, the use of average VMT for each model year, as provided by the emission inventory model, again helps smooth the data and reduce vehicle-to-vehicle uncertainties. However, the staff does acknowledge that odometer data or owner surveys also could conceivably be used to obtain values for individual VMT. As approved by the TAG, data from all three methods (emissions inventory model, individual odometer data, and owner surveys) will be collected during the pilot program to determine the optimum approach for long term usage. If necessary, the regulations may be modified or the model may be adjusted.

For determining $ER_{replacement}$, this regulatory proposal relies on the use of inventory model-based emission rate estimates primarily for the same reasons given in the discussion of $ER_{retired}$. However, fleet average emission rates will be used, rather than model year emission rates, due to the uncertainties in determining the model year of the replacement vehicle, if any. As an example, this means that if a vehicle was retired in 1999, the replacement vehicle would be assumed to be a 1990 light-duty vehicle, which has current "fleet average" emissions. The staff believes it is not practical to expend the effort and expense that would be necessary to test all replacement vehicles because a retired vehicle's VMT may be transferred to multiple vehicles and because the replacement vehicles will not be readily available for emissions testing.

For $VMT_{replacement}$, this value is equivalent to the value of $VMT_{retired}$. This method, approved by the TAG, conserves total fleet VMT and is consistent with the inputs currently used with the emission inventory model. Another advantage of this method is that it effectively handles the uncertainty surrounding the identity of the replacement vehicle. This approach would later be adjusted by use of reliable owner survey data, where appropriate, taking into account the biases and uncertainties that seem inherent in such surveys.

For the retired vehicle's remaining life, $LIFE_{retired}$, the staff proposes the use of three years. Remaining vehicle life is derived from the emissions inventory model, which, in turn, is based on DMV registration data. Based on DMV data, the staff estimates that the half-life of vehicles 15 years old and older is six years. This means that 50 percent of the light-duty vehicle fleet 15 years old and older would be remaining on the road for another six years, on average, while the other 50 percent would disappear from use due to natural attrition. It is expected that the vehicles offered for retirement will be those with less remaining life. Thus, to be protective of air quality and ensure that real emission reductions are achieved, remaining vehicle life should be conservatively estimated. For this reason, the staff proposes three years as the maximum remaining vehicle life and credit life. In addition, survey and other data will be obtained, to the greatest extent possible, and compared with the model results to verify or adjust the model as appropriate.

b. Evaporative Emissions

The issues concerning performing comprehensive evaporative emissions testing are the same as discussed above for exhaust emissions. Therefore, the TAG approved methods for determining the components of the evaporative emission reduction calculation based primarily on the emission inventory model. During the pilot program, sample testing will be conducted and the results will be used for model verification or adjustment as necessary.

For the retired vehicle, the values for running loss, hot soak, diurnal, and resting emission rates are the average values, by model year, as provided by the emission inventory model. The value used for *Trips_{retired}* is the average number of trips, again by model year, as determined from the emission inventory model.

For the replacement vehicle, the values for running loss, hot soak, diurnal, and resting emission rates are the fleet average values, rather than model year average values, as provided by the emission inventory model. As stated in the previous discussion on the components of the exhaust emission reduction calculation, the TAG determined that using the fleet average emission rate is the most practical methodology due to the uncertainties in determining the identity of the replacement vehicle.

F. §2608: Records, Auditing, and Enforcement

Operators of VAVR enterprises and districts will be responsible for maintaining and storing all appropriate records for a minimum of three years, which is commensurate with the life of emission reduction credits generated from each retired vehicle. If ARB and U.S. EPA-approved district trading and banking rules allow the use of credits over a period of time greater than three years, all appropriate records shall be maintained for the duration of credit banking and use. Additionally, VAVR enterprise operators will be required to provide the appropriate records to the district in an electronic format to be specified by the district. For information that cannot be provided electronically (e.g., copies of vehicle registration and title), the enterprise operator shall provide the district with hard copies.

Districts may conduct audits (both announced and unannounced audits) and on-site inspections of VAVR enterprise operations to ensure compliance with this regulation and any other applicable district rules.

G. §2609: Pilot Program

Health and Safety Code Section 44104.5, as created by SB 501, requires the regulations under consideration to provide for the implementation of a two-year pilot program in the SCAB, which is to be completed no later than two years after adoption of the proposed regulations. The pilot program began operations in September 1998 and will run through the year 2000. Its purpose is to assess the efficacy of the regulations in meeting the emission reduction goals of SIP measure M1 in the SCAB, and the efficacy of VAVR programs in general. If the pilot program

determines that the M1 program is a viable long-term strategy for meeting the SIP's emission reduction goals, data from the pilot program will be used to validate the credit calculation methodologies, and if necessary, will be used to modify the regulations or to adjust the emission inventory model used as the basis for the emission reduction credit calculations.

Inherent in all vehicle retirement programs is some degree of uncertainty. For example, it is impossible to determine precisely how long a vehicle would remain in use and how it would be driven, once it is removed from service through an accelerated vehicle retirement program. Similarly, it is difficult to determine exactly where a retired vehicle's VMT is redistributed within the in-use vehicle fleet. The protocols and emission reduction credit calculation methodologies in this regulatory proposal are intended to reduce uncertainty, where possible. As stated above, data from the pilot program will be used to validate the methodologies in this regulatory proposal, or will be used to make modifications, if necessary.

Additionally, one of the concerns regarding the use of a long term accelerated vehicle retirement program as a strategy in ozone attainment plans is that it could produce undesirable effects that may limit its ability to achieve emission benefits. For example, the supply of low cost vehicles could be significantly reduced, based on the projected vehicle retirement rates necessary to meet M1's goals, and thus the price of these vehicles could increase and negatively impact program cost-effectiveness (in addition to societal effects that would occur from a lack of available low cost vehicles). If a vehicle retirement program is geographically focused, as is the M1 program, this could create a demand for the import of low cost vehicles from outside the region, or cause older vehicles that are not sold to a vehicle retirement program to remain on the road longer than expected (Moyer, et al., 1995).

Acurex Environmental Corporation's draft final report (July 1995) entitled "Perspectives on Vehicle Scrapping in Air Quality Programs", which discusses these issues, concludes that the "safe" vehicle retirement rate for achieving emission benefits without inducing the offsetting effects described above is approximately 2,000 vehicles per year per million vehicles in the population. If Acurex Environmental Corporation's conclusions are valid, the current safe vehicle retirement rate in the SCAB would be approximately 20,000 vehicles per year. One of the objectives of the pilot program is to evaluate the projected cost-effectiveness of an accelerated vehicle retirement strategy through the year 2010 and its long term viability of meeting the emission reduction goals of the M1 program.

H. §2610: Procurement of Credits for SIP Measure M1

The State of California's ability to purchase emission reductions to meet the clean air goals of measure M1 depends on the availability of adequate funds. As discussed earlier, the M1 program is unfunded at this time. Once the coalition of M1 program advocates identifies and secures funding, the staff will develop and initiate a standard state procurement process for purchasing available emission reduction credits. For example, an Invitation for Bid may be issued to participating VAVR enterprise operators on a periodic basis. When fully developed, it is

anticipated that this mechanism would provide for a streamlined and user-friendly process that is beneficial to both the ARB and participating VAVR enterprise operators.

IV. ISSUES OF CONTROVERSY

A. Prohibitions on Parts Resale and Reuse

A main issue of concern in this regulatory proposal has been whether vehicle parts, including the engine, should be allowed to be resold from vehicles for which mobile source emission reduction credits are generated. Health and Safety Code Section 44120(a) states that the disposal of vehicles retired in accordance with the regulations adopted pursuant to SB 501 shall, "Allow for trading, sale, and resale of the vehicles between licensed auto dismantlers or other appropriate parties to maximize the salvage value of the vehicles through the recycling, sales, and use of parts of the vehicles, consistent with the Vehicle Code and appropriate state board guidelines." Some car enthusiast organizations, specifically the Specialty Equipment Market Association (SEMA), argue that this provision provides for the resale and reuse of vehicle components from vehicles which are retired to generate mobile source emission reduction credits.

The Vehicle Code provides DMV mechanisms for "electronically" retiring a vehicle. These mechanisms allow for, but do not require, the resale and reuse of most vehicle components. If the ARB adopts the regulations as proposed, the "appropriate state board guidelines" as referenced in Health and Safety Code Section 44120(a) will prohibit all vehicle parts resale and reuse from vehicles retired to generate mobile source emission reduction credits.

Generally, car collectors and other car enthusiast groups oppose the staff's position regarding parts resale and reuse. These groups fear that the used parts supply will be significantly reduced and thus drive up the costs of remaining available parts. In evaluating this issue, staff considered two facts. First, hundreds of thousands of vehicles are retired each year in California as a result of natural attrition and accidents (outside of voluntary vehicle retirement programs). For example, in 1996, DMV data shows that about 650,000 vehicles were scrapped in California. In 1997, this number rose to over 700,000 (BAR, 1998). These vehicles will provide a significant parts base, as will the millions of other vehicles retired throughout the country as a result of natural attrition and accidents. For comparison purposes, only 5,000 to 7,000 vehicles annually have been retired in the SCAQMD's Rule 1610 voluntary accelerated vehicle retirement programs since 1993 (SCAQMD, 1998b). Second, licensed auto dismantlers have a sophisticated nationwide parts locator network that is used to locate and obtain affordable and specialized used parts throughout California and the rest of the country. Therefore, the availability of used parts should not be substantially affected as a result of total vehicle destruction in VAVR programs. The State of California Auto Dismantlers Association (SCADA) has publicly testified at a public forum regarding the BAR's vehicle retirement component of Smog Check II that the total destruction of vehicles will not cause a shortage of recyclable vehicle components. Appendix E contains a letter from SCADA (dated

January 21, 1998) to BAR reiterating its public testimony. While the ARB staff believes that the M1 program, if fully implemented in the SCAB, could create some upward pressure on the price of used parts, they will by no means disappear from the market.

B. Emission Reduction Credit Calculation Methodologies

The emission reduction credit calculation methodologies were approved by the TAG through a majority vote. However, as participants in the TAG, WSPA and SEMA did not approve the calculation methodologies.

As discussed earlier in this report, WSPA was one of the main proponents behind the recommendation to include a vehicle retirement strategy in the 1994 SIP for Ozone. However, as also discussed previously, the original analysis on which WSPA's recommendation was based allowed the retirement of "high-emitting" vehicles, i.e., those vehicles that failed the Smog Check II test, for the purposes of meeting the M1 program's emission reduction goals. To allow emission reductions from the retirement of Smog Check failure vehicles to be used to meet measure M1's goals, or to be used as mobile source emission reduction credits for other approved purposes, would result in emission reductions that were not surplus to reductions already required by the Smog Check II program. WSPA did not change its position over the duration of the TAG meetings.

SEMA, which represents the aftermarket parts industry and many in the car enthusiast community, generally does not support vehicle retirement programs. However, as a member of the TAG, it did participate in the discussions regarding emission reduction calculation methodologies. In doing so, SEMA argued for the use of emission rates derived from historical Smog Check data as the basis for determining the emission rate of a retired vehicle, or for direct testing of retired vehicles. Using Smog Check data is not technically feasible because Smog Check data only represents a vehicle's emissions at one point in time -- the time it was tested -- and does not measure a vehicle's emissions on a gram-per-mile basis, which is a necessary component of the emission reduction calculation methodologies. Direct testing of each vehicle would be cost prohibitive to the implementation of VAVR enterprises.

V. REGULATORY ALTERNATIVES

Senate Bill 501 requires the ARB to adopt regulations that provide for the implementation of privately-operated VAVR enterprises in the SCAB for the purpose of meeting the emission reduction goals of SIP measure M1. This legislation also requires the regulation to be applicable to other VAVR enterprises operating throughout California. Until the conclusion of the pilot program in 2000, SB 501 does not provide for the implementation of any alternative strategy as a means to meet the emission reductions required by SIP measure M1. However, one programmatic alternative that could be incorporated into this regulatory proposal would be to provide for varying degrees of vehicle parts resale and reuse within VAVR enterprises. The staff did not propose this alternative based on issues discussed previously regarding vehicle parts resale and reuse. As such, no alternative considered by the staff would be more effective in carrying out

the purpose for which the regulations are proposed or would be as effective or less burdensome to affected private persons than the proposed regulations.

VI. ECONOMIC IMPACTS

The use of emission reduction credits generated from VAVR enterprises provides California businesses with additional flexibility in achieving required emission reductions more cost-effectively than through the implementation of traditional control measures. Furthermore, the emission reductions resulting from the implementation of the M1 program in the SCAB, if adequately funded, could reduce the need to implement more costly measures to achieve the SIP's emission reduction goals. Overall, the staff expects the proposed regulations will not have a significant impact on California employment, business status, and competitiveness.

A. Legal Requirement

Sections 11346.3 and 11346.54 of the Government Code require State agencies to assess the potential for adverse economic impacts on California business enterprises and individuals when proposing to adopt or amend any administrative regulation. The assessment shall include consideration of the impact of the proposed regulation on California jobs, business, expansion, elimination, or creation, and the ability of California businesses to compete.

State agencies are also required to estimate the cost or savings to any state or local agency and school districts in accordance with instructions adopted by the Department of Finance. This estimate is to include any nondiscretionary cost or savings to local agencies and the cost or savings in federal funding to the state.

B. Affected Businesses

Businesses that may be affected as a result of the adoption of this regulatory proposal include those businesses and industries seeking emissions compliance strategies, VAVR enterprise operators (auto dismantlers and other eligible entities), and any businesses involved in the sale, service, salvage, and recycling of automobiles and/or their components.

C. Potential Impacts on Business

The adoption of the proposed regulations will provide the protocols for implementing VAVR enterprises and the calculation methodologies for use in generating mobile source emission reduction credits resulting from such enterprises. Participation in all mobile source emission reduction credit programs is voluntary. Therefore, no negative economic impact is expected for businesses and industries that choose to use mobile source emission reduction credits to meet emissions requirements. Affected facilities will use credits only if the costs of purchasing them are lower than that of other available controls need to comply with applicable district rules and regulations. Any economic impact is expected to be positive, since mobile source emission reduction credit

programs allow businesses and industries the flexibility to choose the most cost-effective method of compliance.

Participation as a VAVR enterprise operator is also voluntary for licensed auto dismantlers and other entities eligible to conduct VAVR enterprises. Because of the voluntary nature of VAVR enterprises, it is difficult to quantitatively analyze the economic impacts expected for those entities that choose to conduct vehicle retirement enterprises for the purpose of generating mobile source emission reduction credits. However, it is expected that there will not be a negative economic impact for these entities. An eligible entity's decision to conduct a VAVR enterprise will be based on that entity's specific business and financial situation and the prevailing market-forces (cost of purchasing eligible vehicles, the demand for credits, etc.). It is unlikely that an eligible entity will conduct a VAVR enterprise unless it is deemed profitable.

It is possible, however, that the adoption of this regulatory proposal could affect operations of existing VAVR programs throughout California. As this proposal is more stringent than the district rules currently governing VAVR programs, there could be a slight negative impact for those VAVR enterprise operators already in existence. While this impact is expected to be minor, each existing VAVR enterprise operator will need to determine his/her business options based on individual operating costs and profit margins. It is conceivable that VAVR enterprise operators with little or no margin of profitability could be adversely affected by the adoption of the proposed regulations. Based on vehicle retirement rates at the high end of the range (5,000 - 7,000 vehicles annually) currently taking place in the SCAQMD, and on annual costs associated with contracting for vehicle eligibility inspection services provided by BAR Smog Check referee station inspectors, the staff estimates that existing VAVR enterprise operators may incur additional costs of \$20.00 - \$25.00 for each vehicle on which a functional and equipment eligibility inspection is performed.

Finally, depending on the level of vehicle retirement that takes place in a district, it is theoretically possible that the demand for automobile repairs and services for older vehicles could be reduced. However, based on current voluntary vehicle retirement levels (5,000 - 7,000 vehicles per year in the SCAQMD; significantly less in other districts), the staff does not believe that the proposed regulations will have any impact at this time on businesses that provide services to older vehicles.

D. Potential Impact on Business Competitiveness

The proposed regulations are not expected to have a significant impact on the ability of California businesses to compete with businesses in other states. The adoption and implementation of the proposed regulations can provide California businesses with flexibility in meeting emissions requirements. Thus, the compliance costs of meeting the federal ambient ozone standard could potentially be reduced for those California businesses choosing to purchase emission reduction credits.

E. Potential Impact on Employment

The proposed regulations are not expected to cause a noticeable change in California employment. It is theoretically possible that the proposed regulations could have a positive impact on California employment due to the lower compliance costs for California businesses choosing to purchase emission reduction credits. For other businesses, such as those involved in the auto dismantling or metal, tire, and battery recycling industries, employment could also be positively impacted due to increased business volume.

F. Potential Impact on Business Creation, Elimination, or Expansion

The proposed regulations are not expected to cause a significant change in the status of California businesses. As stated earlier, California businesses purchasing emission reduction credits may benefit due to reduced compliance costs. Additional opportunities may be created for industries such as auto dismantling and metal, tire, and battery recycling due to increased business volume. Any of these effects could have a positive impact on the California economy as a whole. However, it is conceivable that some businesses with little or no margin of profitability could be adversely affected.

G. Potential Costs to Local and State Agencies

As discussed in the section on regulatory alternatives, the ARB is required by state law to adopt this regulatory proposal. As a measure in California's SIP, this strategy is also necessary to comply with the federal Clean Air Act. Therefore, the ARB staff believes this regulatory proposal is the only feasible means of meeting the ARB's state and federal obligations at this time.

This regulatory proposal places the responsibility with the local air quality management and air pollution control districts for implementing VAVR enterprises. Their implementation, however, is not mandatory; the decision to allow the generation and use of mobile source emission reduction credits from VAVR enterprises rests solely with each district. Therefore, the adoption of the proposed regulations for VAVR enterprises would not create costs for any state agency, local agency, or school district, other than for those air quality management or air pollution control districts that choose to allow VAVR enterprises within their respective jurisdictions.

For those that do, the ARB staff believes that any incremental costs associated with the implementation of the proposed regulations will not be significant because those districts most likely already allow the operation of VAVR enterprises for the purpose of generating emission reduction credits and have accounted for most of the associated administrative costs in their budgets. The staff estimates annual incremental program costs due to the reconciliation of current district rules with the ARB's regulations, once adopted, to be approximately \$15,000 per district. Unlike current district rules governing VAVR programs, the ARB's regulations will require districts to post publicly available lists (obtained directly from VAVR enterprise operators) that

contain descriptive information for each vehicle to be delivered for sale to a VAVR enterprise, including the date and approximate time of delivery. The above estimate is based on vehicle retirement rates at the high end of the range (5,000 - 7,000 vehicles annually) currently taking place in the SCAQMD. It is anticipated that districts with significantly lower vehicle retirement rates will incur lower incremental costs. Districts that incur costs as a result of implementing VAVR enterprises may recover all or part of these costs by charging application and administrative fees to the individual VAVR enterprise operators, or by increasing fees to permit holders in affected districts, if the districts elect to recoup these small increases from permit fees.

For the SCAQMD, the local air district of authority in the SCAB, incremental costs could increase even more due to the increased volume of vehicle retirement associated with the M1 program. However, the M1 program is currently unfunded; therefore, incremental costs associated directly with an increase in vehicle retirement rates will not occur at this time.

VII. ENVIRONMENTAL IMPACTS AND COST-EFFECTIVENESS

A. Air Quality Benefits

1. Ozone SIP Benefits

Without funding, the proposed regulations will not meet the measure M1 emission reduction commitments called for in the 1994 SIP. Unless funding is secured by the M1 program advocates (primarily WSPA and the California Chamber of Commerce), the ARB may need to consider alternative strategies in order to achieve the 25 tons per day reduction in emissions of ROG plus NO_x in the SCAB in 2010.

2. Statewide Emission Reductions

Table II illustrates the possible total emission reductions (over the full three year credit life) generated by retiring 10,000 light-duty vehicles in calendar year 1999 using the emission reduction credit calculation methodologies discussed previously in Section III. E., "§2607: Emission Reduction Credits." The resulting emission reductions may be used as mobile source emission reduction credits or may be retired strictly for an air quality benefit (e.g., if a district uses motor vehicle registration surcharge fees to purchase and retire eligible vehicles). The reductions shown represent total reductions before the application of any discount factor that may be required by district rules that allow the use of mobile source emission reduction credits as a compliance option.

The following scenarios assume that an equal mix of light-duty vehicles are retired for each model year included in a scenario. The resulting emission reductions are based on statewide emission rates from the ARB's motor vehicle emission inventory model, MVEI 7G 1.0c, and are therefore applicable in any region of California where voluntary accelerated vehicle retirement takes place. Data from the M1 pilot program will be used to validate or adjust, as necessary, the calculation methodologies and/or the emission inventory model. Appendix B, "Voluntary

Accelerated Light-Duty Vehicle Retirement Program Emission Reductions”, provides the individual emission reductions on which these scenarios are based, and includes emission reductions for additional model years and for calendar year 2000.

The use of 10,000 vehicles retired in 1999 is only an example. Current M1 funding is not available to achieve this level of vehicle retirement. However, information in Table II can also be used to approximate the emissions impact of other scenarios should funding become available. For example, if funding was secured for the M1 program that provided for the retirement of 50,000 vehicles per year, the emissions impact could be estimated by multiplying the values in Table II by five.

TABLE II

Reductions from the Implementation of a Voluntary Accelerated Vehicle Retirement Program in 1999 (Light-Duty Vehicles)				
	Total Emission Reductions (Tons per 3 Year Credit Life)			
	ROG (Exhaust and Evaporative)	NO_x	CO	PM₁₀
Accelerated Retirement of 10,000 1968 - 1971 Vehicles	1,919	416	8,780	18
Accelerated Retirement of 10,000 1973 - 1976 Vehicles	1,701	514	8,961	6
Accelerated Retirement of 10,000 1978 - 1981 Vehicles	723	580	10,540	6

Table III illustrates the possible emission reductions (from Table II) in tons per day. Emissions of ROG plus NO_x are combined for comparison with the M1 emission reduction target in 1999, which is 9 tons per day ROG plus NO_x.

TABLE III

Reductions from the Implementation of a Voluntary Accelerated Vehicle Retirement Program in 1999 (Light-Duty Vehicles)			
	Total Emission Reductions (Tons per Day)		
	ROG^A + NO_x	CO	PM₁₀
Accelerated Retirement of 10,000 1968 - 1971 Vehicles	2	8	0
Accelerated Retirement of 10,000 1973 - 1976 Vehicles	2	8	0
Accelerated Retirement of 10,000 1978 - 1981 Vehicles	1	10	0

Note A: Includes exhaust and evaporative emissions

B. Other Environmental Impacts

In addition to the potential air quality benefits that may be achieved, there are other potential environmental impacts associated with the implementation of VAVR enterprises. Each district that chooses to allow for the generation and use of mobile source emission reduction credits from VAVR enterprises will need to prepare an environmental analysis in accordance with the California Environmental Quality Act (CEQA) contained in the Public Resources Code, and with the state CEQA Guidelines developed by the State of California Secretary of Resources. Under the CEQA Guidelines, projects are evaluated for various specified impact categories in an Initial Study. Those categories found to be significant are further analyzed in a draft and final environmental assessment document. The environmental analysis for each district choosing to allow the operation of VAVR enterprises will vary depending on a variety of factors, including, but not limited to, the geographical size and population of the air district, topographical and meteorological conditions, other emission control measures in place, the estimated number of vehicles to be retired each year through VAVR enterprises, and the district's capacity to handle increased vehicle shredding operations.

The following environmental analysis summary is based on the 1992 Initial Study for the SCAQMD's Rule 1610 (SCAQMD, 1992) and is provided here as an example of the environmental issues that may need to be considered by each district considering the implementation of VAVR enterprises in its jurisdiction. The summary that follows does not include the environmental factors that were determined to be unaffected by implementation of the SCAQMD's vehicle retirement rule.

For purposes of the following summary, it is assumed that approximately 30,000 older vehicles are retired each year over and beyond those that are retired through natural attrition (this is the vehicle retirement rate used in the 1992 Initial Study for SCAQMD's Rule 1610). It should be noted that since the adoption of the SCAQMD's Rule 1610 in 1993, only 5,000 to 7,000 vehicles have been retired annually under Rule 1610 vehicle retirement programs. Other local districts implementing VAVR enterprises have retired significantly fewer vehicles per year. If funding for the M1 program is secured, the SCAQMD may need to perform a revised environmental analysis, depending on how the level of available M1 funding impacts the number of vehicles to be retired.

1. Air Quality

The shredding of 30,000 additional vehicles per year would generate about 170 pounds per day (31 tons per year) of additional air pollutants. These pollutants, primarily ROG, NO_x, and particulates, would be generated by the increased crushing of vehicles and the transport of vehicles and scrap materials. The analysis indicates that these emission will not exceed the district's thresholds for significance for any of the criteria pollutants. Each shredding facility would be limited to scrapping only an additional number of vehicles that would not exceed daily district significance thresholds.

Daily emissions from additional vehicle shredding and transport of recycled and scrap materials would be more than offset by the short- and long-term emission reductions that will result from voluntary accelerated vehicle retirement.

2. Water Quality

Additional vehicle shredding activities may produce incremental increases in industrial wastewater flows and the potential for groundwater contamination. No vehicle retirement plan shall be approved by a district for any VAVR enterprise operator with identified soil, surface water, or groundwater contamination problems until the contamination is eliminated.

3. Water Consumption

The increase in vehicle shredding activities would consume an additional 145,760 gallons, or two-thirds of an acre-foot per year. This is an incremental increase in water consumption, based on consumption figures from the Metropolitan Water District and the Los Angeles Department of Water and Power, and would have a negligible impact on local and regional water resources. To ensure that water consumption impacts remain insignificant over time, all vehicle retirement facilities must demonstrate compliance with applicable water conservation practices.

4. Risk of Upset/Human Health

The demolition of vehicles may generate additional hazardous wastes such as battery acid, transmission fluid, antifreeze, and lubricating oil, etc. Some of these materials could be

accidentally released during transport to a disposal or treatment facility. As a mitigation measure, vehicle retirement facilities will be required to provide programs that minimize exposure of workers or the public to hazardous materials, and that address the safe handling and disposal of hazardous materials.

5. Transportation/Circulation

Based on the retirement of 30,000 vehicles annually through VAVR enterprises, an additional 54,000 trips and 540,000 vehicle miles traveled could be generated each year. These trips and vehicle miles traveled would be generated by the transport of dismantled vehicles to shredding facilities, and the transport of shredded vehicles to recycling or waste facilities. It is estimated that seven trips per day could be generated at any one facility, which would represent insignificant traffic impacts, both regionally and locally.

6. Energy

Shredding equipment and processes consume various kinds and quantities of energy. The primary energy source used is electricity, however some natural gas and diesel fuel may also be used. Additional vehicle retirement operations could result in an increase of approximately 1.1 million kilowatt hours of electricity and 77,100 gallons of diesel fuel each year. This represents an incremental increase in regional energy use which is not a significant impact, therefore, no mitigation measures are necessary.

7. Solid Waste

While much of the waste material associated with retiring vehicles can be recycled (such as batteries, used oil, tires, freon, and antifreeze) or sold as scrap metal and recycled, an additional 9,000 tons per year may need to be disposed of in landfills. This represents only an incremental impact to regional waste disposal facilities, therefore, no mitigation measures are necessary.

C. Cost-Effectiveness

The cost-effectiveness of an emission reduction strategy is calculated by dividing the total emission reductions into the total cost of the program to give a \$/ton figure. For purposes of illustration, Table IV presents the possible cost-effectiveness of an accelerated vehicle retirement program using the scenarios presented in Table II, based on different program costs. While the proposed regulations provide for emission reduction credit generation from reductions in CO and PM₁₀, this analysis does not include the potential cost-effectiveness for emission reductions of these pollutants as they are not in high demand. Including these pollutants, however, could improve cost-effectiveness.

It is important to understand that the scenarios presented only reflect the purchase price of the vehicle, including an administrative cost, in the total program cost. Market forces will determine the purchase price of used vehicles for a VAVR program in a particular region. Similarly, the market value of mobile source emission reduction credits will be determined by

several variables, including stationary source regulatory requirements and the number of entities conducting VAVR enterprises. Thus, the cost-effectiveness figures shown reflect the possible cost of generating mobile source emission reduction credits, but do not reflect any estimate of the market value of the credit. Furthermore, the staff cannot predict how market forces will impact the cost-effectiveness of VAVR programs in the future. The pilot program discussed earlier in this report will attempt to estimate, to the extent possible, how the open market may influence future vehicle and mobile source emission reduction credit prices for VAVR programs, in addition to evaluating the viability of the M1 program, assuming funding is secured, for achieving the necessary emission reductions through 2010.

Finally, the issue of cost-effectiveness has more importance in the evaluation of the viability of the M1 program than it does in evaluations of mobile source emission reduction credit programs in general. Because the generation and use of mobile source emission reduction credits as an alternative compliance option, for example, is entirely voluntary, this strategy will only be used if it is cost-effective to do so.

TABLE IV

Cost-Effectiveness for Purchase of 10,000 Vehicles			
Cost per Vehicle	\$500	\$700	\$900
Total Program Cost	\$6,000,000 ^A	\$8,000,000 ^A	\$10,000,000 ^A
1968-1971 Vehicles Total tons ROG+NOx	2,335	2,335	2,335
1973-1976 Vehicles Total tons ROG+NOx	2,215	2,215	2,215
1978-1981 Vehicles Total tons ROG+NOx	1,303	1,303	1,303
1968-1971 Vehicles \$/lb ROG+NOx	\$1.30	\$1.70	\$2.10
1973-1976 Vehicles \$/lb ROG+NOx	\$1.40	\$1.80	\$2.30
1978-1981 Vehicles \$/lb ROG+NOx	\$2.30	\$3.10	\$3.80

Note A: Includes \$100 administrative cost per vehicle

VIII. SUMMARY AND STAFF RECOMMENDATION

A. Summary

The proposed regulations fulfill the ARB's obligations under SB 501 and the Clean Air Act, respectively. Once adopted, the proposed regulations will provide the criteria for implementing SIP measure M1 in the SCAB, as well as the criteria for implementing other VAVR enterprises operating throughout California. This proposal includes provisions to ensure that the mobile source emission reduction credits resulting from voluntary accelerated vehicle retirement are real, surplus, and quantifiable, while including mechanisms to allow car collectors and other members of the public access to vehicles of interest.

The M1 program, to be implemented from 1999 to 2010 in the SCAB, is intended to encourage the early voluntary retirement of portions of the older vehicle fleet and to accelerate the overall fleet turnover to newer, lower-emitting models. However, the M1 program is unfunded at this time. Unless funding is obtained in the near-term by the coalition of M1 program advocates, the ARB may need to consider alternative strategies to achieve emission reductions equivalent to those required by measure M1. The M1 funding constraints do not affect the use of the proposed regulations in implementing other VAVR enterprises throughout California, including the SCAB.

B. Recommendation

The staff recommends that the Board adopt the proposed regulations, "Chapter 13, Voluntary Accelerated Vehicle Retirement Enterprises; Article 1, Voluntary Accelerated Light-Duty Vehicle Retirement Enterprises; Sections 2600-2610", as a new chapter in Title 13, California Code of Regulations. The regulations are set forth in the proposed Regulation Order in Appendix A.

IX. REFERENCES

- ARB, 1994a. The California State Implementation Plan for Ozone, Volume II, November 15, 1994.
- ARB, 1994b. The Proposed 1994 California State Implementation Plan for Ozone, Volume II, October 7, 1994.
- BAR, 1998. Presentation at a Public Workshop for California's Voluntary Accelerated Vehicle Retirement/Low-Income Repair Assistance Program.
- Moyer, Carl B. et al., Acurex Environmental Corporation, 1995. Perspectives on Vehicle Scrapping in Air Quality Programs, Draft Final Report, July 1995.
- SCADA, 1998. Letter to BAR, from SCADA, Regarding Vehicle Retirement, January 21, 1998.
- SCAQMD, 1998a. Amended Rule 1610: Old Vehicle Scrapping, July 10, 1998.
- SCAQMD, 1998b. Staff Report for Proposed Rule 1610: Old Vehicle Scrapping, June 1998
- SCAQMD, 1992. Final Staff Report for Proposed Rule 1610: Old Vehicle Scrapping, December 22, 1992
- U.S. EPA, 1998. Letters to SCAQMD, from U.S. EPA, Regarding Rule 1610 Approvability Issues, June 23, 1998, and August 12, 1998.