two-stroke snowthrowers to comply with handheld standards. The exception is based on the distinction between twoand four-stroke snowthrowers as product classes. This result is consistent with CARB.

3. Lawnmowers

Under EPA's proposal, all lawnmowers would be classified as nonhandheld equipment. The Agency requested comment on four options for providing relief for two-stroke lawnmower engine manufacturers.

Two industry manufacturer associations, a dealer association, and one manufacturer recommended that EPA allow two-stroke lawnmower engine manufacturers to meet handheld standards. They commented that twostroke lawnmower engines would effectively be eliminated from the market under the proposal.

The manufacturer that commented would be particularly impacted by the requirement that lawnmower engines meet nonhandheld standards because it is the largest producer of two-stroke lawnmower engines. It argued that the definition of handheld and nonhandheld should not be used to discriminate against engines according to their application, to bypass the requirement of technological feasibility, to distort the competitive balance of the industry by banning major products, nor to place disproportionate burdens on one company as the price of maintaining an important product line.

A state commented that it sees no reason to grant special concessions to some manufacturers because their current product line uses a more polluting technology than their competitors; such a policy would penalize those manufacturers that have pursued cleaner technologies, according to this comment. Complying four-stroke engines are available and a sufficient number of manufacturers participate in the market to ensure competition, this comment stated.

Environmental and state and local air officials' associations expressed strong opposition to the options for relief for two-stroke lawnmowers; given that approximately 90 percent of lawnmowers sold in the United States already rely on four-stroke technology,¹⁶ it can not be argued that four-stroke engines are not available technology for all lawnmowers, according to these groups.

Environmental and state and local air officials' associations commented that manufacturers have had ample opportunity to react to requirements that might reasonably have been expected. These manufacturers participated in the process that led to the December 1990 adoption of CARB's standards and have already enjoyed a four year period in which to take appropriate action. Those associations also commented that such regulatory relief would compromise the effectiveness of Phase 1, and thereby undermine their acceptance of the phased approach to regulation of small engines.

The Agency is promulgating its proposal that lawnmowers be classified as nonhandheld equipment. However, in response to the industry comments, EPA is providing an exception to the nonhandheld standard to allow twostroke lawnmower engine manufacturers to produce a declining percentage of two-stroke lawnmower engines that meet handheld standards until model year 2003. This relief for two-stroke lawnmower engine manufacturers is justified by the economic hardship to current manufacturers of two-stroke lawnmowers that would result if twostroke lawnmowers were required to meet nonhandheld standards upon the effective date of Phase 1, and by the need for additional lead time for current manufacturers of two-stroke lawnmowers to develop mowers that meet nonhandheld standards; EPA has concluded that handheld standards are the most stringent standards achievable for lawnmowers currently using twostroke engines in the near term given these economic hardship and lead time considerations.

Economic hardship that would result if two-stroke lawnmowers were required to meet nonhandheld standards is documented in two sets of comments from an engine and equipment manufacturer. It stated that it would be forced to close a manufacturing plant that employs 230 people unless some form of relief from the requirement that all lawnmowers comply with nonhandheld standards is granted. The plant is devoted to two-stroke engine operations, according to the comments. The manufacturer commented that the declining production option would avoid closure of the plant and maintain a minimally necessary market presence for its two-stroke lawnmowers during Phase 1. The manufacturer stated that its principal goal and long-term strategy is to develop technology that will enable two-stroke lawnmower engines to meet Phase 2 nonhandheld standards. Reducing sales below 50 percent would destroy the market for the product before Phase 2 technology could be implemented, and reduce plant utilization to unacceptable levels, according to the manufacturer.

The need for additional lead time was a common theme among industry commenters, although only one twostroke mower engine manufacturer addressed the difficulty, if not impossibility, of two-stroke mowers meeting nonhandheld standards by the effective date of Phase 1. According to this manufacturer, it is not technologically feasible for two-stroke engines to meet nonhandheld standards at this time. The manufacturer argued in its comments that more engineering effort is required for two-stroke lawnmower engines to meet handheld standards than for four-stroke engines to meet nonhandheld standards. It said that this is partly due to the difference in duty cycles for handheld and nonhandheld engines, with handheld engines having the advantage of a higher horsepower divisor than is obtained under the variable nonhandheld load specifications. The manufacturer stated that it is an engineering uncertainty whether and how valve-control techniques developed in the past, to enhance power output for smaller twostroke engines used in products such as chain saws, might be used to reduce emissions in lawnmowers. Finally, the manufacturer claimed that while it is conceivable that its technology development could permit the introduction of engines meeting the Phase 1 nonhandheld standards during Phase 1, the prospect of this occurring before the year 2001 is remote.

CAA section 213(a)(3) specifies that nonroad emission standards must achieve the greatest degree of emission reduction achievable through the application of technology that the Administrator determines will be available, giving appropriate consideration to cost, lead time, noise, energy and safety. Taking into account the economic hardship and lead time considerations discussed above, EPA has determined that handheld standards subject to a declining production cap are the most stringent emission standards achievable for lawnmowers that currently use two-stroke engines.

Under the declining production cap, two-stroke lawnmower engine manufacturers that wish to continue producing two-stroke lawnmower engines must establish a production baseline. The production baseline is the highest number of two-stroke

¹⁶ See Table 2–03, "Inventory A & B National Population Estimates" from the Nonroad Engine and Vehicle Emission Study (Report USEPA Office of Air and Radiation document #21A–2001, November 1991). The Nonroad Study is available in EPA Air Docket #A–91–24. It is also available through the National Technical Information Service, referenced as document PB 92–126960.