COMMENTS ON PROPOSED INTERIM MOTOR VEHICLE EMISSIONS BUDGETS FOR SOUTH COAST AIR BASIN

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The Coalition for Clean Air, Coalition for a Safe Environment, Endangered Habitats League, Environmental Defense Fund, East Yard Communities for Environmental Justice, Coalition for a Safe Environment, and the Natural Resources Defense Council submit these comments on the proposal by the California Air Resources Board ("CARB") to adopt motor vehicle emissions budgets (MVEBs) as part of the Air Quality Management Plans (AQMP) for Ozone and PM2.5 that have been submitted to EPA as part of the State Implementation Plan (SIP) for the South Coast Air Basin ("SCAB"). The proposed budgets are currently under consideration by EPA to determine if they meet the criteria for an adequate budget that can be used for conformity purposes prior to EPA's approval of the attainment demonstration and implementing measures. For the reasons described below, the proposed interim budgets for PM2.5 do not meet the federal requirements for adequacy and should not be approved by EPA until California submits a complete attainment demonstration for all portions of the SCAB and adopts additional measures as needed to achieve the emission reductions required by the Clean Air Act ("CAA" or "Act") to achieve reasonable further progress ("RFP") prior to the attainment deadline, and to attain the National Ambient Air Quality Standards ("NAAQS") by the attainment deadline.

Executive Summary.

Commenters object to EPA's approval of the submitted interim budgets for PM2.5 based on two broad concerns:

I) The failure of the attainment demonstration to –

A) Identify the elevated concentrations of PM2.5 in the near-highway environment that have been shown by numerous studies to significantly exceed concentrations recorded at regional monitors, and

B) Estimate the emissions reductions needed to attain the NAAQS in the near-highway environment and include a control strategy designed to reduce these elevated near-highway concentrations to the level of the NAAQS; and

II) The reliance in the AQMP on measures that may not be implemented in the relevant horizon year (or at all), for the purpose of demonstrating attainment and RFP, including but not limited to, emissions reductions expected from the marine vessel fuel rule recently set aside by the United States Court of Appeal for the Ninth Circuit, emissions reductions attributed to EPA's locomotive rule which are not projected to be achieved by 2014, and emission reductions from non-

road engines assumed in the AQMP, but that may not be mandatory. Further, CARB has failed to include several strategies aimed at reducing rail emissions.

Until the emissions reductions needed to attain the annual and 24-hour NAAQS for PM2.5 in the near-highway environment are known, the emissions reductions needed to meet the RFP targets in the milestone years cannot be determined. Unlike ozone, where the RFP targets require a fixed annual reduction in emissions at the rate of 3% of the baseline emissions inventory, the RFP targets for PM2.5 are based on the annual reductions needed to achieve the overall reduction target required for attainment. The adopted AQMP contains emission reductions that will achieve the regional reductions shown by the modeling to be necessary for attainment at monitors that do not reflect the incremental impact of highway emissions in the near-highway environment. The attainment demonstration in the AQMP fails to estimate the reductions in primary particulate emissions from highways needed to attain in the near-highway environment where approximately 1.5 million citizens in the SCAB within 300 meters of major freeways carrying more than 125,000 vehicles a day will be exposed daily to continuing NAAQS violations. The RFP targets that will be needed to attain the NAAQS in all communities in the Basin cannot be determined from the adopted AQMP. All that can be said is that the overall reductions in the adopted AQMP are not sufficient to eliminate the NAAQS violations in the near-highway environment, and therefore the RFP targets based on that plan cannot be adequate to achieve the percentage reductions that will be needed for an adequate attainment demonstration. For this reason, the proposed emissions budgets cannot be adequate for conformity purposes, and do not meet EPA's requirements for adequate emission budgets. 40 CFR § 93.118(e)(4).

In addition, EPA requires that emissions budgets be based upon emissions reductions that can be expected from adopted measures. 40 CFR § 93.118(e)(4)(v). The proposed budgets for both ozone and PM2.5 are based, in part, on emission reductions expected from measures identified in the AQMP that may not be achieved, and will not be achieved because they are not based on any currently adopted, legally enforceable obligation.

Until an attainment demonstration for PM2.5 is adopted that provides for attainment in the near-highway environment, and the measures needed to achieve the reductions required to attain are identified, it is premature to establish any emission budgets for PM2.5 emissions from motor vehicles. In addition, until the measures needed to achieve reasonable further progress for ozone are adopted, proposed RFP budgets for ozone cannot be adequate. We therefore ask EPA to postpone action on the submitted interim budgets until these deficiencies in the AQMP are remedied.

I. MOTOR VEHICLE EMISSION BUDGETS MUST BE ADEQUATE TO PROVIDE FOR ATTAINMENT AND REASONABLE FURTHER PROGRESS.

To satisfy the Act's conformity requirements (id., §7606(c)), the SIP, including its MVEB, must ensure that "emissions expected from the implementation of [transportation] plans and programs are consistent with ... necessary emissions reductions" from the SIP. Id., §7506(c)(2)(A). EPA has interpreted the necessary emission reductions to be those reductions needed to attain the NAAQS and the interim emission reduction milestones required for RFP. EPA's conformity rule

requires that "when considered together with all other emissions sources, [the MVEB must be] consistent with applicable requirements for . . . attainment" and be "consistent with and clearly related to the emissions inventory and control measures" in the SIP. 40 C.F.R. Part 93.118(e)(4)(iv-v). The adopted AQMP is facially inadequate, admitting insufficient control measures to accomplish the daily emissions reductions necessary to attain the PM2.5 and ozone standards. These shortfalls are relevant to the adequacy of the MVEBs, since motor vehicles are the largest single source of ozone precursors and the primary emitter of elemental carbon, one of the 6 critical species of PM2.5 in the South Coast air Basin.

EPA defines and describes the role of MVEBs in the SIP as follows:

> "Motor Vehicle Emissions Budget is that portion of the total allowable emissions defined in the [SIP] … for the purpose of … demonstrating attainment … of the NAAQS … allocated to highway and transit vehicle use and emissions." 40 C.F.R. Part 93.101.

> "Motor vehicle emissions budgets are the . . . motor vehicle-related portions of the projected emissions inventory used to demonstrate . . . attainment . . . for a particular year specified in the SIP. The motor vehicle emissions budget establishes a cap on emissions which cannot be exceeded by predicted highway and transit vehicle emissions." 58 Fed. Reg. 62,194 (November 24, 1993).

The MVEBs adopted in the SIP for a nonattainment area are implemented through the transportation planning process by the adoption of a long range Regional Transportation Plan ("RTP") and short range Transportation Improvement Program ("TIP") that "shall implement the transportation provisions of any [SIP] applicable to all or part of the area covered by such transportation plan or program." 42 U.S.C. §7506(c)(2). The RTP defines the future regional transportation system envisioned for a 20-year horizon, and the TIP prioritizes the projects to be funded in the next three years. 23 U.S.C. §134(g), (h). The RTP and TIP are required to be adopted by the metropolitan planning organization ("MPO"). Id. To ensure that the RTP and TIP do not cause emissions that exceed the MVEBs, "[n]o [MPO] shall give its approval to any project, program or plan which does not conform to an implementation plan approved or promulgated under section 7410 of this title." 42 U.S.C. §7506(c)(1). Further, "no [RTP or TIP] may be adopted by a metropolitan planning organization … until a final determination has been made that such plans and programs are consistent with the estimates of emissions from motor vehicle and necessary emissions reductions contained in the applicable implementation plan". Id. §7506(c)(2)(A)(emphasis added). Conforming to a SIP requires a determination that RTPs, TIPs and projects conform to a SIP's purpose of expeditious attainment of the ambient air quality standards, §7506(c)(1)(A), and that such transportation plans, programs and projects will not:

> (i) cause or contribute to any new violation of any standard in any area;
> (ii) increase the frequency or severity of any existing violation of any standard in any area; or
> (iii) delay timely attainment of any standard or any required interim emission reductions or other milestone in any area. Id., §7506(c)(1)(B).

In addition to establishing obligations that the MPO must satisfy, the Act also requires that "[n]o federal agency may approve, accept or fund any transportation plan, program or project unless such plan, program or project has been found to conform to any applicable implementation plan in effect under this chapter." Id., §7506(c)(2). The U.S. Department of Transportation ("US DOT") may not "approve[], accept[] or fund[]" a project unless it comes from a conforming regional plan and TIP. Id., §7506(c)(2)(C).

MVEBs thus set limits on motor vehicle emissions that must be achieved by the RTP and TIP adopted by the regional transportation agencies and approved by US DOT. If the MVEBs are set too high and transportation projects are constructed that, through their design, generate more air pollution than is consistent with expeditious attainment of the ambient air quality standard, the Act's conformity requirements are thwarted.

A. MVEBs From SIPs That Do Not Attain Must be Disapproved.

The Ninth Circuit Court of Appeals has consistently held that a SIP that fails to require emissions reductions needed for attainment may not be approved. Delaney v. EPA, 898 F.2d 998 (9th Cir.), cert.denied, 111 S.Ct. 556 (1990), Arizona v. Thomas, 294 F.2d 834 (9th Cir. 1987), Hall v. EPA, 263 F.3d at 937. Concluding that the basic criteria for SIP review adopted by the Supreme Court in 1975 continue to apply to the 1990 Amendments, this Court recently reiterated that "[t]he objective of the EPA's analysis is to determine whether 'the ultimate effect of a State's choice of emission limitations is compliance with [NAAQS].' Train, 421 U.S. at 79." Hall v. EPA, 263 F.3d at 937. "EPA must determine the extent of pollution reductions that are required and determine whether the emissions reductions effected by the proposed revisions will be adequate to the task." Id., at 938. If the emission limitations are not sufficient to attain, "the EPA should disapprove a plan revision if 'the plan as so revised would no longer insure timely attainment of the national standards.' Id. at 90. See also id. at 93 (stating that a revision would be disapproved if it 'caused a plan to fail to insure maintenance of those standards')." Id., 936.

Here, EPA's obligation is to disapprove the attainment demonstration in the submitted PM2.5 SIP for the SCAB because the demonstration fails to assess the reductions of primary PM2.5 emissions from highways that are needed to demonstrate attainment in the near-highway environment, and fails to include control measures needed for attainment. The control measures needed for some of the emissions reductions have not been identified, adopted or submitted to EPA. *A fortiori*, the MVEB from this SIP also fails to provide for attainment because the allowed motor vehicle emissions, when considered together with other measures in the SIP, do not provide for attainment. A MVEB that does not provide for attainment, does not provide the "necessary emissions reductions" required by §7506(c)(2)(A), or the emissions reductions necessary to ensure that the transportation plan and program for the region "will not cause or contribute to any new violation, [or] delay timely attainment" as required by §7506(c)(1)(B)(iii). Accordingly, such budgets may not be approved as a partial SIP under the Act, or found adequate for transportation conformity purposes under EPA's conformity rule.

There is no dispute that the AQMP does not contain enough enforceable control measures or even identified and committed measures to provide for attainment of either the PM2.5 or ozone NAAQS as required by section 7502(c)(1) and (6) and EPA rules governing the requirements for an approvable SIP.[1]

Indeed, the SIP does not even identify proposed or candidate control measures that might be conditionally approved under section 7410(k)(4). The ARB has identified some measures to be considered for adoption to achieve the overall reductions identified in the attainment demonstration, ARB Resolution 07-28, Attachment B, but these measures do not include commitments to achieve specific reductions within the 1 year period allowed by the CAA. Under these facts where the State acknowledges that the SIP does not contain adopted measures that provide for attainment, and where the evidence shows that the attainment demonstration itself is not adequate, it is unlawful to nonetheless approve that part of the SIP that will be used to determine the maximum allowable emissions from the regional transportation system for the next 20 years. EPA cannot approve the submitted budgets because "the EPA's analysis [cannot] 'rationally connect[]' its approval of particular plan revisions before it to its assessment of an area's prospects for meeting current attainment requirements." Hall, 263 F.3d at 939. Without further emissions reductions, EPA's approval of the MVEBs in the submitted plan gives the regional transportation planning agencies a green light to use inflated emissions budgets for the design of the future regional transportation system and in approving TIPs and transportation projects. EPA may not make lawful a level of emissions from the transportation system that will perpetuate existing nonattainment.

This result is expressly prohibited by the conformity rule EPA promulgated in 1997 to govern the determination whether MVEBs in a SIP may be found adequate for the purpose of implementing the conformity requirements of §7506(c):

> EPA will not find a motor vehicle emissions budget in a submitted control strategy implementation plan revision … to be adequate for transportation conformity purposes unless … : (iv) the motor vehicle emissions budget(s), when considered together with all other emissions sources, is consistent with applicable requirements for … attainment... 40 C.F.R. Part 93.118(e)(4).

In the preamble to its conformity rule, EPA explained that this rule required MVEBs to be part of a SIP that provides for attainment. "When considered with point, area and mobile sources, the emissions budget(s) must be consistent with applicable requirements for … attainment." 62 Fed. Reg. 43,781 (Aug. 15, 1997). In that rulemaking, EPA expressly rejected arguments that MVEBs in SIP submittals that failed to include emissions reductions sufficient to provide for attainment should nonetheless be allowed to be used for RTP and TIP conformity determinations until adequate emissions control measures were submitted by the State:

[1] "Each plan must demonstrate that the measures, rules, and regulations contained in it are adequate to provide for the timely attainment and maintenance of the national standard that it implements." 40 C.F.R. Part 51.112(a).

> [I]f a SIP does not identify enough emissions reductions and the motor vehicle budget does not provide for … attainment, then there is no basis to claim that a transportation activity conforms.
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> EPA believes it is not possible to find new projects to conform if the SIP does not identify enough emissions reductions and the motor vehicle budget does not provide for … attainment. Clean Air Act section 176(c)[(1)(B)(i)-(iii)] requires that projects must not worsen violations or delay attainment, and there is no basis to make this claim if the SIP has been disapproved. Additional transportation projects may worsen existing violations.

Transportation Conformity Rule Amendments, EPA Response to Comments Document, at 34, 35 (June 23, 1997) (emphasis added).EPA expressly interpreted §7506(c) and Part 93.118(e)(4)(iv) to bar the use of budgets to determine the conformity of new transportation projects when the SIP does not contain sufficient emissions reductions to provide for attainment.

In its review of EPA's conformity rule, the U.S. Court of Appeals for the District of Columbia also interpreted the Act to bar use of a MVEB for conformity purposes if the SIP from which it came failed to require enough emissions reductions to provide for attainment. EDF v. EPA, 167 F.3d 641, 650 (D.C. Cir. 1999). EPA originally adopted a rule allowing submitted budgets to be used for transportation conformity purposes without any EPA review or approval of the SIP. The D.C. Circuit rejected the use of submitted budgets by transportation agencies for making conformity determinations before EPA found them adequate precisely because there was no basis for determining that RTPs and TIPs designed to meet the emissions levels in submitted budgets would satisfy the three statutory conformity criteria contained in §7506(c)(1)(B)(i)-(iii). As the Court explained, when EPA failed to:

> determin[e] that [the SIP revision] contains adequate measures to reduce emissions to statutorily required levels, … there is no reason to believe that transportation plans and programs conforming to the submitted budgets "will not—(i) cause or contribute to any new violation of any standard in any area; (ii) increase the frequency or severity of any existing violation of any standard in any area; or (iii) delay timely attainment of any standard…. 42 U.S.C. §7506(c)(1)(B). EDF v. EPA, 167 F.3d at 650.

If a rule that allowed conformity determinations to be based on submitted budgets in SIPs is inconsistent with §7506(c) because EPA had not yet determined that the SIP provided sufficient emissions reductions to attain, then, *a fortiori*, a MVEB must not be lawful for conformity purposes where the State has affirmatively acknowledged that the SIP does NOT reduce emissions to the levels required for attainment. EPA would need to perpetuate the unlawful policy struck down by the D.C. Circuit in order to find adequate the MVEBs from a SIP that does not contain the emissions reductions needed for attainment, or for RFP. If EPA concludes that the SIP fails to contain sufficient emissions reductions for attainment or RFP, the legal result must be the same as when EPA had made no findings at all: there is no basis for determining that transportation plans and programs conforming to the submitted budgets will not violate the statutory criteria for conformity.

Here the State seeks to circumvent these limitations on EPA's ability to approve the submitted budgets by relying on the measures listed in ARB Resolution 07-28 Attachment B. But these measures are proposed for consideration, are not committed to be adopted within the 1 year period allowed by § 7410(k)(4) of the Clean Air Act, and are not committed to achieve specific emission reductions. EPA may not lawfully rely on this Resolution to conditionally approve the AQMP pursuant to § 7410(k)(4).

B. EPA Action on the MVEBs Requires Notice and Comment.

It is well-settled that EPA action on a SIP revision is governed by notice and comment procedures required by the APA. "The APA requires an agency to: (1) publish a general notice of proposed rulemaking; (2) give interested parties an opportunity to participate in the rulemaking through submission of data, views, and arguments; and (3) adopt a rule after consideration of the relevant matter presented." Hall v. EPA, 263 F.3d at 941, citing Ober v. EPA, 84 F.3d at 312.

EPA cannot act to give legal effect to the submitted MVEBs without first publishing notice of proposed rulemaking and providing an opportunity for public comment in response to a proposed action. Here, EPA has merely posted a notice on a website stating that the SIP had been received. No specific action has been proposed. Public comment cannot focus on a proposed action.

EPA's determination of the adequacy of a MVEB as part of the SIP would be final agency action because it would establish obligations with legal consequences. Bennett v. Spear, 520 U.S. 154, 177-78 (1997). EPA's decision determines the rights of the public in the implementation of one of the most critical part of the Basin's air pollution control strategy, and the duties of the region's transportation agencies to implement that strategy. 42 U.S.C. §7506(c)(2). Once the MVEBs are found adequate by EPA, they become the limits on motor vehicle emissions that must be met as the condition required for adoption and approval of transportation plans, programs and projects. 40 C.F.R. Part 93.118(e)(1).[2] "In order for each transportation plan, program and FHWA/FTA project to be found to conform, the MPO and DOT must demonstrate that the applicable criteria and procedures in this subpart are satisfied…." 40 C.F.R. Part 93.109(a). The finding of conformity includes a demonstration that motor vehicle emissions will be equal to or less than the approved MVEB. 40 C.F.R. Part 93.118(a). Thus the MVEBs impose important legal obligations on transportation agencies that must be satisfied before transportation plans and programs may be approved. Individual transportation projects may not be approved or funded unless they come from a currently conforming plan and TIP. 42 U.S.C. §7506(c)(2)(C); EDF v. EPA, 167 F.3d at 645-650. Once approved, the MVEBs in the South Coast SIP establish requirements that must be satisfied as a condition for the allocation and expenditure of billions in federal and state transportation funds annually.

[2] Although commenters disagree that action on a budget may preclude effective judicial relief, EPA contends that once an RTP, TIP or project has been found to conform on a MVEB adequate at the time, the finding cannot be subsequently cancelled. 40 CFR § 93.118(e)(3). Not only is EPA's MVEB adequacy determination binding on transportation agencies, the determination is allegedly irreversible thereby making it binding on the Courts and precluding judicial reversal of an unlawful action after judicial review. This unquestionably defines the adequacy determination as final agency action escalating the APA significance of the adequacy determination.

EPA cannot lawfully give legal effect to the submitted budgets without first publishing a notice of proposed rulemaking with a statement of basis and purpose that would apprise interested parties of the action the Agency intends to take and the reasons supporting the action. To date, interested parties have been given no notice of whether EPA considers the SIP and attainment demonstration approvable under section 110, and why the submitted MVEBs are approvable as part of the attainment SIP. Nor has the Agency identified the criteria that are applicable and relevant for making that determination. Without some notice of the Agency's intention and the reasons supporting the proposal, commenters are being denied the procedures guaranteed by the APA that protect our opportunity to submit meaningful comments relevant to the basis for Agency action. Commenters therefore request that EPA not take action to give legal effect to these submitted budgets without first providing an opportunity for notice and comment pursuant to 5 USC § 553.

II. ATTAINMENT DEMONSTRATION DOES NOT PROVIDE FOR ATTAINMENT IN COMMUNITIES ADJACENT TO HEAVILY TRAVELED FREEWAYS.

The attainment demonstration in the adopted AQMP does not estimate the emissions reductions that will be needed to attain either the annual or the 24-hour NAAQS for PM2.5 in the near-highway environment where primary particles emitted from motor vehicles and re-entrained dust cause or contribute to concentrations well-above those used to determine the design value for the region and the regional attainment demonstration. Emissions from heavily traveled freeways have been shown to add from 1 to 14 μg/m3 of elemental carbon, a major component PM2.5, to concentrations measured at regional monitors more than 300 to 500 meters distant from major highways. In the South Coast Air Basin, commenters estimate that approximately 1.5 million people live within this near-highway environment where elevated concentrations of PM2.5 are expected.

A. Reliable Scientific Evidence Shows Elevated PM2.5 in the Near-Highway Environment.

The evidence that highway emissions have a significant impact on air quality in the near-highway environment is not new. MATES-II first identified the importance of highway emissions in 2000. [Attached as Exhibit A]. Although MATES-II was focused on the significance of diesel particulate as the largest source of cancer risk in the air basin, it also provided important findings that demonstrated that higher levels of diesel pollution occur near highways. The Report found the greatest exposure to diesel PM at locations where "the dominance of mobile sources is even greater than at other sites." It also found that "model results, which are more complete in describing risk levels…than is possible with the monitored data, show that the higher risk levels occur… near freeways." "Results show that the higher pollutant concentrations generally occur near their emission sources." These findings provided evidence that neighborhoods near highways would experience higher concentrations than the regional averages. Based on these observations, MATES-II concluded that "[f]or mobile source compounds such as benzene, 1-3 butadiene, and particulates associated with diesel fuels, higher concentration levels are seen along freeways and freeway junctions." This work identified the near-highway environment as a high risk environment where elevated levels of PM would be expected because of emissions from diesel vehicles.

This triggered further research in the region. A team from USC conducted seminal studies to measure the concentrations of highway pollutants as a function of distance from the I-710 and I-405 freeways. [Attached as Exhibit B] Both studies included measurements of concentrations of CO and black carbon (BC) at increasing distances from the freeway. CO and BC were intentionally selected because their ambient concentrations are strongly related to vehicle emissions. Black carbon, also measured as elemental carbon (EC) in the monitoring reported in MATES-II and MATES-III [Attached as Exhibit C], is a species of PM2.5 that was used in the MATES-II study as a measure of diesel PM in the Air Basin. The MATES-III study reported more recent investigations showing that elemental carbon is an inadequate measure of diesel PM, and that other methods show that total diesel PM is at least 72% greater than elemental carbon. MATES-III, p. 2-9. The AQMP relies on the MATES-III data to identify elemental carbon as one of the six major species of PM2.5 in the South Coast air shed that contribute significantly to PM2.5 nonattainment.

The freeway studies show the dramatic increase in BC/EC in the near-highway environment. The studies measured concentrations at five distances downwind from the freeway and upwind from the freeways. By comparing the upwind measurements which provide a good estimate of regional carbon loadings in the Air Basin with the downwind measurements, these studies provide a good estimate of the increase in concentrations of primary carbon particles emitted from highways in the vicinity of major highways compared to regional concentrations measured in the urban air shed.

The BC measurements from each of the freeway studies are summarized separately below along with measured upper and lower limits, and the observed difference between the comparable upwind and downwind BC concentrations:

Measured Average (and Upper and Lower Limit) BC Concentrations at Increasing Distances from the 405 Freeway

Downwind Distance (m)	BC (µg/m3)	BC (µg/m3) Downwind-Upwind Average Concentration
30	5.4 (3.4-10.0)	4.75
60	3.2 (3.0-3.5)	2.55
90	2.5 (2.4-2.6)	1.85
150	1.6 (1.1-2.0)	0.95
300	1.3 (1.1-1.5)	0.65

Measured Average (and Upper and Lower Limit) BC Concentrations at Increasing Distances from the 710 Freeway

Downwind Distance (m)	BC (µg/m3)	BC (µg/m3) Downwind-Upwind Average Concentration
200 m (upwind)	4.6 (3.1-5.9)	
17 m	21.7 (20.3-24.8)	17.1
20	19.4 (16.5-21.6)	14.8
30	17.1 (12.6-19.3)	12.5
90	7.8 (4.5-9.3)	3.2
150	6.5 (3.9-9.2)	1.9
300	5.5 (3.5-7.7)	0.9

Notice the large increase in the near-highway concentrations of BC downwind of the I-710 compared to the I-405. The Interstate 710 study was conducted in part because the freeway has a much higher percentage of heavy-duty diesel truck travel than the Interstate 405 freeway. Average traffic flow during sampling periods was 12,180 vehicles per hour with more than 25 percent of vehicles being heavy-duty diesel trucks. This is perhaps the highest density of diesel truck traffic anywhere in the U.S. Measurements were taken at 17, 20, 30, 90, 150 and 300 meters downwind and 200 meters upwind from the center of the freeway. As with the 405 freeway study, relative concentrations of CO and BC downwind from the freeway were found to be many micrograms per cubic meter greater than upwind concentrations and tracked each other well as one moves away from the freeway.

These studies show that in the impact zone downwind of a heavily traveled freeway in the Air Basin with average truck traffic (I-405), emissions of BC from the freeway will add 4.75 µg/m3 to PM2.5 at 30 meters from the freeway dropping off to 0.65 µg/m3 greater than the regional concentration at 300 meters, and that a freeway with heavy truck traffic will add 12.5 µg/m3 at 30 meters dropping off a 1.9 µg/m3 increase above the regional levels at 300 meters.

The incremental effect of highway emissions downwind from the I-710 have been confirmed in recent weeks by data released as part of the deployment of Mobile Monitoring Platform Results in the I-710 corridor. See Mobile Monitoring Platform Update and Results reported by CARB, April17, 2008, at the HCMS Community Meeting, Wilmington Senior Center. [Attached as Exhibit D]. These results include BC concentrations within the so-called buffer zone 500 feet from the freeway compared with results measured beyond the 500 feet buffer. Concentrations measured in West Long Beach residential area on the morning of July 17, 2007, show nearly a four-fold greater BC level within 500 feet from the 710 freeway compared to the same neighborhood outside the 500 feet zone (18 vs 5 µg/m3). This difference of 13 µg/m3 is highly consistent with the upwind/downwind results reported in the original 710 study.

These results were supported by measurements made in other regions. A study in Seattle, WA (Curtis, Gilroy, and Harper, 2004) measured the relationship between BC levels at an urban near-roadway monitoring site, and a heavily traveled freeway. [Attached as Exhibit E] This study

showed that there were frequently peak evening rush hour BC levels of 5 µg/m3 or above near I-5. The BC data was obtained from the Olive Street monitoring site located at the EPA-designated microscale within the I-5 traffic corridor. The traffic volumes and BC readings correlate well, supporting the hypothesis that traffic is a major contributor to PM2.5 at the site, given that BC originates from motor vehicle exhausts as ultrafine or fine particles. The Olive Street air monitoring site is about 20 meters west of the southbound lane of I-5 in the CBD. This area of I-5 contains express lanes along with several high use overpasses which all contribute to the area traffic. Daily volumes along this section of I-5 average 284,700 vehicles per day (in 2003). Light-duty traffic has peak weekday flows above 10,000 vehicles per hour, with diesel traffic of about 1,000 vehicles per hour (10%). BC tends to peak during weekdays with high traffic volumes, and is sharply lower on weekends. This reduction parallels the significantly lower weekend diesel traffic volumes. Peak BC measurements occur during the afternoon rush hour (4-6 pm). Correlations between light-duty vehicle volumes and BC peaks (readings above 5 µg/m3) are better than those between diesel truck volumes and BC peaks. This may occur because light-duty volumes overwhelm diesel truck volumes during this peak period (93 percent of the traffic volume is from light-duty vehicles).

The Seattle study also measured BC at a Beacon Hill site about 600 meters from a major freeway, which is used as the urban background for Seattle. Hourly BC readings during the study period stayed within the range of 0 to 2 µg/m3, with readings mostly below 1.0 µg/m3. Comparing these sites demonstrates results similar to the data obtained from the I-405 study with BC concentrations in the near-highway environment being about 4 µg/m3 greater than the urban regional concentration.

The East Bay (California) Children's Respiratory Health study (Kim et al., 2004), conducted with support from Cal EPA's Office of Environmental Health Hazard Assessment, obtained measurements of PM2.5 concentrations at monitors located in the schoolyards of 10 middle schools in communities across the East Bay. [Attached as Exhibit F] This study reported the distance of each monitor from major freeways, the traffic density on the nearest freeway, and whether the school was located downwind of the traffic source. The PM2.5 measured at the school closest to (60 meters), and downwind from a major freeway, was 15 µg/m3 which was 3 µg/m3 greater than the 12 µg/m3 PM2.5 concentrations reported at the regional air district network monitor located about 1 mile from major traffic sources.

The recently released West Oakland Health Risk Assessment conducted by the ARB provides similar results from a modeling study that shows highly elevated concentrations of diesel PM in a neighborhood downwind of the Port of Oakland and surrounded by heavily traveled major freeways. [Attached as Exhibit G—but appendicies A through E not attached and available at http://www.arb.ca.gov/ch/communities/ra/westoakland/westoakland.htm]. The risk assessment showed that despite the significant contribution of emissions from ocean going vessels, local watercraft, railyard and port activities, the emissions from non-port related on-road truck operations accounted for 80% of the diesel PM in West Oakland.

These and other studies provide credible evidence that PM2.5 concentrations in the near-highway environment are expected to range from 3 µg/m3 to as much as 13 µg/m3 greater than

concentrations measured at regional monitors located outside the high impact zone of heavily traveled freeways.

Data from these highway studies were expressly relied upon by US EPA to decide that it must establish a transportation conformity program to review the localized impacts of PM2.5 emissions from highways. See Transportation "hot spot" rule, 71 Fed.Reg. 12468, 12494 (March 10, 2006). EPA concluded that the evidence of localized impacts from highways was sufficiently compelling to require that "it is essential that a quantitative PM2.5 or PM10 hot-spot analysis be performed for all projects of air quality concern." *Id.* If the evidence of localized impacts was sufficient to justify a national regulatory program to protect against NAAQS violations caused by new highways, it is also compelling enough to require a quantitative analysis to ensure that the SIP will protect against existing localized NAAQS violations caused by highway emissions.

B. Exposed Population in Near-Highway Environment is Significant.

To determine the public health significance of human exposures to the elevated concentrations occurring in the near-highway environment, Environmental Defense Fund performed an exposure analysis that plotted all limited access highway links in the South Coast air Basin with annual average daily traffic (AADT) greater than 125,000, and then used available 2000 census data to estimate the population within 300 meters of these highway links.[3] The 125,000 AADT threshold was selected based upon EPA's determination that this is an appropriate traffic threshold for identifying highway "projects of air quality concern" as a trigger for performing a transportation "hot spot" analysis for PM2.5. See 71 Fed. Reg. 12,468. The 300 meter impact zone is based on the evidence discussed above showing that the elevated BC and PM2.5 concentrations associated with highway emissions is significant at 300 meters from highways. This analysis shows that approximately 1.5 million citizens within the SCAB reside within the 300 meter high impact zone adjacent to major freeways.

C. Attainment Demonstration Fails to Protect Against Elevated PM2.5 in the Near-Highway Environment.

The PM2.5 concentrations expected in the near-highway environment are not reflected in the adopted attainment demonstration because neither the monitored concentrations of PM2.5 used to select the design value for the attainment demonstration, nor the modeling analysis used to demonstrate future attainment account for the increased PM2.5 concentrations in the near-roadside environment.

1. Monitors Not Located to Measure PM2.5 In Near-Highway Environment.

The monitors selected to determine the design value for the South Coast air basin are not located in the near-highway environment.

[3] The methodology used and software applied to perform this analysis is explained in Exhibit H hereto.

The highest annual and 24-hour design values among the network sites are recorded at Rubidoux in Riverside County. For this reason, the measurements at this site play an important role in the development of the attainment demonstration. But this site is not located in a near-highway environment. The Site Survey Report for the monitor describes the location as residential, with residential traffic of only 10,000 vehicles per day within 25 meters. Based on this description of the site, it is apparent that the design value does not reflect the incremental impact of primary aerosols emitted from a nearby heavily traveled highway.

Another site with a high design value is Fontana/Arrow Highway. The Site Report for this location describes the monitor as being 85 meters from an arterial roadway carrying 28500 vehicles per day. This is not a major highway.

The Wilmington site is in the neighborhood west of the I-710, but it too is more than 300 meters from the freeway and not located in the high impact area where vehicle emissions would be expected to contribute to higher PM2.5 concentrations.

These site locations are not in close proximity to major freeways, and do not detect the incremental impact of highway emissions. A control strategy that is adequate to reduce the concentrations at these sites to attain the NAAQS cannot be shown to reduce the higher concentrations in the near-highway environment to the level of the NAAQS.

2. Large-Scale Regional Modeling Does Not Predict Impact of Reductions in Highway Emissions.

The modeling analysis performed for the attainment demonstration uses the CAMx model, which is the same model applied to demonstrate ozone attainment. This is a regional airshed model that aggregates emissions and estimates ambient concentrations for a grid that is made up of cells 5 km on a side. AQMP, Appendix V, p. 2-15. But for the purpose of comparing modeling results with monitoring station measurements, the results are averaged over nine grid squares. “The CAMx modeling results are presented based on a nearest nine-grid-cell average basis. Performance evaluations at each station are based on this average concentration.” *Id.*, p.2-24.

This approach may be suitable for the purpose of estimating concentrations of secondary species that are formed after primary pollutants are cooked in the chemical soup of the Air Basin, but this large scale averaging provides no useful information regarding the dispersion of primary pollutants emitted from large sources such as highways.

Unlike secondary particulate species which become particles downwind from their point of emission as gases, the elemental carbon and aerosol VOCs emitted from tailpipes, road dust, tire and brake pad particles are emitted directly from highways to the atmosphere, and are most highly concentrated at the source. The regional grid modeling analysis performed by CAMx aggregates these emissions and averages them over large regions, rather than recognizing them as being most highly concentrated at the point of origin. EPA explained in its guidance regarding PM attainment demonstrations that “[d]ispersion models are better able to capture the influence of primary PM sources where large concentration gradients may exist. Grid models spread out the PM emissions to

the size of the grid (typically 4 or 12 km). This makes it difficult to judge the benefits of control strategies that may affect primary PM sources." 72 Fed. Reg. 20607-08. The large-scale regional modeling analysis performed for the SCAB cannot, and does not, predict concentrations of the primary species in the near-highway environment. Given the limitations of this large scale tool for predicting the impact of primary PM emissions from sources on local ambient concentrations, the attainment demonstration in the adopted AQMP cannot be approved as adequate to demonstrate attainment in the near-highway environment.

3. Small Scale Modeling Tools Are Available.

EPA's modeling guidance identifies the problem we identify here, and suggests suitable models for assessing the expected ambient impacts of primary PM emissions on locations that are not represented by the monitoring network. The modeling guidance warns specifically of the possibility that high concentration locations affected by emissions of primary PM will be missed:

> Focusing the modeled attainment test only at monitoring sites could result in control targets which are too low if the monitoring network is limited or poorly designed.
> We recommend a test which includes a review of the strategy's impact at locations without monitors. This exercise provides a supplemental test to determine whether there is a need for further action despite passing the modeled attainment test at all monitoring sites.

"Guidance on the Use of Models and Other Analyses for Demonstrating Attainment of Air Quality Goals for Ozone, PM2.5, and Regional Haze," p.19 [Attached as Exhibit I]. In the situation where highways are the most significant source of primary carbonaceous PM2.5, and a monitoring network that does not include any monitors located within the high concentration zone representing the exposure of populations adjacent to highways, an additional investigation is clearly required.

Two recent studies demonstrate the modeling tools available for estimating the near-highway impacts of primary PM emitted from highways. The West Oakland health risk assessment uses a fine scale (250M x 250M) dispersion model nested with a larger scale model to identify the impacts of highway emissions on the adjacent community. The dispersion modeling analysis performed by E.H. Pechan and Associates to assess likely neighborhood scale impacts from the Intercounty Connector highway project in suburban Maryland also demonstrates the availability of CalQH3R for this application. Both modeling studies estimated near-highway impacts greater than 4 μg/m3. [Attached as Exhibit I(a)].

III. CONTROL MEASURES NOT AVAILABLE TO DEMONSTRATE THAT EMISSION REDUCTIONS WILL BE ACHIEVED.

On March 13, 2008, the Coalition for Clean Air, NRDC, and Earthjustice submitted comments objecting to the original emissions budgets submitted by CARB to EPA. [Attached as Exhibit J]. We continue to remain concerned about the issues raised in the March 13, 2008 letter, and for this reason have resubmitted these comments with this submission.

As previously articulated in that letter, longstanding US EPA policy governing the standards for SIP approval requires that each control measure in the SIP contain six basic elements necessary to provide minimum assurance that it will result in the emissions reductions credited to it. These elements include:

1. evidence of adoption of the measures in legally enforceable form or a binding schedule for adoption;[4]
2. a description of each measure with "detail and clarity," identifying which entity is responsible for implementation and what "actions are to be taken";[5]
3. a "thorough demonstrate[ion] that the measures are capable of achieving the estimated emission reduction benefits."[6]
4. an emission reduction estimate for each measure;[7]
5. provisions for monitoring and reporting on implementation and effectiveness;[8]
6. an "identification of and commitment to the financial and manpower resources necessary to carry out the plan."[9]

Many of the measures in California's SIP submittal do not meet these requirements. We are particularly concerned that CARB in its pursuit of flexibility has crafted the form of the commitments made throughout the SIP in such a way that it prevents enforcement by US EPA or anyone else seeking to enforce this SIP. Furthermore we are very concerned that many of the measures in the SIP lack sufficient specificity to quantify the reductions that could be achieved, be implemented to ensure reductions at the level claimed for the measure, monitored for progress, and enforced.

The current submission also does not comply with section 110(k)(4) of the Act, which notes that EPA "may approve a plan revision based on a commitment of the State to adopt specific enforceable measures by a date certain, but not later than 1 year after the date of approval of the plan revision." There must be a commitment by CARB and/or the SCAQMD to adopt enforceable measures within 1 year of a conditional approval by EPA. Since additional enforceable commitments are necessary to reach attainment and one or more RFP milestones, EPA cannot at this time conditionally approve the plan.

Moreover, additional emissions reductions are not solely necessary to meet attainment after the last milestone year, but rather are required to meet one or more RFP milestones. There are four additional comments worth referencing at this time.

First, given that the Pacific Merchant Shipping Association succeeded in PMSA v. Goldstene, No. 07-16695 (9th Cir. 2008), the challenged CARB's Auxiliary Engine Rule is set aside and may not be enforced until EPA grants a waiver. Until EPA grants the waiver, the associated emissions reductions may not be credited toward the reductions in the SIP for the

[4] *See* 43 Fed. Reg. 21,673-75 (May 19, 1978)
[5] 55 Fed. Reg. 36456, 36487 (Sept. 5, 1990).
[6] *Id.*
[7] *Id.*
[8] 55 Fed. Reg. at 36487.
[9] *Id.*

purpose of setting emissions budgets for the South Coast. Moreover, the United States Court of Appeals for the Ninth Circuit recently denied a petition for re-hearing. It is our understanding that under both sets of budgets submitted by CARB reductions associated with the Auxiliary Engine regulation are assumed as achieving reductions during all milestone period because this regulation was adopted prior to October of 2006. Since the emissions reduction associated with this regulation cannot be credited until further action by EPA, CARB cannot take credit for them.

Second, in Table 4, there is an assumption that 10 tpd of NOx in 2014 will come from federal reductions, namely reduction in pollution from locomotives. To date, the US EPA has not taken action needed to achieve these reductions. The budgets cannot assume these emissions reductions.

Third, the South Coast Air Quality Management District ("SCAQMD") is set to vote on the Surplus Off-Road Opt-In for NOx Program and Adopt Proposed Rule 2449 – Control of Oxides of Nitrogen Emissions from Off-Road Diesel Vehicles on May 2nd, 2008. Currently, there is an option to have this program be either mandatory or voluntary. If the SCAQMD Governing Board decides to implement a voluntary program, the 12 tpd of NOx emissions reductions assumed within the SIP cannot be assumed within the budgets. Until the Board acts, credit may not be taken for these reductions.

Fourth, since the submission of the March 13th letter, we have identified a deficiency in the SIP and associated budgets related to failure to include additional commitments on rail pollution. CARB's own 2007 and 2008 risk assessment for California railyards shows significantly increased air toxic cancer and non-cancer health risks. PM2.5 primary and precursor emissions also are documented. For example, CARB's April 16, 2008 draft health risk assessment for residential areas adjacent to the San Bernardino BNSF railyard showed high levels of criteria and greenhouse pollutants emitted by California railyards. In fact, CARB's 2007 SIP strategy documents admit that the severity of the region's PM2.5 problem and the attainment deadline make it necessary to further mitigate locomotive emissions in 2014."

In the absence of demonstrated reductions from the federal new locomotive rule sufficient to achieve the reductions assumed in the AQMP, the State must adopt rules sufficient to make up the shortfall between the federal rule and the reductions assumed in the AQMP before these reductions can be assumed for RFP purposes. The State has regulatory options available to achieve these reductions.

Federal pre-emption of the regulation of railyard sources is limited to new engines and engine remanufacture. US EPA's analysis in support of its new locomotive regulations admits that the Act does not, for example, pre-empt switcher locomotive rules which "may be subject to regulation by California and other states." See 72 Fed. Reg. 15971. According to CARB's own models, switchers are responsible for 11% of the total PM emissions from the four Commerce Railyards. The CAA pre-emption for the regulation of new engines also does not prevent the State from regulating the use of engines, including the number of engines operating in a yard, the hours of operation, or the meteorological conditions under which operations may be permitted. Just as the

Act does not limit a state's authority to regulate the use of motor vehicles, it also does not limit authority to regulate the use of other mobile sources.

Appropriately tailored measures to achieve the PM2.5 reductions from locomotives assumed in the SIP should include:

1. CARB adoption of South Coast AQMD Rules 3501-3503 for idling limits, recordkeeping and modeling rules for all interstate and intrastate locomotives;
2. Rules that limit switcher locomotive to 15 minute idling, as well as rules that require the retrofit of switcher locomotives for the purpose of emission reduction
3. Idling and plug-in rules for refrigerated units while not in transit
4. In-use testing for compliance with federal standards
5. Remote sensing for compliance with federal standards
6. Diesel particulate filters on all interstate and intrastate locomotives
7. Idling regulations for locomotive maintenance facilities and /or stationary emission control device regulations (such as hood technology)
8. Stepped-up enforcement with more rigorous standards than the 2005 MOU
9. Regulatory measure that requires the development and implementation of emissions reduction plan for each Railyard with components that address proximity to sensitive receptors
10. Electric rail-mounted container gantry cranes

CONCLUSION.

Until CARB submits an attainment demonstration for PM2.5 that provides for attainment in the near-highway environment, and the measures needed to achieve the reductions required to attain are identified, quantified and adopted in legally enforceable form, it is premature to establish any emission budgets for PM2.5 emissions from motor vehicles. In addition, until the measures needed to achieve reasonable further progress for ozone are adopted, proposed RFP budgets for ozone cannot be adequate. We therefore ask EPA to postpone action on the submitted interim budgets until these deficiencies in the AQMP are remedied.

Respectfully submitted April 28, 2008.