

APPENDIX A
Discussion of MOBILE6 and its Effect on Pennsylvania's Attainment
Demonstration for the Philadelphia Ozone Severe Nonattainment Area

On October 26, 2001, the U.S. Environmental Protection Agency (EPA) approved Pennsylvania's attainment demonstration for the Philadelphia Ozone Severe Nonattainment Area. Since this demonstration employed interim calculations of benefits of the Federal Tier 2 program using MOBILE5, EPA required Pennsylvania to submit, within one year of the release of the MOBILE6 model, revised budgets using MOBILE6. On January 18, 2002, EPA's Office of Air, Quality Planning and Standards (OAQPS) and the Office of Transportation and Air Quality (OTAQ) released its *Final Policy Guidance on the Use of MOBILE6 for SIP Development and Transportation Conformity*. This guidance emphasized that whenever mobile vehicle emissions inventories and budgets in a State Implementation Plan (SIP) for attainment are revised, the SIP must continue to demonstrate its Clean Air Act purpose. The guidance also states, "SIP revisions that revise MOBILE5 Tier 2 estimates with MOBILE6 are not intended to duplicate any technical analysis required for mid-course review in those areas". Section 5 of the policy guidance further outlines that states must not only update to the latest planning assumptions with regard to VMT, speeds, fleet mix and control measures, but must also "consider whether growth and control strategy assumptions for non-motor vehicle sources (i.e., point, area and non-road mobile sources) are still accurate at the time the MOBILE6 SIP revision is developed". The state should also be able to show that any minor changes in the growth and control strategy assumptions do not change the overall conclusions of the SIP.

Tables 1a and 1b outline Pennsylvania's 1990 and 2005 (projected) inventories comparing NOx and VOC emissions and the percent reductions estimated between those years. The tables also compare total percent reductions associated with MOBILE5 and MOBILE6. The table shows that while there have been more overall reductions of VOC when MOBILE6 is used, there is a slight increase in NOx.

Table 1a: Total VOC Inventory comparing MOBILE5 and MOBILE6

	Source Type	1990 (TPD)	2005 (TPD)	% Reduction	? % Reduction	? Tons
VOC	Point	153	139			
	Area	194	156			
	Nonroad	81	68			
	MOBILE5	187.9	60.18			
	Total	615.9	423.18	31.29%		
VOC	Point	153	139			
	Area	194	156			
	Nonroad	81	68			
	MOBILE6	239.95	79.69			
	Total	667.95	442.69	33.72%	2.43%	-16.23

Table 1b: Total NOx Inventory comparing MOBILE5 and MOBILE6

	Source Type	1990 (TPD)	2005 (TPD)	% Reduction	? % Reduction	? Tons
NOx	Point	162	146			
	Area	47	47			
	Nonroad	72	31			
	MOBILE5	158.33	77.46			
	Total	439.33	301.46	31.38%		
NOx	Point	162	146			
	Area	47	47			
	Nonroad	72	31			
	MOBILE6	252.93	144.73			
	Total	533.93	368.73	30.94%	-0.44%	2.34

The additional VOC reduction benefit of more than 16 tons offsets the small 2.3 ton increase in NOx. This is further supported by an October 15, 2002 letter from EPA Region III approving Pennsylvania's use of a 1.3 to1 VOC to NOx substitution ratio for the purposes of New Source Review emissions trading within the Philadelphia Ozone Severe Nonattainment Area.

With regard to growth assumptions, Pennsylvania's SIP for the Philadelphia area projected non-motor vehicle emissions (i.e., non-road mobile, area and point) into future years by using growth in population and employment as growth factors. Three of the nine non-road source categories, which include lawn and garden equipment and recreational marine engines (two of the largest sources of VOCs of the nonroad categories) used population growth as a growth factor. In the Philadelphia area SIP, Pennsylvania's population was projected to increase 5.2% from 1990 to 2005. According to the U.S. Census Bureau data from the 1990 Census and population projections to 2005, Pennsylvania's population will only increase 3.3% in that time frame. In addition, the largest NOx emitting categories like construction, farm, and industrial equipment, which use changes in employment as a growth factor, showed employment, according to the latest statistics from the Bureau of Labor Statistics, equal to or below predicted estimates for 2005 in the attainment demonstration. All three categories presently have a downward trend in employment. If current estimates were used for 2005, the net result would be lower emissions in 2005. Results are similar for area sources where most growth factors are population-based. A review of the point source emission inventory shows that 2001 emissions are significantly below the 2005 SIP levels. Again, Pennsylvania's employment and population growth rates are equal to or below predicted estimates.

Therefore, Pennsylvania's review of the SIP emissions inventory, in accordance with the January 18, 2002 EPA Policy Guidance, shows that the Commonwealth's SIP for the Philadelphia area continues to fulfill its Clean Air Act purpose with the updated assumptions and that the revised highway vehicle emissions budgets using MOBILE6 do not compromise the overall integrity of the SIP.