Truck tractors	2 years after final rule (1996).
Trailers	3 years after final rule (1997).
Air-braked single-unit trucks and buses.	3 years after final rule (1997).
Hydraulic-braked single unit trucks and buses.	4 years after final rule (1998).

The agency stated that making the effective dates for the two rulemakings concurrent would facilitate a more orderly implementation process, avoid the need for manufacturers to redesign the brakes on individual vehicles twice, and reduce the development and compliance costs that manufacturers would face as a result of these regulations. NHTSA requested comments about the implementation schedule proposed in the supplemental notice.

AAMA, HDBMC, Ford, GM, White GMC, Bosch, Eaton, Midland-Grau, Allied Signal, Advocates, and Gillig favored the implementation schedule proposed in the SNPRM. AAMA stated that the supplemental proposal would provide a more orderly and cost effective implementation of new requirements, thereby helping to avoid unnecessary redesign and redundant testing. Ford requested that the agency specify that the requirements have September 1 effective dates. Strait-Stop favored keeping the stopping distance requirements separate from the stability and control ones.

ATA favored a phased in implementation schedule under which manufacturers would be required to sell (or consumers would be required to purchase) air braked powered vehicles with at least 25 percent ABS in 1996, 50 percent in 1997, 75 percent in 1998, and 100 percent in 1999. Trailers would have a similar phase-in beginning in 1998. ATA stated that a phase-in is necessary to allow manufacturers the opportunity to offer a wider selection of ABS and to provide time to improve existing systems. Moreover, ATA claimed that a phase-in was essential to users because it would allow experimentation with different systems, thereby increasing public acceptance of the ABS mandate. Similarly, Tramec favored introducing the requirements over a period of time instead of all at once. Eaton cautioned that unforeseen manufacturing problems may impact product quality and availability. Therefore, it stated that a gradual increase in ABS usage would reduce concerns about manufacturer capacity and end-user support abilities.

After reviewing the available information, NHTSA has decided to adopt an implementation schedule similar to the one proposed in the SNPRM. Specifically, truck tractors manufactured on or after March 1, 1997 will have to be equipped with ABS and comply with the braking-in-a-curve test and high coefficient of friction stopping distance requirements; trailers and single-unit air braked trucks and buses manufactured on or after March 1, 1998 will have to be equipped with ABS, and single-unit air braked trucks and buses will also have to comply with the high coefficient of friction stopping distance requirements; and hydraulic braked trucks and buses manufactured on or after March 1, 1999 will have to be equipped with ABS and comply with the high coefficient of friction stopping distance requirements. The agency has decided that these effective dates, which were widely supported by vehicle manufacturers, brake manufacturers, and safety advocacy groups, will provide for an efficient implementation of Congress's desire that NHTSA require heavy vehicles to be equipped with ABSs. This implementation schedule phases in ABS for heavy vehicles over a three-year period. Truck tractors, the vehicle type with the largest potential safety benefit from ABS, are required to comply with the rule first.

This phase-in should facilitate consumer acceptance, since truck tractors, the most standardized type of heavy vehicle, will be subject to the regulation first. Only after this relatively uniform type of vehicle is equipped with ABS, will single unit vehicles which include more niche vehicles (e.g., dump trucks) be required to comply with the regulation?

In deciding on the most appropriate implementation schedule, NHTSA gave serious consideration to ATA's suggestion that the requirements of this rule be phased in on a percentage basis over a four-year period. However, for the reasons set forth below, NHTSA has determined that the implementation schedule being adopted in today's final rule will provide the most benefits in the most cost effective manner. The agency emphasizes that adopting ATA's recommended phase-in would have resulted in needless and protracted delay, thereby resulting in a significantly less safe highway environment.

Such a delay is unnecessary given the current state of development for ABS. At the time of publication of this final rule, six of the seven major U.S. manufacturers of heavy trucks, Freightliner Corporation, Peterbilt Motors Corporation, Kenworth Truck Company, Ford Motor Company, Mack Corporation, and Navistar International Corporation, have publicly announced that some or all of their product line of truck tractors, and in some cases single-unit trucks, will be equipped with ABS, as standard equipment, beginning with the 1995 model year. For heavy vehicle manufacturers, that model year began the summer of 1994. Thus, it appears that the marketplace has already addressed ATA's concern that manufacturers cannot meet increasing market demand for ABS. Also, manufacturers are typically warranting ABS for 300,000 miles or three years, a fact that should allay ATA's concerns that manufacturers will not support their product offerings.

NHTSA further notes that the final rule includes a phase-in requirement in which the vehicles for which braking stability is the greatest concern (truck tractors and trailers) are required to be equipped with ABS first. Single-unit trucks and buses follow at a later date. This will facilitate vehicle manufacturers' efforts to engineer these systems into their entire line of product offerings over a period of time spanning four years, instead of having to do it all in one year. This should substantially reduce burdens on manufacturers and give them sufficient time to engineer and accomplish high quality installations of ABS, which is a major concern of ATA.

K. Intermediate and Final Stage Manufacturers/Trailer Manufacturers

In the NPRM, NHTSA provided an extensive discussion about the potential effect of the proposed requirements on intermediate, final stage, and trailer manufacturers. The agency explained that it is aware of the concerns of final stage and intermediate stage manufacturers about road testing their vehicles. In particular, the agency explained how an incomplete vehicle manufacturer could pass through certification to the final stage manufacturer and how a final stage manufacturer could certify compliance with the proposed requirements.

NTEA commented that many of its members, most of whom are final stage manufacturers of vehicles produced in two or more stages, would not be able to use the pass-through certification because it believed that the guidelines provided by the incomplete vehicle manufacturer would be very restrictive. NTEA stated that these final stage manufacturers would, therefore, have no practicable and objective means of demonstrating compliance with the braking-in-a-curve requirement because they have neither the financial nor engineering resources to conduct their own compliance testing. NTEA