Since passage of the 1990 Clean Air Act Amendments, air quality planners have prepared state implementation plans to meet milestones dictated by attainment status. Now, planners have a second motivation: conformity. Using case studies in California and Texas, this article illustrates how EPA approval of the latest versions of EMFAC and MOBILE can trigger conformity problems and helps planners identify and avoid conformity “cliffs.”

**INTRODUCTION**

Houston, TX, a city with one of the worst air pollution problems in the United States, may be headed for more trouble. Regional and state officials have a strategy to update the Houston-area ozone (O₃) air quality management plan by May 2004. The U.S. Environmental Protection Agency (EPA) will review and, ideally, find the mobile source emissions inventory portions of the O₃ plan adequate by late 2004. However, Houston’s 2004 air quality plan submittal and review timeframes do not match up well with conformity deadlines. The mismatch is important because it could trigger a conformity lapse that would interrupt the flow of millions of federal transportation dollars to the Houston region. Houston will likely need a conformity finding by January 2004, if not before, for its transportation improvement program (TIP). If EPA completes its emissions inventory review after key conformity deadlines, Houston’s transportation agencies will be unable to demonstrate that their transportation plans and programs are consistent with the region’s air quality improvement strategies. One key to avoiding this dilemma is an earlier start on the air quality planning process.

The Houston example is not unique. Conformity requires cities’ transportation plans and programs throughout the United States to closely match their regional air quality plan counterparts. Failure to create and approve new air quality plans on a schedule that meets conformity deadlines could delay the release of hundreds of millions of dollars in federal highway funds. In the greater Houston area alone, federal highway funding contributed more than $1.5 billion to the region’s 2000–2002 TIP.

This article explains how the conformity process, with its recurring need for comparisons between transportation and air quality plans, is likely to exert a powerful motivating force in the next several years for agencies to develop, submit, and approve new air quality management plans. A unique challenge over the next two to four years will be conformity “cliffs” that are linked directly to the timing of EPA approval of new mobile source emissions modeling tools. These cliffs are the point beyond which conformity determinations become difficult due to EPA requirements to use new modeling tools.

Sometime by mid-2002, EPA is likely to approve EMFAC-2000 for conformity analysis use in California and MOBILE6 for conformity analysis use in the remaining 49 states. EMFAC and MOBILE are the mobile source emissions modeling tools used to create emission inventories for on-road motor vehicles. Both tools have recently been updated, and the conformity regulations require the use of the latest modeling tools. EPA approval of the new EMFAC and MOBILE models will trigger the beginning of two-year grace periods, after which regional transportation plan (RTP) and TIP conformity analyses must use EMFAC-2000- or MOBILE6-modeled mobile source emissions. Depending on when EPA begins these grace periods, metropolitan areas may experience conformity determination problems beginning in 2003 or 2004.

Conformity problems can arise when new versions of EMFAC and MOBILE estimate higher mobile source emissions than previous model versions. During a conformity analysis, transportation planners use the latest planning assumptions and modeling tools to estimate mobile source emissions, then compare their modeled emissions estimates to the most recent EPA-approved mobile source emissions inventories (i.e., “emissions budgets”) contained in air quality management...
planning. When air quality management plans are based on older versions of EMFAC or MOBILE, the mobile source emissions budgets are often smaller than emissions estimates produced by new modeling tools. Conformity findings become difficult when new emissions estimates are compared to emissions budgets based on older model versions.

States may avoid conformity problems by moving aggressively to update, submit, and receive EPA-approval for air quality state implementation plans (SIPs) using the new modeling tools. Alternatively, EPA can forestall conformity problems by delaying approval of new models. As described later in this article, many states will face a significant challenge to update and receive EPA approval for SIPs prior to the time EMFAC-2000 or MOBILE6 is required for conformity use. Throughout the United States, current EPA-approved SIPs are based on mobile source emissions budgets established using earlier EMFAC and MOBILE model versions (EMFAC-7F and 7G in California; MOBILE5 in the other 49 states). EMFAC-2000- and MOBILE6-based emission estimates tend to be substantially higher than emission estimates derived from earlier models, depending on the analysis year. Higher emission estimates are related to new information about vehicle emissions and control program effectiveness. In some cases, updated tools forecast substantially lower future-year emissions, due in part to recently adopted control programs not incorporated in older modeling tools. Most important, however, is that for many areas, unless current SIP emissions budgets are replaced with EPA-approved budgets developed using the latest models, RTP and TIP conformity determinations will be difficult once the new models are required.

EMISSIONS DIFFERENCES BETWEEN MODELS

EMFAC-2000 base-year (2000) emissions are significantly higher than those estimated by EMFAC-7G; and, in most cases, the same trend holds for future-year (2010) emissions. California Air Resources Board (CARB) analyses using statewide data indicate that year 2000 EMFAC-2000 hydrocarbon (HC) and carbon monoxide (CO) emissions are 56% and 54% higher, respectively, than comparable emissions estimated using EMFAC-7G; and year 2000 oxides of nitrogen (NOx) emissions are 18% higher with EMFAC-2000. CARB estimates that for 2010, EMFAC-2000 HC and CO emissions will be 63% and 13% higher, respectively, than EMFAC-7G estimates, while EMFAC-2000-based NOx emissions will be 10% lower than those estimated by EMFAC-7G. Differences in specific areas vary somewhat from the statewide data, due to use of county-level vehicle fleet data in EMFAC-2000 rather than statewide fleet data.
data in earlier versions. Improved understanding about real-world driving behavior, the relationship between vehicle speed and emissions, vehicle exhaust test data, the age of the vehicle fleet and other factors have all contributed to increased emissions estimates.4,5

Likewise, EPA analyses show that MOBILE6 estimates result in volatile organic compound (VOC), NOx, and CO emissions that are higher than those estimated by MOBILE5, beginning in 2001 and continuing through sometime between 2004 and 2008, depending upon the pollutant.6 EPA’s estimates are based on national data and will likely differ by metropolitan area and fleet mix. Near-term emissions are higher with MOBILE6 owing to improved understanding of acceleration and air conditioning effects, sulfur impacts on catalytic converters, the age of the vehicle fleet, and the increased number of sport utility vehicles; longer-term projections for reduced emissions give greater credit to emission control technology durability, the implementation of Tier II vehicle standards, and EPA new-vehicle certification requirements that include more realistic driving behavior, among other factors.6

**CONFORMITY IMPLICATIONS**

Case studies of Los Angeles, Sacramento, and Houston are included in this article to illustrate how the timing of EMFAC-2000 and MOBILE6 approvals could affect conformity. For each case study, we examined the expected timing of future SIP, RTP, and TIP updates, and compared those milestones to the required use of the latest EMFAC or MOBILE model. To identify potential conformity problems, the case study findings are predicated on several important assumptions, which facilitate metropolitan area comparisons.

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**SIP Development Assumptions**

Areas using EMFAC-2000 or MOBILE6 to update their SIPs will generally be creating substantially revised air quality management plans compared to those plans created with earlier tools. The process for creating a SIP is typically an 18- to 24-month endeavor. Conversations with planners in both the Sacramento and San Diego areas, for example, confirm that SIP development timeframes of 18 months or longer will probably be necessary for their regions.7,8 Timeframes have extended even further in some areas. For example, in the Los Angeles (South Coast) area, a new plan is taking almost three years to develop and adopt.9,10 Houston-area officials are already conducting technical work in 2001 to support a “mid-course correction” O3 SIP for spring of 2004.11,12 For the purposes of this study, we assume that metropolitan areas are able to develop and submit SIPs to EPA within an 18-month period, premised on the idea that areas will be motivated to accelerate SIP submissions to avoid conformity problems.

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**EPA SIP Approval Action Assumptions**

EPA typically takes at least 18 to 36 months to act on a SIP submission. The Clean Air Act allows EPA up to 18 months to make a SIP determination and to act to approve or disapprove the SIP.13 In practice, EPA action may take longer for a variety of reasons, including the desire to give areas time to correct plan deficiencies, to determine whether attainment milestones will be met, or simply to accommodate further EPA review. In some circumstances, citizen lawsuits have motivated court actions to compel expedited EPA reviews.

There are cases where EPA has acted relatively quickly to approve SIP amendments that correct important deficiencies. For example, on December 10, 1999, the South Coast Air Quality Management District (SCAQMD) adopted O3 plan amendments to respond to EPA concerns with the Los Angeles-area 1997 O3 plan. The plan amendments included revised emissions inventories and budgets. CARB submitted the SIP revision to EPA on February 4, 2000. EPA’s final approval action was published in the Federal Register on April 10, 2000, and became effective May 10, 2000 (a three-month approval period from date of EPA submission to effective date of final approval).14

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**Figure 1.** Sample 36-month timeline assuming “normal” SIP development and approval, and an alternate 18- to 30-month timeline assuming EPA “parallel processing.”
Notwithstanding its ability to act quickly on SIP amendments, EPA has historically taken one year or longer to review and act on substantial SIP revisions, such as the creation of new attainment plans. The following are examples of EPA SIP approval actions in California:\textsuperscript{15}

- Santa Barbara’s revised $O_3$ plan, submitted to EPA in March 1999 and approved by EPA in August 2000 (17-month approval period).
- SCAQMD CO attainment plan, submitted to EPA in February 1997 and granted an interim approval by EPA in April 1998 (14-month approval period).
- Owens Valley PM\textsubscript{10} plan, submitted to EPA in December 1998 and approved by EPA in August 1999 (8-month approval period following lengthy negotiations and legal action).
- SCAQMD PM\textsubscript{10} plan, submitted in February 1997; EPA approval action is still pending (no final action in more than four years).

A subset of EPA SIP review and approval is EPA’s adequacy review for the mobile source portion of the SIP’s emissions inventory. The adequacy review focuses on proper inventory documentation, emissions budget identification, and consistency with SIP control measures and emissions reduction requirements.\textsuperscript{16} Generally, in cases where there are no prior EPA-approved mobile source emissions inventories, an EPA adequacy determination is all that is necessary to establish emissions budgets for conformity purposes. EPA attempts to complete adequacy reviews within three months of a SIP submittal.\textsuperscript{17}

EPA final SIP approval actions must be published in the \textit{Federal Register} (a process that takes approximately one month from signature) and generally become effective 30 days after publication. Any conformity timeframe dependent upon EPA SIP approval action should include the two months needed between EPA signature and approval effective date. For the purposes of this article, we assume that final EPA SIP approvals become effective within 18 months of EPA submission. As with SIP development and submission, we assume EPA will be motivated to accelerate SIP approvals to avoid conformity problems.

**Assumed SIP Development and Approval Timelines**

Figure 1 illustrates a sample 36-month timeline for development and approval of a substantial SIP revision. It is based on an assumed 18-month timeframe needed to create, adopt, and submit a substantial SIP revision to EPA and an additional 18-month timeframe needed for EPA approval action. EPA sometimes has the ability to parallel process SIPs, which means EPA may review the SIPs for approval purposes while they are still under development. Figure 1 also includes an alternative timeline of an 18- to 30-month window as a possible range needed to complete both SIP development and approval, assuming some parallel processing by EPA (the 18- to 30-month range is quite rough and will vary by SIP action). For illustrative purposes, it is based on the assumption that SIP development work began June 1, 2001. Note that, in this article, we assume the SIP development and approval process is a 36-month endeavor. Actual timelines will vary by area and will reflect air district, metropolitan planning organization (MPO), state air agency, and EPA workloads; SIP approval issues; and the degree to which parallel processing occurs.

**Assumed RTP, TIP Adoption and Approval Timelines**

MPOs generally prepare RTPs and TIPs in a 6- to 18-month window, depending on the complexity of the plan, the level of community consensus concerning projects, and the

**Figure 2.** Los Angeles may avoid conformity problems, assuming EPA SIP approval within 18 months of SIP submittal or TIP approval prior to the end of the EMFAC grace period.
difficulty in achieving a successful conformity determination. In Los Angeles, for example, the Southern California Association of Governments (SCAG) had an adoption schedule for the fiscal year 2001 TIP that ran from February through August 2001 (a 7-month schedule). In San Francisco, the Metropolitan Transportation Commission is in the midst of what it terms “a year-long effort to update the Bay Area’s long-range transportation plan.”

Typically, the Federal Highway Administration (FHWA) takes two to three months to approve RTPs and TIPs once they have been submitted. As examples, the San Diego Association of Governments (SANDAG) adopted its 2000 RTP and TIP in February and July, respectively, and received FHWA approval for the RTP in April and the TIP in October. The Sacramento Area Council of Governments (SACOG) is planning a May or June 2002 RTP submittal to FHWA, with approval expected by July 2002. Approvals have generally been processed more quickly during periods when conformity problems were imminent.

In this article, we assume RTP and TIP development can occur within the timeframes mandated by conformity and federal transportation planning statutes and regulations; in other words, well within the 18 months required following submission of a SIP with new emissions budgets. We also assume that FHWA requires approximately two months for RTP and TIP conformity determinations.

**Additional Assumptions**

- EPA issues a single, nationwide approval for use of MOBILE6 and a single, California-wide approval for the use of EMFAC-2000. The two-year grace periods triggered by these approvals will apply uniformly across all affected areas. (EPA may issue a statewide approval for EMFAC-2001, rather than EMFAC-2000, however, the same conformity concepts will apply.)
- EPA approval of both EMFAC-2000 and MOBILE6 for conformity purposes effective October 1, 2001. Although EPA is likely to approve the tools in separate actions, it is not yet clear when EPA will approve the models; we assume an October 2001 approval date to illustrate conformity implications. We therefore assume that the two-year grace period for using older EMFAC and MOBILE versions will expire September 30, 2003.
- EMFAC-2000 and MOBILE6 emissions estimates will be substantially higher than EMFAC-7F/7G or MOBILE5 estimates for base- and near-term future-year inventories. Higher emissions make it difficult to use EMFAC-2000- or MOBILE6-based emissions inventories to demonstrate conformity against emissions budgets established with EMFAC-7F/7G or MOBILE5.
- Planned SIP submittals to EPA will be relatively problem-free and will not require changes that would slow a “typical” EPA approval process.
- MPOs will adhere to required RTP and TIP approval process calendars (i.e., every three years for an RTP update, every two years for a TIP update). This assumption ignores the routine nature of TIP updates, which can occur several times per year in some regions. More frequent TIP or RTP updates could trigger earlier conformity problems than those presented in this article.
- MPOs will perform RTP and TIP updates within 18 months of a SIP submittal or budget adequacy finding that establishes new motor vehicle emissions budgets (40 CFR 93.104 requires updates within 18 months of a SIP submittal; EPA has proposed changing the requirement to within 18 months of a budget adequacy determination).
- EMFAC-2000- and MOBILE6-based conformity determinations are achievable when compared to EMFAC-2000- and MOBILE6-based emissions budgets. In other words, we assume EMFAC-2000- and MOBILE6-based attainment strategies are sound, and control measure implementation is proceeding on schedule; if control measures are not being implemented on schedule, conformity determinations may be difficult regardless of the modeling tool used.
The findings detailed in this article are valuable as a planning resource, even if particular assumptions or milestones change. If, for example, EPA chooses to approve MOBILE6 or EMFAC-2000 effective February 1, 2002, some of the timelines discussed here would simply slip back by four months. Readers should use the material discussed in this article to construct scenarios relevant to their areas and should adjust those scenarios accordingly to fit real-world actions.

**SCHEDULES FOR RTP, TIP, AND SIP UPDATES**

The conformity regulations require RTPs and TIPs to pass conformity analysis tests a minimum of every three years. Federal transportation planning requirements mandate TIP updates every two years; therefore, failure to complete a TIP update within the two-year window would invalidate an existing TIP’s conformity status. In practice, some MPOs amend their TIPs and perform conformity analyses on an annual (and sometimes more frequent) basis. In Sacramento, for example, SACC0G has routinely performed one to two TIP conformity analyses in each of the past several years, including three TIP analyses in 1998 alone. FHWA practice has been to measure conformity deadlines from major TIP and RTP conformity updates, not intermediate TIP evaluations, so these routine updates usually require conformity analyses in addition to the required two-year (TIP) and three-year (RTP) conformity deadlines.

An additional consideration involves RTP and TIP updates triggered by SIP submissions. In addition to the routine RTP and TIP updates, regulations require new RTP and TIP conformity determinations within 18 months of SIP submittals that establish new emissions budgets. Any substantial SIP revision, therefore, triggers a new round of RTP and TIP conformity analyses independent of preexisting RTP and TIP updates. Table 1 identifies dates for the most recent federal RTP and TIP conformity approvals, as well as required and planned RTP and TIP updates for Los Angeles, Sacramento, and Houston. Table 1 also lists anticipated SIP updates for these three areas.

**TIMELINES AND POTENTIAL PROBLEMS**

This discussion provides a synthesis of the various timeframes necessary for RTP, TIP, and SIP adoptions and approvals, and links these timeframes to the two-year grace period following an EMFAC-2000 or MOBILE6 approval. Figures 2 through 4 illustrate how EMFAC approval could affect conformity for the Los Angeles, Sacramento, and Houston areas. The Los Angeles case study illustrates an area that is not expected to be adversely affected by approval of a new modeling tool (see Figure 2).
Sacramento and Houston illustrate how EMFAC and MOBILE approvals may trigger potential problems (see Figures 3 and 4, respectively). The timelines presented for Sacramento and Houston identify the time period most problematic for conformity purposes: the period following the end of the two-year grace period and preceding an EPA emissions budget adequacy determination or an EPA final approval of a SIP that includes EMFAC-2000- or MOBILE6-based on-road mobile source emissions budgets. Conformity problems are most likely when existing emissions budgets must be replaced by a SIP approval, rather than simply supplemented with future-year budgets through an adequacy finding. As illustrated in Figures 3 and 4, EPA approval of EMFAC-2000 or MOBILE6 could generate significant conformity challenges.

**Los Angeles**

Based on the assumptions outlined earlier, and the RTP, TIP, and SIP schedule information included in Table 1, Los Angeles should avoid conformity problems related to an EPA EMFAC-2000 approval. SCAG plans a TIP update in mid-2002 and will likely update its RTP by 2004. According to CARB, SCAQMD is likely to submit an updated SIP to EPA by the end of 2001. If EPA were to approve the SIP within 18 months, EMFAC-2000-based emissions budgets would be available for use well before the expiration of the EMFAC grace period. Figure 2 illustrates the Los Angeles area RTP, TIP, and SIP timelines. Even if the Los Angeles SIP development effort is delayed beyond the schedule presented here, the Los Angeles example in this article illustrates how timely SIP development and approval actions can help avoid conformity difficulties.

**Sacramento**

The Sacramento case study illustrates the problems that result from the lack of a scheduled SIP update. Discussions with Sacramento Metropolitan Air Quality Management District (SMAQMD) staff suggest that an O₃ SIP update is likely sometime in the next three to four years. A 1-hr O₃ SIP update may be prepared in coordination with an 8-hr O₃ SIP, or a 1-hr O₃ SIP may be required to address conformity. SMAQMD is also in discussions with EPA concerning a change in PM₁₀ nonattainment status, and a new PM₁₀ SIP may be required to address agreements with EPA. However, as of mid-2001, there are no definite plans to update the SIP. In a worst-case scenario (one that assumes no SIP updates), Sacramento can complete one more cycle of RTP and TIP updates. Conformity problems are likely to arise beginning October 1, 2003, the end of the two-year EMFAC grace period. Existing emissions budgets have been created based on EMFAC-7F; thus, conformity tests requiring EMFAC-2000 are likely to fail once the EMFAC grace period ends. As illustrated in Figure 3, the first time a conformity problem is most likely to occur is October 2004, when a TIP is due to be approved on the normal two-year update cycle. This would be followed by an RTP failure in July 2005, when a new RTP would have to be approved. Note, however, that the Sacramento MPO typically undertakes at least one TIP update each year; thus, it is likely that conformity problems could develop earlier than the timeline portrayed in Figure 3.

**Houston**

The Houston case study illustrates the problems with a SIP update that is planned to take place too far in the future to avoid conformity challenges. As with most conformity case studies, Houston’s situation is complex. Houston last submitted a major O₃ SIP revision to EPA in December 2000. The December 2000 SIP contained MOBILE5-based emissions budgets for 2002, 2005, and 2007. On October 15, 2001, EPA announced that it was approving the December 2000 SIP and its MOBILE5-based mobile source emissions budgets. However, EPA’s SIP approval means that Houston can only use the MOBILE5-based emissions budgets for conformity purposes for approximately
12 months after the release of MOBILE6. EPA’s SIP approval is designed to encourage the prompt submission of a MOBILE6-based replacement SIP. The Houston O₃ SIP relies upon emissions reductions from EPA’s Tier II/Low Sulfur Fuel program, which is fully addressed in MOBILE6 but not in MOBILE5. Consequently, EPA wants Houston and other areas relying on Tier II/Low Sulfur Fuel to prepare MOBILE6-based SIPs as soon as possible.26 The state environmental agency, the Texas Natural Resource Conservation Commission (TNRCC), committed to perform new mobile source modeling within 24 months of MOBILE6’s release, and to submit a MOBILE6-based “mid-course” SIP revision by May 1, 2004.11,12,27

EPA has established a unique conformity policy for areas that are relying on the Tier II/Low Sulfur Fuel program. EPA is approving SIPs with MOBILE5-based budgets, but is terminating the emissions budget approval within 12 months of MOBILE6’s release. To compensate, EPA is allowing affected areas to use MOBILE6-based emissions budgets in conformity determinations once EPA finds the budgets adequate. Normally, the only method to replace a mobile source emissions budget from an approved SIP is another SIP approval action. In Houston’s case, EPA is allowing a MOBILE6-based budget adequacy determination to replace MOBILE5 budgets included in Houston’s December 2000 O₃ SIP.27 Assuming Texas submits its MOBILE6-based SIP on May 1, 2004, EPA anticipates making a mobile source emissions budget adequacy finding by September 2004.28

The Houston-Galveston Area Council (the MPO for Houston) plans to receive FHWA approval for a TIP update by December 31, 2001, and for an RTP update by June 2002.29 The June 2002 deadline is triggered by the need to obtain a new conformity determination within 18 months of the December 2000 O₃ SIP submittal.11 Given EPA approval of the December 2000 SIP, the December 2001 and June 2002 conformity analyses must demonstrate that the 2002, 2005, and 2007 MOBILE5-based emissions budgets can be met.

As illustrated in Figure 4, the Houston area could experience conformity problems beginning January 2004 and lasting through August 2004. The December 2001 and June 2002 conformity determinations can be made using MOBILE5-based emissions and are therefore not problematic. Under the assumptions outlined earlier, the grace period to use MOBILE5 ends September 30, 2003. Houston will need a new TIP by January 2004 (per 23 CFR 450.324[b])21 and a new RTP by June 2004 (per 40 CFR 93.104[b][3]).16 However, EPA will not receive a MOBILE6-based O₃ SIP until approximately May 2004, and an EPA adequacy determination on the emissions budgets will likely be delayed until September 2004. Hence, a conformity lapse would occur, triggered by the lack of adequate MOBILE6-based emissions budgets until September 2004. In addition, any RTP or TIP amendments would be problematic beginning 12 months following the release of MOBILE6. Given the frequency with which MPOs update TIPs, the potential problem conformity window in Houston could extend from late 2002 through mid to late 2004.

MITIGATING FACTORS
Some factors may mitigate the extent to which an area experiences problems. Although the grace period for using older emissions modeling tools is a maximum two-year window, the transportation conformity rule allows conformity analyses to employ older model versions as long as the analysis begins within the two-year window. Analyses do not necessarily need to be completed within the two-year grace period. The distinction between starting an analysis and completing an analysis within the grace period may, in fact, add up to six...
months to the effective timeline available to regions wishing to use older emissions modeling tools. In addition, areas have flexibility as to when to initiate TIP and RTP updates. Some areas may find it expedient to begin TIP or RTP updates earlier than required in order to initiate updates within the two-year grace period.

A second important consideration that could mitigate potential problems is whether EPA-approved emissions budgets exist for future years. If an existing EPA-approved SIP has created future-year emissions budgets based on older EMFAC or MOBILE model versions, a new EPA approval action is generally required to replace existing emissions budgets with new ones. (The Houston example provides an exception to this rule, however.) The existence of EPA-approved emissions budgets means that a SIP submittal based on new EMFAC or MOBILE versions will require EPA approval before the emissions budgets from the new SIP may be used. However, if existing EPA-approved SIPs, based on older EMFAC or MOBILE model versions, do not include future-year mobile source emissions budgets, then a new SIP submittal can more quickly create budgets for future years. When new budgets are not replacing EPA-approved existing budgets, the new budgets may be used for conformity once EPA makes an emissions budget adequacy determination, a process that should take approximately 90 days. The key distinction involves determining whether an EPA SIP approval action is required, which could take up to 18 months, or whether an EPA emissions budget adequacy determination is required, which might take only three months. In either situation, one strategy to mitigate conformity problems is to aggressively pursue SIP updates and appropriate EPA SIP approval or adequacy determination actions.

Finally, upcoming EPA conformity rule corrections may extend the time available to complete some conformity determinations. Currently, new TIP and RTP conformity determinations are required within 18 months of a SIP submittal. However, as explained in an EPA policy memorandum (dated May 9, 2001), a court decision made in March 1999 effectively overturned the 18-month conformity clock related to SIP submittals. EPA interprets the 1999 court action to trigger an 18-month clock for new conformity determinations once EPA finds a SIP emissions budget “adequate,” rather than 18 months following a SIP submittal. Since EPA has approximately 90 days following a SIP submittal to make an emissions budget adequacy determination, the net effect of EPA's policy interpretation is to extend from 18 to 21 months the time areas have to determine TIP and RTP conformity following a SIP submittal. EPA published a proposed rulemaking on October 5, 2001 to implement this policy change. Note that in the Sacramento case study, conformity problems are related to the need for approved emissions budgets to replace future-year budgets already in the SIP, and the need to update TIPs every two years. In other words, the Sacramento problems illustrated here would not be solved by EPA's plan to extend the time available for TIP and RTP conformity determinations that follow SIP submittals.

CONCLUSIONS
Conformity challenges are likely if, by sometime in 2002, EPA approves new versions of EMFAC and MOBILE for conformity purposes and triggers two-year modeling grace periods that phase out the use of older model versions in conformity analyses. Not all areas will experience conformity problems. Metropolitan areas actively engaged in SIP updates may avoid problems if they submit SIPs to EPA within the next two years, and EPA can act to approve the SIPs within a “typical” approval period, assumed here to be 18 months. Metropolitan areas that delay SIP updates until 2003 or later may be exposed to significant conformity risk. Extensive interagency effort is needed during this transition period to expedite SIP preparation and approvals.

The case studies included in this article are simplified for presentation purposes. For example, the Sacramento case study is presented by illustrating TIP updates every two years, the minimum requirement, rather than the more frequent cycle that takes place (Sacramento completed three TIP updates in 1998 alone). Similarly, the Los Angeles case study focuses only
on O₃ SIP milestones, rather than on SIP actions applicable to other pollutants such as CO or PM₁₀. The main purpose of the article is to illustrate the kinds of conformity challenges that might occur due to EMFAC and MOBILE approvals, resulting in two-year grace periods, and the requirement to use the latest approved modeling tool at the end of the grace window; and to motivate each region to independently evaluate how to adjust TIP, RTP, and SIP update schedules to avoid conformity problems.

In summary, the three most critical variables determining whether an area experiences conformity problems are

1. the date an EMFAC or MOBILE two-year grace period begins;
2. whether future-year emissions budgets are established by EPA budget adequacy determinations or EPA SIP approval actions; and
3. the time required for SIP development, submittal, and approval.

EPA SIP approval action within 18 months of submittal is especially important given the conformity requirement to update RTPs and TIPs within 18 months of submittal of a new budget. EPA will have additional time to finalize SIP approvals after the conformity regulations change to match court decisions, but final actions will still be needed within approximately 21 months from the SIP submittal date. The dates presented in this article are illustrations, and each area should analyze how an EMFAC or MOBILE approval would affect conformity in their region.

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