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TOYOTA

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NHTSA-2002-11419-11

May 8, 2002

Docket Management, Room PL-401
National Highway Traffic Safety Administration
400 Seventh Street, SW
Washington, DC 20590

Subject: Request for Comments; National Academy of Science Study and Future Fuel Economy Improvements Model Years 2005-2010

Docket No. 2002-11419, RIN 2127-AI70

On behalf of Toyota Motor Corporation and its U.S. affiliates (Toyota) [1], Toyota Motor North America appreciates the opportunity to provide comments on the above-referenced Request for Comments.

Toyota, along with its affiliated companies worldwide, is a leading producer of cars and trucks worldwide. In the U.S., we are a full-line manufacturer offering vehicles in every class, except cargo vans. Our Lexus brand is now the best-selling luxury brand in the U.S. We directly employ 28,000 Americans and have a direct U.S. investment of $10.5 billion. In model year 2001, Toyota sold over 1.7 million cars and trucks in the U.S., of which over 1 million were manufactured in North America with a majority of their parts sourced from approximately 500 North American suppliers.

We are pleased to provide NHTSA with comments on the important issue of vehicle fuel economy. Toyota has long been an industry leader in this area. With the introduction of the Prius to the Japanese market in 1997, Toyota became the first manufacturer in the world to mass-produce a hybrid vehicle. When we introduced Prius to the U.S. market in 2000, we did so despite no compelling regulatory requirements and at a time when gasoline was priced at about $1 per gallon. We also have aggressively applied advanced technologies, such as variable valve timing, to our product line, to improve both the fuel economy and performance of our products.

Certain of the information contained in these comments is highly confidential in nature. These sections contain sensitive information regarding future product plans, technology assessments and sales projections. Release of any portion of this information would damage Toyota's competitive position. Therefore, pursuant to 49 CFR Part 512, Toyota requests that the information marked "Confidential" not be released without following the procedures set forth in those rules. A certificate in support of this request is also attached.

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[1] Toyota Motor Sales, Toyota Motor Manufacturing North America, Toyota Technical Center, and Toyota Motor North America.

We plan to continue our leadership in the fuel economy area, and we look forward to working with NHTSA as it examines this issue. If you have any questions about these comments, please do not hesitate to contact Mr. Tom Stricker at (202) 463-6851.

Sincerely,

Dave Baxter

Dave Baxter
Vice President

CERTIFICATE IN SUPPORT OF
REQUEST FOR CONFIDENTIALITY

I, Joseph Stricker, pursuant to the provisions of 49 CFR 512, state as follows:

(1) I am Manager, Toyota Motor North America, Inc., and I am authorized by Toyota Motor North America, Inc. to execute documents on behalf of Toyota Motor North America, Inc.;

(2) Certain of the data contained in these comments of Toyota to Docket No. 2002-11419 are confidential and proprietary data and are being submitted with the claim that it is entitled to confidential treatment under 5 USC 522(b)(b), and that their release to the public would result in competitive harm to Toyota Motor North America, Inc.;

(3) I have personally inquired of the responsible Toyota personnel who have authority in the normal course of business to release the information for which a claim for confidentiality has been made to ascertain whether such information has ever been released outside Toyota.

(4) Based upon such inquiries, to the best of my knowledge, information and belief the information for which Toyota has claimed confidential treatment has never been released or become available outside Toyota .

(5) I make no representations beyond those contained in this certificate and in particular I make no representations as to whether this information may become available outside Toyota because of unauthorized or inadvertent disclosure; and

(6) I certify under penalty of perjury that the foregoing is true and correct to the best of my information, knowledge and belief.

Executed on this, the 8th day of May, 2002.

Joseph Stricker, Manager
TOYOTA MOTOR NORTH AMERICA, INC.

Table of Contents

I. CAFE Structures and the Concept of "Same Vehicle, Same Standard"

Toyota supports efforts to improve the fuel economy of the light-truck fleet, provided it is done in a way that is cost-effective, technically feasible, and allows manufacturers to meet market demand to the greatest extent possible. To this end, Toyota strongly believes that all manufacturers should be subject to the same set of standards for any given category, class, fleet, or similar set of vehicles regulated under any type of CAFE program. We refer to this as the "same vehicle/same standard" philosophy. The current CAFE system is consistent with this philosophy; each manufacturer's import and domestic car fleet are subject to a 27.5-mpg standard, and each manufacturer's truck fleet is subject to a 20.7-mpg standard.[1]

Clearly, one of the most straightforward ways to improve light-truck fuel economy is to simply raise the existing CAFE standard, without significantly altering the structure of the CAFE program. While Toyota is not seeking changes to the current system, NHTSA can consider certain other options for improving truck fuel economy other than the current system. The ongoing energy debate in the Congress has led to discussions of a broad range of ideas for regulating fuel economy. An alternative CAFE system could, to some extent, address criticism that some manufacturers have an easier time meeting CAFE standards due to their current fleet mix. However, in evaluating options, Toyota believes it is critical to retain the "same-vehicle, same-standard" philosophy discussed above.

Several alternative CAFE structures could be considered, including uniform percentage increase, attribute-based, modifying/clarifying the definition of "trucks", and lumping all vehicles together into a single class. While NHTSA's authority to implement some of these alternative approaches must be examined closely, Toyota offers the following comments.

The Uniform Percentage Increase

Uniform Percentage Increase to improving fuel economy, or UPI, is clearly inconsistent with the "same vehicle, same standard" principle. UPI would require every manufacturer to improve its fuel economy by an equal percentage from its level during a specified base year. The general notion behind this concept is that every company would have to improve its fleet fuel economy. This is an extremely simplistic approach that fails on legal, policy and environmental grounds. First, the existing statute does not give NHTSA the authority to impose such a requirement. The language in section 32902 (a) and (b) of Title 49 of the U.S. Code is quite clear on this point. Beyond the legal barrier, requiring different standards for different manufacturers would establish a system totally inconsistent with all previous regulation of the automobile industry – namely, that **all** companies are required to meet the same standard.

The practical effect of establishing uniform percentage increase standards for each manufacturer is unfair to those manufacturers who have exceeded current law because it requires them to meet a higher standard than their competitors. This sends the wrong message. A public policy that discourages companies from exceeding legal requirements is inherently flawed. Policy directives should encourage manufacturers to perform to the highest level possible, not the lowest. UPI encourages manufacturers to rush to the bottom. Attachment 1 shows the anti-

[1] There are certain regulatory exceptions that allow different standards, for example, for small volume manufacturers.

competitive impact of 15% and 30% UPI standards on the domestic car fleet for Toyota versus a manufacturer that just meets the required 27.5 mpg standard. While all manufacturers in the example are required to meet the same 27.5 mpg domestic fleet standard in the 2000MY, a 15% UPI would require Toyota to meet a standard nearly 6.5 mpg higher, simply because we exceed the current standard. A 30% UPI would result in a disadvantage of nearly 8 mpg.

Fleet Mix and Technology Application

Proponents of a UPI approach have argued that manufacturers who exceed current CAFE standards do so only because they produce a larger portion of smaller, lighter vehicles that are inherently more efficient. While fleet mix is clearly one factor in determining CAFE performance, manufacturers should not be punished simply because they sell a higher percentage of vehicles with better fuel economy – a notion that is consistent with the fundamental goals of CAFE.

There is a second critical factor that must be considered when evaluating manufacturers. Technology clearly plays an important role in overall CAFE performance. Not all companies have applied the same level of fuel economy technology to comparable vehicles. Toyota has long been a leader in the application of fuel economy technology. In 2001, for instance, EPA rated six Toyota vehicles as "most fuel-efficient" in their class – the Prius, ECHO, Avalon, RAV4, Tacoma and the RAV4-EV. These vehicles range from small to large, from SUV to pick-up. They all incorporate much of the latest fuel economy technology. Toyota's Lexus division, which competes in the high-end market – and in 2001 calendar year was the luxury market's sales leader – has never produced a car subject to the gas-guzzler tax. In large part, this is because of our aggressive application of fuel economy technology, even in a market segment that is not sensitive to fuel economy.

Because Toyota has aggressively applied technology to its vehicles, we have fewer cost-effective options remaining with which to improve. For example, industry estimates[2] indicate that in the 2001MY, an estimated 36% of cars and 13% of trucks were offered with variable valve timing. Also, in 1999MY, relatively few engines were equipped with 4-valves per cylinder. However, Toyota has applied these technologies across most of our fleet. (See Tables 1 and 2).

Table 1 - Use of Variable Valve Timing		
Vehicle Category	2001MY Industry Average	2001MY Toyota Vehicles
Cars	36%	95%
Trucks	13%	67%

Table 2 - Use of 4-Valve Engines		
Vehicle Category	1999MY Industry Average	1999MY Toyota Vehicles
Large Car	45%	100%
Midsize SUV	26%	
Large SUV	5%	
Small Pick Up	20%	

[2] Letter from Josephine Cooper, Alliance of Automobile Manufacturers, to E. W. Colglazier, NSA, dated October 1, 2001.

Thus, these technologies are not available for Toyota to the same extent they are for other manufacturers. Manufacturers with heavier fleets, and/or manufacturers who have not utilized the same level of technology as Toyota, have more cost-effective options available to them by which to improve fuel economy by a fixed percentage.

Beyond the anti-competitive impacts of the uniform percentage increase on specific companies, this approach also would serve to undermine the nation's energy conservation and environmental goals. Companies that have not aggressively employed fuel economy technology on their vehicles would be able to use "off-the-shelf" technology to meet their goals. Conversely, companies who have consistently applied technology to their vehicles may be forced to meet a higher standard through radical downsizing and/or the use of untried, expensive advanced technology. As these companies lose sales due to higher price or lack of vehicle performance, lower mileage vehicles from producers with lower fuel economy targets will replace these sales. As a result, fleet fuel economy will not improve by the expected percentage, and the anticipated conservation and environmental benefits will not realized.

Competition among manufacturers spurs technological innovation. Penalizing technology leaders by forcing them into narrow market segments is counterproductive to the advancement of fuel-economy technology across all classes of vehicles. This, in turn, fails to reduce CO2 in the fastest manner possible.

Finally, the uniform percentage increase approach perverts any fuel economy credit system. For example, a company with a UPI-based CAFE standard of 35 mpg that achieves a CAFE compliance level of 33 mpg would fall short of its target, while another company with a UPI CAFÉ standard of 30 mpg and the same 33 mpg CAFE compliance level would achieve its goal and receive credits simply because it has a lower target. In our view, such an approach defies reason.

The idea of UPI was first introduced over a decade ago and was highly discredited at the time. Since then, the National Academy of Sciences has examined this approach twice; both times concluding that UPI was a poor policy choice. The most recent 2001 NAS Report stated:

> *"The UPI system would impose higher burdens on those manufacturers who had already done the most to help energy consumption problems. The peer-reviewed literature on environmental economics has consistently opposed this form of regulation: it is generally the most costly way to meet an environmental standard; it locks manufacturers into their relative positions, thus inhibiting competition; it rewards those who have been slow to comply with regulations; it punishes those who have done the most to help the environment;* ***and it seems to convey a moral message that it is better to lag then to lead.*** *" [emphasis added]*

In addition to the NAS criticism, the Department of Justice in 1991 commented in a letter to then Chairman, Subcommittee on Consumer, Senator Richard Bryan, that under a UPI approach "competition would suffer and the fuel efficiency of a whole category of vehicles could be kept artificially low."

UPI is not the only form in which unfair and/or discriminatory standards can appear. We recognize that NHTSA may consider alternative CAFE structures to address perceived disparate impacts of the current program on manufacturers who choose to sell greater numbers of the least fuel-efficient vehicles. To the extent NHTSA considers such alternative CAFE structures, it must ensure that manufacturers who sell equivalent products are subject to the same standards in the future, independent of their current level of CAFE performance or their current product offerings. Programs that are not UPI, per se, can nonetheless be constructed to yield the same discriminatory outcomes, and are not authorized by the existing CAFE statute. This is discussed more in Section IV below.

Attribute-Based CAFE Options

Weight-Based Options

The concept of a weight-based CAFE program is built around the notion that lighter vehicles tend to have better than average fuel economy, while heavier vehicles tend to have worse than average fuel economy (of course, this is not always true, such as in the case of hybrid vehicles and/or diesel vehicles). Under the current CAFE system, a manufacturer's fleet of vehicles, when harmonically averaged, must comply with a set mpg standard. The lighter vehicles in a manufacturer's fleet tend to offset heavier vehicles, and vice-versa. In the end, of course, the harmonic fleet average must meet or exceed the required fuel economy standard after application of carry forward or carryback credits, if needed. This general concept is shown in Attachment 2. (Note: Attachments show fuel consumption [gal/mile] instead of fuel economy [mile/gal] to simplify relationships).

Under a weight-based system, the standard would be set so that lighter vehicles are required to meet a more stringent standard than heavier vehicles. This could be done using a straight-line, continuous fuel consumption standard as shown in Attachment 3, or by grouping similar weighted vehicles into discrete classes, as is done in the Japanese regulatory system. In either case, the impact of production volume of any particular vehicle becomes minimized, because each vehicle weight, or weight class, would have its own associated standard.

NHTSA clearly has authority to establish standards for different classes of non-passenger vehicles pursuant to Section 32902 (a) of the CAFE statute. In addition, NHTSA clearly does not have authority to establish standards for different classes of passenger vehicles pursuant to Section 32902 (b) of the CAFE statute. It is much less clear whether the language in Section 32902 (a) would provide authority for a weight-based system for non-passenger vehicles. If NHTSA should decide to pursue such an approach for non-passenger vehicles, Toyota believes NHTSA should provide a detailed explanation of its legal authority for this approach.

In addition to the legal issues outlined above, there are numerous technical issues that are important to developing a weight-based program (such as baseline year, baseline technology, definition of weight, etc.). These issues would need to be carefully studied by NHTSA with input from stakeholders. But perhaps the most important issue for both the discrete class system and the continuous line system is how to structure a program that prevents up-weighting as an

attractive means of compliance. This is because up-weighting could result in increased fuel consumption rather than reduced fuel consumption.

Under the Japanese-style discrete weight-class system, the so-called "edge effect" provides some incentive to add weight to vehicles in order to bump them up into the next weight category with an easier standard. In Japan, however, other policy mechanisms are in place to reduce such incentives, including reduced registration fees and insurance costs for lighter vehicles, and high fuel prices. Under the continuous line system, manufacturers may also be incentivized to add weight, but because the standard is continuous, there is no firm weight target to shoot for. In either case, the policy options used in Japan are not acceptable politically in the U.S. in the foreseeable future, and thus the mechanisms to discourage up-weighting under either system would require further examination.

In Appendix A, we present some options to discourage up-weighting under two types of continuous line weight-based systems. These options are presented at the conceptual level only, and could, in some cases, be applicable to a discrete weight-class system as well.

Other Attributes

Other alternative structures for a non-passenger vehicle CAFE program could be considered based on various other vehicle attributes other than weight (such as interior volume, body style, wheelbase, engine displacement, etc.)." In the early 1990's, Toyota analyzed a class-size approach to regulating fuel economy. At that time, we concluded that a class-size approach had merit because it would be based on categories that were consistent with how consumers shopped for vehicles, and how manufacturers competed with one another. However, we have not recently updated our class-size analyses or engaged in sufficient evaluation of other options to provide detailed comments at this time. Nonetheless, some of the same issues described above for weight-based options would clearly be issues for other attribute-based systems as well. Toyota believes that any such system would have to be consistent with the same vehicle, same standard philosophy, and NHTSA would be challenged to define attribute groupings that would not provide incentives to switch classes, upsize engines, add weight, etc. as a means of compliance. Further, as with a weight-based system, NHTSA would have to make clear its position regarding credit trading among classes of non-passenger vehicles as described above.

Redefining/Clarifying Trucks

In considering any changes to truck definitions to address the evolving nature of certain vehicle designs, NHTSA should be aware of the impacts on the feasibility of the car CAFE standards. Reclassifying any vehicle currently defined/classified as a truck for CAFE purposes will impact both the car and truck CAFE levels. If a truck with a CAFE level greater than a manufacturer's average truck CAFE level, but less than the manufacturers average car CAFE level for the relevant car fleet, were reclassified as a car, then both the truck and car CAFE compliance levels would drop. The reverse is also true. However, in either case, the overall fleet fuel economy will not change.

Creating a Single Class of Vehicles

This option, while clearly not within NHTSA's current statutory authority, has been widely discussed as a means to close the so-called "SUV-loophole" and to address the changing nature of vehicle designs that can blur the line between cars and trucks. While some vehicle designs are difficult to categorize, there is still a significant difference between cars and trucks in terms of their physical dimensions and technology constraints. In general, trucks are larger, heavier, less aerodynamic, and are used for a variety of tasks for which cars are ill-suited. Expecting vehicles with the utility characteristics and attendant vehicle characteristics of trucks to meet the same fuel economy levels as other vehicles does not recognize the inherent differences in these vehicles.

II. Import/Domestic Fleet Distinction for Passenger Cars (2-Fleet Rule) is Outdated

Current CAFE law requires manufacturers to segregate passenger cars into either a "domestically" produced fleet or a "not domestically" produced fleet (commonly called the Import/Domestic Fleet Distinction or 2-Fleet Rule). A passenger car is considered to be domestically produced if it contains at least 75 percent U.S., Canadian and (if so desired) Mexican content. (By 2004, Mexican content must be counted as domestic.) A passenger car with less than 75 percent domestic content falls into the "not domestically" produced, or import fleet. Each fleet individually must meet the 27.5-mpg CAFE standard for cars, or pay a civil penalty of $5.50 per vehicle for each 1/10 of a mile the fleet misses the standard.

The dual fleet requirement was originally intended to keep small car production in the U.S. But there is no evidence to suggest that concern is real in today's market. The 1992 NAS study on fuel economy concluded that there was no connection between the dual fleet provision and fuel economy, questioned whether there was any net gain in the domestic manufacture of cars, and urged that consideration be given to eliminating the provision. In part, the report stated:

> *"It is the committee's view that the domestic-content provision has no obvious or necessary connection to the achievement of fuel economy. Moreover, it is not clear that the restriction achieves any net gain in the domestic manufacture of cars or the preservation of American jobs. Although it may encourage the production of small cars in the United States, it also encourages the production of large cars abroad. The limitation should be evaluated to assess whether the restraint it places on the market achieves any net benefits. Consideration should be given to the elimination of this provision."*

Similarly, the 2001 NAS Study found that:

> *"The committee could find no evidence that the "2-fleet rule" distinguishing between domestic and foreign content has had any perceptible effect on total employment in the U.S. automotive industry."*

To the contrary, after nearly 30 years of experience, it is clear that the dual fleet requirement has perversely forced a reduction in the domestic content of selected U.S. models and inhibited some manufacturers from increasing the procurement of U.S. parts and materials. The following are some specific examples:

- Ford reduced the level of domestic content in the Mercury Grand Marquis and Ford Crown Victoria in the early 1990's in order to shift those cars into their import fleet and thereby avoid CAFÉ penalties. Several years later, the company shifted those same cars back into the domestic fleet, again to avoid penalties. In either case, the actual fuel economy of the overall fleet of vehicles remained unchanged.

- In the mid-1990's, Nissan was confronted with a "parts sourcing purgatory." Increasing the domestic content of the highly fuel-efficient Sentra (then built in Tennessee) would have made it a domestic car under the CAFE program, and would have placed the company's import fleet in jeopardy of missing the standard. The result could have cost the company millions of dollars in CAFE penalties. This occurred at the same time that the U.S. government was pressuring transplant auto makers in the U.S. to purchase more domestic parts. Thus, the U.S. government had two conflicting policies that impacted the fuel economy *standard* of the company, neither of which impacted the actual fuel economy *performance* of the vehicle fleet.

- In Toyota's case, the 2001 Camry produced in Georgetown, KY met the domestic content threshold. However, because of production capacity constraints, Camrys from Japan needed to be imported to accommodate market demand. This, in turn, sufficiently diluted Camry's model line domestic content so that it was counted in our import fleet. If, at some future date, Camry is moved to the domestic fleet from the import fleet, the fuel economy compliance level for both fleets will artificially decline. All other thing being equal, this would tend to argue against either further increasing domestic content or U.S. production of the Camry, or both.

In each of the preceding examples, the import/domestic fleet distinction incentivizes less U.S. sourcing of parts and labor, while actual overall U.S. fleet fuel economy remains unchanged.

Further, parts and vehicles produced in Mexico can now be counted in the domestic fleet as a result of NAFTA, thus making the dual fleet requirement irrelevant to any production-location decision involving the U.S. and Mexico.

With the passage of nearly a decade and the attendant legal (NAFTA) and ownership changes that have occurred in the global automotive marketplace, it is clear that the import/domestic fleet distinction is an anachronistic and counterproductive concept that inhibits the purchase of parts from U.S. suppliers and encourages the use of imported parts. If NHTSA should consider any alternatives to the existing CAFE structure, it must take care so as not to exacerbate the perverse impacts of the import/domestic fleet distinction.

III. Credits

Toyota supports providing manufacturers with flexibility in meeting CAFE standards. The current CAFE system allows credits to be earned in a model year for exceeding the standard for a fleet of vehicles, and then banked for future use, up to 3 years later. In addition, a "carry-back" provision allows a manufacturer to "borrow" credits from future model years for compliance

with current model year CAFE. However, credits generated for one fleet cannot be used for compliance within a separate fleet (for example, credits generated by a manufacturer's domestic fleet cannot be used for the import fleet or the truck fleet). Further, it is not clear whether credit trading would be allowed between classes of non-passenger vehicles if NHTSA were to establish separate standards for different classes. In order for any of the alternatives discussed above to operate in a reasonable manner, the program must allow credit trading among vehicle classes (or vehicles on different parts of a weight-based standard line, or with different attributes). NHTSA must make clear that credit trading among classes of non-passenger vehicles is allowed or else the viability of most options will be significantly diminished. If NHTSA believes its legal authority to allow credit trading among classes of non-passenger vehicles is limited in any way, it must articulate the basis for such determinations so that there can be full discussion of this matter in any subsequent rulemaking.

IV. Responses to Specific Section 3 Questions

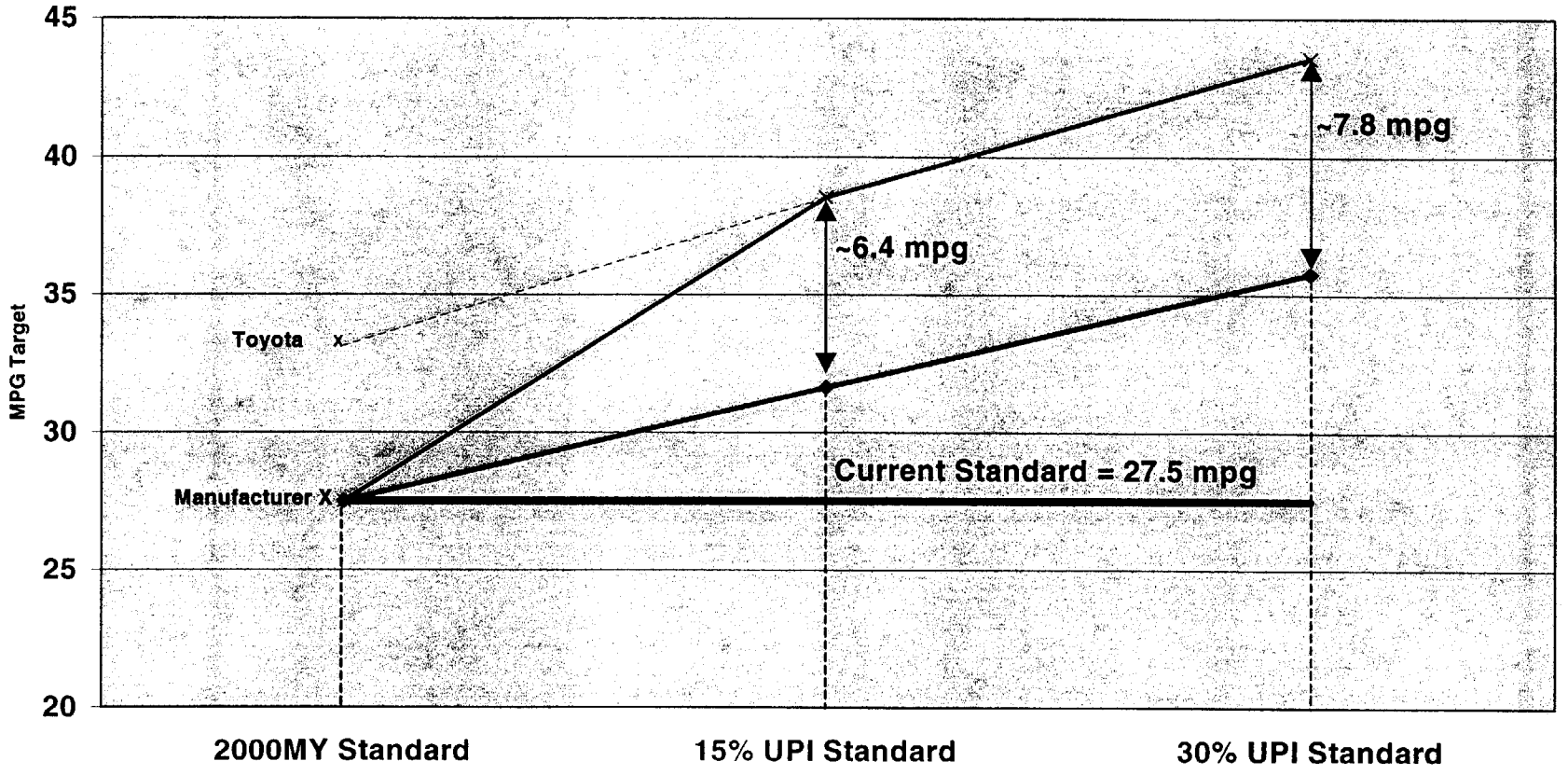
Please see our confidential response contained as Attachment 4.

V. Responses to Appendix Questions

Please see our confidential response contained as Attachment 5.

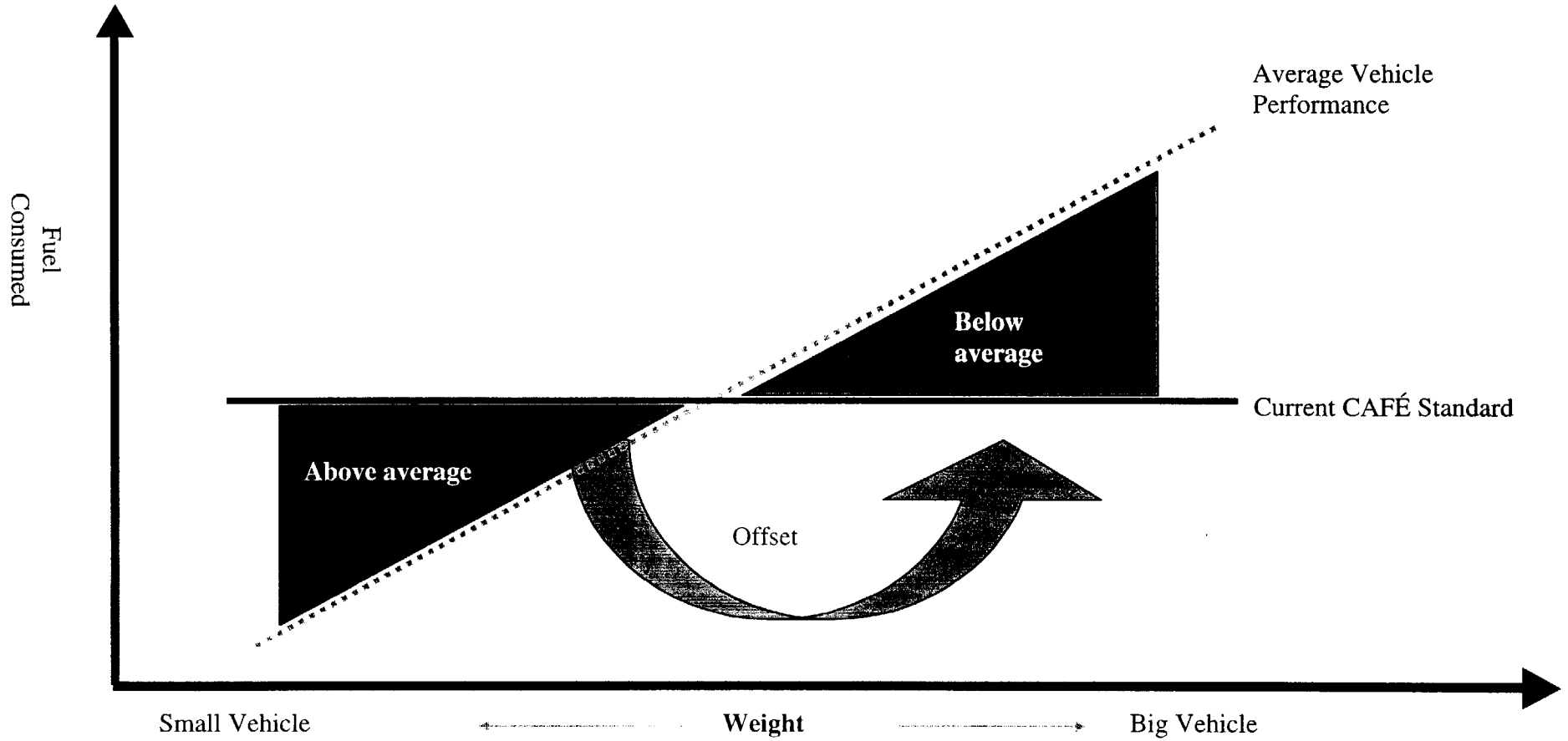
Attachment 1

Competitive Disparity Created by UPI
Baseline 2000MY Domestic Fleet

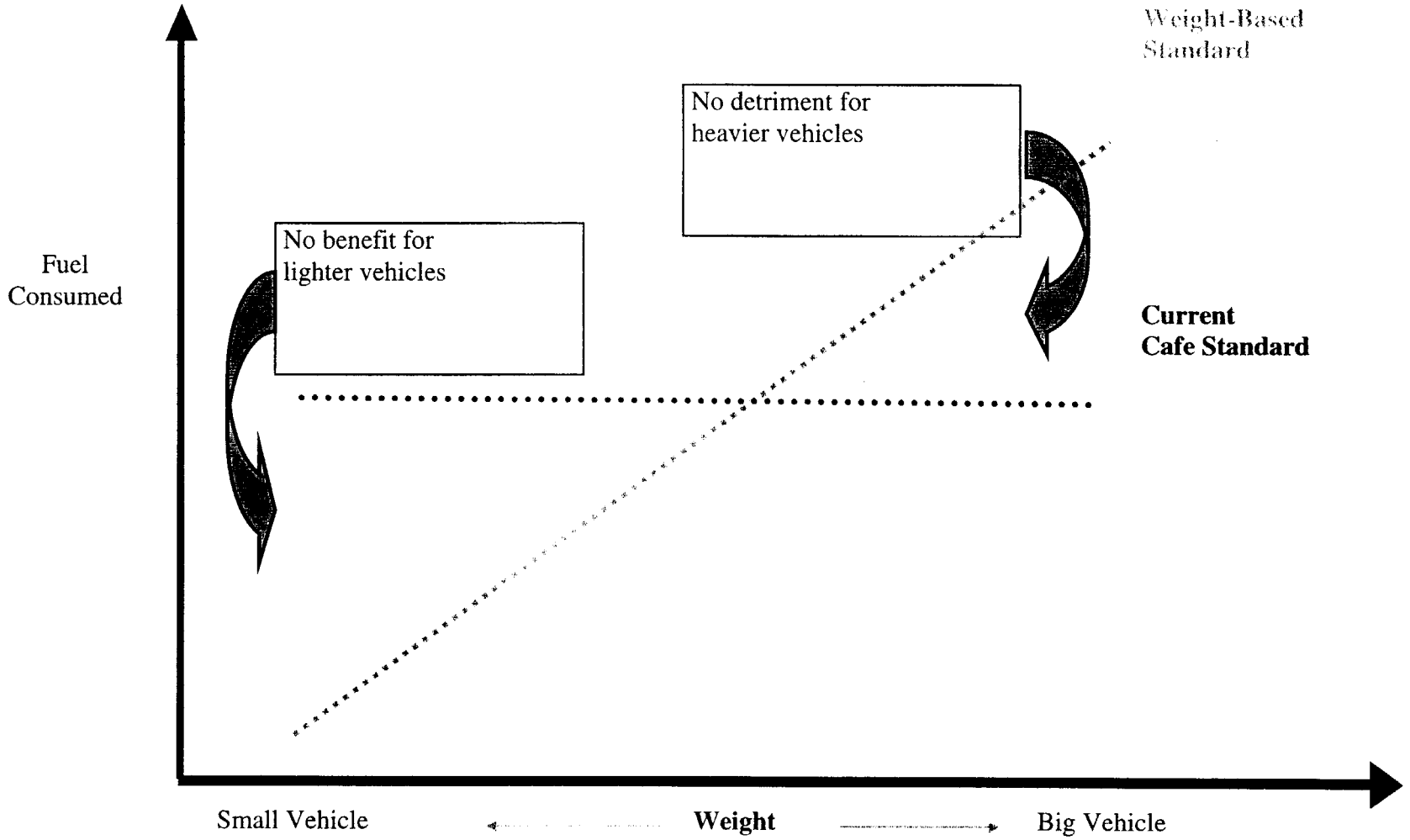


NOTE: The solid lines in the chart above represent what would be the legal minimum under the various scenarios for selected manufacturers. The dashed line shows that Toyota was well above the legal requirement for the domestic car fleet in the 2000MY, and would thus face an increase in its standard of ~6.4 mpg and ~7.8 mpg greater than the other manufacturers shown here.

Attachment 2 - Current CAFE Concept



Attachment 3 – General Weight-Based Concept



NOTE: Weight could be vehicle weight or corporate average weight of the fleet, and could be curb weight, gross weight, etc.

Attachment 4 Submitted as Confidential Business Information

Attachment 5 Submitted as Confidential Business Information

Appendix A

Vehicle Specific Versus Corporate Average Weight-Based Options

At least two types of continuous line weight-based systems could be considered; 1) vehicle-specific weight-based targets, and 2) corporate average weight-based targets. The 2001 NAS Report describes the basic principles of a vehicle-specific weight-based CAFE system. Heavier vehicles would have higher (easier) fuel consumption targets, while lighter vehicles would have lower (more stringent) fuel consumption targets. Targets would be set at some level below the current industry baseline to encourage reduced fuel consumption for each vehicle weight. Compliance would be determined by comparing each vehicle to its target standard then multiplying the delta by the sales volume of each vehicle, and summing the credits (deficits). If the total sum >0, then compliance is achieved.[1] The key to a vehicle-specific program is that each vehicle is compared to its standard to determine "credits" or "deficits", which would then be summed over all vehicles sold by the manufacturer to determine compliance. Under a corporate average weight-based concept, the sales-weighted corporate average weight of the fleet is determined first. Then, the compliance level for the fleet is determined based on that single average fleet weight value.

Vehicle-Specific Weight-Based Options for Discouraging Up-weighting

a) Vehicle-Specific Option 1 – "Clip" Targets for Higher Weight Vehicles

The 2001 NAS report favored a "clip" target for discouraging vehicle up-weighting. This concept is shown in Figure A-1. Vehicles above a certain "clip" weight would have a flat fuel consumption target regardless of weight.

Some advantages of the clip target are as follows:

- All manufacturers are subject to the same standards for comparable vehicles. Each manufacturer may ultimately have an average fuel consumption target or fuel economy level that is different from other manufacturers due to differences in fleet mix, but any two manufacturers with the same fleet composition would have the same standard.
- The incentive to up-weight is eliminated for vehicles above the clip weight.
- There may be some incentive to down-weight the heaviest vehicles.
- The average fleet fuel economy can never drop below the equivalent clip target level fuel consumption.

Some disadvantages of the clip target are as follows:

- Determining the appropriate level of the clip could be extremely difficult. For example, based on 2000MY data, if the clip level were set to a fuel consumption

[1] Harmonic averaging would not be required since the standard would be in units of gal/mi, rather than mi/gal. Presumably, compliance could be achieved through use of carryover credits and carryforward deficits as under the current program.

equivalent to 20.7 mpg, the average truck in the 7,000 lb. gross vehicle weight rating (GVWR) range would be required to improve fuel economy by about 30%.

- In theory, all vehicles could be up-weighted to the clip weight. The result would be that the clip target would become the effective CAFE standard. As discussed above, the level may not be much better than current CAFE levels. However, the likelihood of a manufacturer up-weighting its entire fleet to the clip weight is unlikely, at best, because some consumers will continue to prefer smaller vehicles for a variety of reasons.
- Weight reduction becomes less of a tool for improving fuel economy.

In general, Toyota believes this option meets the principle of "same vehicle/same standard" and could be a potential candidate for consideration if NHTSA decides to pursue alternative CAFE structures.

b) Vehicle-Specific Option 2 – Manufacturer-Specific Weight Penalty

Under this option, a penalty would be imposed on any manufacturer who increased its average fleet weight compared to some baseline year(s). The concept is shown in Figure A-2. **Toyota is strongly opposed to this type of system, as described in more detail below.**

If a manufacturer did not increase its average fleet weight, or did not increase it above some minimum level to trigger a penalty, then the manufacturer would simply meet the "New target (base)" line shown in the Figure. However, if a manufacturer, for whatever reason, increased the average weight of its fleet by more than the threshold amount, then the slope and intercept of the target line would be changed by a fixed percentage per 100 lbs. In this regard, any manufacturer who increased its weight over its baseline weight would face a more difficult task.

Some advantages of the weight penalty concept:

- The only advantage of this approach is that it does provide a disincentive for manufacturers to increase their average fleet weight.

Some disadvantages of the weight penalty concept:

- The system is not consistent with the "same vehicle, same standard" concept. Thus, **Toyota strongly opposes consideration of this approach.**
- As shown in Figure A-3, different manufacturers could be faced with different standards, even if they produce the exact same fleet of vehicles in the future (e.g., the exact same number of vehicles, of the exact same weight, with the exact same fuel economy performance, only painted different colors!).
- Such a system would essentially preclude open market competition in every vehicle sector by penalizing manufacturers who enter into or expand in other markets.

- Manufacturers who currently produce a heavier fleet of less fuel-efficient vehicles would be rewarded with a lock on that market sector. At the same time, manufacturers of more fuel-efficient heavier vehicles would be competitively disadvantaged from competing in the very markets where fuel economy improvement is most necessary.
- To the extent manufacturers that employed the most fuel efficient technologies were discouraged from entering market segments, the environmental benefits which otherwise would be realized by their entry into these segments would be lost.
- Hybrid electric vehicles would tend to reduce average fleet fuel consumption, but would tend to increase fleet weight due to battery weight. Thus, a manufacturer producing hybrid electric vehicles could face a weight penalty.

It is worth noting that Toyota would not support this type of system even if it included a weight reduction bonus for a manufacturer who reduced its fleet weight. The fundamental reason is the same – it could result in manufacturers with the same fleet mix having different standards, and could penalize advanced technologies like hybrids. Further, manufacturers who currently produce larger vehicles would generally have more opportunity to remove weight from their fleet.

Corporate Average Weight-Based Options for Discouraging Up-weighting

a) Corporate Average Option 1 – Baseline Year Lock-In

Under this option, a manufacturer's corporate average fuel consumption target for all future model years would be determined based on the manufacturer's corporate average vehicle weight during some baseline year(s). The concept is shown in Figure A-4. This idea has many of the same flaws as the "weight penalty" concept previously discussed. **Toyota is strongly opposed to this type of system, as described in more detail below.**

Some advantages of the base year lock-in concept:

- The only advantage of this approach is that it does provide a disincentive for manufacturers to increase their average fleet weight.

Some disadvantages of the weight penalty concept:

- The system is not consistent with the "same vehicle, same standard" concept. Thus, **Toyota strongly opposes consideration of this approach**.
- As shown in Figure A-4, different manufacturers would be faced with different standards, even if they produce the exact same fleet of vehicles in the future (e.g., the exact same number of vehicles, of the exact same weight, with the exact same fuel economy performance, only painted different colors!).
- Such a system would essentially preclude open market competition in every vehicle sector by penalizing manufacturers who enter into or expand into other markets.

- Manufacturers who currently produce a heavier fleet of less fuel-efficient vehicles would be rewarded with a lock on that market sector. At the same time, manufacturers of more fuel-efficient heavier vehicles would be competitively disadvantaged from competing in the very markets where fuel economy improvement is most necessary.
- To the extent manufacturers that employed the most fuel efficient technologies were discouraged from entering market segments, the environmental benefits which otherwise would be realized by their entry into these segments would be lost.

b) Corporate Average Option 2 – Corporate Average Clip Target

Under this option, a manufacturer's fleet would be required to meet a corporate average fuel consumption target based on the sales-weighted corporate average weight of the fleet. Manufacturers whose average fleet weight is above the clip level would be subjected to the clip target (essentially a CAFE backstop). Manufacturers whose average fleet weight is below the clip weight would be subject to a progressive standard based on their average weight. The concept is shown in Figure A-5.

Some advantages of the corporate average fleet target with clip concept:

- This idea is consistent with Toyota's "same vehicle, same standard" philosophy. Each manufacturer may ultimately have a corporate average fuel consumption target or fuel economy level that is different from other manufacturers due to differences in average fleet weight, but any two manufacturers with the same fleet weight would have the same standard.
- This approach guarantees an improvement in the average fleet fuel economy, by setting a clip target that is more stringent than the current CAFE standard. Up-weighting could still occur, but overall fuel consumption would be reduced. To the extent that not all products can or will be up-weighted, this approach results in "bonus" fuel savings as shown in Figure A-5.
- Manufacturers with a lighter average fleet weight would be required to meet a more stringent standard, addressing a concern, held by some, that lighter fleets are advantaged under the current system.

Some disadvantages of the corporate average fleet target with clip concept:

- Manufacturers whose current average weight is below the clip weight could up-weight more easily than manufacturers whose current average weight is above the clip weight.

In general, this option meets the "same vehicle/same standard" philosophy. Of the weight-based options discussed in these comments, this option is most preferable for Toyota because it would guarantee improvements in truck fuel economy, and yet provide an added level of flexibility compared to the NAS concept by virtue of the corporate

average weight concept. This would tend to reduce the burden slightly for manufacturers whose existing fleet of trucks is on the heavier side.

c) Corporate Average Option 3 – Weight Gain Prediction

Another option to address potential up-weighting in the future would be to project the future "weight gain" of the fleet, based on product planning information compiled by NHTSA during rulemaking, and adjust the target line consistent with the expected weight gain. This option could be considered for either a vehicle specific weight target or a fleet average weight target concept.

Some advantages of the Weight Gain Prediction option:

- Incorporates the concern over reduced fuel economy due to up-weighting directly into the standard for the future.

Some disadvantages of the Weight Gain Prediction option:

- Runs the risk that future weight gain does not match projections.
- Potential for gaming via artificially high weight predictions and no penalty for wrong predictions.
- By setting a standard based on industry-expected weight gain, this option runs the risk of penalizing manufacturers who do not up-weight.
- Burdensome process for submission of future product plans with attendant confidentiality concerns.

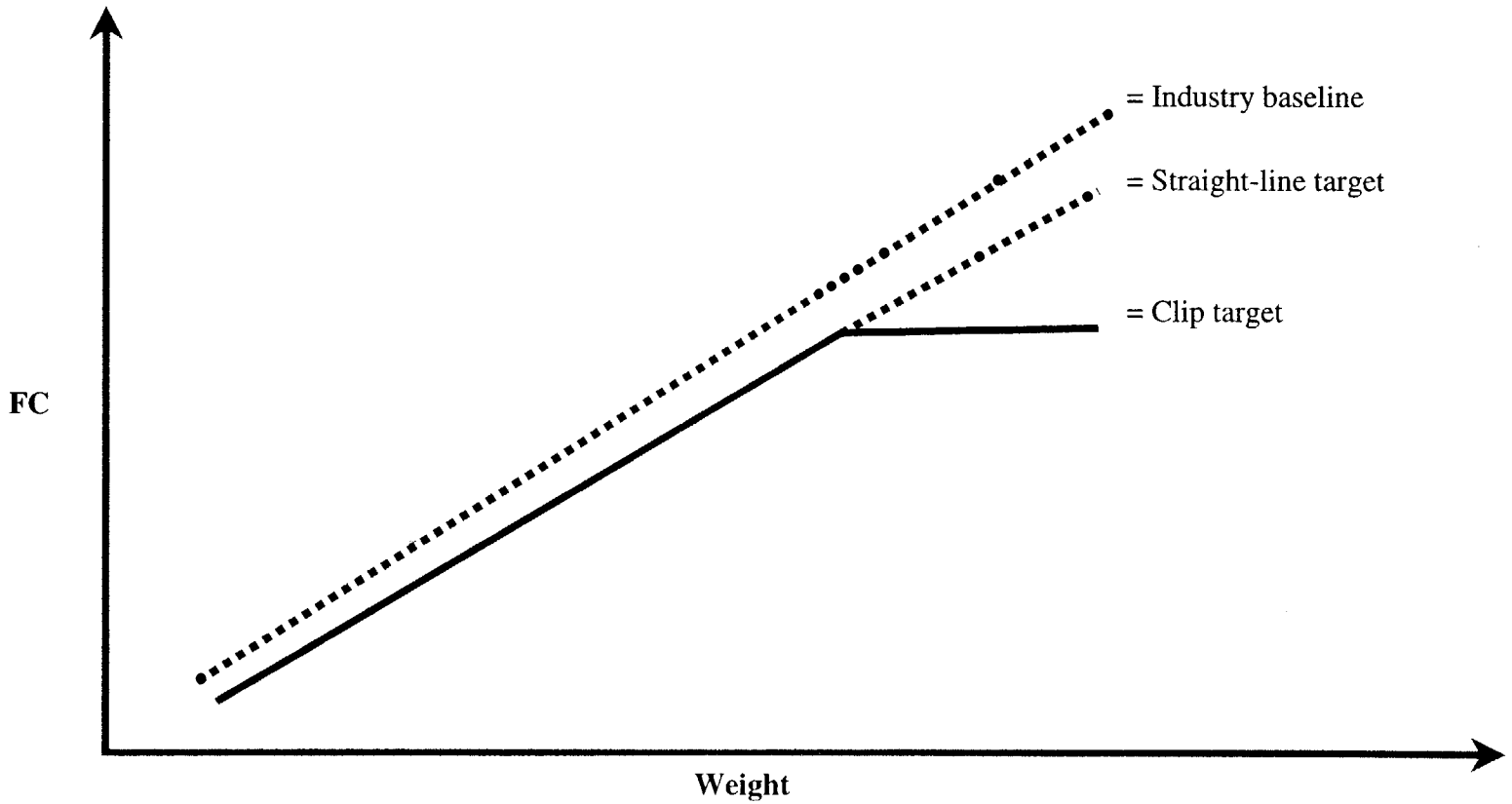
Summary of Weight-Based Options

We understand that NHTSA is interested in a variety of potential options for regulating fuel economy of vehicles. Should NHTSA decide to further explore weight-based options, Toyota strongly believes in the "same vehicle, same standard" philosophy.

While we have outlined some advantages and disadvantages of various systems, a detailed review and analysis of the impacts of any new system must be conducted by NHTSA to avoid a situation where manufacturers are blocked or disadvantaged from competing in certain market segments simply because they do not currently compete in those markets, or because they currently compete to a lesser extent than others. Of the weight-based options discussed above, Toyota believes the corporate average weight with clip idea best meshes the needs of improved fuel economy while minimizing competitive impacts on manufacturers. If NHTSA decides to pursue a weight-based program, this would be Toyota's preferred approach, however, Toyota is not seeking changes to the current CAFE structure.

Appendix A

Figure A-1 - Concept of a Continuous Line Weight-Based Standard with "Clip"



Appendix A

Figure A-2 - Concept of Manufacturer-Specific Weight Penalty

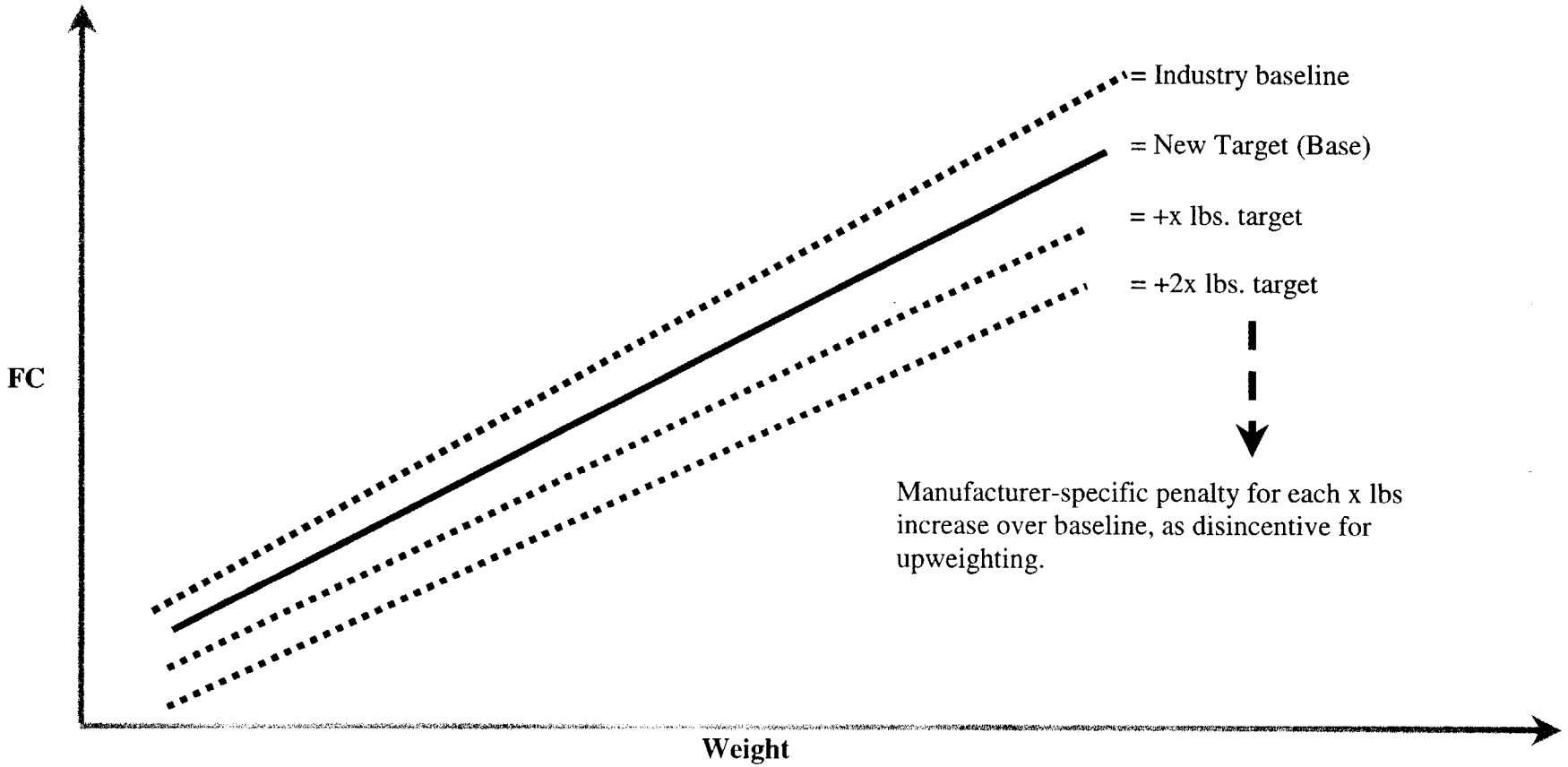
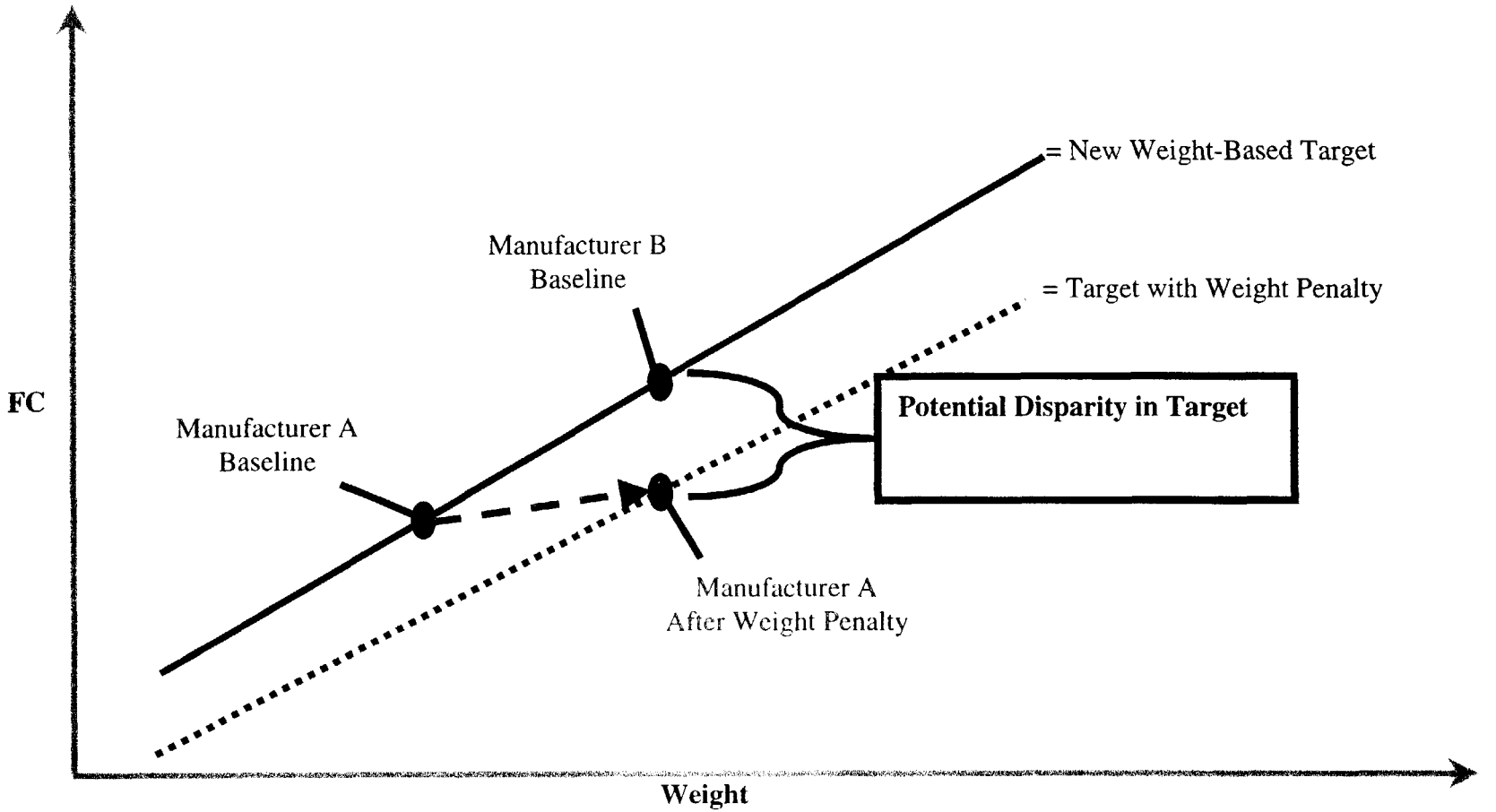
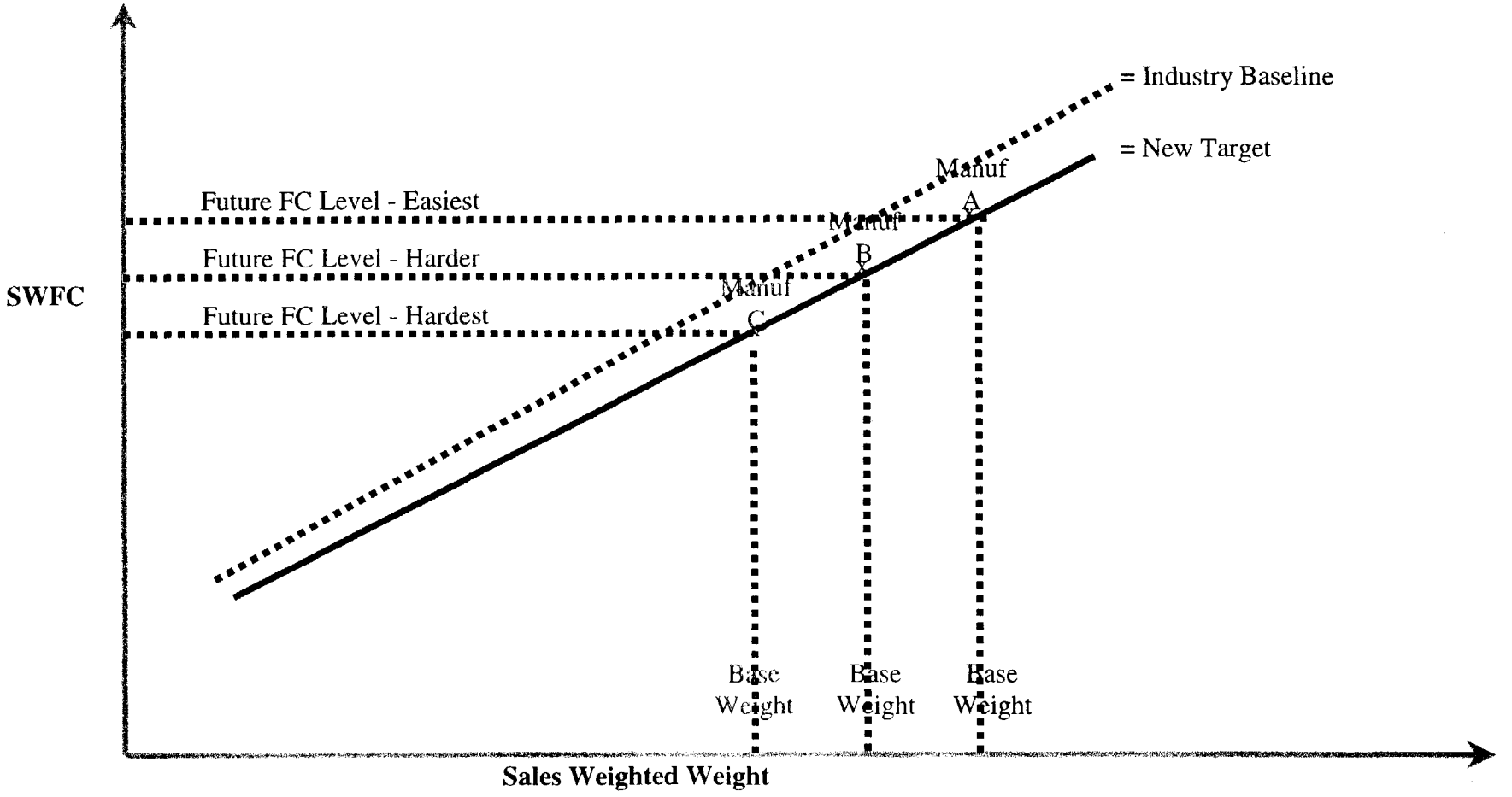


Figure A-3 - Manufacturer-Specific Weight Penalty can Result in Different Standards



For illustration: Assume Manufacturer A produces 10 3,000 lb vehicles at 25 mpg for baseline; Manufacturer B produces 10 3,500 lb vehicles at 22 mpg for baseline. In the future, Manufacturer A sells 10 3,500 lb vehicles at 22 mpg. While both manufacturers would sell the exact same product mix, Manufacturer A would face a more difficult standard. This concept presents a barrier for Manufacturer A to sell 3,500 lb vehicles, but places no limits on the number of 3,500 lb vehicles Manufacturer B can sell.

Figure A-4 - Concept of Base Year Lock-In



For illustration: Assume Manufacturer A produces 10 3,000 lb vehicles at 25 mpg for baseline; Manufacturer B produces 10 3,500 lb vehicles at 22 mpg for baseline. In the future, Manufacturer A sells 10 3,500 lb vehicles at 22 mpg. While both manufacturers would sell the exact same product mix, Manufacturer A would face a more difficult standard. This concept presents a barrier for Manufacturer A to sell 3,500 lb vehicles, but places no limits on the number of 3,500 lb vehicles Manufacturer B can sell.

Figure A-5 - Concept of Corporate Average Fleet Target with Clip