State of California
AIR RESOURCES BOARD

FINAL STATEMENT OF REASONS
FOR RULEMAKING

PROPOSED AMENDMENTS TO THE
CALIFORNIA ON-ROAD MOTORCYCLE REGULATION

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Scheduled for Consideration: December 10, 1998
Agenda Item No.: 98-14-4

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Final Statement of Reasons for Rulemaking,
Including Summary of Comments and Agency Responses

PUBLIC HEARING TO CONSIDER AMENDMENTS TO THE CALIFORNIA ON-ROAD MOTORCYCLE REGULATION

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I. INTRODUCTION

In this rulemaking the Air Resources Board (ARB or Board) is adopting a comprehensive set of amendments to the California On-Road Motorcycle regulation (section 1958, title 13, California Code of Regulations (CCR)). The amendments include the application of new exhaust emission standards to on-road motorcycles and motorcycle engines for hydrocarbon plus oxides of nitrogen (HC+NOx). The amendments also include provisions for small-volume manufacturers and early-compliance credits and modifications to sections 1900 (Definitions) and 1965 (Emissions Control and Smog Index Label) that are consistent with the amendments to section 1958. Finally, the amendments include a sunset review provision, as required by Executive Order W-144-97, as well several technical modifications. The amendments are designed to help meet the ARB's commitment to achieve emission reductions under the State Implementation Plan (SIP) for ozone attainment and in partial satisfaction of the recent SIP lawsuit settlement.

The rulemaking was initiated by the October 23, 1998 publication of a notice for a December 10, 1998 public hearing to consider the on-road motorcycle regulatory amendments. A "Staff Report: Initial Statement of Reasons" (referred to as the Staff Report) was also made available for public review and comment on October 23, 1998. The Staff Report, which is incorporated by reference herein, contains an extensive description of the rationale for the proposal. The text of the proposed amendments to title 13, California Code of Regulations (CCR), and related documents incorporated by reference in the title 13, CCR regulations, were included as appendices to the Staff Report. These documents were also posted on the ARB's Internet site for this rulemaking at <*http://www.arb.ca.gov/msprog/motcycle/motcycle.htm*>.

The proposed action consisted of amendments to title 13, CCR, section 1958 and the incorporated "Exhaust Emission Standards and Test Procedures - Motorcycles Manufactured on or After January 1, 1978."

On December 10, 1998, the Board conducted the public hearing, at which it received written and oral comments. At the conclusion of the hearing, the Board adopted Resolution 98-65, in which it approved the originally proposed amendments with several modifications. In accordance with section 11346.8 of the Government Code, Resolution 98-65directed the Executive Officer to incorporate the modifications into the proposed regulatory texts, with such other conforming modifications as may be appropriate, and to make the modified text available for a supplemental comment period of at least 15 days. He was then directed either to adopt the amendments with such additional modifications as may be appropriate in light of the comments received, or to present the regulations to the Board for further consideration if warranted in light of the comments.

Subsequent to the hearing, the staff identified a number of additional technical corrections to the regulatory texts that were needed to reflect the underlying intent of the original proposal as approved by the Board. Most of these conforming modifications were nonsubstantive. These modifications were incorporated into the texts of the proposed regulations and incorporated documents, along with the modifications approved by the Board at the hearing.

The texts of the substantive modifications to the originally proposed regulations and incorporated documents were made available for a supplemental 15-day comment period by issuance of a "Notice of Public Availability of Modified Text and Supporting Documents and Information" (the "first 15-day notice"). The first 15-day notice and its attachment were mailed by June 18, 1999 to all parties identified in section 44(a), title 1, CCR, including the more than 40 persons who submitted written comments. This Notice was also posted on the ARB's Internet site for this rulemaking at <*http://www.arb.ca.gov/msprog/motcycle/motcycle.htm*>. Two written comments were received during the first 15-day comment period.

In light of the supplemental comments received, the Executive Officer determined that additional modifications were necessary. A Second Notice of Public Availability of Modified Text (the "second 15-day notice") and an Attachment identifying the additional substantive modifications were mailed by September 17, 1999 to all parties identified in section 44(a), title 1, CCR; the second deadline for supplemental comment was October 4, 1999. No comments were submitted during the second supplemental comment period.

Following the close of the second supplemental 15-day comment period, the Executive Officer issued Executive Order G-99-073, adopting the amendments to title 13, CCR, and to the various incorporated documents.

This Final Statement of Reasons (FSOR) updates the Staff Report by identifying and providing the rationale for the modifications made to the originally proposed regulatory texts. The Final Statement of Reasons also contains a summary of the comments the Board received on the proposed regulatory amendments during the formal rulemaking process and the ARB's responses to those comments.

Incorporation of Test Procedures and Federal Regulations. The amended exhaust emission standards and other documents are incorporated by reference in CCR, title 13, sections 1900, 1958, and 1965. Some of the test procedure documents, in turn, incorporate certification test procedures adopted by the U.S. Environmental Protection Agency (U.S. EPA) and contained in 40 Code of Federal Regulations (CFR) Part 86.

California Code of Regulations, title 13, sections 1900, 1958, and 1965 identify the incorporated ARB documents by title and date. The ARB documents are readily available from the ARB upon request and were made available in the context of this rulemaking in the manner specified in Government Code section 11346.5(b). The CFR is published by the Office of the Federal Register, National Archives and Records Administration, and is therefore reasonably available to the affected public from a commonly known source.

The test procedures are incorporated by reference because it would be impractical to print them in the CCR. Existing ARB administrative practice has been to have the test procedures incorporated by reference rather than printed in the CCR because these procedures are highly technical and complex. They include the "nuts and bolts" engineering protocols required for certification of motor vehicles and have a very limited audience. Because the ARB has never printed complete test procedures in the CCR, the affected public is accustomed to the incorporation format utilized therein. The ARB's test procedures as a whole are extensive and it would be both cumbersome and expensive to print these lengthy, technically complex procedures with a limited audience in the CCR. Printing portions of the ARB's test procedures that are incorporated by reference would be unnecessarily confusing to the affected public.

The test procedures incorporate portions of the CFR because the ARB requirements are substantially based on the federal regulations. Manufacturers typically certify vehicles and engines to a version of the federal emission standards and test procedures which has been modified by state requirements. Incorporation of the federal regulations by reference makes it easier for manufacturers to know when the two sets of requirements are identical and when they differ.

Fiscal Impacts. The Board has determined that this regulatory action will not result in a mandate to any local agency or school district, the costs of which are reimbursable by the state pursuant to Part 7 (commencing with section 17500), Division 4, Title 2 of the Government Code.

Consideration of Alternatives. The amendments proposed in this rulemaking were the result of extensive discussions and meetings involving staff and the affected motor vehicle manufacturers and others. Staff seriously considered all of the alternatives proposed by industry. As described in Comment 56, the Motorcycle Industry Council (MIC) presented an alternative proposal which the manufacturers believed was more technologically feasible, less costly, and more cost-effective than the staff's proposal. The alternative proposal was supported by the American Motorcyclist Association (AMA), the California Motorcycle Dealers Association (CMDA), and other stakeholders, while the staff's proposal was supported by the Harley-Davidson Motorcycle Company, the Manufacturers of Emission Controls Association (MECA), and the Ventura County Air Pollution Control Board (VCAPCB).

As discussed in this FSOR, the primary objective of the rulemaking is to supplement and help partially fulfill ARB's commitments under the 1994 California State Implementation Plan for ozone (ozone SIP). This rulemaking is designed to achieve as much additional emission reductions in hydrocarbon plus oxides of nitrogen (HC+NOx) as are technologically feasible and cost-effective, to be counted against the ozone SIP's additional 75 tons per day HC+NOx emission reduction target — the so-called "Black Box." The amendments are also designed to achieve maximum feasible and cost-effective emissions reductions of HC+NOx as part of the ARB's efforts to attain the state ambient air quality ozone standard as early as practicable, as well as to reduce emissions of particulate matter. Finally, the amendments are designed to satisfy the portion of the recent SIP lawsuit settlement relating to on-road motorcycles. The adopted amendments are expected to achieve HC+NOx emission reductions in 2010 and 2020 in the South Coast Air Basin (SCAB) and statewide that are significantly greater than what would be achieved by the industry alternative. Accordingly, the Board has determined that neither the MIC's alternative proposal, nor any other alternative considered by the ARB, would be more effective in carrying out the purpose for which the regulatory action was proposed or would be as effective and less burdensome to affected private persons than the action taken by the Board.

II. MODIFICATIONS TO THE ORIGINAL PROPOSAL

A. OVERVIEW OF THE ORIGINAL PROPOSAL

1. The Existing California On-Road Motorcycle Regulation

The ARB adopted the first on-road motorcycle regulation in 1975 to reduce ozone-forming emissions from this mobile source category. The regulation established exhaust and evaporative emission standards for HC beginning with the 1978 model year. Depending on the motorcycle engine size, the original HC exhaust standards ranged from 5.0 grams per kilometer (g/km) to 14.0 g/km.

The regulation established standards for motorcycles with engines as small as 50 cubic centimeters (cc). Because in this rulemaking staff proposes to amend the standards only for Class III motorcycles (280 cc or greater), the remainder of this discussion will focus on the standards that currently apply to this class of on-road motorcycles.

In 1984, the ARB amended the model year 1985 HC standard to give manufacturers more flexibility. The new standards for model year 1985 and beyond focused on the Class III category (280 cc and above): 280 to 699 cc engines were limited to 1.0 g/km for model years, while 700 cc and larger motorcycles were limited to 1.4 g/km HC. The ARB established provisions to allow manufacturers to meet these limits on a "corporate average" basis, with no individual engine family allowed to exceed 2.5 g/km HC.

Additionally, in 1984 the Board directed the ARB staff to revisit the regulation when catalytic and other emissions control technologies had matured to the point that it would be feasible to apply these technologies to on-road motorcycles. Significant strides in controlling emissions from internal combustion engines have taken place since then, with developments in the automotive sector gradually being applied to motorcycles. This is particularly true in Europe and Asia, where engine modifications, fuel injection, secondary pulse-air injection, and catalytic converters are used in significant numbers of on-road motorcycles. On the other hand, the ARB emission standards for motorcycles have not kept pace with the rate at which emission control technologies have developed. Therefore, the Board believes it is appropriate to amend the existing standards to the revised levels, which reflect the use of reasonably available technologies.

2. **The Original Proposal**

The primary impetus for the amendments comes from the ARB's obligations under the State Implementation Plan for Ozone (ozone SIP) adopted by the Board in 1994. The ozone SIP, which represents California's commitment to attain and maintain the federal ambient air quality standard for ozone in greater Los Angeles and the rest of the state, was approved by U.S. EPA in 1995. The ozone SIP includes measures to reduce emissions from mobile sources under State control (including cars, heavy-duty trucks, off-road equipment), as well as federal assignments to control emissions from sources under exclusive or practical federal control (such as airplanes, marine vessels, and locomotives). The ozone SIP also relies upon the development of additional technology measures (the mobile source "black box") to provide additional emission reductions needed for attainment in the South Coast Air Basin (i.e., the greater Los Angeles area).

Although on-road motorcycles have been regulated since the 1978 model year, the ozone SIP does not specifically plan for emission reductions from on-road motorcycles. Amendment of the regulations for on-road motorcycles is a new emission reduction effort reflecting reasonably available technologies. The amendments offer additional, cost-effective emission reductions needed to continue progress toward attainment of the federal ambient ozone standard. The additional emission reductions will also ensure continued progress toward meeting State and new federal air quality standards for ozone and particulate matter.

The amended regulations maintain the approach used in the existing regulations. The approach maintains the current standards until model year 2004, when the first of the new standards becomes effective. For model year 2004, the amended standard is 1.4 g/km HC+NOx (Tier-1). Beginning in model year 2008, the amended standard of 0.8 g/km HC+NOx becomes effective (Tier-2). Manufacturers would be allowed to meet the standards on a corporate average basis, with all engine families limited to no more than 2.5 g/km HC+NOx. For small-volume manufacturers, the Tier-1 standard of 1.4 g/km HC+NOx becomes effective starting in model year 2008. In ARB staff's original proposal, small-volume manufacturers were those that have combined California Class I (50 cc to 169 cc), Class II (170 cc to 279 cc) and Class III (280 cc and greater) sales of no greater than 1000 units in a model year.

To provide incentives for early compliance with the Tier-2 standard, a set of multiplier factors provides extra credit to manufacturers that introduce motorcycles which meet the Tier-2 standard earlier than the 2008 model year. Use of these credits will make it easier for a manufacturer to comply with the corporate emissions average standard in 2008.

B. MODIFICATIONS TO THE ORIGINAL PROPOSAL

1. **Section 1900(b)(11) (Definition: Motorcycle Engine)**

A definition for "motorcycle engine" was included in the final amended regulation in order to apply the standards to both motorcycles and motorcycle engines. It is important to note that the application of the exhaust standards to motorcycle engines is consistent with preexisting ARB enforcement interpretation of the current regulations; therefore, the inclusion of language regarding motorcycle engines merely clarifies and memorializes preexisting ARB interpretation. No comments challenging the application of the exhaust standards to motorcycle engines was received during any of the comment periods.

2. **Section 1958(a) (Applicability)**

As noted earlier, the preexisting applicability of the exhaust emission standards and other requirements of Section 1958 to motorcycle engines was memorialized through references to "motorcycle engines" and "manufacturers of either motorcycles or motorcycle engines." These modifications merely clarified ARB interpretation of current regulations.

3. **Section 1958(b) (Table of Standards)**

Again, minor changes were made to make it clear that the exhaust emission standards also apply to motorcycle engines. No other substantive modifications were made to the original proposal.

4. **Section 1958(f)(1) & (2) (Small Volume Manufacturers)**

In Section 1958(f)(1), the entire subsections (A) and (B) were replaced with simplified language to make it clear that, for model years through 2007, Class III motorcycles and motorcycle engines made by "small-volume manufacturers" shall meet the existing, HC-only standards as specified in the Table of Standards in Section 1958(b). For model year 2008 and subsequent, the modified subsection (B) specifies that small-volume manufacturers must meet the 1.4 g/km HC+NOx standard for all Class III motorcycles and motorcycle engines. A portion of (f)(1) that was not otherwise amended has been numbered as (f)(2) to provide clarity.

In Section 1958(f)(2) [renumbered to (f)(3) in the final regulation order], the originally proposed language has been replaced with a table that clearly shows that, with the Board's adoption of a 300-units per model year small-volume manufacturer definition, there would be four different time periods which needed to be identified to determine the exact exhaust standard that applies to a motorcycle made by a "small-volume manufacturer" in any given model year. To illustrate, the Board adopted the first small-volume manufacturer definition of 5,000 units per model year applicable to the 1984 through 1987 model years. This means that prior to 1984, no definition for small-volume manufacturer existed (i.e., all manufacturers regardless of production volume had to meet the same standards). Moreover, the Board's newly-adopted 300 units per model year definition does not become effective until the 2008 model year. Therefore, the period covering model years 1988 through 2007 also do not have an effective small-volume manufacturer definition. Consequently, all motorcycles in model years 1988 through 2007 would need to meet the same standards regardless of production volume. All four of these relevant time periods and the applicable requirements and definitions for small-volume manufacturers within these time periods have been identified in the final amendments.

In adopting the 300 units per model year definition, the Board was faced with the situation in which adoption of a 500- or 1,000-unit per model year or a greater cutoff would have allowed fairly large companies (based on worldwide sales), such as Triumph, Ducati, and others, to be given relief against the Tier-2 standard (i.e., meet only the Tier-1 standard with nine years to

comply), while larger companies with which they compete directly in the market would be required to meet the Tier-2 standard. Given the difficult job of balancing such competing needs, the Board carefully considered the issues and appropriately adopted a small-volume manufacturer definition that provides relief only to those companies that are truly small, "mom-and-pop" operations. Nonetheless, reconsideration and modification of the small-volume manufacturer provision may be appropriate based on our findings from the planned 2006 technology review.

5. **Section 1958(g) (Early-Compliance Credits)**

As with other modifications noted earlier, the early-compliance credits provision was also modified to apply to motorcycle engines as well as motorcycles. Also, language was included in the modified amendments to require the applicant for early-compliance credits to provide in writing all emissions data, test protocols, equipment specifications, operating conditions, and any other technical information requested by the Executive Officer. Furthermore, the final amendments specify that an Executive Order would be the instrument by which the ARB would issue early-compliance credits; such Executive Orders would identify the exact amount of credits granted, the date of expiration of the credits, and all applicable enforcement provisions. Finally, the modified proposal specifies that each applicant shall identify, on its "California Motor Vehicle Emission Control and Smog Index Label" (Section 1965, Title 13, CCR), the actual HC+NOx engine family exhaust emissions level for which the vehicle or engine has been granted early-compliance credits.

6. **Section 1958(h) (Sunset Review)**

This provision was added in conformance with Executive Order W-144-97. The provision requires the ARB, within five years from the effective date of adoption or date of implementation, whichever comes later, to consult with the Secretary for Environmental Protection and review the provisions of Section 1958 to determine whether it should be retained, revised, or repealed. It is important to note that this is a general requirement for ARB to review newly-adopted regulations after five years to determine if they remain necessary to achieve the stated emission reduction goals. This "sunset review" is not the same as the planned 2006 technology review that will look at manufacturers' progress toward meeting the 2008 Tier-2 standard (or the 1.4 g/km HC+NOx standard for small-volume manufacturers).

7. **Section 1965 (Emission Control & Smog Index Label)**

Modifications to Section 1965 were made for consistency with the changes relating to the applicability of Section 1958's requirements to motorcycle engines, as noted earlier.

II. SUMMARY OF COMMENTS AND AGENCY RESPONSES

List of Comments Received (written comments, unless otherwise noted)

Reference	Company or Individual		Dated
AMA	American Motorcyclist Assn. (written and oral testimony) Eric J. Lundquist, Esq. & Dana Bell, Western States Representative		12/1 & 12/10/98
Alcorn	John J. Alcorn		11/10/98
Andrews	Gerald G. Andrews, Sr.		11/16/98
ATK	ATK America, Phil Walker, Chief Engineer		12/8/98
BAAQMD	Bay Area Air Quality Management District		12/10/98
Baum	William E. Baum, Jr.		11/25/98
Bauman	Stephen K. Bauman		12/10/98
Boner	(see Sanders)		
Bowan	Linda Bowan		10/5/98 (early)
Boyse	George Boyse		12/9/98
Campbell	Ronald T. Campbell		10/26/98
Campbell, W.	William Campbell (see Sanders)		
CAPCOA	California Air Pollution Control Officers Association Douglas W. Allard, President		12/8/98
CMC	California Motorcycle Company, Clifford E. Fenske, Jr., CEO (written and oral testimony)		12/4 & 12/10/98 (Oral)
CMDA	Cal. Motorcycle Dealers Assn., John Paliwoda, Director (written and oral testimony)		12/7 & 12/10/98 9/9/98 (early)
Cunningham	Barry K. Cunningham		10/29/98
DeLaney	J.C. DeLaney		12/9/98
Delliskave	Ben Delliskave		12/2/98
Downs	Ken Downs		12/2/98
Epps	Jack Epps		12/9/98
Evans	Debbie Evans & Terry Evans	12/9/98	
Fisher	Robert E. Fisher		10/8/98 (early)
Flynn	Mark Flynn		11/5/98
Getty	John A. Getty		10/20/98 (early)
Gilbride	(see Sanders)		
Gracier	Jerry and Susan Gracier		10/28/98

Hanneman	Mr. & Mrs. Ritch Hanneman	12/9/98
Reference	Company or Individual	Dated
HD	Harley-Davidson Motorcycle Company (written and oral testimony) Tim Hoelter, Vice-President, William H. Freedman, McCutchaen LLP	12/10/98
Honda	American Honda Motor Co., Inc., David W. Raney, Mgr. Environ & Energy	7/7/99
JHD	Jamestown Harley-Davidson, Dan Chance, Owner	11/30/98
Jones	Floyd S. Jones, Jr.	12/3/98
Kaiser	David Kaiser	11/11/98
Line	Orrin W. Line	12/9/98
Malone	Al Malone	11/16/98
M&M	M&M Lock and Key, J. Vincent Lee	11/16/98
Marling	Phillip Marling	11/13/98
MECA	Manuf. of Emission Controls Assn., Antonio Santos (written and oral testimony)	12/10/98
MIC	Motorcycle Industry Council (written and oral testimony) Tim Buche and Tom Austin (Sierra Research) -- (45-day comments) Pamela Amette, Vice-President (15-day comments)	 12/10/98 7/7/99
Mullick	Emile M. Mullick	11/10/98
Nielsen	Kathy Nielsen	12/14/98 (late)
Pack	Steven Pack	11/23/98
Pierce	John Pierce	12/01/98
Polaris	Polaris Motorcycles, div. of Victory, Stacey Stewart (written & oral testimony)	12/10/98
PSCC	Pure Steel Custom Cycles, Inc., Tim Hurley, GM	12/7/98
Rugg	Steven W. Rugg	11/12/98
Ryder	(see Sanders)	
Sanders	Margie, Bubba, Otis, and Ollie Sanders, Jr., Timothy Gilbride, John Boner And Matthew T. Ryder	11/23/98
SCAQMD	South Coast Air Quality Management District, Barry Wallerstein	2/10/981
SCI	Stroker Cycles, Inc., Leonard Gonzales, Owner	12/8/98
Seegert	Alan Seegert	12/10/98
Smith	M.D. Smith	11/22/98
Smith, Malcolm	Malcolm Smith	12/10/98
SSC	S&S Cycle, Inc., Tom J. Henline	11/10/98

Stassinos	Robert Stassinos	11/5/98
Staufenberg	Kurt Staufenberg	12/7/98
Struthers	Sherwood W. Struthers	12/10/98
Thomasian	Berge Thomasian	12/9/98
Tindel	Dale Tindel	11/18/98
Tomchick	Scott Tomchick	3/22/99 (late)
TMC	Titan Motorcycle Company, Patrick Keery, President	12/7/98
Triumph	Triumph Motorcycles, Ltd., Robert G. Mills, Supervisor	12/10/98
Ultra	Ultra, Division of Bikers Dream, Inc., Drew Milburn, Dir. Manuf.	12/8/98
VCAPCB	Ventura County Air Pollution Control Board (written and oral testimony) Susan K. Lacey, Chair and Richard Baldwin, APCO	11/10/98
Waal	George Waal, Jr.	10/15/98 (early)
Wehr	Kevin Wehr	11/19/98
Weiner	Peter Weiner	12/31/98 (late)
Wolf	KH Wolf Consulting, Kathleen Wolf, Principal	12/10/98
Wolfe	Wolfe Precision Mold, Raymond N. Fleischman, Jr.	11/23/98
Anonymous	Fed Up, So. CA	11/15/98

A. COMMENTS RECEIVED DURING THE 45-DAY COMMENT PERIOD

1. **Applicability & Need to Regulate On-Road Motorcycles**

Comment 1: CARB should take a long, scientifically rigorous look at the cost-benefit ratio of the proposal as compared to truly filthy engines (chainsaws, snow machines, outboard motors, lawn mowers) go relatively unregulated. Actually, I support your efforts to crack down on 2-stroke off-road bikes, but whatever standard off-road motorcycles have to meet, snow machines, ORV's [off-road vehicles], etc. should also meet. Jet-skis too. Instead of trying to reach zero emissions from a VFR 800 fuel-injected streetbike -- already relatively clean -- let's work on jet-skis, snow machines, and other unregulated vehicles. (Boyle-02, Seegert-01)

Agency Response: We agree with the commenter that other, high-emitting engine categories such as those identified above need to be controlled to reduce their emission contributions. Indeed, the ARB has already embarked on an ambitious program to reduce emissions from these and numerous other sources; regulations covering small-utility engines, jet skis, and other combustion sources have already been adopted or are currently under development. Also, a regulation to reduce evaporative and spillage emissions from portable gasoline containers was adopted in September 1999, and the fourth major round of consumer product regulations to reduce volatile organic compound (VOC) emissions will be considered by the Board in October 1999. However, even with all of these efforts and the ongoing efforts to reduce emissions from cars and stationary sources, reducing the emissions from on-road motorcycles is still an important part of ARB's overall effort to meet its ozone SIP commitments. As we stated in the Staff Report and on numerous occasions during this rulemaking, all commercially and technologically feasible reductions in HC and NOx emissions must be pursued to meet ozone attainment goals.

Comment 2: The Ventura County Air Pollution Control Board supports the proposed on-road motorcycle amendments. Much of the poor air quality in Ventura County can be attributed to mobile sources that local air districts have no power to control. The ARB staff's proposal, if adopted by the Board, will help the District to fulfill its responsibility to attain the current one-hour federal ozone standard, the new eight-hour standard, and to make further progress toward attaining the California ozone standard. We urge the ARB to adopt the proposed amendments. (VCAPCB-01) We supports the Proposed Amendments. (CAPCAO-01, BAAQMD-01, SCAQMD-01)

Agency Response: We agree.

2. **On-Road Motorcycle Contribution to the Emissions Inventory**

Comment 3: There's no need to lower the on-road motorcycle standard since the staff's own emission inventory figures demonstrate that these vehicles comprise barely 2% of the total on-road motor vehicle population but emit less than 0.6% of the ozone inventory attributable to that group. (CMDA-01, Line-01, Anonymous-01)

Comment 4: Why don't you go after diesel trucks? They produce one third of California's vehicle pollution, not including diesel cars and pick-ups. I understand ARB is not doing anything about diesel trucks at this time. Motorcycles represent two percent of California's motor vehicles. Motorcycle owners don't commute on their bikes and we ride a lot less than the average car is driven. Motorcycles have much smaller engines than cars or trucks and put out less total exhaust per mile. Motorcyclists ride mainly on weekends and hardly ride at all in the winter months. Targeting motorcycles will not result in any great reductions in pollution. According to ARB's own figures only 0.00625 percent of total hydrocarbons, less than one percent of total pollution, come from motorcycles. Also, why not go after leaf blowers and lawn mowers, or refineries and factories, the violators who can pay the fines or buy the "pollution credits" and continue to do business as usual? (Nielsen-01, Jones-01, Bauman-01, Gracier-01, Sanders-01, Sanders-02, Flynn-01, Kaiser-02, Wehr-02, Fisher-01, Waal-02, Rugg-02, M&M-01, Tindel-01, Pierce-02)

Comment 5: I have evaluated the staff proposals and I cannot understand the logic used to develop the proposals. **Motorcycles constitute less than 2% of all the registered vehicles in the State of California**. A considerable number of these motorcycles are used as daily transportation. The proposals you have submitted will have a minuscule effect on the air quality in the State of California. As presented they will effect [*sic*] only somewhere between several billionths and several trillionths parts per million of any noxious gases measured in the air in California! [emphasis in original] Passage of these proposed standards may even have a "reverse" effect on the amount of noxious gases produced. Instead of paying higher prices for these "improved, clean" motorcycles, enthusiasts may just opt to drive their less efficient automobiles or trucks on a daily basis, effectively defeating any supposed or imagined benefit from stiffer regulations on motorcycles. (Boyse-03, Campbell-01, Epps-01, Flynn-01, Pack-03, Cunningham-01, Getty-01, Getty-03, Malone-04, Thomasian-02)

Agency Response: We disagree with the commenters for several reasons. First, the ARB has pursued and will continue to pursue emission reductions from all feasible sources, including diesel trucks, automobiles, jet-skis, portable gasoline containers, factories, and consumer products. All of these current efforts and more will be required to meet the ozone SIP and State air quality standards. Contrary to the commenters' assertion, ARB staff estimates that Class III motorcycles, which are affected by this rulemaking, emit about 11 times as much HC+NOx per mile as a typical new passenger vehicle. Thus, converting the entire automobile fleet to motorcycle ridership, even if it were possible, would most likely worsen the air quality in California. Finally, our efforts over the last 30 years, while yielding significant reductions in air

pollution despite tremendous growth in population and vehicle miles traveled, nevertheless show that we still need to pursue smaller sources of emissions in order to maintain progress toward attainment of the air quality standards. Each of these measures individually may achieve small reductions relative to the overall amount of emissions, but collectively these individual measures will achieve significant emission reductions. To put this in the proper context, we should note that several categories of consumer products, products that the ARB has regulated in recent years at a higher cost-effectiveness than this rulemaking, emit less than one-quarter ton per day of pollutants, with emission reductions measured in the tenths of a ton per day, while this proposed rulemaking will reduce emissions by nearly 3 tons of HC+NOx per day by 2020. (Staff Report, IX-2)

Comment 6: I am concerned about ARB's plan to lower emission standards for motorcyclists. The plan I have read about seems too extreme, placing restrictions of such magnitude on street legal motorcycles that an unfair burden results. Motorcycles comprise a very small minority of vehicles on the road. They are already, by comparison, very efficient producers of energy. Every time I ride my motorcycle, which gets over 50 miles per gallon, I know I am doing my part to reduce consumption and emission of non-renewable resources. By increasing [*sic*] emissions standards for motorcycles to 12 times the Federal standards ARB will seriously impact the number of people choosing this alternative form of transportation. By significantly raising the costs & lowering the performance of motorcycles, ARB will effectively be sending people back into their gas-guzzling cars. I believe this to be counter-productive to your goals. (Alcorn-01, Boyse-01, Hanneman-01, Rugg-01, Staufenberg-01)

Comment 7: Instead of wasting time on strict and expensive smog requirements on motorcycles, you should be protecting us from MTBE and diesel smoke. Now that we know MTBE is a carcinogen, it needs to be removed from gasoline since it is not necessary to reduce air pollution and it is being found in our water. Since diesel smoke is a known carcinogen, this type of pollution needs to be strongly addressed. Truck traffic is as frequent as ever and more diesel cars and pick-up trucks are on the road than ever before. (Pierce-01)

Agency Response: We disagree with these comments for several reasons. First, ARB is already implementing a phase-out plan for MTBE and has already identified diesel exhaust as a toxic air contaminant (TAC), the first step in a comprehensive risk assessment and control process that will eventually lead to a risk reduction program for diesel smoke. Even with these efforts, the need to reduce ground-level ozone ("smog") remains; on-road motorcycles' contribution to the ozone problem still needs to be addressed. As we noted above, on-road motorcycles currently emit significantly more pollutants per mile, not less, as compared with modern automobiles. The two workshops and numerous private meetings we held with interested parties show that we worked diligently with the industry to craft a set of exhaust emission standards that will ensure future riders will enjoy a wide variety of high performance motorcycles that emit significantly less than their current counterparts. The cost impacts from the amendments are addressed in "Commercial Feasibility and Cost Impacts" below.

Comment 8: Staff assumes a 1.3 tons per day reduction in emissions if the regulation is imposed. The MIC assumes a 0.7 ton per-day reduction if its recommendation is followed (page VIII-2). This is unrealistic and an over simplification based upon fallacious assumptions. The greatest assumption is that motorcycles are used the same every day. California motorcycles are not typically ridden every day for commuting and other normal transportation needs.

The bulk of daily transportation use of motorcycles is in communities where it makes sense. This would include college settings and in congested downtowns. Most motorcycles used in these settings are likely Class I (50 cc to 169 cc) and Class II (170 cc to 279 cc), both of which are unaffected by this regulation. Similarly, the bulk of Class III motorcycle use is likely outside of daily commuting times, for weekend and holiday leisure transportation. Much of this use will also be rural, outside of the state's congested noncompliant air quality zones. We cannot argue whether a reduction in emission levels at such places during such periods is worthwhile. However, the regulation will have little effect upon the areas of the state where current air quality mandates greater reductions. (AMA-08)

Agency Response: We disagree with the commenter's suggestion that our emission estimates are unrealistic and oversimplified. As we noted in the Staff Report (Staff Report, X-1), ARB staff took extraordinary measures to account for emissions data and suggested changes provided by the Motorcycle Industry Council (MIC). Indeed, the current staff estimates for the emissions from this category are based largely on the MIC's input. We are committed to continuing work with the MIC to further refine the emissions inventory for motorcycles and to identify additional ways to reduce emissions cost-effectively.

Comment 9: Your 80% reduction plan on less than 2% of registered vehicles is paramount to being a bully. At 12 times as strict as Federal standards and 3 times stricter than anything considered in Europe and most assuredly won't clean up air-quality by 1/2%. It gives the appearance that you are picking on a minority that's too insignificant for the general population to care about and too small to defend itself effectively. You must take a step back and honestly weigh if expense, burden, and cost to manufacturers and consumers, and general decline of a wholesome activity is really worth the minuscule results. The only true way to clean up the air is population reduction; we have too many people for the area period. I urge you to retain the Federal standard and move on to issues that will be effective. (Fleischman-03, JHD-01). The mtorcycle companies still have not included all the current California emissions standard on biles they make for the other 49 states because of costs. What about some reasonable standards that would benefit all 50 states. (Boyse-04)

Agency Response: The proposed standards are designed to reduce emissions by nearly 3 tons per day HC+NOx statewide by 2020. These are significant, cost-effective reductions that will help California in its air quality attainment efforts. Beyond developing and implementing air pollution control programs, ARB has no jurisdiction to regulate population growth in California.

3. **Technological Feasibility**

Comment 10: Please test [the feasibility of the proposed standards] before you enforce. (Delliskave-01)

Agency Response: ARB thoroughly evaluated the feasibility of the proposed standards and found them to be technologically feasible. This conclusion is bolstered by equivalent findings from the Motorcycle Industry Council, Harley-Davidson, Honda American Motor Company, and the Manufacturers of Emission Controls Association.

Comment 11: The proposed standards are clearly technologically feasible and cost-effective. Catalyst technology, which has been used on motorcycles for a number of years and has demonstrated outstanding emission control performance and durability, will enable motorcycle manufacturers to meet the Tier 2 corporate average performance and durability. The staff report has thoroughly and accurately analyzed and addressed the technical aspects associated with meeting the proposed standards. The report fairly addressed all the issues raised by the various interested parties, and the Manufacturers of Emission Controls Association (MECA) concurs with the report's conclusions that no technological barriers exist to meeting the proposed standards. (MECA-01)

Agency Response: We agree.

Comment 12: Harley-Davidson is not opposing the adoption of the rule...As of today, we have been unable to provide the level of detailed technological review that would allow us to support the 0.8 standard for the 2008 model year. However, we are committed to doing everything we can to meet the 2008 proposed target. If it can be done, it will be done. We are optimistic . . . The proposal before this Board taken with the amendments provided with the current staff report presents a challenge for Harley and its dealers, a challenge that we are prepared to do our very best to meet . . . I therefore respectfully request that the proposal be adopted with the staff recommended amendments. (HD-01)

Agency Response: There was a general consensus that of the six major manufacturers affected by the staff's proposal, Harley-Davidson would likely have the most difficulty in adapting its 45-degree, V-twin engines to meet the standards. Therefore, Harley-Davidson's optimism regarding their ability to meet the 2008 standard is very encouraging.

Comment 13: The AMA cannot accept the ARB proposal for Class III motorcycles to meet 1.4 g/km HC+NOx in 2004 and 0.8 g/km HC+NOx in 2008. We can accept an interim level of 1.5 g/km HC+NOx for 2005 as proposed by the Motorcycle Industry Council (MIC). While the MIC proposes a long term standard of 1.2 g/km HC+NOx, we would prefer to see a

long term standard of 1.3 g/km HC+NOx. Such a standard would be more in line with long term standards proposed for the European Union and the world community. These are more reasonable for manufacturers who are not MIC members and have not had input to their proposals. (AMA-01)

Comment 14: First, and by far most importantly, I would like to extend my sincere gratitude for listening to the concerns of fellow manufacturers and motorcyclists. It is very comforting to know that compromises can be reached and goals can be met, on time and in proper fashion. My understanding is that ARB has released a compromise proposal of 1.4 g/km HC+NOx in 2004 and 0.8 g/km HC+NOx in 2008. Although we feel that these levels are still very stringent, especially for the minute number of motorcycles on the road, it is a step in the right direction. It's pleasing to see more reasonable and obtainable [compared to previous proposals] numbers being considered for the motorcycle and aftermarket parts manufacturers. (SSC-01)

Agency Response: We disagree with the first comment and agree with the second comment. As the Motorcycle Industry Council (MIC) confirmed at the Board Hearing, the staff's proposal is technologically feasible. Moreover, the comment by S&S Cycles (SSC-01), a relatively small manufacturer, suggests that the staff's proposal is reasonable and achievable, even for small companies. While it may be desirable to conform to worldwide standards as much as possible, the air pollution in California dictates that standards in California be as stringent as technically feasible to achieve federal and state air quality standards.

Comment 15: Will the proposal cause problems with tune-ups, spark plugs, carburetor, or burned-out valves? (Marling-02)

Agency Response: Based on our technical analysis of the emission control technologies that will be used to meet the standards, we do not expect such problems to occur to an extent greater than in existing motorcycles. The Motorcycle Industry Council has conceded that the standards are technologically feasible, and the industry has up to 9 years to meet the more-difficult Tier-2 standard. The time provided for compliance should be more than sufficient for manufacturers to develop and refine compliant technologies to minimize or eliminate any problems.

Comment 16: I beg you to refrain from abolishing motorcycles. This may not be your intent but will be the eventual result. I do not approve of your 2-stroke ban either, though I quit off-road riding 20 years ago. Off-highway riding is a wholesome family recreation, with many benefits for youth, this may not be your personal point of view but it is a fact. (Fleischman-01)

Agency Response: The commenter's fears of an on-road motorcycle ban are unfounded. As discussed in the "Technical Feasibility" and "Commercial Feasibility and Cost Impacts" section of this FSOR, the staff has developed exhaust emission standards which Harley-Davidson, Honda, the Motorcycle Industry Council, and the Manufacturers of Emission Controls Association recognize as technologically feasible. The staff's analysis also demonstrates the commercial

feasibility of the standards. Thus, there is no reasonable foundation for believing the standards will effectively result in a "ban" on motorcycles in California. Because of this, we anticipate that consumers will continue to be able to choose from a wide variety of motorcycles in 2008 and beyond.

Comment 17: The MIC does not question the technological feasibility of the proposed standards. Our member companies believe they will be able to comply with the proposal presented in the October 23 staff report. We are not opposing the proposed interim standard of 1.4 g/km in 2004 because it is close enough to the alternative proposed by the MIC [i.e., 1.5 g/km]. (MIC45-01)

Agency Response: We agree.

4. **Commercial Feasibility & Cost Impacts**

Comment 18: Please accept the industry proposal for 1.2 g/km HC+NOx as the Tier-2 standard. We are very concerned that the same mistake that was made with the off-road motorcycle and the ATV standard is being replicated with the proposed second-tier on-road standard. That mistake is very critical for our dealer members -- if the standard is set too low, some, or many, of the on-road motorcycle manufacturers will cut back on model availability or conceivably abandon the California market altogether, and that will be devastating to our members. (CMDA-03).

Agency Response: We disagree and believe the experience with off-road motorcycles is distinguishable from this proposed rulemaking in several critical aspects. First, the off-road motorcycle regulation necessitated a major technological changeover from 2-stroke to 4-stroke engines. By contrast, the staff's proposal in this rulemaking essentially requires evolutionary refinements to existing fuel delivery, computerized controls, and catalytic converter technologies that are already in common use in on-road motorcycles. In addition, this rulemaking provides significantly more time for manufacturers to develop compliant technologies, up to 5 years for compliance with the Tier-1 standard and 9 years for Tier-2. Because the standards are technologically feasible and manufacturers have a relatively long time to develop cheaper, compliant versions of existing technologies, it is reasonable to conclude that manufacturers would not abandon the California market. Finally, the planned 2006 technology review should provide a good opportunity to evaluate manufacturers' progress toward meeting the Tier-2 standard; any modifications to the proposed standards can be made at that time if needed.

Comment 19: The second-tier industry proposal of 1.2 g/km HC+NOx will not force widespread catalyst use and potential product availability problems. The industry proposal provides almost 100% of the emissions reduction benefit as the staff proposal. (CMDA-04)

Agency Response: We disagree with the commenter's suggestion that the alternative industry proposal will provide almost 100% of the staff's projected emission benefits. As we noted in the Staff Report, we estimated the emission reductions from the proposed 1.2 g/km alternative standard as achieving less than 50% of the projected benefits from the staff's proposal by 2020 (1.2 tons per day reduction versus 2.9 tons per day from staff's proposal). (Staff Report, VIII-2). While the industry alternative may result in less tampering, it also does not rely on catalytic converter technology and will therefore achieve less reductions. Also, the industry's proposal achieves its "equivalence" by relying, in part, on the unenforceable migration and tourism into California of out-of-state motorcycles made in compliance with a 1.2 g/km standard (i.e., a "50-state" bike). (MIC, at Board Hearing)

We designed the Tier-2 standard so that the universal application of catalytic converters would not be required. Rather, we estimate that only about 60% of the market would need to use catalytic converters. (Staff Report, IX-3) We therefore established the limit of 0.8 g/km HC+NOx so that manufacturers can choose to market a product line, for example, in which the motorcycle models that are less likely to be tampered with by the consumer would have the catalytic converters (e.g., sportbikes emitting 0.4 g/km), while those with known tampering rates (e.g., custom bikes emitting 1.2 g/km) would have other emission controls; the corporate averaging of these product lines would enable the manufacturers to comply with the standards. This is a more sensible and enforceable method for reducing emissions in California than relying on the variable and unenforceable migration of out-of-state motorcycles into California.

Comment 20: While the MIC believes the proposed standards are technologically feasible, our concern with the proposal is that it appears to have been designed to force much greater use of catalytic converters. The much greater use of catalytic converters would make the proposed 2008 standard not cost-effective. Because of the relatively low production volumes of on-road motorcycles and their low mileage accumulation rates, the cost-effectiveness ratio associated with the staff proposal for 2008 is in the range of $10 per pound of HC+NOx emissions reduced, making this one of the most expensive motor vehicle emissions control measures ever considered by the Board. It's ten times more expensive per pound of control than the staff s estimate for the recently adopted Low Emission Vehicle II standards. (MIC45-02)

Comment 21: The difference in cost between currently available motorcycle models with carburetion and fuel injection is about $800, not including catalytic converters, etc. Considering the fact that the average annual motorcycle mileage is somewhere in the 2000-3000 mile range, don't you think your proposed requirements are just a little much? I think going with the more reasonable 40% industry proposal would be a more appropriate decision. (Downs-01)

Comment 22: As a business professional, a thirty-year motorcyclist, and a voter, I feel that the controls being contemplated may be inappropriate and may also do much to harm motorcycling in California and, as a result, the nation. Current controls are so strict that motorcycles emit much less pollution per passenger car and emit an extremely small amount of the total that is emitted by internal combustion engines. On a new motorcycle that I recently purchased, the California-mandated equipment not only added to the cost of the machine (which I am willing to pay), but it also created a situation that is supposed to shut when the ignition is off and a vacuum-operated fuel valve that requires many more cranks of the engine to get it started. (Waal-01)

Comment 23: Additional regulation is completely unnecessary. It will only serve to greatly damage the industry, and thus adversely affect the state's economy. Are motorcyclists being targeted because we seem an easy and relatively silent and powerless group? (M&M-02)

Comment 24: I have found that some of the proposals I have read about to be patently ridiculous. For the most part they would raise the price of motorcycles with very little beneficial result. The negative result would be to make motorcycles less efficient and possibly less safe. The higher price would force potential users out of the market. This could result in the use of less efficient gas guzzlers and polluters that would be available at the same prices. I don't feel that motorcycles constitute a great source of pollution and what they might cause is offset by the savings in gas, wear and tear on the roads, and the ever increasing traffic. I think effort might be more well spent in eliminating diesel vehicles such as trucks and buses. This would include school buses which seem to belch out more smoke than any other vehicle I happen to ride behind. (Weiner-01)

Comment 25: The staff underestimated the unit cost of their proposal by $200. If a $300 cost is applied to the cost-effectiveness formula that CARB uses to evaluate emission measures, the $10 cost per pound is above what is fair for other mobile sources, because of the low production volumes for motorcycles. (CMDA-05)

Comment 26: The staff proposal shows a cost range of between $3.00 to $5.60 per pound of emission reductions, which does not appear reasonable. Our research on machines available today shows a difference of $800 to $1000 in vehicles using fuel injection versus those equipped with carburetors. Granted that fuel injection has the appearance of an added-value item to consumers, however, the staff finding of $67.50 appears unrealistically low. (AMA-05)

Comment 27: Similarly, the values given for a three-way catalyst of $30.21 is also likely low. Different motorcycles need exhaust system placement in different locations for machines meeting different purposes. Some such placements could put the catalyst elements within an inch or so of the operator's legs. Given the temperatures at which today's catalysts operate, that would create an unrealistically dangerous situation and more expensive placements will have to be contemplated. (AMA-06)

Comment 28: Even with standards such as the proposed 0.8 g/km standard, I can still see the need for computer-controlled fuel injection, three-way catalytic converters with feedback controls, and air injection systems being necessary. Making up for less than 0.1% of emissions polluting vehicles on California roadways, expensive systems such as fuel injection, catalytic converters, and air injection are not cost-effective and would add to new motorcycle costs by as much as 20 percent. (SSC-02)

Agency Response: We disagree with these comments. Our analysis as shown in the Staff Report uses the most current cost figures we obtained from emission control equipment suppliers who provide equipment to both automobile and motorcycle manufacturers. Based on these figures, we project the production cost for affected motorcycles would increase by no more than 3 percent, not 20 percent. Because the basic technologies are essentially the same, there is no credible reason to believe the cost of a fuel injector or catalytic converter, for example, should be significantly different for a motorcycle as compared to similar equipment on an automobile. In fact, the catalyst costs for motorcycles (typically the highest-cost emissions control item) should be less than the cost for a similar unit on a car, since the converter would likely be placed closer to the motorcycle engine and would need less of the precious metals (due to the lower exhaust flowrates). These figures were confirmed by members of the Manufacturers of Emission Controls Association (MECA), as well as ARB's nearly 30 years of experience in evaluating the feasibility and costs of emission controls on motor vehicles in California.

Comment 29: I am a motorcycle enthusiast, I have ridden them regularly for 30 years, and I also like to ride bicycles, on and off road. Clean air is VERY important to me. [emphasis in original] The arguments from the industry about costs and technical problems is [*sic*] the same nonsense we always hear from the manufacturers. We all know emissions can be cleaned up, and I believe that the initial cost increase will be small and well worth the benefits to us all. Your estimate is $278 per vehicle, their's [*sic*] is ridiculous at $1,000 per vehicle. Even at $1,000 per vehicle its worth it, those guys spend more than that on fancy wheels and doodads for their trucks. Don't cave in to pressure from the industry and from the riders who enjoy polluting the environment with their dirty and noisy motors. (Evans-01, Mullick-01)

Agency Response: We agree. It has been our experience, particularly with motor vehicle regulations, that our original cost estimates for a regulation are almost invariably greater than the actual cost increases experienced by manufacturers and consumers. Given our experience with other motor vehicle categories, the actual costs experienced by motorcycle manufacturers may be less than those estimated by staff.

Comment 30: Your estimates that these changes would increase the cost of a new motorcycle by an average of about $278 is [*sic*] absolutely absurd. Manufacturers' estimates range from 5 to 10 times that amount, and that's if they choose to continue producing models for sale in California.

I share the belief that we all must do our part to keep the environment healthy and the air clean. I do not think, however, that your attempt to legislate unfairly against any group is appropriate, particularly when that group is such a small part of the problem. If passed, this proposal will have a severe impact on the powersports industry in California. I urge you to consider a more reasonable proposal regarding the reduction of motorcycle emissions. (JHD-03, Malone-01)

Comment 31: We are a small California manufacturing facility, which provides jobs for many California citizens. The proposed on-road [motorcycle] regulation is so stringent; I feel it may result in job loss for many of the people we have in our employee [*sic*]. (Ultra-01)

Comment 32: The motorcycle contribution to air pollution in California is only 0.00625%. The cost of compliance far out way [*sic*] any savings in air pollution. (Ultra-02)

Comment 33: There is a strong potential for severe financial hardship for the many voters involved in, or employed by, the motorcycle industry in California. Has the ARB investigated all of the economic impact of its proposals? Not just to the OEMs [original equipment manufacturers], but to the after-market manufacturing and services industries that have been built around providing maintenance for, and service to, on-road motorcycles. Has the ARB investigated the potential loss of payroll, and tax revenues, to the state in return for the billionths or trillionths of PPM of noxious emissions removed from the environment? (Campbell-02, Sanders-03, Flynn-02, Pack-01, Cunningham-02, Fleischman-02, Marling-01, Getty-02, Malone-03)

Comment 34: Your unrealistic proposed standards jeopardize future growth of motorcycling in the State by placing unrealistic standards that can't be met without a substantial increase in the overall cost of a new motorcycle. As one who makes their living in the powersports industry (our company employs 500+ people), I can't help but feel that if passed, the new standards would have a detrimental effect on our future business. CARB promised that the 1997 two-stroke ban would not impact the sport, yet in fact, it has reduced the number of green sticker OHVs available for individuals to purchase by 90%. (Kaiser-01, JHD-02)

Comment 35: In addition to the on-cost [*sic*] for technological changes published and well documented by the MIC, the financial burden of re-certification alone will raise the unit cost of a Triumph motorcycle by $40.00 (based on an annual volume of 1250 units). (Triumph-07)

Comment 36: This regulation imposes significant costs which logically cannot be amortized into sizeable California sales, as we are effectively limited to a maximum of 1250 units per year. As a result, imposition of such a regulation will impose an unfair financial penalty. To emphasize how difficult it would be to amortize our costs into California sales, even if we could build more motorcycles, it is reported that total small volume manufacturer's share of the California market is just 2.5%, meaning that the six major producers divide 97.5% of the market between them. (Triumph-05)

Comment 37: There are no known or proposed emission limits elsewhere in the world that would come close to those proposed for California, meaning that 100% of our emissions control effort would be concentrated at 5% of our world volume. A very poor return on investment, of negligible air quality due to our low volumes, and contrary to any sensible cost-to-benefit calculations we have made. (Triumph-08)

Comment 38: Unlike the majority of our major competitors, we do not have supporting business interests, such as automobile or marine vehicle production, that could make financial or technological contributions to motorcycle emissions control. (Triumph-04)

Comment 39: Passing the legislation before you would be a grave mistake. Insuring that all new motorcycles require fuel injection system and catalytic converters is wrong. Thus far you have outlawed many off-road bikes and are about to do the same with road bikes. This means that I will buy my new bikes out of state, taking with me the revenue that goes along with the purchase. I will also buy all of my repair parts out of state. No money for CA. (Wehr-01)

Comment 40: Harley-Davidson sells two touring models, the same designation, one has a carburetor, it's [*sic*] twin sister is fuel-injected. Guess what? The fuel-injected model is $1000 more and that's just to get the fuel-injection plus some electronics. It would not meet your proposed new standards. Harley-Davidson would have to add the same tons of "crap" that you now force down our throats in our automobiles. Not only Harley but every manufacturer that would want to sell motorcycles in California. How many of them are you going to force to stop doing business in California? The Board needs a serious dose of reality. There has never been and I mean never been "clean air" in California, and there never will be. Even if every person up and left, no factories, cars, buses, etc., the air would still be polluted. It has always been that way. (Andrews-01)

Agency Response: Our economic impacts analysis, using the Cal/EPA approved methodology for conducting cost analyses and well-established assumptions, shows that the staff's proposal overall is both cost-effective and will not significantly impact California businesses or consumers. Even with the reduced emissions inventory based on input from the MIC, we estimate the cost-effectiveness of the regulation to range from about $3.00 to $5.60 per pound of HC+NOx reduced, which is well within the range of cost-effectiveness of other regulations adopted by the Board. Moreover, our business impacts analysis indicated that the staff's proposal will affect the profitability of affected businesses by less than 3 percent, a level which is not considered to be significant. The businesses impacts analysis evaluated costs to OEMs, aftermarket manufacturers, parts suppliers, service facilities, and retailers involved in sales of motorcycles and motorcycle accessories (Staff Report, VI-4).

While the staff's analysis shows the industry as a whole would not experience undue hardships, this is not to say individual companies would have the same experience. Indeed, some companies, particularly those with low profit margins, may experience cost increases beyond those we discussed in our analysis. To help reduce these impacts, our public outreach effort

included separate meetings with small manufacturers to evaluate their particular concerns. These discussions resulted in a small-volume manufacturer provision that applies only the Tier-1 standard to such companies and gives them 9 years to comply. Our planned technology review in 2006 will also look at the small-volume manufacturers' progress toward reducing their emission levels. At that time, any changes to the standard can be evaluated in light of our findings. Based on these reasons, we believe the proposal's provisions specific to small-volume manufacturers will help reduce any adverse impacts they may experience.

Very few, if any, air pollution regulations can reduce emissions without imposing some costs and other impacts to manufacturers and consumers. However, the mere presence of cost impacts should not preclude our efforts to clean the air; Californians demand and deserve the cleanest air possible in the shortest amount of time. "Giving up and doing nothing," as the last commenter seems to be suggesting, is not an option under State law when feasible, pollution reduction measures are available. As we have done in this rulemaking, the costs of the proposed regulation must be balanced against the magnitude and feasibility of the potential reductions. Based on our analysis, the Board has concluded that the amendments are commercially and technologically feasible.

Comment 41: While the MIC believes the proposed standards are technologically feasible, the additional emissions controls required to comply with the proposed [2008] standard will reduce the practicality of producing vehicles that can be certified on a 50-state basis. Under the current standards, many popular models are already different in their California configuration and some models are unavailable in California.

The staff report contains an illogical claim that more stringent standards will increase model availability. We are certain the opposite is true. The rationale for ARB staff's conclusion is that manufacturers will prefer to certify on a 50-state basis to reduce the average cost increase per vehicle associated with meeting the California standards. In other words, the argument is that manufacturers will be willing to incur a greater increase in total costs if the cost per vehicle is lower on a nationwide basis. [emphasis in original] This assumption is clearly inconsistent with the economic interests of the manufacturers. Even if manufacturers decide that some of the design changes needed to meet the proposed standard (e.g., fuel injection) would add value to 49-state models, there will be no market-drive reason to incorporate the catalyst itself. As a result, differences between the models available in California and the other 49-states will increase, not decrease. Reduced model availability and an increase in "California-only" versions of other models will adversely affect sales and create an incentive for circumvention of the California standards. (MIC45-03)

Comment 42: In our July testimony, at the related CARB staff workshop, we cautioned staff against assuming that a California regulation could drive the motorcycling market in much the same way that it has driven other markets. Perusal of the staff proposal finds our caution has been ignored. Staff assumes that the manufacturers will produce a 50 state motorcycle to meet the regulation (page VI-16 of the Staff Report). While this is may have been the case in the past,

it is no longer a valid presumption. California simply does not possess the requisite market that would justify any manufacturer anywhere spending the capital required to impose this regulation.

In the only recent case of a regulation affecting the motorcycling public, CARB imposed an emission reduction regulation on off-highway motorcycles in 1997. As a result, industry apparently abandoned the market, sales dropped 42% and the vehicles available to the public went from over 100 different models to less than 10. In part to prevent the total collapse of this consumer market, that regulation is also under review by the Board for revision at this meeting (i.e., Board Hearing).

The situation for the on-highway market is no different. California represents less than 12 percent of the national motorcycle market. However, there is today no such thing as a motorcycle produced solely for the U.S. market. Models are sold worldwide and are virtually the same world-wide. Today, the needs of the European Community, with its more than 340 million residents and a higher per-capita motorcycling purchase record, drives the Class III market. Australasia, with its several billion residents who are striving to emerge into the modern world and where motorcycles are seen as a primary form of transportation, drives the Class I and Class II markets. In meetings for the past six months around the world, between representatives of the AMA and the international motorcycling manufacturing community, we have been told in no uncertain terms that many have no qualms about abandoning the California market if the final CARB regulation is unreasonable. (AMA-04, Malone-02, Smith, Malcolm-01)

Comment 43: The proposed 2004/8 regulations will lead to us building California-only motorcycles, should we decide to continue in the market at all. This, we know, is something that the ARB are keen to avoid. (Triumph-11)

Agency Response: We disagree with the commenters for several reasons. First, we believe that California will benefit if manufacturers decide to build a California-compliant, "50-state" motorcycle; enforcement will be simplified and manufacturers would have reduced costs in terms of simplified manufacturing and distribution requirements. Second, the commenters are in error with regard to our assumption about the production of a "50-state" motorcycle. To rephrase our conclusion in the Staff Report, there are basically two different scenarios manufacturers can take: (1) all manufacturers would produce "50-state" motorcycles that comply with the California standards, and (2) all manufacturers produce both "California-only" and "49-state" motorcycles that comply with California or U.S.EPA standards, respectively. Because we cannot predict which route each manufacturer will take (each approach has advantages and disadvantages), we calculated and reported the cost-effectiveness for both scenarios, with the entire costs for complying with the California standards spread over only the California market under Scenario 2 (i.e., the worst-case cost scenario). From this reasonable approach, we calculated and reported the cost-effectiveness range of $3.00 to $5.60 per pound of HC+NOx reduced. Despite the commenters' assertion, we received no indication of any planned mass exodus of manufacturers from the California market due to the staff's proposal, which the MIC has conceded is technologically feasible.

Comment 44: It may very well be that in order for the manufacturers to meet phase two requirements and consumer expectations at the same time, that add-ons will be found inadequate and different engine families will be needed. Traditionally, motorcycle engine families have a long life to meet tooling and other expenses. New, large displacement on-highway engine families developed without contemplation of this regulation (but with the upcoming European regulation contemplated) have come on-line this year or will come on line next year for Harley-Davidson, Henderson-Excelsior, Polaris, Yamaha, Triumph and others. If new families are needed to meet the regulation, these will undoubtedly create a great deal of additional expense to the consumer. Staff did not contemplate that many companies only have one or two engine families in their repertoire and may be unable to take advantage of averaging due to the kinds of models they sell. (AMA-07)

Agency Response: We disagree. The Tier-1 standard is designed to be met with minimal modifications to most motorcycles; indeed, we estimate that 60% of the existing motorcycle market already meets or is very close to meeting the Tier-1 standard at this time. (Staff Report, V-4). In addition, contrary to the commenter's assertion, the staff's economic impacts analysis conservatively assumed that all manufacturers would need to retool and redesign essentially all existing motorcycle product lines to comply with the Tier-2 standard. (Staff Report, VI-7 through VI-14) Thus, the factors noted above have already been accounted for in the staff's analysis.

Comment 45: The ARB staff estimates the price increase associated with a 0.8 standard at approximately $100. We estimate the cost to be over $300. There are four principal reasons for the difference in price estimates. First, the price premium for fuel injection contained in the staff report is only $42 plus a small dealer mark up. In contrast, MIC member companies supplied data to Sierra indicating that the retail price increase associated with feedback-controlled fuel injection would be $282. Estimates from four different companies were provided independently to Sierra. Most of the data were confidential, but we shared it with the ARB staff. There was very close agreement between the estimates provided by each company. One of the companies providing data was BMW, a company that has already converted to fuel injection on the majority of its production. BMW's estimates are based on actual costs of the design change they have already made. The information provided by BMW was based on "hard" costs that reflect no corporate profit or dealer mark up. The information was developed for internal purposes prior to ARB's proposal to tighten the emissions standards. ARB's estimates of fuel injection costs appear to be based on the component costs for automotive systems produced in volumes that are orders of magnitude higher. During discussions with ARB staff, it has been acknowledged that our estimates for the cost of fuel injection appear more reasonable.

The second most significant difference in the cost estimates made by ARB staff and Sierra involves amortization of the cost for research, development, and engineering. The ARB staff cost estimates assume such costs will be spread over nationwide sales for 15 years. Under this approach, almost 90% of the true costs are ignored. In addition, an 8-yr life expectancy between major engine redesigns is a more representative time period over which such costs should be amortized.

Third, the ARB staff analysis is based on the assumption that the return on investment (ROI) manufacturers should expect to obtain from the investments necessary to develop a new product is 6%. The fiduciary responsibility corporations have to their shareholders is such that investments expected to yield an ROI of 6% are considered irresponsible. The risks associated with the development of new products is [*sic*] such that historical ROI values are typically 15%. Sierra's analysis is based on the assumption that an ROI of 12% will be achieved.

Finally, ARB's cost estimates assume normal dealer margins will not apply to increases in cost associated with more stringent vehicle emissions standards. There is no basis for this assumption. Dealer margins apply to <u>all</u> cost increases. [emphasis in original]

We have not been able to duplicate ARB's estimates of the cost-effectiveness ratio. Our independent estimate is that the cost of the proposed 0.8 g/km standard is approximately $10 per pound of HC+NOx reduced. This is substantially higher than what is normally considered an acceptable ratio. (MIC45-06)

<u>Agency Response</u>: We disagree with this commenter's findings for the following reasons:

(a) As we noted earlier, we used the best available cost data obtained from parts suppliers. While the commenter suggests our cost estimates are low, the commenter did not provide ARB staff with access to the "raw" cost data that he used to arrive at his cost estimates, even after we requested such data. We therefore cannot comment on the validity of this commenter's calculations. However, as we noted in this section, it has been ARB staff's experience that our original cost estimates have typically been conservative and tend to overestimate the actual costs manufacturers incur in complying with air pollution regulations.

(b) Again, the commenter provided no basis or substantiation for his claim that 8 years is a better cost amortization period than the time frame staff used. It was our understanding that 15 years adequately represents the amortization for R&D costs in the motorcycle industry and we had no reason to believe otherwise.

(c) With regard to the assumed ROI of 6%, the commenter suggests that an R&D director seeking a 6% ROI would have breached her fiduciary duty to the company's stakeholders and that 12-15% would have better represented a return on investment that companies seek. This makes little sense for regulatory purposes, however, since it is the staff's responsibility to use a reasonable rate of return for cost estimation purposes, rather than using a rate of return that represents some ideal for stakeholders. It must be remembered that, for purposes of determining the cost feasibility of a proposed regulation, it is appropriate to assume that a company would view the effort to comply with the standards as a cost of business, not necessarily a business opportunity to make a high rate of return on investment. Therefore, based on our experiences in promulgating air pollution regulations, we concluded that a 6% ROI was a reasonable return on investment to use for cost estimation purposes. As we noted in the Staff Report (Staff Report, VI-13), at least one large-volume automobile manufacturer employs such an approach to calculate the cost of capital recovery, and we believe other automobile and motorcycle manufacturers use a similar approach.

(d) With regard to the commenter's suggestion that staff did not apply a dealer's normal margins to all cost increases, the commenter is simply incorrect. As we noted in the Staff Report (Staff Report, VI-4), "since the price of the motorcycle would likely increase due to the proposed standards, it is appropriate to account for the additional interest that the dealer would pay for financing the cost of the motorcycle and to cover the commission sales persons will receive as well." We reported dealers' increased costs based on such adjustments; it is unclear to us how the commenter arrived at his conclusion given our stated methodology in the Staff Report.

(e) The commenter did not share the details of his cost calculations with staff, even after we requested such details; we therefore cannot comment on the possible reasons for the commenter's inability to replicate the staff's cost calculations. Consequently, we are unable to verify the commenter's suggestion that the cost-effectiveness of the proposal is greater than $10 per pound of HC+NOx reduced. Based on our extensive analysis as shown in the Staff Report, we conclude that the proposal is cost-effective, with a cost-effectiveness ranging from $3.00 to $5.60 per pound of HC+NOx reduced.

5. **Small Volume Manufacturers**

Comment 46: An exemption of only 300 to 500 units per year would effectively put us out of business in California. An exemption of 3000 units per year would allow us the time and resources to comply with the 2008 standards. (CMC-01)

Comment 47: We feel the appropriate exemption level for small volume manufacturers that we could support is 1,000 unit sales in a model year or higher or, alternatively, the 1.2 g/km standard in 2008 proposed by the MIC. (CMDA-02, Wolf-01)

Comment 48: Please do not lower the proposed 1,000 units per year exemption level for small volume manufacturers because of claims by Japanese manufacturers that such an exemption level would put them at a competitive disadvantage. The proposed exemption level represents less than 3% of the California market per year. (SCI-01)

Comment 49: We feel the suggested proposals of 300-500 units per year will affect the cost of our units to the extent of possibly putting us out of business or, at a minimum, not be able to offer our product to California. CARB should be more concerned about putting American businesses out of business rather than about a huge overseas company being put at a so-called competitive disadvantage for 2.5% of the California market. 1,000 units and under per year should be the cut off point for the exemption. (PSCC-01)

Commenter 50: ATK forecasts reasonable growth in the future, but requires the ability to sell motorcycles in California to help perpetuate its growth. While ATK makes continual technological steps towards improving emissions from its motorcycles, it is unreasonable to make the assertion that ATK can comply to the proposed 2008 emissions standards. By 2008, ATK plans to be selling over 500 and possibly over 1000 street motorcycles in California. However, this will be impossible with the current proposal. ATK needs a small manufacturers exemption that will allow us to continue to grow our business without being stifled by insurmountable technological walls. When ATK grows big enough to outgrow the small manufacturers' exemptions, we will be happy and excited to comply to the adjusted emission levels because we will have the experience, financial stability, and technological stability to make the compliance a reality. A generous small manufacturer exemption must be applied to the proposal to allow manufacturers selling 1000 or even 1500 motorcycles per year in California to be allowed emissions compliance at higher levels. (ATK-01)

Comment 51: Although ATK is a small manufacturer, in general ATK dealers depend on the sales of ATK motorcycles to stay in business. For many dealers to grow their own business, ATK needs to grow also. The limited expansion of ATK into California as the result of more restrictive emissions levels would mean the staggered growth or even failure of California dealerships. Citing ARB's own statistics, only 2.5% of on-road motorcycles are produced by small manufacturers, and only 0.00625% of total emissions derive from all of the motorcycle community. What is the value of condemning the small manufacturer by enforcing the lower emissions levels to all manufacturers? (ATK-02)

Comment 52: It is known that the individual states, and the Federal government, follow the lead of CARB when setting levels and following trends. Not allowing a small manufacturers exemption for on road emissions levels may prevent all small manufacturers from making any advancement, and may ultimately spell the end to these small businesses, including ATK America. (ATK-03)

Comment 53: Please accept the small volume manufacturer exemption of 1,000 units annually under the present proposal. (TMC-01)

Comment 54: The regulation also addresses a long-term goal of 1.4 g/km HC+NOx for small-volume manufacturers in 2008. The emission level portion of this part of the regulation is acceptable, however, we cannot agree with the small-volume manufacturer limit of 1,000 California motorcycle sales across all classes. Instead, the state should recognize the US EPA standard for small manufacturers of 10,000 such vehicles, with 2,000 California sales in the affected Class III (280 cc or greater). (AMA-02)

Comment 55: Under the proposed 0. 8 g/km standard, MIC member companies were not able to reach a consensus regarding how "small volume" manufacturers should be treated. Because of the relatively sophisticated technology needed to comply with the standard, the staff recommended that "small volume" manufacturers be exempt from the standard. To the best of my recollection, ARB has never provided a permanent exemption from a performance standard based on sales volume. Understandably, small volume manufacturers support this exemption. Larger volume manufacturers oppose it because they compete directly with smaller volume manufacturers in certain segments of the market and a permanent exemption creates an incentive for the proliferation of smaller volume producers. Another benefit of the MIC alternative is that the controversy surrounding this issue is eliminated because small volume manufacturers will be able to meet the standard without the enormous research, development, and engineering costs required by the 0.8 g/km standard. (MIC45-07)

Comment 56: I ask you for the 1,000 unit small-volume manufacturer exemption, because there effectively is no corporate averaging available to small manufacturers with one product line, and these manufacturers don't have access to banking or trading or any of that other stuff that the large manufacturers have access to. (Wolf-02, Polaris-01)

Comment 57: We do not support the MIC position on small volume manufacturers and the proposals contained in the ARB staff report on this subject. Moreover, we are totally opposed to the moves made by a large volume manufacturer to further reduce the cut-off point delineating large and small volume manufacturers. Instead, we respectfully request that the Board adopt a 3,000 units per model year in California cut point for the small-volume manufacturer definition or, alternatively, a 7,500 units per model year total U.S. production. These definitions will truly encompass all small volume manufacturers such as Triumph. The suggested cut-off points will also allow sensible redistribution of volume, natural growth of market share, and yet would not impose the very considerable financial burden of redesign and re-certification that could still not be recovered from increased overall products (Triumph-01, Triumph-06)

Agency Response: As these comments indicate, numerous and widely-varying cutoff points were suggested for the small-volume manufacturer provision. In adopting the 300 units per model year definition, the Board balanced the need to provide some relief to truly small manufacturers, which have limited research and development resources (R&D) but need room to grow, versus the need to ensure that fairly large manufacturers with relatively low sales in California cannot gain an unfair competitive advantage against manufacturers who would need to spend R&D resources to comply. Here, the Board was faced with the situation where adoption of a 500- or 1,000-unit per model year or greater cutoff would have allowed fairly large companies (based on worldwide sales), such as Triumph, Ducati, and others, to be given relief against the Tier-2 standard (i.e., meet only the Tier-1 standard with nine years to comply), while larger companies with which they compete directly in the market would be required to meet the Tier-2 standard. Given the difficult job of balancing such competing needs, the Board carefully considered the issues and appropriately adopted a small-volume manufacturer definition that provides relief only to those companies that are truly small, "mom-and-pop" operations. This is not to say that such relief will be permanent; reconsideration and modification of the small-volume manufacturer provision may be appropriate based on our findings from the planned 2006 technology review.

Comment 58: Previous small volume exemptions, for example the California evaporative emissions regulations, have described a small volume manufacturer as one who delivers 3000 (or less) units per model year in California. We cannot understand or accept that, in a stable California motorcycle market such as we have currently, the definition of a small volume manufacturer has suddenly changed. The problems companies of our size will face in meeting the figures detailed in the staff report have grown considerably, the market has not significantly expanded, yet the cut-off figure for a small volume exemption has gone down without justification or apparent consideration. (Triumph-02)

Agency Response: We disagree for several reasons. First, small volume exemptions are appropriately determined on a case-by-case basis for each proposed rulemaking; the small volume exemption in one regulation, therefore, has little if any relevance to another rulemaking. Moreover, it should be noted that there is no small volume manufacturer exemption currently effective under the existing motorcycle regulation. The previous exemption expired in model year

1988, thereby requiring all large and small manufacturers to meet the same exhaust emission standards until the Board's adopted amendments become effective. The Board, in adopting the previous (now-expired) small volume manufacturers' exemption, carefully considered different factors and concerns dissimilar economic and social circumstances than did the Board in this rulemaking. Thus, it is entirely appropriate and not at all surprising that the Board, in balancing the competing interests in this rulemaking, adopted a 300 unit per model year, small volume manufacturer exemption that meets the Board's goal of addressing the competing interests to the extent feasible under foreseeable economic and social circumstances different from those in the 1970's and 1980's.

Comment 59: Please do not allow one manufacturer to write the [small-volume manufacturers' provision of the] regulations. (Ultra-03) Allowing annual unit sales of 3,000 units in California will allow smaller manufacturers the latitude to develop a 50 state certified motorcycle and to readily plan their inventory placement or move inventory from state to state in response to market demand or fluctuation. (DeLaney-01)

Comment 60: Our understanding is that the Japanese firm, Honda Motorcycle, is taking exception with the proposed 1,000 units per year small volume manufacturer exemption, indicating that it would put them at a competitive disadvantage. Given that as a group, the total volume output of small volume manufacturers is estimated at only about 2.5% of the total market, we maintain that this argument is without merit. (TMC-02)

Agency Response: Despite the commenter's assertion, the Board adopted the small-volume manufacture provision only after careful consideration of the issues and a delicate balancing of competing interests. All interested parties had the opportunity to let the Board hear their concerns.

Comment 61: The small manufacturer exception is also extremely important at Harley-Davidson. We are not seeking that small manufacturers be treated in any prejudicial way. In fact, we believe that the language in the proposal before you today along with the most current amendments in the staff report represent a fair compromise between competing interests . . . I am confident that the Board will decide [based on the 2006 technology review] that ultimately small manufacturers must meet the same standards that all manufacturers have to meet to provide for the public health and welfare of the citizens of the State. (HD-02)

Agency Response: We agree.

Comment 62: In the staff report, ARB staff have repeatedly referred to Triumph as a small volume manufacturer (e.g., p. III-1 in the Staff Report) and thanked us for our efforts in discussing the particular problems a small volume manufacturer will face in meeting the new regulations. It would seem particularly unjust if, after hearing our problems, the ARB were to write a regulation that classifies Triumph as a large volume manufacturer (despite the size of our company and our acknowledged problems remaining unchanged since the discussions took place).

The ARB staff have more recently described Triumph as a major multi-national company despite, describing and acknowledging us to be a small volume manufacturer in the staff report. In response, we point out that we employ just 550 people in producing 18,000 motorcycles per year total world volume. We are a multi-national company only by virtue of owning distribution companies in France, Germany, and the U.S. who employ 8,8 and 20 people respectively, mainly in parts distribution and dealer support. We are not quoted on any stock exchange anywhere in the world and have always financed our projects from within. We have just one factory (in England) unlike many of our competitors who have sizeable factories on every continent. We do not, and never have had, a motorcycle racing budget, as has also been suggested by ARB staff. By any logic, and by comparison to our competitors, we are not a large company (Triumph-03, Triumph-09, Triumph-10)

Agency Response: We disagree for several reasons. First, it should be noted that, under Government Code, Section 11342(h), the commenter would clearly not qualify as a "small business" (Section 11342(h) defines "small business" for manufacturing businesses as those having fewer than 250 employees). Second, the mere fact that ARB staff discussed the commenter's concerns with him should not preclude the Board from adopting amendments that could adversely affect the commenter or others similarly situated. We solicited comments from small and large manufacturers to identify the issues, develop standards that balance the competing interests to the extent feasible, and then present our proposals to the Board for their consideration, supplemented by oral and written testimony provided by the stakeholders during the 45-day comment period. In adopting the amendments, the Board carefully balanced the interests of companies like Triumph with those of competing stakeholders and determined that the 300 units per model year, small-volume manufacturer definition best achieves the Board's goals: commercially and technologically-feasible emission reductions, minimal impacts to California businesses, and a wide variety of motorcycles for public consumption.

It should also be noted that, while ARB staff asked the commenter on whether his company sponsored racing teams, such inquiry was merely for the purpose of providing background information on the affected stakeholders to the Board. We therefore treated such information as immaterial to the issue of the technical and commercial feasibility of the standards adopted by the Board. Based on the lack of discussion at the Hearing of manufacturers' racing sponsorships, we can reasonably conclude that such facts had negligible impact on the Board's deliberations.

6. **Early Compliance Credits**

Comment 63: We support the early-compliance credits provision and believe it, in addition to corporate averaging and the combined HC+NOx standards, provides flexibility to manufacturers. (MECA-03)

Agency Response: We agree.

7. **Tampering**

Comment 64: We disagree with the staff statement that so-called "tampering" will be minimal should the regulation be imposed. Staff has not surveyed vehicles and owners to determine the numbers of vehicles modified for one reason or another by their owners today, and their estimates are likely low. Motorcyclists are more mechanically sophisticated than most citizens. They are always interested in how they might wring higher performance from their vehicles and are willing and able to do so. The resulting costs for compliance will more than push the per-pound reduction costs outside of the reasonable realm. (AMA-09)

Comment 65: While the MIC believes the proposed standards are technologically feasible, our concern with the proposal is that it appears to have been designed to force much greater use of catalytic converters. The much greater use of catalytic converters means that the benefits the staff assigns to its proposal will not be realized in customer service. Many catalysts will be removed by owners. Because the emissions from a catalyst-equipped motorcycle that has been tampered with will be higher than the emissions from a motorcycle designed to meet a slightly less stringent standard that does not require the use of a catalyst.

In addition, the proposed 2008 standard of 0.8 g/km HC+NOx will cause an increase in 49-state-only production, as we noted in our other comments. Migration and tourism will cause these higher emission, 49-state vehicles to enter the California fleet. The staff s analysis totally ignores this effect by assuming that all motorcycles will be certified on a 50-state basis. However, the staff also uses estimates for the impact of tampering with catalyst-equipped motorcycles that we believe lead to compensating underestimates of emissions. [emphasis in original] Our independent analysis uses completely different assumptions, but produces almost exactly the same estimate of future year emissions under a 0.8 g/km standard.

Under the 1.2 g/km alternative standard proposed by the MIC, emissions will be identical to emissions under the 0.8 g/km standard. This occurs for two reasons. First, increased emissions due to migration and tourism are less of a problem because 50-state certification is more practical. Second, tampering with motorcycles certified under the 1.2 g/km standard causes less of an increase in emissions. One obvious reason for the reduced impact of tampering is that *exhaust system replacement is one of the most common forms of tampering.* [emphasis in original] On a catalyst-equipped bike, this has a big effect on emissions. On a non-catalyst bike, it has essentially no effect. There is also a less obvious reason why tampering will have more of

an adverse impact under the 0.8 g/km standard. As the staff report correctly assumes, 3-way catalyst systems will be the preferred technology for meeting a combined HC+NOx standard. In order for 3-way catalyst to properly function, the engine must be run with a stoichiometric air fuel ratio and must not use air injection. This results in pre-catalyst emissions that are significantly higher than the emissions of a motorcycle optimized to meet a 1.2 g/km standard without a catalyst. This occurs because the non-catalyst system will employ air injection, which significantly lowers HC emissions.

As a result, an alternative standard proposed by the MIC will provide virtually identical emissions reductions at a significantly lower cost and with significantly fewer model availability problems. (MIC45-04)

Comment 66: The reason there is no real benefit associated with forcing greater use of catalysts is the common practice of replacing OEM exhaust systems with aftermarket systems. There are two reasons why this is a common practice. First, for many motorcyclists, the sound of the exhaust is a critical element of the riding experience. The noise standards that apply to new motorcycles are relatively stringent. EPA recognizes that many citizens associate motorcycles with excessive noise, so the reaction has been to set very stringent noise standards. To a certain extent, this has exacerbated the tampering problem. Because of the stringency of the noise standards, OEM exhausts are now unacceptable to a larger portion of motorcycle owners.

The second reason for the replacement of OEM exhaust systems is performance. Most aftermarket systems produce lower restriction, which improves performance. Some systems also offer significant weight savings. The increased desire to improve performance and decrease weight will be even greater for catalyst-equipped motorcycles.

ARB's capability to prevent this form of tampering is extremely limited, an issue that was discussed at length during the workshops and during private meetings with staff. We have done surveys that indicate 98% of the motorcycle owners using aftermarket exhausts either installed the systems themselves or would have installed the systems themselves if such installations were not commercially available. Unless you are active in motorcycling, it is hard to imagine how strong the desire is for the use of aftermarket systems. During the course of the rulemaking, the staff has gotten a better sense of this. (MIC45-05)

Agency Response: As noted in previous responses, we designed the Tier-2 standard so that manufacturers have the flexibility to put catalytic converters on those motorcycle models which are less prone to tampering. We do not challenge the fact that tampering does occur; indeed, we incorporated the MIC's data on tampering rates into our emission estimates. The proposal does, therefore, account for tampering. With industry's input, we have designed the standards to reduce tampering's effects on the projected emission reductions and will continue to work with the MIC, AMA, and other interested parties to identify ways to reduce the adverse effects of tampering.

With regard to the comment about increased cost-effectiveness because of tampering, we do believe it is inappropriate to calculate a regulation's cost-effectiveness based on projected noncompliance rates (i.e., tampering rates). Adopting such a methodology would clearly be bad policy for any regulatory agency, because doing so would create an incentive for noncompliance to occur (i.e., the more tampering that occurs, the less "cost-effective" a proposed regulation would be, and therefore it will not be adopted).

8. **Miscellaneous**

Public Outreach Efforts and Rule Development Process

Comment 67: The proposed standards are short-sighted, like the MTBE gas additive that was supposed to reduce air pollution but is now causing problems. I wish CARB would work more together with the motorcycle people and not against them. (Struthers-01)

Comment 68: I am very upset with your proposal for motorcycles. I feel you are trying to move far too fast. You need a slower, more phased-in approach. (Baum-01, Epps-02)

Agency Response: We disagree with these commenters. The first commenter provides no basis for analogizing the staff's proposals with the problems currently associated with the use of MTBE in gasoline. By contrast, Harley-Davidson essentially supported the staff's proposal at the Board Hearing, while the Motorcycle Industry Council (MIC) conceded that the proposal is technologically feasible. Having reviewed the two public workshops and twenty-seven individual meetings staff held with interested parties, the Ombudsman's Office determined that ARB staff's outreach efforts were "thorough, complete, and designed to obtain input from all interested stakeholders . . . " (Steele, Board Hearing) After working with industry and motorcycle rider groups for nearly a year, we find it difficult to imagine how ARB staff could have "worked more together" with the stakeholders. In terms of "moving too fast," the ARB is legally required under the Health and Safety Code to reduce emissions as quickly as practicable, taking into account technological and commercial feasibility issues. The staff's proposal reflects a nine-year, time-frame which most manufacturers would have to refine and implement emission control technologies that are already available and used on some motorcycles today.

Use of Motorcycles to Reduce Congestion

Comment 69: We ask the Board to require staff to look into the reductions of emissions created by the reductions in congestion available if motorcycle commuting is encouraged.

It cannot be denied that a reduction in congestion can also equate to a reduction in emissions. Federal EPA regulations allow CARB to consider congestion reduction alternatives when meeting state implementation plan standards. **CARB motorcycle considerations to date have emphasized reductions in emissions to the exclusion of other alternatives**. [emphasis in original] This is unfortunate. When motorcycles are used for commuting purposes, they do not

contribute to congestion. A motorcycle traveling down a stalled commuting route will likely cause mile for mile much fewer emissions than an automobile caught in traffic. The Board should require staff to look at the impact upon congestion of encouraging motorcycle commuting use in local commuting plans (which today discourage the use) that are an essential part of the state implementation plan. We may in fact find that motorcycles used for commuting have already met the state's reduction projection without the need for further reductions in emissions. (AMA-03, AMA-10, Stassimos-01, Epps-03)

Agency Response: We agree that reducing congestion should lead to reduced pollution levels. This is one of the main principles that form the ongoing development of transportation control measures (TCMs) by the ARB and local districts in California. These efforts are exemplified by current ridesharing programs, carpooling "diamond" lanes, and fee-based peak traffic lanes. We do not agree, however, that congestion controls using motorcycles will be as effective in reducing emissions as the staff's proposal. The issue here is whether the typical automobile driver can be induced to trade in his/her vehicle or buy a motorcycle for commuting purposes. The limited number of motorcyclists makes it clear that motorcycling is not for everyone or even typical automobile drivers. Moreover, the potential new motorcycle rider pool would seem to be fairly small, perhaps growing only as fast as the general population grows. Thus, it's questionable whether increased incentives for encouraging commuting by motorcycle would have much of an impact on emissions.

Even if the commenter's claims are assumed to be valid, the use of on-road motorcycles to reduce congestion should supplement, but not replace, the important goal of updating the on-road motorcycle standards to better reflect commercially and technologically feasible emission levels that are available now or will be in the near future. The current small number of motorcycle riders as compared to automobile drivers suggests that most automobile drivers would have difficulty replacing the majority of their "vehicle miles traveled" with miles driven on a motorcycle.

More importantly, several commenters (including the AMA) suggested that motorcyclists ride mainly for pleasure, not commuting, and that motorcyclists do not contribute much to the emissions inventory because they are able to ride between traffic lanes (see "On-Road Motorcycle Contribution to the Emissions Inventory"). If this is true, motorcyclists already have fewer barriers to using their vehicles to commute (i.e., they can travel while cars remain in gridlock); yet, the relatively low vehicle miles traveled by motorcycles indicate that, even with few barriers to using motorcycles for commuting, riders are not doing so in large numbers. Therefore, replacing the staff's proposal, as suggested by the commenter, with incentives to increase motorcycle commuting would seem to have limited, if any, utility in reducing emissions.

Smog Check/Inspection & Maintenance Enforcement Efforts

Comment 70: A proposal to require motorcycles to pass smog just as automobiles in the very near future is a bad idea. Manufacturers should be given a deadline, say five years from the time you make the decision to smog motorcycles and all other motorcycles prior to that deadline should be smog exempt. With such an exemption, the cost to smog motorcycles would be prohibitive and more than what the motorcycle is worth. (Smith-01)

Agency Response: Inspection and maintenance requirements (a.k.a. "Smog-Check") were not part of the staff's proposal for this rulemaking. We recognize that consumer tampering is a serious issue and have committed to working with stakeholders to both quantify the effects of tampering and identify cost-effective ways to reduce or minimize tampering including, but not limited to, improved consumer education and "Smog-Check" programs. These efforts will be part of our ongoing efforts; any additional rulemaking changes to the regulation to incorporate such enforcement programs will likely be evaluated prior to the planned 2006 technology review noted earlier.

Planned 2006 Technology Review

Comment 71: As we have sought pertinent information to responsibly respond to this regulation, we have learned of several emergent technologies that may find their way into motorcycles over the course of the next decade. These include effective cold-temperature catalysts, further changes in combustion chamber geometries and true variable valve timing. While none of these are sufficiently advanced today to determine whether their use is worthwhile, a second look at this regulation in 2006 does grant the manufacturers sufficient lead time for them to take a good hard look. (AMA-11)

Agency Response: We agree.

B. COMMENTS RECEIVED DURING THE FIRST 15-DAY COMMENT PERIOD

1. **General Comments**

Comment 72: Honda supports the emission standards being adopted by this [regulation] Order in that they are feasible, flexible, and that they also provide incentives in the form of early-compliance credits for introduction of advanced technology for emissions control. We look forward to working with the ARB during the implementation of these new regulations. (Honda15A-01)

Agency Response: We agree.

2. **Engine Manufacturers - Section 1958(a) (Applicability)**

Comment 73: It is our understanding that the exhaust emissions standards will be applicable to motorcycle engines, as well as motorcycles, beginning with the 2004 standard. As written the amendments to §1958(a) retroactively make the exhaust emissions standards applicable to all motorcycle engines produced after January 1, 1978. We request that the amendments to this section be revised to specify that the standards apply to motorcycle engines, as well as motorcycles, beginning with the 2004 model year. (MIC15A-01)

Agency Response: We disagree with the commenter's assertion that the staff's proposal, as adopted by the Board, "retroactively" applies to motorcycle engines. As we explained at the Board Hearing, the addition of the term "motorcycle engines" merely clarifies and memorializes preexisting ARB enforcement policy. That is, the ARB's policy and legal interpretation of Section 1958, even before the staff's proposal was published for public comment, is that the emission standards and other requirements of Section 1958 applied equally to motorcycle manufacturers and suppliers of motorcycle engines. It should be noted that one of the major engine suppliers to custom motorcycle manufacturers -- S&S Cycles, Incorporated -- did not challenge the clarifying applicability language and even appeared to support the staff's proposal (see Comment 13 in "Technical Feasibility").

2. **Small-Volume Manufacturers - Section 1958(f)**

Comment 74: It is our understanding that manufacturers with less than 300 units shall be exempt from the 1.4 HC+NOx standard until the 2008 model year. Under the proposed language, manufacturers with less than 5,000 unit sales in California are exempt from the current Class III 1.0 and 1.4 g/km HC Class III standards for 1988 through 2007 model years. This proposed language refers to a 2.5 HC Class III standard which expired in 1988 for small volume manufacturers producing less than 5,000 units in California for 1984 through 1987 model years. There is, therefore, no small volume manufacturer standard for 1988 through the current model year. Please refer to the attached §1958(f)(1) and (2) of the current regulation.

To correct this error, the proposed §1958(f)(1) and (2) should be revised as follows:

- In Section 1958(f)(1)(A), replace "Model Year 1988 through 2007" with "Model Year 2004 through 2007."
- Also, delete the first sentence of Section 1958(f)(2) and replace the reference to "subsection (f)(1)(B)" with "subsection (f)(1)." (MIC15A-02)

Comment 75: Under the proposed language, it is our understanding that manufacturers of motorcycles and motorcycle engines of less than 5,000 combined unit sales of Class I, II, and III motorcycles and motorcycle engines in California are exempt from complying with the 1.4 g/km HC+NOx emission standard for Class I, II and III motorcycles and engines for 2004 through 2007 model years. We do not believe this was what was intended by the ARB. We believe that the intent of the ARB was to redefine as small-volume manufacturers only those with less than

300 combined unit sales of Class I, II, and III motorcycles or motorcycle engines for purposes of complying with the 2004 and 2008 proposed standards. Furthermore, only these manufacturers would be exempt from compliance with the new emission standards until the 2008 model year, at which time they would be required to meet the standard of 1.4 g/km HC+NOx. All other manufacturers would be required to meet both the standards of 1.4 g/km HC+NOx in 2004 and 0.8 g/km HC+NOx in 2008 for Class I, II, and III motorcycles and engines. We respectfully request the ARB to review and clarify their original intent and through amendments to the current language, correct these apparent errors, accordingly. (Honda15A-02)

Agency Response: We agree with the commenters and have clarified Section 1958(f) with a table that accurately reflects the four different time periods during which different definitions and provisions apply to "small-volume manufacturer." These changes accurately reflect the Board's intentions from the December 1998 Hearing.

3. **Early-Compliance Credits - Section 1958(g)**

Comment 76: We request that additional language be added to this section to clarify the process for obtaining early compliance credits. According to the table of standards (§1958(b)), all Class III 1998 through 2003 model year motorcycles must be certified to a 1.0 g/km or 1.4 g/km corporate average HC-only standard, depending on the engine displacement. According to §1958(g), early compliance credits are available for individual engine families certified as meeting either a 0.8 g/km or 0.4 g/km HC+NOx level. It is unclear what certification processes or data submission would be required to generate HC+NOx credits when an HC-only standard is in effect. CARB staff has acknowledged that further with MIC after the close of the comment period. We also suggest that the term "Tier-2 standard" that appears in Section 1958(g) be replaced with the "0.8 g/km HC+NOx standard" since the term Tier-2 is not referenced or defined elsewhere in the regulation. (MIC15A-03)

Comment 77: Honda also agrees with the request of the MIC to add some language to section 1958(g) that will clarify the process for certification to the 0.8 and 0.4 g/km HC+NOx levels and how that certification impacts corporate averaging and labeling for the existing HC-only standard. (Honda15A-03)

Agency Response: We agree and have incorporated language in Section 1958(g) that addresses these comments by specifying the requirements for early-compliance credit applications and the concomitant changes to the "emission control and smog index label." We have also made the suggested editorial changes to the table in Section 1958(g).

4. **Sunset Review - Section 1958(h)**

Comment 78: We request that the wording "or date of implementation, which ever comes later" be deleted from this section. We assume that the date of implementation refers to the final approval by the OAL and the Executive Officer which is likely to occur this fall or later. Such a delay may not provide enough time for the manufacturers to adjust their production plans for the 2008 model year following the sunset review process and final determination. We request that the review occur within five years of the date of adoption, December 10, 1998. (MIC15A-04)

Agency Response: The commenter appears to have confused the purpose of the sunset review with that of the planned 2006 technology review or a similar technology review. The sunset review is a generic provision recently required by Executive Order W-144-97. The purpose of such a review is for the adopting agency (the ARB in this case) to conduct an internal evaluation to determine if the regulation is still required as part of its overall air pollution control efforts to meet the Board's stated goals. In this case, such a sunset review has nothing to do with evaluating manufacturers' progress toward meeting the regulatory requirements. Rather, under Executive Order W-144-97, the Board will take a "snapshot" at the specified time of its own progress toward meeting the SIP and other State and federal requirements and, at that time, determine whether additional regulatory efforts are needed or whether some relaxation or elimination of existing programs is warranted. In contrast, the planned 2006 technology review is designed to permit ARB staff to determine whether changes to the 2008 Tier-2 standard may be needed to better reflect manufacturers compliance efforts.

C. COMMENTS RECEIVED DURING THE SECOND 15-DAY COMMENT PERIOD

No written comments were received during this comment period.