

**Summary of Responses to Comment
on the Adequacy of the Transportation Conformity Budgets
Contained in the November 15, 1999 Ozone Attainment Demonstration
for the Houston/Galveston Nonattainment Area (Houston area).**

U.S. EPA Region 6 received two comment letters regarding the adequacy of the budgets in the November 15, 1999 ozone SIP. The first letter from Robert Yuhnke, representing Environmental Defense and Natural Resources Defense Fund, was submitted in response to EPA's proposed approval/proposed disapproval action published December 16, 1999. This letter raises many general concerns regarding EPA's approach to the Phase II ozone SIPs, and it also raises specific concerns regarding the "weight of evidence" approach used for the Houston area. The second letter is from Sierra Club but indicates that it also represents the comments of the Texas Office of Environmental Defense, the Galveston Houston Association for Smog Prevention and the Galveston Bay Conservation and Preservation Association. The second letter raises many of the same concerns raised in the first letter and several specific concerns regarding the Houston area. In this document we will respond to the comments raised in the letters that reflect on the adequacy of the budgets. We will not be responding to comments relating to the approvability of the State Implementation Plan. EPA will address these comments fully in the context of rulemaking on the attainment demonstration for the Houston area.

Comment: Both commenters stated that the "weight of evidence" approach does not demonstrate attainment or meet the Clean Air Act (CAA) requirements for a modeled attainment demonstration. The commenters added several criticisms of various technical aspects of the weight of evidence approach, including certain specific applications of the approach to particular attainment demonstrations.

Response: Under section 182(c)(2) and (d) of the CAA, serious and severe ozone nonattainment areas were required to submit by November 15, 1994, demonstrations of how they would attain the 1-hour ozone standard. Section 182(c)(2)(A) provides that "[t]his attainment demonstration must be based on photochemical grid modeling or any other analytical method determined by the Administrator, in the Administrator's discretion, to be at least as effective." As described in more detail below, the EPA allows States to rely on photochemical modeling results, supplemented with additional evidence designed to account for uncertainties in the photochemical modeling, to demonstrate attainment. This approach is consistent with the requirement of section 182(c)(2)(A) that the attainment demonstration "be based on photochemical grid modeling," because the modeling results constitute the principal component of EPA's analysis, with adjustments designed to account for uncertainties in the model. This interpretation and application of the photochemical modeling requirement of section 182(c)(2)(A) finds further justification in the broad deference Congress granted EPA to develop appropriate methods for determining attainment, as indicated in the last phrase of section 182(c)(2)(A).

The flexibility granted to EPA under section 182(c)(2)(A) is reflected in the regulations EPA promulgated for modeled attainment demonstrations. These regulations provide, "The adequacy of a control strategy shall be demonstrated by means of applicable air quality models,

data bases, and other requirements specified in [40 CFR part 51 Appendix W] (Guideline on Air Quality Models)". 40 CFR 51.112(a)(1). However, the regulations further provide, "Where an air quality model specified in appendix W...is inappropriate, the model may be modified or another model substituted [with approval by EPA, and after] notice and opportunity for public comment...." Appendix W, in turn, provides that, "The Urban Airshed Model (UAM) is recommended for photochemical or reactive pollutant modeling applications involving entire urban areas," but further refers to EPA's modeling guidance for data requirements and procedures for operating the model. 40 CFR 51 App. W section 6.2.1.a. The modeling guidance discusses the data requirements and operating procedures, as well as interpretation of model results as they relate to the attainment demonstration. This provision references guidance published in 1991, but EPA envisioned the guidance would change as it gained experience with model applications, which is why the guidance is referenced, but does not appear, in Appendix W. With updates in 1996 and 1999, the evolution of EPA's guidance has led us to use both the photochemical grid model as well as consider additional analytical methods approved by EPA.

The modeled attainment test compares model predicted 1-hour daily maximum ozone concentrations in all grid cells for the attainment year to the level of the National Ambient Air Quality Standard (NAAQS). The results may be interpreted through either of two modeled attainment or exceedance tests: a deterministic test or a statistical test. Under the deterministic test, a predicted concentration above 0.124 parts per million (ppm) ozone indicates that the area is expected to exceed the standard in the attainment year and a prediction at or below 0.124 ppm indicates that the area is expected to *not* exceed the standard. Under the statistical test, attainment is demonstrated when all predicted (i.e., modeled) 1-hour ozone concentrations inside the modeling domain are at, or below an acceptable upper limit above the NAAQS provided for under certain conditions (depending on the severity of the episodes modeled) by EPA's guidance.¹

In 1996, EPA issued guidance² to update the 1991 guidance referenced in 40 CFR 51 App.W, to make the modeled attainment test more closely reflect the form of the NAAQS (i.e., the statistical test described above), to consider the area's ozone design value and the meteorological conditions accompanying observed exceedances, and allow the consideration of other evidence to address uncertainties in the modeling databases and application. When the modeling does not conclusively demonstrate attainment, EPA has concluded that additional analyses may be presented to help determine whether the area will attain the standard. As with other predictive tools, there are inherent uncertainties associated with air quality modeling and its results. The inherent imprecision of the model means that it may be inappropriate to view the specific numerical result of the model as the only determinant of whether the SIP controls are likely to lead to attainment. The EPA's guidance recognizes these limitations, and provides a means for considering other evidence to help assess whether attainment of the NAAQS is likely to

¹ Guidance on the Use of Modeled Results to Demonstrate Attainment of the ozone NAAQS. EPA-454/B-95-007, June 1996.

² Ibid.

be achieved. The process by which this is done is called a weight of evidence (WOE) determination. Under a WOE determination, the state can rely on, and EPA will consider, factors such as other modeled output, e.g., changes in the predicted frequency and pervasiveness of 1-hour ozone NAAQS exceedances and predicted changes in the ozone design value; actual observed air quality trends (i.e. analyses of monitored air quality data); estimated emissions trends; and the responsiveness of the model predictions to further controls.

In 1999, EPA issued additional guidance³ that makes further use of model results for base case and future emission estimates to predict a future design value. This guidance describes the use of an additional component of the WOE determination, which requires, under certain circumstances, additional emission reductions that are or will be approved into the SIP, but that were not included in the modeling analysis, that will further reduce the modeled design value. An area is considered to monitor attainment if each monitor site has air quality observed ozone design values (fourth highest daily maximum ozone using three years of data) at or below the level of the standard. Therefore, it is appropriate for EPA, when making a determination that a control strategy will provide for attainment, to determine whether or not the model-predicted future design value is expected to be at or below the level of the standard. Since the form of the 1-hour ozone NAAQS allows exceedances, it did not seem appropriate for EPA to require the test for attainment to be “no exceedances” in the future model predictions. The method outlined in EPA’s 1999 guidance uses the highest measured design value from all sites in the nonattainment area for each of three years.⁴ The three year “design value” represents the air quality observed during the time period used to predict ozone for the base emissions. This is appropriate because the model is predicting the change in ozone from the base period to the future attainment date. The three yearly design values (highest across the area) are averaged to account for annual fluctuations in meteorology. The result is an estimate of an area’s base year design value. The three year “design value” is multiplied by a ratio of the peak model predicted ozone

³ “Guidance for Improving Weight of Evidence Through Identification of Additional Emission Reductions, Not Modeled.” U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Emissions, Monitoring, and Analysis Division, Air Quality Modeling Group, Research Triangle Park, NC 27711. November 1999. Web site: <http://www.epa.gov/ttn/scram>.

⁴ A commenter criticized the 1999 guidance as flawed on grounds that “[i]t allows the averaging of the three highest air quality sites across a region, whereas EPA’s modeling guidance requires that attainment be demonstrated at each site. This has the effect of allowing lower air quality concentrations to be averaged against higher concentrations thus reducing the total emission reduction needed to attain at the higher site.” The commenter’s concern is misplaced. EPA relies on this averaging only for purposes of determining one component, i.e. -- the amount of additional emission reductions not modeled -- of the WOE determination. The WOE determination, in turn, is intended to be a qualitative assessment of whether additional factors (including the additional emissions reductions not modeled), taken as a whole, indicate that the area is more likely than not to attain.

concentrations in the attainment year (i.e., average of daily maximum concentrations from all days modeled) to the peak model predicted ozone concentrations in the base year (i.e., average of daily maximum concentrations from all days modeled). The result is an attainment year design value based on the relative change in peak model-predicted ozone concentrations from the base year to the attainment year. Modeling results also show that emission control strategies designed to reduce areas of peak ozone concentrations generally result in similar ozone reductions in all core areas of the modeling domain, thereby providing further assurance of attainment at all monitors.

In the event that the attainment year design value is above the standard, the 1999 guidance provides a method for identifying and quantifying the additional emission reductions, not modeled, which at a minimum provides an estimated attainment year design value at the level of the standard. This step uses a locally derived factor which assumes a linear relationship between ozone and the precursor emissions. Although a commenter criticized this technique for estimating ambient improvement, because it does not incorporate complete modeling of the additional emissions reductions, none of the applicable guidance or regulations mandates or suggests that States model all control measures being implemented. Moreover, a component of this technique—the estimation of future design value, should be considered a model predicted estimate.

When reviewing a SIP, the EPA must make a reasonable determination that the control measures identified are more likely than not to attain. Under the WOE determination, EPA has made these determinations based on all of the information presented by the States and available to EPA. This included model results for the majority of the control measures. Though all measures were not modeled, EPA reviewed the model's response to changes in emissions as well as observed air quality changes to evaluate the impact of a few additional measures, not modeled. EPA's decision was further strengthened by the States' commitment to a mid-course review to check progress towards attainment in 2003 and adopt additional control measures, if the anticipated progress is not being made.

A commenter further criticized EPA's technique for estimating the ambient impact of additional emissions reductions not modeled on grounds that EPA employed a rollback modeling technique that, according to the commenter, is precluded under EPA regulations. The commenter explained that 40 CFR 51 App. W section 6.2.1.e. provides, "Proportional (rollback/forward) modeling is not an acceptable procedure for evaluating ozone control strategies." Section 14.0 of appendix W defines "rollback" as "a simple model that assumes that if emissions from each source affecting a given receptor are decreased by the same percentage, ambient air quality concentrations decrease proportionately." Under this approach if 20% improvement in ozone was needed for the area to reach attainment, it was assumed a 20% reduction in VOC would be required. This approach was never applied to NO_x, is a purely empirically/mathematically derived relationship, and is not the approach EPA used. EPA used a locally derived (as determined by the model and/or observed changes in air quality) ratio of change in emissions to change in ozone to estimate additional emission reductions to achieve an additional increment of ambient improvement in ozone. The two methods discussed in this 1999 guidance assume a linear relationship between the precursors and ozone for a small amount

of ozone improvement. As discussed further below, the Houston area's locally-derived ratio was not linear. Its ratio is quadratic. The quadratic relationship is a locally derived approach. The prohibition in Appendix W applies to the use of a rollback method which is empirically/mathematically derived and independent of model estimates or observed air quality and emissions changes as the sole method for evaluating control strategies. EPA has generally relied on photochemical modeling to evaluate the attainment demonstrations and their control strategies, and has used locally derived adjustment factors as a component to estimate the extent to which additional emissions reductions -- not the core control strategies -- would reduce ozone levels and thereby strengthen the weight of evidence test. This limited use of adjustment factors is more technically sound than the unacceptable use of proportional rollback. The limited use of adjustment factors is more practical in light of the uncertainty in the modeling; the resources and time required to perform additional modeling; and the requirement that areas perform a mid-course review by the end of 2003.

Contrary to concerns expressed by a commenter, EPA did not err by modifying the modeling requirements without first proposing to do so. Section 3.0 of appendix W states, "It should not be construed that the preferred models identified here are the only models available for relating emissions to air quality." Section 3.2.2 of appendix W further provides that the "determination of acceptability of a model is a Regional Office responsibility. Where the Regional Administrator finds that an alternative model is more appropriate than a preferred model, that model may be used subject to the recommendations below. This finding will normally result from a determination that (1) A preferred air quality model is not appropriate for the particular application; or (2) a more appropriate model or analytical procedure is available and is applicable." Therefore, EPA does have the discretion to identify a more appropriate analytical procedure without undergoing rulemaking on updates to Appendix W. Also, as discussed above, by reference to the modeling guidance, Appendix W was designed to allow changes in the predictive tools and data bases without undergoing additional rulemaking. In any event, the EPA is taking comment during the SIP rulemaking process on the application of its guidance.

A commenter also expressed concern that EPA applied unacceptably broad discretion in fashioning and applying the WOE determinations. EPA disagrees. The WOE determinations are made on a case-by-case basis. EPA has approved attainment demonstrations based on WOE determinations, generally with a requirement for additional reductions not modeled, only when the photochemical modeling provides a basis for believing that the SIP controls will achieve substantial ozone reductions, if not attainment levels. The fact that these WOE determinations are incremental leads EPA to conclude that they may be made on a case-by-case basis, without hard-and-fast guidelines. Moreover, EPA believes that the WOE approach is bounded by the strength of the various factors that may be applied. One of the commenters added as an example, EPA's application of the WOE approach to the Washington, D.C. attainment demonstration where modeling showing an ozone level (as adjusted) of 142 ppb, was compared to the acceptable upper limit of 137 ppb. The commenter observed that EPA adjusted the modeled prediction on average by a factor of 19% to account for model overprediction, and suggested both that such an adjustment was not appropriate and that, if used, no further adjustment for WOE factors was appropriate. EPA puts no limit on the amount of WOE factors that may be considered. In

addition, in EPA's view, the 19% overprediction that underlies the 142 ppb level is only a rough approximation of the extent of modeling uncertainty. As a result, EPA applied the 1999 guidance (using the original model prediction of 156, and not the adjusted value of 142 ppb) to estimate the future design value as another way of addressing model uncertainty, in the same manner as applied to all of the other attainment demonstrations received. Both the assessment of overprediction and the estimated future design value were used in the WOE determination.⁵

The commenter also complained that EPA has applied the WOE determinations to adjust modeling results only when those results indicate nonattainment, and not when they indicate attainment. EPA agrees that to date, it has applied WOE determinations only in the context of demonstrations that indicate nonattainment, but the main reason is simply that these comprise most of the demonstrations that the States have presented to EPA.

The commenter further criticized EPA's application of the WOE determination on grounds that EPA ignores evidence indicating that continued nonattainment is likely, such as, according to the commenter, monitoring readings indicating that ozone levels in many cities during 1999 continue to exceed the NAAQS by margins as wide or wider than those predicted by the UAM model. EPA believes that this comment misses the mark because although some cities continued to experience nonattainment ozone levels during 1999, the 1999 monitoring data provides little basis for evaluating the performance of the UAM model as used in the various attainment demonstrations. Many areas did not model expected 1999 ozone levels, that are or will be approved into the SIP but that were not included in the modeling analysis. And in any event, many areas had not, by 1999 implemented additional ozone-precursor controls that would be expected to lead to the ozone reductions projected by the models.⁶ In addition, the commenter

⁵ Observing that for the attainment demonstration for the Washington, D.C. area, EPA reduced modeled ozone values by 19% to account for model overprediction, a commenter criticized this technique as lacking technical justification. EPA explained this technique in "Technical Support Document for the One-Hour Ozone Attainment Demonstrations submitted by the State of Maryland, Commonwealth of Virginia and the District of Columbia for the Metropolitan Washington, D.C. Ozone Nonattainment Area," November 30, 1999. The modeled peak ozone results generally correlated (in geographic proximity) with the monitored peak ozone emissions (and the modeled plume generally correlated (in geographic proximity) with the observed ozone plume), except that the peak modeled ozone levels averaged approximately 19 - 20% higher than the peak monitored levels. Modeling uncertainties (including, for example, the non-linearity of the modeling) lead EPA to conclude that adjusting each modeled peak by the 19% average over-prediction was at least as sensible as adjusting each modeled peak by an amount that corresponds to that modeled peak's relationship to the monitored ozone value in the same vicinity.

⁶ The commenter stressed that monitored readings during 1999 in the Washington, D.C. nonattainment area indicated nonattainment levels, but these data, again, do not provide much basis for evaluating the UAM model. In any event, at the time of the 1999 monitored readings,

argued that in applying the WOE determinations, EPA ignored factors showing that the SIPs under-predict future emissions, and the commenter included as examples certain mobile source emissions sub-inventories. EPA is presently evaluating mobile source emissions data as part of an effort to update the computer model for estimating mobile source emissions. EPA is considering various changes to the model, and is not prepared to conclude at this time that the net effect of all these various changes would be to increase or decrease emissions estimates.

The commenters also criticized the 1999 Guidance Document on grounds that EPA could not apply it, by its terms, to the Houston area because the result of such application would have been absurd. The commenters added that the technique used to estimate the additional needed emission reductions for the Houston area does not identify a sufficient level of emission reduction to reach attainment. In addition, according to the commenters, the technique used for the Houston area is substantially at variance with the UAM modeling analyses performed by Texas and submitted to EPA as SIP revisions. Specifically, Texas showed in its May 1998 SIP submission that emissions in the Houston area would have to be reduced to 230 tons per day to attain. Other modeling performed by Texas predicted that reducing emissions to 249 tons per day reduces peak ozone levels only to 143 ppb (still well short of the ozone standard). By contrast, according to the commenters, EPA's combination of techniques would allow 259 [sic., 289] tons per day of emissions, and yet EPA claims that the Houston area will attain with even this higher level of emissions.

A detailed analysis of the attainment demonstration and specific comments on the application of appropriate requirements will be addressed in a subsequent rulemaking on the attainment demonstration SIP for the Houston area. At this time, we preliminarily determine that the alternate WOE method used in the case of the Houston area meets the appropriate tests and was properly applied in this case. Therefore, it meets the criteria in 40 CFR 93.118 to allow the use of these submitted budgets in conformity determinations while EPA completes the formal review process.

the Washington, D.C. area had not implemented certain measures that were required to be implemented as part of the attainment demonstration, and neither the Washington, D.C. area nor areas upwind of it had implemented through SIP revisions the NO_x reductions required under the NO_x SIP Call, 63 FR 57,356 (Oct. 27, 1998). Implementation of all these controls may be expected to reduce ozone levels in the Washington, D.C. area.

The commenter added that for Atlanta, modeled results generally did not much vary from monitored results, and that in several areas, modeled results appeared to underestimate ozone levels. However, in acting on Atlanta's attainment demonstration, EPA generally did not apply WOE factors except for taking into account ambient improvement due to upwind NO_x reductions required under the NO_x SIP Call, and for requiring additional emissions reductions not modeled.

Direct application of the two methods discussed in the EPA's November 1999 guidance produced a mathematical impossibility for the Houston area. The results using either method were that all ozone precursor emissions would have to be reduced to less than zero. Thus, those two methods discussed in the 1999 guidance are not directly applicable to the Houston area's particular situation. Although this 1999 guidance memorandum describes two techniques for estimating additional levels of emission reductions, the memorandum should not be read to discourage or preclude the use of another technique. Both techniques (methods) described in the 1999 guidance are based on the assumption that EPA can estimate the relationship between ozone and its precursors. EPA Region 6 and TNRCC worked together to develop a revised method that was still consistent with the concepts in the 1999 guidance for estimating the relationship, but appropriate for the Houston area's modeling results. One of the methods in the guidance (Method 1) uses a linear extrapolation of model results to determine expected ozone benefits from additional precursor reductions. The revised method for the Houston area is also an extrapolation of model results. Instead of a linear extrapolation, however, a quadratic extrapolation was developed based on the results of three of the modeling runs (i.e., VIa, VIb, and VIc) for the Houston area. A quadratic extrapolation is necessary because of the non-linearity of the ozone response to NO_x reductions in the Houston area. Therefore, the revised method is a refinement of Method 1 described in the 1999 guidance, based on the most recently available modeling for the Houston area. The factors used in the revised method for the Houston area are based on model results for the majority of the control measures and, consequently, are scientifically sound for the Houston area. We believe this approach is consistent with the intent and criteria of the 1999 guidance and, in the case of the Houston area, gives a better approximation of the amount of emission reductions that will be necessary to achieve the standard. Therefore, it is EPA's preliminary finding that this revised method is consistent with the EPA guidance, and it is as rigorous, if not more rigorous, than the two methods discussed in the 1999 guidance.

With regards to whether the revised approach sufficiently identifies the expected additional amount of emission reductions needed for attainment by the deadline, we believe that the commenters failed to take into account all of the measures that will reduce ozone in the Houston area's modeled control strategies submitted in the November 1999 SIP. In model strategy H2, upon which the NO_x mobile vehicle emissions budget is based, Texas modeled NO_x emissions reduced to a level of 407 tpd. Certain emissions scenarios analyzed through model runs -- Scenarios VIc - VI f-- modeled the NO_x emissions reduced to a level of 249 tpd. However, these scenarios relied on unrealistic control measures, e.g., assuming that all passenger cars and light trucks would meet the EPA's Tier 2 standards by 2007, rather than a more realistic date of 2015. This particular unrealistic control measure overestimated the NO_x emissions reductions by a significant percentage. Therefore, the 249 tpd figure is based on unrealistic control strategies.

Texas also modeled in strategy H2 (upon which the budgets are based), the effect of a prohibition on the use of construction equipment during the morning hours. This strategy, which has recently been adopted in the Dallas/Fort Worth area, was not modeled in scenarios VIc-VI f, which include the 249 tpd level. The morning construction ban is different than most measures

because it does not have the effect of reducing emissions, only shifting the time that they occur. By shifting the time that the NO_x emissions occur to later in the day, there is less time for the NO_x emissions to participate in the photochemical reaction before the sun sets. Therefore, less ozone is formed. This shift in timing of emissions changes the relationship between the peak ozone level to the total level of emissions. Therefore, the quadratic relationship correlating the level of ozone to the total level of emissions had to be adjusted. This shifted the curve used to estimate the amount of additional NO_x emission reductions by 9.5% based on comparing results of similar modeling runs with and without the time shift in construction emissions. The 9.5% is a percentage of the 2007 base emissions of 1052 tons/day. It is this adjustment in the curve that is the primary reason for the apparent discrepancy in the estimated level of emission reductions that are necessary for attainment (i.e., 289 tpd versus 249 tpd). If some of the area's emissions are shifted from the morning to later in the day, the total amount of emissions for the day can be higher with lower ozone levels.

Furthermore, the 230 tpd emission level in the May 1998 SIP submission was based upon "across-the-board" emission sensitivity modeling and not specific control measures, such as was modeled in strategy H2 submitted in the November 1999 attainment demonstration. Thus, the 230 tpd emission level is not associated with any control measures, and it is not appropriate as a regulatory emission level for an attainment SIP.

As a result, EPA preliminarily concludes that the State of Texas used an acceptable method under the November 1999 guidance and applied it correctly.

Therefore, EPA concludes that the State of Texas has met the necessary requirements for the Agency to preliminarily determine that the SIP and the associated commitments demonstrate attainment. As a result, EPA finds that the motor vehicle emissions budgets consistent with the attainment demonstration are adequate. Some commenters submitted additional specific comments on the weight of evidence analysis for the State of Texas. EPA will address these comments fully in the context of rulemaking on the attainment demonstration for the Houston area. Because EPA is only preliminarily concluding that the attainment demonstration is consistent with applicable requirements for attainment for purposes of finding the budgets adequate without completing rulemaking at this time on the attainment demonstrations, EPA believes that it need only address general comments about the appropriate tests for approving attainment demonstrations at this time and preliminarily determine that they were properly applied in this case. Detailed analysis of the attainment demonstration and specific comments on application of appropriate requirements will be addressed in subsequent rulemaking on the SIP. The adequacy process is separate from the notice and comment rulemaking process conducted by EPA to approve or disapprove the attainment plans as SIP revisions. The rulemaking process to approve or disapprove these plans as SIP revisions involves approval of their associated control strategies and a more detailed examination of the technical analyses submitted by the state to demonstrate attainment. Therefore, EPA's adequacy findings are that submitted budgets are consistent with attainment, maintenance, and/or ROP for conformity purposes. EPA's actual approval or disapproval of the budgets into the SIP occurs when we have completed our full

rulemaking process on the relevant attainment, maintenance and/or ROP plan and have either approved or disapproved it as a SIP revision. The adequacy process considers certain criteria specified in 40 CFR 93.118 in order to allow the use of these submitted budgets in conformity determinations while EPA is completing its formal review process to determine whether to approve the attainment, maintenance and/or ROP plan as a SIP revision.

Comment: One commenter stated that the SIP does not meet the Act's Rate of Progress (ROP) requirements.

Response: The CAA requirements for an attainment demonstration under section 182 (c)(2)(A) and (d) and the various ROP demonstrations under section 182(b)(1) and (c)(2)(B) are separate requirements which EPA can act on separately. EPA is currently taking action only on the adequacy of the motor vehicle emissions budgets in the attainment demonstration SIP, and is not taking action on budgets for ROP because either they have not been submitted or in certain cases they have already been found adequate. In the case of the Houston area, the EPA Region 6 has already found the Post-1996 ROP Plan's associated budgets adequate. EPA will address comments on the adequacy of the Post-1999 ROP budgets which have not yet been found adequate when such budgets are submitted and posted on EPA's adequacy website for adequacy review.

Comment: One commenter stated that it is illegal to provide credit towards an attainment demonstration for measures that have not been approved by EPA into the SIP.

Response: EPA agrees that it can not credit measures towards approval of an attainment demonstration unless the measures themselves or an enforceable commitment to adopt the measures are approved into the federally enforceable SIP, or measures are promulgated as required federal measures. However, EPA is not approving the attainment demonstration at this time. EPA will ensure that all measures are approved, enforceably committed to, or promulgated prior to approval of the attainment demonstration. The conformity rules specifically allow emission reduction credit to be taken for purposes of conformity determinations for any measures that have been either adopted by the enforcing jurisdiction, included in the applicable implementation plan, contained in a written commitment in the submitted implementation plan, or promulgated by EPA as a federal measure. See 40 CFR 93.122(a)(3). Because EPA believes that it will be able to approve the attainment demonstration as all measures will be approved into the SIP in a timely fashion, EPA concludes that it is appropriate to find the budgets adequate at this time based on the commitments in the submitted SIPs to all of the necessary measures. EPA finds that the budget is consistent with attainment and all of the measures meet the requirements of the conformity rule.

Comment: One commenter stated that budgets can not take credit for measures which have not been adopted and are not enforceable, including measures to comply with the NO_x SIP call.

Response: As noted above, EPA agrees that it can not credit measures towards approval of an attainment demonstration unless the measures themselves or an enforceable commitment to adopt the measures are adopted and approved into the federally enforceable SIP, or measures are promulgated as required federal measures. However, EPA is not approving the attainment demonstration at this time. EPA will ensure that all measures are adopted and approved, enforceably committed to, or promulgated, and thus that they are enforceable under the SIP, prior to approval of the attainment demonstration. As also noted above, the conformity rules specifically allow emission reduction credit to be taken for purposes of conformity determinations for any measures that have been either adopted by the enforcing jurisdiction, included in the applicable implementation plan, contained in a written commitment in the submitted implementation plan, or promulgated by EPA as a federal measure. See 40 CFR 93.122(a)(3).

Furthermore, the conformity rule has always provided for SIPs to be used for conformity purposes even where all measures are not fully adopted in enforceable form, provided there are written commitments to such measures. For example, 40 CFR 93.120(a) allows the budgets in a disapproved SIP to be used for conformity purposes if the disapproval is accompanied by a protective finding, i.e., if the SIP includes written commitments to adopt control measures sufficient to satisfy the emissions reductions requirements for attainment, even if the control measures are not already adopted in enforceable form. See 62 FR 43796, first column, for more details. Because the conformity rule clearly envisions that budgets can be used for conformity even if they are based on commitments rather than fully adopted and enforceable measures, EPA believes it is appropriate to find the budgets in the Houston area's attainment demonstration SIP adequate for conformity purposes.

In summary, because all measures which have not yet been adopted are either required as federally promulgated measures or included in enforceable written commitments in the SIP, EPA believes that it can find the budgets adequate consistent with the conformity rule requirements on crediting measures.

With specific reference to measures to comply with the NO_x SIP call, EPA found that current SIPs in 22 states and the District of Columbia (23 jurisdictions) were insufficient to provide for attainment and maintenance of the 1-hour standard because they did not regulate NO_x emissions that significantly contribute to ozone transport. 63 FR 57356 (October 27, 1998). This rule called on the 23 jurisdictions to revise their SIPs to require NO_x emission reductions within the state to a level consistent with a NO_x emissions budget identified in the final rule. This final rule is commonly referred to as the NO_x SIP Call. Although the NO_x SIP submittal date has been indefinitely stayed by a three-judge panel of the Court of Appeals for the District of Columbia Circuit, the rule itself requiring emission reductions to be implemented by May 1, 2003, continues to be in effect. In a March 3, 2000 decision the court upheld the NO_x SIP call in most significant respects. The court remanded and vacated the rule as it applied to three states -- Wisconsin,

Georgia and Missouri, and remanded two relatively small portions of the budget. Michigan v. EPA, No. 98-1497 (D.C. Cir., March 3, 2000). To enable areas to promptly proceed with SIP adoption, EPA has since moved the court to lift the stay of the SIP submittal deadline that the court entered in May 1999. This motion is pending before the court. In the meantime, the rule requiring SIPs to provide for emission reductions by May 1, 2003, remains a federal requirement. Therefore, EPA believes it is appropriate to allow states to continue to assume that reductions from the NO_x SIP Call in areas outside the local 1-hour ozone modeling domain would be in place by that date for purposes of finding budgets adequate.

Please note, while Texas assumed that emission reductions from the NO_x SIP call would be in place by that date, this assumption was used only in setting boundary conditions for the Houston area SIP's modeling. The actual impact of these emission reductions from the NO_x SIP should be quite small since the States under the NO_x SIP call are some distance from the Houston area.

Comment: One commenter stated that there is over crediting of national rules for architectural coatings, auto-refinishing coatings and consumer products. They state the credit claimed is based on EPA estimates of emission reductions from proposed versions of these rules, but the final versions of the rules are weaker than the proposed rules. Therefore, the credit claimed for these national rules should be recalculated to reflect only the actual emission reductions that can be expected under the final EPA rules.

Response:

Architectural Coatings: EPA's March 22, 1995 memorandum⁷ indicated EPA's view that it was acceptable for states to claim a 20% reduction in VOC emissions from the AIM coatings category in ROP and attainment demonstration plans based on the anticipated promulgation of a national AIM coatings rule. In developing the attainment SIP for the Houston area, Texas relied on this memorandum to estimate emission reductions from the anticipated national AIM rule. EPA promulgated the final AIM rule in September 1998, codified at 40 CFR Part 59 Subpart D. In the preamble to EPA's final AIM coatings regulation, EPA estimated that the regulation will result in 20% reduction of nationwide VOC emissions from AIM coatings categories (63 FR 48855). The estimated VOC reductions from the final AIM rule resulted in the same reductions as those estimated in the March 1995 EPA policy memorandum. In accordance with EPA's final regulation, Texas has assumed a 20% reduction from AIM coatings source categories in its attainment modeling. AIM coatings manufacturers were required to be in compliance with the final regulation within one year of promulgation, except for certain pesticide formulations which were given an additional year to comply. Thus all manufacturers were required to comply, at the latest, by September 2000. EPA believes that all emission reductions from the AIM coatings

⁷ "Credit for the 15 Percent Rate-of-Progress Plans for Reductions from the Architectural and Industrial Maintenance (AIM) Coating Rules," March 22, 1995, from John S. Seitz, Director, Office of Air Quality Planning and Standards to Air Division Directors, Regions I - X.

national regulation will occur by 2002 and therefore are creditable in the attainment plan for the Houston area.

Autobody Refinish Coatings Rule: According to EPA's guidance⁸ and proposed national rule, many States have claimed a 37% reduction from this source category based on a proposed rule. However, EPA's final rule, "National Volatile Organic Compound Emission Standards for Automobile Refinish Coatings," published on September 11, 1998 (63 FR 48806), did not regulate lacquer topcoats and will result in a smaller emission reduction of around 33% overall nationwide. The 37% emission reduction from EPA's proposed rule was an estimate of the total nationwide emission reduction. Since this number was an overall average, it was not applicable to any specific area. For example, in California the reduction from the national rule is zero because its rules are more stringent than the national rule.

Texas did not rely on the above guidance. Instead, as part of the development of their 15% Rate of Progress plan, Texas used data for auto-refinishing coating use specific for Texas to estimate the emission reductions from existing state rules. To avoid double counting, they did not assume any additional emission reductions due to the national rule. Therefore, the Houston area's attainment demonstration SIP relied on state rules, not the national rule for its emission reductions. Therefore, the reductions obtained by Texas from its state rule are consistent with the credit which was claimed.

Consumer Products Rule: According to EPA's guidance⁹ and proposed national rule, States have claimed a 20% reduction from this source category. The final rule, "National Volatile Organic Compound Emission Standards for Consumer Products," (63 FR 48819), published on September 11, 1998, will result in a 20% reduction. Therefore the reductions obtained by States from the final national rule are consistent with credit which was claimed.

Comment: One commenter stated the attainment and rate of progress demonstrations are flawed because they assume a fleet mix that does not accurately reflect the growing proportion of sport utility vehicles and gasoline trucks. EPA and the states have not followed a consistent practice in updating SIP modeling to account for changes in vehicle fleets. EPA cannot rationally approve SIPs that are based on such materially inaccurate assumptions. Continued use of out-dated assumptions is inconsistent with the duty imposed by Clean Air Act section 182(a)(3) to triennially update the emission inventory. If the motor vehicle inventory has not been updated to prepare the current SIP submission, it should be disapproved.

⁸ "Credit for the 15 Percent Rate-of-Progress Plans for Reductions from the Architectural and Industrial Maintenance (AIM) Coating Rule and the Autobody Refinishing Rule," November 27, 1994, from John S. Seitz, Director, OAQPS, to Air Division Directors, Regions I - X.

⁹ "Regulatory Schedule for Consumer and Commercial Products under Section 183(e) of the Clean Air Act," June 22, 1995, from John S. Seitz, Director, OAQPS, to Air Division Directors, Regions I - X.

Response: The Houston area attainment demonstration SIP's associated mobile source budgets were based on fleet mix information updated based on a December, 1998 Texas Transportation Institute Report, "Development of Gridded On-road Inventory for the Houston/Galveston Ozone Nonattainment Area." The fleet mix information was based on vehicle counts that were a mix of 1996 data for week days, and 1993 and 1998 data for weekends. This was the most recent data available when Texas submitted the attainment demonstration SIP for the Houston area in November 1999. The attainment demonstration SIP uses more recent data than what was used in the most recent periodic inventory update for 1996.

In the November 3, 1999, "Guidance on Motor Vehicle Emissions Budgets in One-Hour Ozone Attainment Demonstrations," we state that, when developing motor vehicle emissions budgets, the MOBILE inputs (including vehicle fleet characteristics) should be appropriate and up-to-date as outlined in EPA's guidance on SIP inventories and the MOBILE user's guide. We are satisfied that the attainment SIP was based on the latest available information and therefore meets the existing guidance.

Comment: Both commenters stated that the SIP's motor vehicle emissions budgets are inadequate because the SIP does not provide for attainment. The SIP does not provide for sufficient emissions reductions.

Response: As described in the November 3, 1999 memorandum entitled "Guidance on Motor Vehicle Emissions Budgets in One-Hour Ozone Attainment Demonstrations," there are circumstances in which we could find a SIP's motor vehicle emissions budgets adequate even though additional emission reductions are necessary in order to demonstrate attainment.

Specifically, we indicated that motor vehicle emissions budgets could be adequate for conformity purposes if the area commits to adopt measures that will achieve the necessary additional reductions, and the area identifies a menu of possible measures that could achieve the reductions without requiring additional limits on highway construction. The Houston area's SIP contains such enforceable commitments and such a menu as specifically outlined in the next response.

We believe that we can find the Houston area's budgets adequate because the budgets will not interfere with the area's ability to adopt additional measures to attain. Because the additional measures do not involve additional limits on highway construction, allowing new transportation investments to proceed consistent with the budgets will not prevent the area from achieving the additional reductions it needs. While the area is adopting its additional measures, the SIP's budgets will cap motor vehicle emissions and thereby ensure that the amount of additional reductions necessary to demonstrate attainment will not increase.

Comment: One commenter asserted that further NO_x reductions needed for attainment will require additional on-road mobile source controls and these controls will result in a lower motor vehicle emissions budget.

Response: As explained in our prior response, Agency policy for areas needing additional emission reductions has provided that, in certain cases, EPA may determine the budgets adequate even when the SIP includes commitments to additional measures. In the November 3, 1999, memorandum entitled “Guidance on Motor Vehicle Emissions Budgets in One-Hour Ozone Attainment Demonstrations,” the EPA issued guidance regarding such commitments in the ozone attainment demonstrations for the Houston area as well as other areas. This guidance indicates that States could establish budgets based on a set of potential control measures identified in the SIP (from which a set of measures could be selected) that, when implemented, would be expected to provide sufficient additional emission reductions to meet the level of reductions that EPA has identified as necessary for attainment of the standard and a commitment to adopt the measures. These measures may not involve additional limits on highway construction beyond the restrictions already imposed under the submitted motor vehicle emissions budgets. As long as the additional measures do not involve additional limits on highway construction, allowing new transportation investments consistent with the submitted budgets will not prevent the area from achieving the additional reductions that it needs for attainment. In this way, we can find the submitted budgets adequate.

In its May 18, 1998 attainment demonstration SIP submission, Texas provided an enforceable commitment to adopt, by December 31, 2000, all measures necessary for attainment in the Houston area without identifying any specific measures. This commitment was reaffirmed in the November 15, 1999 attainment demonstration SIP submission that identified and modeled specific measures but was not sufficient to show attainment. In a March 14, 2000 letter to EPA, Texas submitted the Houston area’s December 16, 1999 proposed State Implementation Plan (SIP) for EPA’s parallel review for determining the adequacy of the area’s motor vehicle emissions budgets. This SIP which was adopted on April 19, 2000 and received in final form by EPA on April 28, 2000, identified a list of potential control measures (from which a set of measures could be selected) that, when implemented, would be expected to provide sufficient additional emission reductions that EPA has identified as necessary for attainment as called for in our December 16, 1999 Notice of Proposed Rulemaking (64 FR 70548). While the list of potential control measures does include measures that pertain to motor vehicles, none of the measures involves additional limits on highway construction beyond those that could be imposed under the submitted motor vehicle emissions budgets. In addition, the SIP parallel processed for adequacy review and a clarifying commitment letter from Texas on April 7, 2000 makes clear the State’s commitment to recalculate and resubmit revised budgets by December 31, 2000, that includes the effects, if any, of the measure or measures that are ultimately adopted in the Houston area’s attainment demonstration SIP should any of the measures pertain to motor vehicles. If lower budgets result, the transportation investments will still be consistent with the budgets and not prevent the Houston area from achieving attainment because the reductions would not involve additional limits on highway construction.

Comment: Both commenters stated that the motor vehicle emissions budgets are inadequate because they do not provide for all reasonably available control measures to attain the standard as expeditiously as practicable.

Response: Our adequacy criteria in 40 CFR 93.118(e) do not require that the SIP include reasonably available control measures in order for the motor vehicle emissions budgets to be adequate for conformity purposes. Our adequacy review, which is a cursory review process prior to the full approval/disapproval of the SIP, is focused on whether the motor vehicle emissions budgets are part of an overall strategy that is consistent with attainment, and whether the emissions budgets are calculated correctly. As long as the motor vehicle emissions budgets are consistent with attainment, we believe they are adequate for conformity's purpose of preventing new or worsened violations. The Houston area's choice of measures to reach attainment does not affect whether the motor vehicle emissions budgets are adequate for conformity purposes.

Furthermore, our adequacy criteria do not require that EPA definitively conclude that motor vehicle emissions budgets provide for attainment as expeditiously as practicable. In order for the budgets to be adequate for conformity purposes, EPA must simply conclude that the SIP appears to provide for timely attainment, and could meet this test where the SIP provides for attainment by the statutory date or the date provided by bump-up or extension. The cursory adequacy review does not provide an opportunity for us to review and consider all possible measures that could have been adopted to achieve attainment more expeditiously. For the purposes of the adequacy review, which is less extensive than our approval/disapproval action, we consider that the motor vehicle emissions budgets do not delay timely attainment as long as they are consistent with a control strategy that provides for attainment by the statutory date or the date provided by bump-up or extension.

Further, EPA believes that the magnitude of measures associated with the attainment demonstration and the time needed for state adoption and implementation of such measures makes it practically unlikely that the attainment date could be advanced. EPA preliminarily concludes that no group of additional measures could practicably be adopted and implemented in sufficient time to advance the 2007 attainment date for the Houston area to an earlier date.

Therefore, EPA concludes that the budgets in the attainment demonstration are adequate because they are consistent with a demonstration that EPA preliminarily concludes includes sufficient RACM to provide for attainment as expeditiously as practicable.