

**COALITION FOR CLEAN AIR
COMMUNITIES FOR A BETTER ENVIRONMENT
ENDANGERED HABITATS LEAGUE
ENVIRONMENTAL DEFENSE
ENVIRONMENT NOW
NATURAL RESOURCES DEFENSE COUNCIL**

December 1, 2006

Via Email and U.S.P.S.

Mr. Joseph Cassmassi
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South Coast Air Quality Management District
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Dear Mr. Cassmassi:

On behalf of the undersigned groups, we provide initial comments on the South Coast Air Quality Management District (“AQMD” or “District”) Draft 2007 Air Quality Management Plan (“AQMP”). We appreciate the opportunity to comment on this draft early in the process. We look forward to further participation in developing the AQMP, and request that the suggestions in this letter be incorporated into subsequent versions of the document. Given the length and expansiveness of the draft AQMP, these comments solely serve as our initial comments on the draft plan. We will provide further comments later in the process. Further, while we focused our comments on select issues, we reserve the right to provide additional comments on measures and issues not touched on in this letter.

Our comments are organized into seven main sections: Section I discusses the extent to which the District has relied on “black box” reductions and why use of the black box should be kept to a minimum. Section II discusses the ways the District’s new technology provisions do not meet Clean Air Act (“CAA”) criteria. In Section III, we comment on specific short and mid-term measures. Section IV highlights the specific problems that stationary sources, in particular, pose with respect to environmental justice considerations. In Section V, we comment on the District’s on-road mobile source reduction measures. Section VI concerns ways in which the District may

compel action from other responsible agencies, and Section VII offers additional measures that the District should consider including in the AQMP.

I. AQMD Should Minimize Its Reliance On “Black Box” Emissions Reductions.

As it did in its 1994, 1997 and 2003 AQMPs, the District relies significantly on vague control measures that, presumably, will be based upon new technology and/or improvement of existing technology, “which cannot be specifically defined at this time.”¹ In our view, Section 182(e)(5) of the CAA (“Section 182(e)(5)”) offers the District and its residents an unfavorable trade-off. While use of these undefined “black box” reductions might make it easier for AQMD or the California Air Resources Board (“CARB”) to get a State Implementation Plan (“SIP”) revision approved in the short term, in reality, it constitutes little more than a deferral of AQMD/CARB responsibility to achieve the federal standards, during which time residents of the South Coast Air Basin (“SCAB” or “Basin”) will continue to breathe dangerously high levels of air pollutants. Moreover, as the AQMD is well aware, in exchange for the re-designation from “severe” to “extreme” nonattainment status that is necessary in order to use the black box provision, Section 182(e)(5) imposes stricter reasonable further progress requirements, a higher threshold for satisfaction of applicable offset requirements, and a more expansive definition of the “major stationary sources” that would require special permits.²

In addition to strongly objecting to the use of black box reductions, we are concerned about the estimated size of the black box. Of the 186 tons per day (“tpd”) reduction of NO_x needed to meet the 2021 deadline, 40 tpd, or 14%, has been attributed to black-box control measures. While this is significantly less than the District’s previous estimate in its 2003 AQMP (76% of NO_x emissions allocated to black box), it still is too high. Similarly, out of an overall VOC reduction target of 300 tpd, a whopping 135 tpd have been tossed into the box, which translates to a 45% reliance on loosely-defined speculative measures. Although this too is less than the corresponding figure offered in the 2003 AQMP (71% of VOC reductions allocated to black box), it is still much too high, especially considering that the District’s black box estimates are merely best-case scenarios. That is, the AQMD’s estimates of 45% VOC black box emissions and 14% NO_x black box emissions reflect the proportions “after implementation of the short-term and mid-term control measures.”³ Thus, AQMD’s black box allocation figures reflect emissions remaining after successful implementation not only of the District’s stationary and mobile source control measures, but *also* all 26 recommended state and federal control measures. As it is unlikely that CARB and the Environmental Protection Agency (“EPA”) will collectively adopt all of the recommended measures, the actual black box allocations of both VOCs and NO_x will likely be higher than the provided estimates. The AQMP should reflect this fact.

In short, while we recognize the enormous task the AQMD is faced with, it is best, for both the District and its residents, to work with CARB, the Southern California Association of Governments (“SCAG”), and EPA towards full attainment status in the present instead of

¹ Draft 2007 AQMP, at 4-48.

² 42 U.S.C. § 7511a(e).

³ Draft 2007 AQMP, at 4-48.

delaying reduction efforts until some later unspecified time. Thus, we urge AQMD to re-evaluate and strengthen its mid-term and short-term measures and ensure that CARB, SCAG, and EPA take measures to achieve the necessary reductions. The District's discussion of "Recommended State and Federal Stationary and Mobile Source Control Measures" in Appendix IV-B is a good first step. If the District insists on using the black box, the numbers must be reduced to as small as possible instead of relying on unspecified reductions in the future.

II. All Section 182(e)(5) Measures Must Meet CAA Criteria to Support the Attainment Demonstration.

Approval of the attainment demonstration cannot occur unless the Section 182(e)(5) measures comply with the CAA, including requirements that the measures (1) contain sufficient definition; (2) contain schedules for development of the new technologies; (3) contain commitments for funding; (4) depend on development of new technologies; and (5) are accompanied by enforceable commitments to develop and adopt necessary contingency measures.⁴

A. The AQMP Fails to Sufficiently Define its Long-Term Control Measures.

Most of the new technology measures in the current draft of the AQMP contain only vague descriptions of potential technologies, without any discussion of what steps will be taken for their financing and development. Even though, by their very nature, black box reductions are vague, there still needs to be a more concrete description of the potential technologies and the steps the District will take to reach attainment.

B. The AQMP Fails to Include Schedules For Development of the "New Technology" Measures.

A SIP must contain schedules outlining both "the steps leading to final development and adoption of the [new technology] measure(s)" and also "each phase in the development and adoption" of the new technology control measures.⁵ The current draft of the AQMP fails, however, to include a discussion of these steps, instead offering little more than vague assurance that an annual technology assessment workshop will identify "the latest technology improvements and process changes."⁶ This does not constitute a sufficient timetable regarding the development of new technology. For example, the District's stated plan to conduct studies "to evaluate the reactivity of VOC compounds" neglects to include a schedule or timetable regarding the development of such technology. Specifically, LTM-01, the long-term measure for which such reactivity studies would be the most useful, is itself likewise silent as to the steps taken that might lead to the development or applicability of these less reactive compounds. The AQMD's discussion of this measure instead provides only that the use of such compounds should "be evaluated and considered in future rulemakings... in order to provide a viable

⁴ See CAA § 182(e)(5), 42 U.S.C. § 7511a(e)(5); 62 Fed.Reg. 1150, 1179 (Jan. 8, 1997).

⁵ 57 Fed. Reg. 13,524 (April 16, 1992); 62 Fed. Reg. 1179 (Jan. 8, 1997).

⁶ Draft 2007 AQMP, at 4-49, 4-50

compliance option.” At most, LTM-01 only anticipates that it would require certain coatings to be formulated with acetone reactivity-equivalent materials “beginning in 2015.” This date sets forth only the time by which regulated parties are to comply with the rule; it offers nothing regarding the development of the new less reactive compounds. A single deadline date of “2015” cannot constitute a description of the steps “leading to final development” of the technology as required by federal regulation.

C. The AQMP Does Not Commit to Funding the Development of the New Technologies.

As EPA made clear in its approval of the 1994 SIP, the District must “define the long-term measures more precisely with respect to...evidence of adequate resources committed to the activities, and opportunities for the public to be informed and involved in the process.”⁷ Moreover, a plan for black box measures “must contain commitments from those agencies that would be involved in developing and implementing the schedule for the measure.”⁸

While the AQMP includes brief descriptions of various advanced technologies that may be explored in the future and recognizes that the plan for black box emission reductions will require aggressive development, the document fails to mention (1) whether the District in fact has readily-available resources to fund necessary research and development of new technologies; (2) a projection of how much funding can be allocated to advanced technologies, either individually or collectively; (3) the source of such funding; or (4) that AQMD is definitively committed to the funding and implementation of the measures. If the black box VOC and NO_x emission reductions are to be realized, the AQMD and CARB must firmly and unambiguously commit to identify and allocate funding to assist in the necessary research and demonstration projects.

D. The AQMP Fails to Demonstrate that the “New Technology Measures” Depend on the Development of New Technologies.

Under the plain terms of Section 182(e)(5), a black box emissions reduction measure must “anticipate development of new control techniques or improvement of existing control technologies.” That is, the plan “must show that the long-term measures cannot be fully developed and adopted by the submittal date” because additional time is needed to develop a complex or conceptual technology.⁹ However, many of the proposed long term measures do not meet this criterion. For example, as currently drafted, LTM-02 (Further Emission Reductions From NO_x RECLAIM Facilities) does not meet this standard. Under “Phase I” of this measure, “RECLAIM allocations will be reduced to offset the potential emission increases due to the introduction of natural gas with a Wobbe Index greater than 1360.”¹⁰ Phase 1, which is targeted at reducing increased NO_x emissions as soon as 2008 does not appear to require complex or conceptual technology. The rule thus offers little more than the possibility that the AQMD will

⁷ 62 Fed. Reg. 1179 (Jan. 8, 1997).

⁸ 57 Fed. Reg. 13,524 (April 16, 1992).

⁹ 57 Fed. Reg. 13,524 (April 16, 1992).

¹⁰ Draft 2007 AQMP, at IV-A-134.

amend the current NO_x RECLAIM program to offset anticipated NO_x emission increases. The plan therefore constitutes neither a “new control technique” nor an “improvement of existing control technology,” as required under Section 182(e)(5).

E. The AQMP Must Include Enforceable Commitments to Develop Contingency Measures.

When a SIP takes credit for emissions reductions from anticipated future technologies, it must also include “enforceable commitments to develop and adopt contingency measures to be implemented . . . if the anticipated technologies do not achieve the planned reductions.”¹¹ These measures “shall be adequate to produce emissions reductions sufficient, in conjunction with other plan provisions” to achieve the applicable reasonable further progress reductions.¹²

While we are aware that the AQMD is planning to dedicate Chapter 9 of the Final 2007 AQMP to a discussion of contingency measures, we remind the AQMD that the contingency measure requirements set out in CAA Section 172(c)(9) are generally applicable to all nonattainment plans. Those specified in Section 182(e)(5) are specifically applicable to areas designated as being in “extreme” nonattainment. Therefore, if AQMD pursues its plan to request a redesignation to extreme nonattainment status, not only will it have to provide contingency measures for Section 172(c)(9), but it will also have to submit an “enforceable commitment to develop and adopt” contingency measures under Section 182(e)(5).¹³

III. Specific Comments on Various Proposed Short and Mid-Term Measures

BCM 04—Additional PM Emissions Reductions from Rule 444

We are pleased that the district is addressing open burning from agricultural sources and is considering banning such burning. However, the timeline the district proposes—phasing out burning by 2015—is unnecessarily long. Open burning by most agricultural sources will be banned in the San Joaquin Valley in 2010. Already, agriculturalists have proven they can quickly adapt to this ban and, as is normal within this industrial sector, farmers in other parts of the state have begun to adapt practices similar to those required in the San Joaquin Valley. It makes no sense for the South Coast district to proceed as though it is inventing a new rule that an industry has no experience understanding or meeting. The South Coast should phase out agricultural burning by 2012.

¹¹ 42 U.S.C. § 7511a(e)(5)(B).

¹² *Id.*

¹³ 57 Fed. Reg. 13,524 (April 16, 1992) (“plan must contain a commitment to develop and submit contingency measures (in addition to those otherwise required for the area)”).

MCS 05—Emissions Reductions from Non-Dairy Livestock Waste

This rule should not rely on a list of Rule 223's "interim BARCT guidelines" (all of which will vary in their respective abilities to reduce emissions), but instead employ the most efficient control method that meets existing cost-effectiveness criteria wherever it is known to be feasible. Accordingly, the District should commit to develop clearly-defined BARCT not just for poultry facilities, but for swine facilities and those holding any other type of livestock for which no BARCT is yet defined. For example, with respect to swine facilities, filters could be fitted to ventilation systems in enclosed facilities, and open-sided facilities with natural ventilation could be required to flush or scrape manure frequently. Manure should be collected into enclosed and fully controlled vessels (such as lagoons, tanks, etc.). The District should also ensure that the BARCT will address all precursor pollutants, including VOCs, PM and NH₃.

In any case, and at a minimum, the AQMP should clarify that the rule, in its current form, would mandate *all* of the Rule 223 Class Two Mitigation Measures for larger facilities and *all* of the Class One Mitigation Measures for smaller facilities, rather than allowing covered parties to choose which measures to implement.

Lastly, the AQMD must revise the emissions inventory to account for those operations with high emission factors from NH₃, as discussed in the AQMP at page IV-A-87.

EGM-01 – Emission Reductions from New or Redevelopment Projects

The SCAB is an economically vigorous region that is projected to continue growing through new development and redevelopment. This growth, according to projections from SCAG and other transportation and planning agencies in the Basin, will be accompanied by greater traffic, vehicle miles traveled, construction, and goods delivery linked to these new and redevelopment projects. This will inevitably lead to a growth in air pollution that could diminish gains made in pollution control through previously adopted and currently proposed measures and technology improvements.

The AQMP's measure EGM-01 suggests the District will explore the potential for reducing indirect emissions by gathering a stakeholder group. The District leaves the emissions goal of EGM-01 rule effectively open ended, giving the impression that the indirect source measure will reduce whatever amount of pollution the stakeholder group can agree it should reduce. This is an unacceptable approach.

We urge the District to establish in subsequent drafts of the AQMP a realistic minimum emissions reduction goal to be achieved through a robust indirect source rule. This minimum should reflect at the very least what is necessary to control future indirect source pollution to maintain gains made in air quality through previously adopted and currently proposed measures and technology improvements. Notably, the San Joaquin Valley rule is expected to reduce emissions by more than 10 tons per day in the year 2010. A larger district like the AQMD should

be able to reduce even more emissions with an indirect source rule and the AQMP should reflect this.¹⁴

Further, seeking advice from a stakeholder group that includes community members, including air quality advocates, during development of the rule is wise. But the notion of forming a stakeholder group does not qualify as a reduction measure required by the SIP. Additionally, the future activities of a stakeholder group cannot be allowed to delay rule development, public discourse about a proposed rule through the workshop and hearing process, or adoption or implementation of a rule. The AQMP should outline a calendar for an indirect source rule development to ensure no unnecessary delays occur.

Lastly, voluntary approaches for reducing emissions through CEQA-related activities should be encouraged. But they should be viewed as uncertain supplements to any reductions achieved through an indirect source rule.

MOB-02—Extended Exchange Program

We are pleased to see that the District is considering expanding their SORE program to include recreational outboard engines. We strongly encourage the District to do so and consider additional approaches to accelerate the turnover of recreational craft.

State law allows local public agencies to regulate boating in certain categories. Three of these categories (speed zones, special-use areas, and sanitation and pollution control) are relevant to the regulation of personal water craft and/or two-stroke engines. It is our understanding that many waterways have banned personal water craft all together, but others have come up with more creative alternatives:

- The Anderson and Calero Reservoirs in the Santa Clara Valley Water District have prohibited pleasure craft (“PC”) entirely but allow powerboats if they have a receipt issued within the past two days from any of five area stations selling non-MTBE gas.
- Other lakes, such as Coyote Lake, have placed a cap on the number of PC allowed in the lake each day.
- Lake Tahoe, Cascade, Fallen Leaf, and Echo Lake require that motorboats meet 2001 ARB emissions standards and ban carbureted and non-direct injection engines.
- The San Pablo Reservoir in the East Bay Municipal Utilities District only allows four-stroke or equivalent emissions level engines.¹⁵

We strongly encourage the District to explore these strategies and include them in the AQMP. Additionally, as we recommend in our comments on OFFRD-02, the District should employ day

¹⁴ The Control Measure Summary chart on page IV-A-101 indicates a modest estimate of emissions reductions, and we are concerned that the District is only considering adopting a weak indirect source review rule for new redevelopment projects.

¹⁵ California Department of Boating and Waterways, Local Restrictions on Personal Watercraft and/or Two Stroke Engines, available at <http://www.dbw.ca.gov/MTBEList.htm> (last visited Apr. 7, 2004).

use fees at prominent recreational marine sites that can help generate incentive funds to augment the SORE program.

MOB-03—Backstop Measure for Indirect Source of Emissions from Ports and Port-Related Facilities

As the AQMD's figures demonstrate, collective emissions from the Ports of Los Angeles and Long Beach (collectively, "Ports") represent the single largest source of emissions in the SCAB.¹⁶ Since reducing Port emissions is essential for the Basin to have a chance to meet the ozone and PM2.5 deadlines, we are extremely pleased that the AQMP includes Measure MOB-03, consisting of three "Backstop Measures."¹⁷ Initially, however, we are concerned that the Port Standards, namely the AQMD's planned reduction of year 2011 NO_x, SO_x and diesel PM may be less stringent than the goals set forth in CARB's *Emission Reduction Plan for Ports and Goods Movement* (ERP).¹⁸ The ERP includes a goal to reduce 2010 emissions down to 2001 levels,¹⁹ while the AQMP's Port Standards call for a reduction of year 2011 NO_x, SO_x and diesel PM emissions to 2001 levels.²⁰ While the AQMP goes on to state that "[i]n order to assure early progress and consistent [sic] with goals stated in CARB's Emission Reduction Plan . . . , the milestones for the year 2011 will be below emissions in the year 2001,"²¹ it is nonetheless unclear whether the AQMP's proposed Port Standards are equally aggressive as the goals set forth in the ERP. We ask AQMD to clarify this important standard in subsequent drafts of the AQMP and ensure consistency between the plans. Below, we provide comments on the specific backstop measures.

A. Backstop Measure No. 1

We support a plan to use milestones to assist with the achievement of the mass emissions targets. However, the AQMD's plan to calculate milestones triennially provides too long of a time-frame, and could result in this measure kicking in too late. Port sources exceeding the target rate of emissions could conceivably continue emitting pollutants at an excessive rate for 2 or 3 years until the next triennial milestone testing period. In order to keep the District and the Ports on pace and better informed of their progress towards the Port Standards, Port source emissions should be evaluated against annual milestones, rather than at three-year intervals. Moreover, as the ERP concludes, goods movement activities cause 2400 premature deaths annually, with 50 percent of those deaths occurring in the SCAB.²² Accordingly, each year that goes by without significant improvements in air quality presents real life consequences for individuals in this

¹⁶ Draft 2007 AQMP, at ES-7. By 2020, Ports will account for 73% of SO_x, 24% of NO_x, and 10% of PM2.5 by 2020.

¹⁷ The AQMD has estimated that Port-related sources will need to reduce NO_x emissions by 59%, SO_x emissions by 97%, and PM2.5 emissions by 57% to attain PM2.5 standards.

¹⁸ CARB Emissions Reduction Plan, at 38; Goods Movement Action Plan: Phase 1 Foundations, at I-5.

¹⁹ *Id.*

²⁰ Draft 2007 AQMP, at IV-A-122.

²¹ *Id.* at IV-A-123.

²² CARB ERP, at 4.

region. Thus, any administrative difficulties associated with the yearly monitoring of Port emissions must be resolved in favor of achieving attainment and improving public health.

In any case, regardless of whether the backstop measure is triggered by a triennial or an annual milestone, the actual rule requirements must be strengthened by including clear enforcement mechanisms. In its current form, the AQMP offers two possibilities for backstop rule operation – “Option 1,” under which the Ports would be given leeway to allocate emission reduction requirements among their facility operators, and “Option 2,” under which the Ports would be required to submit their own Emission Control Plans to the District. Irrespective of which option the AQMD decides to implement, the proposal, as currently drafted, does not have an enforcement mechanism identified. The backstop measure says nothing about any penalties or fees under Option 2 that might compel the Ports to submit adequate Emission Control Plans. There is likewise no discussion of penalties under Option 1. The AQMP says only that a Port operator’s or Port’s failure to submit an adequate plan under Options 1 or 2 would “result in a violation of this rule.”²³ The AQMP should clearly specify what enforcement procedures will be in place if the Ports do not meet the milestones and what penalties are in place if the Ports or facility operators do not comply with the backstop rules once they have been triggered. Moreover, in order to effectively deter violations, any fines or penalties established for violations of the rule must exceed the cost of compliance.

Lastly, we note that the range of truck emissions sources covered by this rule actually differs from the range of sources that are identified in the Ports’ own Clean Air Action Plan (CAAP). Specifically, under the CAAP, trucks traveling to and from the ports are considered “port sources” up until their first drop-off destination,²⁴ while AQMD port emissions sources under the Backstop Rules include trucks traveling to and from port-owned property at any location within the SCAB. Given the fact that the District’s backstop measures are conceived to help create incentives for the Port’s implementation of the CAAP,²⁵ the AQMD should encourage the Ports’ CAAP to mimic the scope of emissions in the AQMP.

B. Backstop Measure No. 2

This measure will also be crucial in curbing Port pollution. However, we are concerned that Backstop Measure No. 2, as currently drafted, is too vague and lacks clarity. Under this measure, the AQMD will establish triennial diesel PM milestones that the Ports must meet. For the same reasons discussed above regarding Backstop No. 1, a series of more frequent milestones should be employed. Further, the risk milestones (whether they are established triennially or otherwise) need to be further defined; the measure should specify whether the “risk” at issue here is occupational, individual, residential, or something else.²⁶ Further, this measure does not specify

²³ Draft 2007 AQMP, at IV-A-124.

²⁴ San Pedro Bay Ports Clean Air Action Plan, at 12.

²⁵ Draft 2007 AQMP, at IV-A-122.

²⁶ Notably, the recent Draft EIR/EIS for the China Shipping Terminal (Berths 97-109) exemplifies how different residential versus occupational cancer risk can be. For example, while residential cancer risk

whether the rule requirements are triggered if one port exceeds the 85% standard (as demonstrated by failure to meet milestones) or if diesel emissions from both ports, cumulatively, are sufficient to trigger the measure. Finally, insofar as Measure No. 2 “will be implemented in a fashion similar” to one of the two options offered for Measure No. 1, the comments raised under Backstop Measure No. 2 about enforcement apply.

C. Backstop Measure No. 3

We are especially pleased to see that Backstop Measure No. 3 will effectively require all Port projects not only to comply with applicable CEQA and NEPA requirements but also meet the additional Project Standards. This backstop measure should prove to be particularly important considering that in the near future alone, there are more than 10 massive expansion projects at the Port of Los Angeles and Long Beach that will have significant effects on air quality in the SCAB.²⁷ At the same time, we recommend that the measure not defer the discussion of whether emissions increases should be offset for projects that exceed the nonattainment pollutant limits. It is imperative that emissions increases be offset for the Basin to ensure attainment and create appropriate incentives for responsible growth at the Ports. This measure will hopefully ensure that the massive expansions at the Ports to not impede attainment of air quality standards.

IV. Health Concerns and Environmental Justice Considerations Require Continued Emphasis on Stationary Sources.

Health concerns and environmental justice considerations require continued emphasis on stationary sources, as these are often concentrated in low income communities of color. Due to the proximity of sources to homes and schools and the volume of air emissions from these sources, stationary sources often create disproportionate impacts than their size in the overall inventory indicates. Moreover, many of these sources also emit toxic air contaminants whose impacts are in the "near field"—that is those whose neighborhoods are adjacent to these sources. Therefore, the District, as the sole agency with regulatory control over stationary sources of air pollution, should focus its efforts on reducing the impacts from stationary sources in the most heavily impacted communities. Developing a strong cumulative impacts policy, ensuring compliance with Title V, enhancing inspection, and enforcement capacity are all keys both for meeting CAA goals and protecting community health.

was reported as 9.9 in a million (under the significance threshold), occupational cancer risk was reported as 22 in a million (over double the significance threshold). DEIS/DEIR Berths 97-109, App. E, at 3.

²⁷ As an example, the Port of Los Angeles recently released the China Shipping EIR, which had considerable air quality impacts and exceeded SCAQMD’s NOx significance threshold by more than 50 times.

A. Compliance Flexibility Programs

FLX-02—Petroleum Refinery Pilot Program

Petroleum refineries are among the largest sources of criteria pollutants in the SCAB. In order for the District to meet CAA standards, those emissions must be reduced. The District should require further reductions from refineries, including requiring every emission source to be upgraded to the standard of the Lowest Achievable Emission Rate (LAER). In general, the LAER standard does not view cost as a limiting factor. Given that air quality improvements have stalled despite significant profit margins in the petroleum sector, the District should require refineries to reduce emissions to the maximum extent possible. This is a particularly appropriate time to require additional emissions reductions from these major pollution sources.

In addition, we have concerns about the environmental justice impacts of a control measure that provides an alternative means of compliance to existing refineries by allowing them to achieve their emission reduction obligations by reducing emissions from off-site projects. We urge the District to increase reductions at the source itself.

B. Rule Effectiveness of Stationary Source Control Measures, Rule Compliance Rate, Audit and Emission Inventories

The District assumes that the “control measures proposed in [Appendix IV-A] with quantifiable emission reductions are based on a rule effectiveness of 100 percent.”²⁸ However, “An Evaluation of The South Coast Air Quality Management District’s Air Pollution Control Program” prepared by CARB dated January 2000, (“Audit”), found a 65% compliance rate (i.e. 35% **non**compliance) for VOC emitting facilities inspected, which is below CARB’s target goal of 95% compliance. The categories that had failure rates in the Audit were VOC Sources (Metal Parts, Wood Products, All Other Sources), small boilers, cargo tanks, dry cleaners and gasoline stations. The District has adjusted petroleum marketing/gasoline stations’ base and future emissions by 75% for **non**compliance, but no other category has been adjusted. The District should address this 35% noncompliance rate in the AQMP by adjusting the base and future emissions, or demonstrate how it has included measures to improve compliance.

V. On-Road Mobile Source Emissions

A. The Air Quality Challenge From On-Road Mobile Source Emissions

Despite substantial progress in cleaning up Southern California’s air, the AQMP correctly recognizes that “the Basin still exceeds the federal 8-hour standard more frequently than any other location in the U.S.”²⁹ Ambient levels of fine particulates—a particularly dangerous form of air pollution—are more than double the standard in some locations.

²⁸ Draft 2007 AQMP, at IV-A-6.

²⁹ Draft 2007 AQMP, at ES-3-4.

Moreover, progress made so far may be evanescent. “Unless significant steps are taken to further control air pollution, growth will overwhelm much of the improvement expected from the existing control program.”³⁰ And even the existing program is of questionable effectiveness: “Lack of significant progress in ozone air quality for the last several years has raised some concern regarding the present-day effectiveness of control programs.”³¹

It is thus indisputable that to prevent backsliding—and to meet attainment goals for PM 2.5 and ozone—all sources of emissions, including those, such as light duty autos, where great progress has been made, must contribute substantial additional reductions. It simply will not be enough to go after the low-hanging fruit, such as dirty diesel trucks.

It also is clear that emissions reductions must come not only from the tailpipe, but also from measures designed to reduce substantial projected growth in total travel. In 2002, cars and trucks traveled more than 349 million miles per day on the Basin’s roads. They are projected to travel about 407 million miles per day by the year 2020.³² These additional 58 million miles traveled per day will consume much of the gains from increased fuel efficiencies and more stringent tailpipe standards.

Controlling growth in terms of vehicle-miles-traveled (“VMT”) is particularly critical to attain the PM 2.5 standard by 2015. Unlike other criteria pollutants, fine particulates from on-road mobile sources are heavily correlated with VMT, *regardless* of anticipated improvements in vehicle and fuel technology, fleet turnover rates, tailpipe standards, and other historically effective means of reducing vehicle emissions. This is because fine particulates are produced not only by combustion, but also by operation of the vehicle itself. Growth in PM 2.5 emissions from engine, tire and brake wear, as well as from re-entrainment of fine particulate deposition on roads, are roughly correlated with VMT growth. It is therefore not surprising that projected PM 2.5 emissions from light duty autos are actually expected to *increase* in the future, even as cars supposedly get cleaner. Annual average emission of PM 2.5 from light duty autos climb from 4.12 tons per day in 2005, to 4.449 tons per day by the year 2020.³³ This increase is unacceptable, given the region’s obligation to essentially halve such emissions in the Basin by 2015.

The imperative to reduce vehicle related fine particulate emissions is not just legal; it’s a health and environmental justice issue. As the draft 2007 AQMP recognizes, “motor vehicles are a major source of ultrafine particulates” in the urban environment.³⁴ High counts of particulates are found near freeways; substantially higher numbers of particles are found near the roadway, while a sharp reduction in particle count has been shown to occur within 100-300 meters downwind of the roadway.³⁵

³⁰ Draft 2007 AQMP, at 1-5.

³¹ Draft 2007 AQMP, at ES-4.

³² Draft 2007 AQMP, at 4-28.

³³ Draft 2007 AQMP, at 2-17 (Figure 2-9).

³⁴ Draft 2007 AQMP, at 11-2.

³⁵ Draft 2007 AQMP, at 11-2.

Given the indisputable need to further address transportation-related emissions beyond what can be accomplished through state-mandated tailpipe emissions measures, it is incumbent upon the District, SCAG and local government to adopt aggressive new Transportation Control Measures to mitigate the effects of continued rapid VMT growth.

B. On-Road Mobile Source Future Baseline Inventory

We commend the District and CARB for its work in updating the 2002 Emissions Factors. The 2007 Emissions Factors (EMFAC 2007) represent a substantial improvement over existing assumptions, particularly as applied to heavy duty vehicles.³⁶

We also commend the District for acknowledging the inherent uncertainty in predicting future mobile source emissions:

Relative to future growth, there are many challenges with making accurate projections. For example, where vehicle trips will occur, the distribution between various modes of transportation (such as vehicle trucks and trains), as well as estimates for population growth and changes to the number and type of jobs – although they are forecast with the best information available; nevertheless, they contribute to the overall uncertainty in emission projections.³⁷

The District has not taken the next step, however, of building a “margin of safety” (perhaps of 5% to 10%) into the on-road mobile source emissions inventory to account for potential underestimates of emissions loadings, particularly of oxides of nitrogen.

The historical record more than justifies such a margin of safety. Both the 1998 and 2002 Emissions Factors models were designed to account for underestimates in the prior model, notably to adjust for non-linear increases in NOx emissions, particularly at speeds over 35 mph that had not been accounted for. Consistent with this pattern, EMFAC 2007 has been developed in large part to account for underestimates in emissions from heavy duty vehicles. There is every reason to believe that the next iteration of the emissions factors model will follow a similar pattern of underestimating emissions.

There are also well-known inadequacies in the ability of the model to accurately predict emissions. For example, to our knowledge the driving cycle model in EMFAC 2007 does not take into account the emissions impact of the Basin’s topography. Fuel consumption and engine combustion efficiency are fundamentally and adversely affected by hill climbing. Given the rugged nature of much of the Basin, a significant percentage of VMT will occur in these conditions, resulting in emissions not captured in the inventory.

³⁶ At the same time, we are still reviewing the EMFAC 2007 model because of concerns about other areas where emissions may have been underestimated.

³⁷ Draft 2007 AQMP, at III-1-2.

Similarly, it is our understanding that the EMFAC 2007 model considers vehicle speeds in increments of 5 mph. That is, the emissions profile of a vehicle traveling at 35.3 mph is assumed identical to a vehicle traveling at 39.8 mph. This artificial assumption can result in substantial underestimates, since NO_x emissions in particular are highly sensitive to speeds variations of less than 5 mph.

Finally, there remain huge uncertainties in the art and science of accurately predicting VMT over long time periods. While we commend SCAG's efforts in updating its travel demand model for the 2007/2008 RTP conformity cycle, it is not certain whether these updates will be fully incorporated into the emissions inventory for the AQMP. The AQMP states:

Additionally, SCAG has been working with modeling experts and practitioners to develop a new Transportation Demand Model that is expected to more accurately forecast highway traffic volumes, speeds, and other aspects of the transportation system. The new Transportation Demand Model will be used for the Final 2007 AQMP *if available within the development schedule of the AQMP*.³⁸

If the new travel demand model is not available, then the AQMP must address how any underestimates in VMT projections identified in the model update will be corrected for in the AQMP.

Also, in evaluating the adequacy of the travel demand model used, care should be taken that it incorporates the latest methodology relating to the measurement of travel demand that is induced by adding additional capacity to the network. Specifically, it has been empirically shown that capacity enhancements that reduce travel times facilitate new trips and lengthen existing trips in the short and medium term, thus adding to VMT and altering driving cycles (speeds, etc.) Long term changes in travel demand and therefore in VMT resulting from land use and development patterns facilitated by adding capacity must also be addressed. Even if the impact of these changes cannot be precisely measured, some allowance, or "margin of safety" must be built into the inventory to prevent underestimation. Historic underestimates in VMT growth projections as compared to historic patterns provides more than adequate justification for this.

In sum, in formulating further refinements to the inventories for PM 2.5 and 8-hour ozone from on-road mobile sources, we believe that a conservative approach that incorporates a margin of safety is an appropriate means to avoid the impact of historic underestimates in mobile source emissions.

C. Transportation Control Measures Must Include All Reasonably Available Control Measures.

The AQMP's approach toward transportation control measures is disappointing. In essence, the District proposes to rely only on those TCMs already contained in existing Regional Transportation Plans and Regional Transportation Improvement Programs. The AQMP states:

³⁸ Draft 2007 AQMP, at IV-C-43 (emphasis added).

The long-term transportation planning requirements for emission reductions from on-road mobile sources within the Basin are met by SCAG's Regional Transportation Plan (RTP) which is developed every four years with a 20-year planning horizon. The short-term implementation requirements of the Transportation Conformity Rule are met by SCAG's biennial Regional Transportation Improvement Program (RTIP), the first two years of which are fiscally constrained and demonstrate timely implementation of a special category of transportation projects called Transportation Control Measures (TCMs).³⁹

This modest (to say the least) approach is not surprising, in light of the District staff's belief that they really don't work. For example, the AQMP states that:

[I]t should be recognized at the outset that *potential improvements in air quality deriving from TCM and RTP strategies applied to on-road mobile sources are minimal*. This is due to the fact that motor vehicle emissions have been substantially reduced through technology, individual TCMs affect only a small portion of regional travel, and that TCMs generally do not produce large scale changes in travel behavior.⁴⁰

We believe the above approach—relying solely on already adopted TCMs already incorporated into existing transportation plans and programs—and the defeatist attitude that TCMs don't work, are both flawed. Reasonably available TCM approaches have huge potential to reduce VMT and associated emissions at *less* cost than other measures. Moreover, by addressing vehicle *use*, TCMs have the potential to address simultaneously multiple problems facing our state, such as greenhouse gas emissions, petroleum dependency, loss of habitat and agricultural land, and quality of life.

Below we suggest some approaches that we believe are reasonably available.

D. Growth Management Strategies

Researcher Keith Bartholomew surveyed members of the National Association of Regional Councils (NARC) in 2003-04 for examples of scenario planning using land use, transit, and other policies to reduce travel.⁴¹ Land use policies typically included density increases, clustering development in transit corridors or around rail stations, and urban limit lines. Both travel models and geographic information system evaluation tools were used in the scenario evaluations. The median reduction in VMT in the 20-year scenarios for 31 exercises with adequate data was 2.3% but 11 scenarios resulted in reductions of 5% or more.

³⁹ Draft 2007 AQMP, at 4-24.

⁴⁰ Draft 2007 AQMP, at IV-C-45 (emphasis added).

⁴¹ Keith Bartholomew, *Integrating Land Use Issues into Transportation Planning*, Summary Report, DOT Cooperative Agreement No. DTFH61-03-H-00134. 2005. Dept. of Architecture, University of Utah.

Five scenarios resulted in reductions of 10% or more, including the SCAG Region. These studies generally evaluated modest growth management policies and did not employ the pricing of parking or fuels or roadways. So, these results may be viewed as lower bounds on what VMT reductions could occur in scenario exercises.

Example data from the projects are:

- Arizona, Maricopa Association of Governments: ~ 3% VMT reduction in 20 years:
- S.F. Bay Area Alliance for Sustainable Development: 4.6% reduction in VMT by 2020. Most of the growth in this scenario is located in the existing urban cores of the region:
- Georgia Regional Transportation Authority: 7% VMT reduction:
- Baltimore Regional Transportation Board: 8.2% VMT reduction. Redevelopment was emphasized, road capacity maintained at current levels, and transit capacity moderately expanded:
- Portland Metro: ~8.8% VMT reduction in 20 years (17.6% VMT reduction in 40 yrs). Growth contained within urban growth boundary, plus auto pricing, transit investment, and pedestrian improvements:
- Southern California Association of Governments: ~10% VMT reduction in 25 years. Housing and jobs focused in existing centers and corridors:
- Denver Regional Council of Governments: 12.5% VMT reduction in 25 years. Most growth would locate in infill development sites within the central city and existing suburbs:
- Envision Central Texas: ~17% VMT reduction compared to current trend. New growth in existing developed areas, which would accommodate 1/3 of anticipated new households and 2/3 of new jobs:
- Contra Costa County, CA: 17.3% reduction in VMT in 20 years. Growth placed in existing urbanized areas, and along rail transit routes:
- EPA, Atlanta, GA. ~38% difference in VMT between worse and best scenarios.

These examples underscore the huge potential of land use to affect VMT growth rates, and therefore emissions.

Indeed, SCAG has developed the Compass 2% Strategy, which dramatically reduces projected VMT while affecting just 2% of the land area of SCAG's territory. While this Strategy as currently constituted does not merit emissions reductions credit as an enforceable TCM, it has the potential to become a powerful source of emissions reductions if proper commitments to implement it are obtained from the local jurisdictions responsible for implementation. The AQMP states that:

Reductions in emissions due to changes in the socio-economic profile of the region are an important way of taking account of changes in land use patterns. For example, changes in jobs housing balance induced by changes in urban form and transit-oriented development induce changes in VMT by more closely linking housing to jobs. Thus, socio-economic

growth forecasts are a key component to guide the Basin toward attainment of the NAAQS.⁴²

Thus,

Of the benefits attributed to the 2004 RTP in year 2030, it was estimated that the Compass Vision distribution contributed approximately 50% of the VMT reduction, approximately 20% of the vehicle hours traveled (VHT) reduction, approximately 10% increased transit boarding, and approximately 70% of the reactive organic gas (ROG) emission reductions.⁴³

Current efforts to implement the Compass Strategy, however, consist of mere exhortations and technical assistance from regional planning staff.⁴⁴ While these efforts are laudatory and important, they are not sufficient.

Until such time as adequate implementation mechanisms are in place, the substantial reductions in projected VMT from the Compass Strategy cannot be assumed in the baseline emissions inventory for the current draft of the AQMP or for any conformity determination based on an emissions inventory where these reductions are assumed. Conversely, if such reductions are assumed in the inventory, then the Compass Strategy becomes a de facto TCM, the timely implementation of which *must* be shown as a precondition to the federal funding or approval of transportation plans, programs or projects.

E. Fees And Pricing

The use of fees and pricing to encourage sustainable transportation choices and to discourage unsustainable ones is a powerful way to obtain desired environmental benefits. By internalizing the social cost of these decisions through fees, the market provides a more rational outcome.

⁴² Draft 2007 AQMP, at IV-C-6.

⁴³ Draft 2007 AQMP, at IV-C-8.

⁴⁴ “The following tasks critical to implementation have been underway since the adoption of the 2004 RTP: (1) Initiating Compass demonstration projects in critical growth opportunity areas with member cities and Council of Governments and providing technical assistance for projects that exemplify one or more of the key principles of the Compass Vision; (2) Targeting local governments to align their plans with the Compass Vision and providing assistance and training support to communities developing or updating general, specific and redevelopment plans and pilot projects; (3) Providing local governments, subregions and transportation commissions with development screening, scenario planning and real estate analysis tools, e.g. LA LOTS (Land Use Opportunity Tracking System) and other inter-regional partnership program tools; (4) Conducting an extensive public education, training and outreach program that promotes incentive based initiatives supporting Compass goals, e.g., Pilot corridor programs and local success stories; (5) Establishing benchmarking, program assessment, evaluation and monitoring guidelines in collaboration with subregional councils of government, transportation commissions, local government partners, and other applicable stakeholders.”

The AQMP appears to recognize this potential:

Charging a vehicle miles traveled (VMT) or emission-based fee for higher mileage and higher emitting vehicles, respectively, is another example. A pilot project could be considered as a way of initiating and evaluating this type of strategy. A task force could be convened to further explore and evaluate demand-side strategies. To improve public acceptance, these programs can be designed to minimize the socioeconomic impacts on low-income residents of the Basin.⁴⁵

We encourage the development of this and other fee based strategies, as they have been shown to be quite feasible and effective in many metropolitan areas of the world.⁴⁶

Adoption of growth management and pricing strategies, along with strategic investments in transit and other “hard” investments, will create critical synergies that can have a real and lasting impact on VMT and emissions. We will work actively with the District to explore ways in which the mechanisms can be feasibly applied in the Basin measures.

VI. The Recommended State and Federal Control Measures Provide a Good Template for Other Agencies to Ensure They Reduce Their Fair Share of Pollutants.

We are pleased that the AQMD has taken an initial attempt to outline measures that local, state and federal agencies should undertake to reduce emissions directly impacting the SCAB. Appendix IV-B is particularly helpful given that CARB will not release its State and federal strategy until January of 2007. Once CARB releases its proposed strategy, we encourage the District to extensively comment on CARB’s plan to make sure it reflects Appendix IV-B instead of a weaker pollution control roadmap.

Below, we provide specific comments on the suggested control measures. In addition, we have a couple of overarching comments. First, we request that subsequent drafts of the AQMP provide greater specificity on the measures the District believes other agencies should adopt. For example, OFFRD-07 does not make clear exactly what the District is proposing. There are general comments about shore-side power, but the measure does not make clear what needs to happen to ensure use of this technology. It is critical that the District provide clear direction to CARB, EPA, and other agencies on the stringency of the measures needed to reach attainment. Second, AQMD should better articulate which agency should take the lead in implementing each measure. For example, in OFFRD-06, it is unclear which agency the District is calling upon to act—the marine ports, CARB, or EPA, or how the District recommends that these agencies coordinate to exert overlapping authority. Finally, we encourage collaboration with and strategies for agencies outside of the traditional air quality arena, such as SCAG, and local jurisdictions, such as the City of Los Angeles, to encourage land use planning decisions and

⁴⁵ Draft 2007 AQMP, at 4-64.

⁴⁶ See Robert A. Johnston, Professor, Dept. of Environmental Science & Policy, University of California Davis, *Review of U.S. and European Regional Modeling Studies of Policies Intended to Reduce Motorized Travel, Fuel Use, and Emissions* (August 2006) (attached hereto).

demand management strategies that reduce vehicle miles traveled and zoning and siting of facilities to reduce health impacts to residents of surrounding communities.

ONRD-12—Further Emissions Reductions from Heavy-Duty Trucks Providing Freight Drayage Services

This control measure provides a good template for addressing drayage trucks at the Ports. However, as referenced above, the measure needs to be clearer about how implementation will work. It is unclear how the AQMD, the Ports, and CARB will work together to achieve the needed reductions in emissions.

Further, we are pleased that the AQMP mentions advanced transportation systems.⁴⁷ These technologies could prove to be a positive way to alleviate the pollution issues in the Basin from trucks and rail. In fact, given the explosive growth in goods movement, advanced transportation systems should not be viewed as a “parallel track,” but rather a suggested mode of action. The District should encourage cleaning up the existing truck fleet and promoting new technologies to dramatically reduce pollution, such as the Electric Cargo Conveyor or Freight Shuttle System.

Alternative fuels should be strongly incentivized. For captive drayage trucks that predominantly operate in a given area, we support incentives for cleaner alternatives to diesel. LNG products can provide significant emission benefits over its diesel counterparts. It is our understanding that in 2007, the EPA Heavy-Duty Highway Engine Standards allow for NO_x averaging (i.e., engine families only need to meet a NO_x average of approximately 1.2 g/bhp-hr instead of the originally proposed standard of 0.2). To date, no engine manufacturer has certified a diesel engine that meets EPA’s 2007 emission standards for both NO_x and PM, nor has any manufacturer committed to meet the 0.2 g NO_x standard for diesel engines by 2007. Instead, engine manufacturers are targeting the interim 1.2 g NO_x average for diesel products. Manufacturers of natural gas engines, however, have committed to meet the final 0.2 g NO_x standard in 2007; nearly 3 years ahead of EPA requirements. Both Cummins Westport Innovations and John Deere Power Systems have made this public commitment to deliver 2010 technology to operators by planning to make the ISL G and 9.0L natural gas engines available, respectively, for the 2007 model year.

OFFRD-01—Construction/Industrial Equipment Fleet Modernization

This measure assumes incentives will be available to provide the reductions promised. However the measure provides no evidence that incentives beyond the existing Carl Moyer Program moneys exist, and does not indicate that even these funds will be applied in this measure. Thus, the measure is based on a hope for incentives. This doesn’t provide enough certainty to include incentive-based reductions as creditable SIP reductions.

Additionally, the measure suggests that regulation will be part of this measure’s toolbox, but there is no description of potential regulations.

⁴⁷ Draft 2007 AQMP, at IV-B-57.

OFFRD-02—Accelerated Turnover and Catalyst Based Standards for Pleasure Craft

PC play a critical role in the South Coast's emissions inventory and are projected to rank as the fourth highest VOC emissions source in 2020.⁴⁸ Only light duty passenger vehicles contribute more VOCs to the South Coast's mobile source inventory.⁴⁹ We agree that an expedited retrofit and replacement program at the state level is necessary and fully support standards that reach beyond 5g/kw-hr and fall in line with the new LSI standards. We do urge the District to push for a more aggressive implementation timeline in light of aggressive reductions necessary to meet the 8-hour ozone and PM2.5 standards. In addition to these recommendations, this measure should also include additional approaches that could be folded into a state program or pursued at the district level. We have described these below.

Currently, to our knowledge, a statewide program does not exist to address the in-use fleet of PC in California. Additionally, there are no restrictions on the sale of pre-2001 model year engines. Further, retrofitting of pre-2001 model year engines is not required nor is the purchase of a new engine.

At a minimum, the proposed statewide measure should also include a program targeting replacement of two-stroke recreational marine engines with cleaner four-stroke engines through an incentive program such as a buy-back program. Additionally, the program should include a mandatory retrofit of four-stroke recreational engines with catalytic converters. Funding for such a program could be generated through the collection of day use fees (on the order of \$5 to \$10) that are often used at certain boating locations.

Further, although California's emission standards are stricter than any other state, it is not difficult to acquire new PC in California that fail to comply with California emission standards. It is relatively easy to go across the California border to purchase a new PC or even through online purchasing. We recommend that CARB determine to what extent this may still be occurring and approaches to best curb this.

OFFRD-03—Lower Exhaust Standards for Off-Road Recreational Vehicles

Similar to our comments on OFFRD-02, we strongly encourage the District to include a more aggressive implementation timeline and the use of an incentive buy-back program. Mandatory retrofits should also be included as technology develops.

⁴⁸ Draft 2007 AQMP, at 3-20.

⁴⁹ *Id.*

OFFRD-04—Evaporative Standards for Recreational Vehicles and Pleasure Craft

This measure lacks specificity. The recommended measure needs a more specific phase-in schedule, and the District should explicitly recommend how retrofits, regulations, and incentives can play together to attain the goals of this recommended measure.

OFFRD-05—Further Emission Reductions From Locomotives

Given that the SCAB serves as a major gateway of freight transport to the rest of the country, locomotive pollution must be addressed to help cure many air quality problems in the Basin. Failure of leadership on the federal and state level has resulted in a system that is not effectively controlling locomotive pollution. As the AQMP discusses, without further pollution controls, NO_x and PM will not be adequately controlled into the future.⁵⁰ This measure offers a strong method of curbing pollution from locomotives.

OFFRD-06—Clean Marine Fuel Requirements for Ocean-Going Marine Vessels

As the chart on page IV-B-75 indicates, this measure is one of the most effective means of reducing SO_x in the Basin.⁵¹ Thus, this measure is vital to achieving attainment of federal and state air quality standards. Further, we are pleased that this measure recommends utilizing low sulfur fuels out to 40 nautical miles off of Point Fermin.

At the same time, it should not be assumed that CARB will adopt the 0.1% sulfur standard by 2010 under its Auxiliary Engine Rule due to its scheduled feasibility assessment in 2008. Thus, the AQMP should recommend early demonstration of 0.1% sulfur marine fuel (no later than 2008) to help ensure that 0.1% sulfur fuel is available and fully demonstrated well ahead of the CARB feasibility study. Notably, the NNI auxiliary engine fuel measure required use of 0.1% sulfur fuel in 2008.

Further, as referenced above, the District needs to delineate what actions are expected of each of the implementing agencies - EPA, CARB, and the Ports.

OFFRD—07—Further Emission Reductions from Ocean-Going Marine Vessels and Harbor Craft While at Berth

This measure proposes that by 2010, 20% of vessels calling at the Ports should use cold-ironing and another 20% will be required to use alternative equivalent technologies. We believe the measure also needs to include later benchmarks that are at least as stringent as CARB's ERP— e.g., 20% cold ironing by 2010; 60% by 2015; and 80% by 2020. However, we recommend that the 2010 percentage be increased to use more shore-side power. These benchmarks are necessary to guide CARB and the marine ports on how to proceed in reducing pollution from

⁵⁰ See Draft 2007 AQMP, at 3-18 -19.

⁵¹ Draft 2007 AQMP, at IV-B-45 (noting a 45.6 tons per day of SO_x from this measure by 2014).

ships while at berth. Further, as referenced above, the measure needs to include a clearer picture of what each implementing agency should do to comply with this measure.

However, we remain convinced that within the ocean-going vessel category, dockside power remains the most effective technology for reducing emissions from ocean-going vessels. For this reason, the AQMP should request that 70-80% of all ship visits after a new or renegotiated lease use shore-side power. This requirement should apply to all ocean-going vessel types (e.g. tankers, container vessels, etc.). Further, we recommend that all cruise liner ships cold iron regardless of frequency of calls at both Ports.

OFFRD—08—Further Emission Reductions from Cargo Handling Equipment

This measure could be improved by requiring BACT and a preference for alternative fuel cargo handling equipment where commercially available. Indeed, it is important to acknowledge that CARB's Cargo Handling Equipment regulation does not require BACT or dictate a preference for alternative fueled equipment. The final rule adopted allows several different "compliance options" that create a variety of possible levels of emission reductions. We recognize that not all types of cargo handling equipment are compatible with the same level of control technology. However, as we emphasized in detailed comments to CARB, it is imperative for each type of equipment to employ the cleanest option of control, which will obtain the greatest emission reductions (i.e. BACT), unless AQMD or CARB find it technically infeasible or unavailable.⁵² We strongly encourage that AQMD identify the cleanest available technology for each type of cargo handling equipment and incorporate this approach into the recommendation.

Further, as stated, OFFRD-08 should recommend requiring the use of alternative fuel models for available applications. For example, any new container handling equipment purchased on or after 2007 should (a) run on alternative fuels such as natural gas or (b) meet EPA Tier IV standards applicable to the year 2013, whichever has lower emissions. Vehicles using alternative fuels, such as natural gas, can emit half the NOx and an order of magnitude less of PM emissions as conventional diesel vehicles. In addition to lower emissions, alternative fuels provide other benefits to the state of California, including fuel diversity, petroleum replacement, and potentially lower greenhouse gas emissions. Thus, when alternative fuel models certify to comparable standards as conventional models, their use should be encouraged through incentives. Further, we are pleased that the AQMD has recommended that control measures on cargo-handling equipment not only be applied at the Ports, but also intermodal freight facilities and warehouse distribution centers.

⁵² For example, under CARB's rule, basic container handling equipment, bulk cargo handling equipment, and rubber-tired gantry cranes can use one of four options to comply with the CARB rule. The rule allows an owner to select an option that allows a Tier 1 engine to be retrofitted with a level 1 control, reducing PM 25%, until 2015 when further clean up would be required. Before 2015 however, this compliance option is several orders of magnitude more polluting than the cleanest option. The final regulation created a situation where owners have no incentive to choose the cleanest option.

In addition, we encourage AQMD to promote acceleration of the implementation of cleaner cargo handling equipment by recommending that the Ports adopt port-wide rules to employ the above-referenced technologies.

Finally, this measure should recommend incorporating idling limits, which would save fuel as well as cut pollution from these terminals, and reduce a significant source of worker exposure to diesel fumes. Idling limits for captive fleets would be much easier to manage and enforce than for other off-road equipment.

OFFRD-09—Vessel Speed Reduction

Before recommending this measure, AQMD should consider and disclose whether speed reduction programs will result in any increases in PM or NO_x emissions both within and outside of the vessel speed reduction (VSR) zone. Under a VSR program, PM and NO_x may logically increase due to extended use of auxiliary engines.⁵³ Additionally, there is concern that PM from main engines may increase at slower speeds. Although we are pleased this measure aims to extend the VSR boundary to 40 nm, before continuing or enhancing this program, AQMD must first ensure that pollutant increases will not occur. While the ports have assured us that the initial findings on this issue are positive, we have yet to see any study alleviating our concerns.

Further, assuming VSR will provide emissions benefits, this measure should encompass a mandatory program rather than merely extend the current voluntary program. Additionally, if the measure entails a CARB regulation, AQMD should recommend that development of this regulation receive lower priority than other CARB regulations such as a cold-ironing regulation.

Finally, in calculating the emissions reductions from this measure, AQMD must make sure not to assume that the 0.1% sulfur fuel requirement in 2010 will take effect. The current CARB regulation requires a feasibility study of the 0.1% sulfur fuel requirement in 2008, and the results of that study will dictate whether 0.1% sulfur fuel will ultimately be required.

OFFRD-10—Further Emission Reductions from Ocean-Going Vessels

This measure proposes numerous proven technologies that must be included in the SIP. However, the measure includes two implementing agencies, and the measure needs to explicitly state the duties of each agency in making this measure come to fruition. Further, the measure solely gives the proposed penetration rate recommendation for slide valves. To be effective, the measure must include penetration rates for the other seven proposed technologies.

In addition, the measure should include Humid Air Motor and Combustion Air Saturation Systems (CASS).

⁵³ San Pedro Bay Ports Clean Air Action Plan, Appendix A at 61.

Finally, the District should outline goals that target the port shipping fleets as a whole. We recommend the following standards and timeline for vessels engines serving Ports:

- 25% of OGVs must meet “Blue Sky Series” Category 3 ship engine standards (those are 80% below current IMO NOx standards) by 2010, either OEM or through SCR, or other add-on controls;
- 50% of OGVs must meet “Blue Sky Series” Category 3 ship engine standards (those are 80% below current IMO NOx standards) by 2015 (OEM or add-on);
- 100% of OGVs must meet “Blue Sky Series” standards by 2020 (OEM or add-on).

VII. Suggestions for Additional Measures to be Included in the AQMP

A. Proposed Measures for the District

Idling Restrictions for Cargo-Handling Equipment

We recommend that the AQMP include a measure to address idling of cargo-handling equipment. This measure would save fuel as well as cut pollution in places where cargo-handling equipment is used. In addition, an idling measure would protect workers from this significant source of diesel fumes.

Indirect Source Rule for Construction Equipment

We recommend the District include in the AQMP an indirect source rule measure for construction equipment for all those projects that are not already covered by the general operational indirect source rule anticipated in EGM-01.

Operational Restrictions for Construction Equipment on High Pollution Days

We recommend the District include a proposal for mandatory operational restrictions on pre-Tier 3 equipment on days when the air quality index is over 100.

Green Contracting Requirements

The District should work with the legislature to increase the District’s authority to require that public agencies operating within district boundaries adopt green contracting practices that motivate construction contractors to use less polluting construction equipment on publicly funded projects.

Improve Emissions Reconciliation

Pursuant to the suggestion of Dr. Robert Harley, University of California, Berkeley, in his comments at the District’s Ozone Air Quality Forum and Technical Roundtable Discussion on October 31, 2006, additional measurements of reactivity and solvent emissions (for example consumer products and semi volatile organic compounds in gas phase) should be taken to improve emissions reconciliation between current ambient air and current inventory.

B. Proposed Measures for the District and ARB

Improved Strategies for PM 2.5, Paved Road Dust and Vehicle Miles Traveled

We recommend that the AQMP include improved measures to address paved road dust. It is projected to be the top ranked source of directly emitted PM 2.5 emissions.⁵⁴ The District and ARB should develop and evaluate new technology that collects pollutants emitted by vehicles and those already present on roads. The District and ARB should develop technology to reduce PM 2.5 and better collaborate with local jurisdictions on demand management and land use strategies to reduce VMT.

Raise Awareness of Link Between Greenhouse Gases and Air Quality Criteria Pollutants

The AQMD's air quality framework should tie reductions in ground level ozone from the proposed short and mid-term measures to a global warming strategy. Combustion sources (e.g. cars, power plants, refineries, and auto manufacturing) should be given a high priority because these sources also emit VOC, PM, and toxic chemicals. As stationary combustion sources and freeways are disproportionately near communities of color, this also links to environmental justice.

C. Proposed Measures for the EPA

Idling Restrictions and Landing and Take-off Reform for Commercial Aircraft

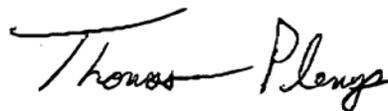
We recommend that the AQMP include a measure to address the idling of commercial aircraft while parked at airport terminals. This measure would save fuel as well as substantially cut pollution without any negative impact on safety or security. This measure would also protect airport workers and the immediate surrounding communities from harmful diesel fumes. In research described in a paper published in May 31, 2006 *Environmental Science and Technology* (DOI: [10.1021/es0512091](https://doi.org/10.1021/es0512091)), Scott Herndon, of Aerodyne Research, Inc., and colleagues used a mobile laboratory parked near the airport fence at Boston's Logan Airport. As the plumes floated downwind across the lab's instruments, they gathered data that resulted in "real world" hydrocarbon emissions from airplanes. These measurements show that such emissions may be much higher when planes are left idling on an airport tarmac than previously believed and recorded in the International Civil Aviation Organization (ICAO) databank by as much as 40% to 90%.

We appreciate your consideration of these comments.

Sincerely,



Adrian Martinez
Staff Attorney
Natural Resources Defense Council



Tom Plenys
Research and Policy Manager
Coalition for Clean Air

⁵⁴ Draft 2007 AQMP, at 3-27.

Mr. Joseph Cassmassi

December 1, 2006

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Attachments:

Review of U.S. and European Regional Modeling Studies of Policies Intended to Reduce Motorized Travel, Fuel Use, and Emissions

Review of U.S. and European Regional Modeling Studies of Policies Intended to Reduce Motorized Travel, Fuel Use, and Emissions

Robert A. Johnston, Professor
Dept. of Environmental Science & Policy
University of California, Davis
August 2006

Summary

With the enactment of a new federal transportation law in 2005, State and regional transportation plans and programs are for the first time required to achieve the objectives of the SAFETEA-LU planning process, which focus on enhancing mobility and supporting economic development while minimizing fuel use and emissions.

This paper reviews the experience to date in dozens of metropolitan regions and advanced industrial economies as they have used scenario planning to evaluate an array of pragmatic and feasible policies and investment strategies that are available to help states and regions satisfy this new federal legal requirement.

The results from 40 long-range scenario exercises performed in the U.S. and Europe demonstrate that substantial reductions in vehicle-miles of travel (VMT), fuel use, and emissions of both criteria pollutants and greenhouse gas emissions are possible using transportation pricing policies and investment priorities that have been demonstrated as acceptable and effective in a modest but growing number of metropolitan areas and regions around the world.

VMT reductions in 20 years range from 10% to 20%, compared to the future trend scenario, are achievable with reductions in emissions and fuel use roughly proportionate to the decrease in VMT, while supporting the same level of future job and housing growth. In most studies, the highway levels-of-service are the same as, or better than, the trend scenario.

The studies reviewed also suggest that these reduced-VMT scenarios generally produce higher transportation system productivity, positive net user economic benefits, greater equity in the distribution of transportation system benefits, reduced congestion delays, and a reduction in other adverse environmental impacts.

The most-effective policy sets combine land use policies, such as compact growth, with strong transit provision and not expanding highway capacity. The addition of auto pricing policies, such as fuel taxes, work trip parking charges, or all-day tolls increases the effectiveness of the land use and transit policies. Peak-period tolls, by themselves, increase travel. Expanding road capacity, along with transit capacity, but without changing market incentives to encourage more efficient use of existing roads and parking, results in expensive transit systems with low ridership.

The U.S. Studies

The following is excerpted from:

Bartholomew, Keith, Integrating Land Use Issues into Transportation Planning, Summary Report, DOT Cooperative Agreement No. DTFH61-03-H-00134. 2005. Dept. of Architecture, University of Utah .

Bartholomew surveyed members of the National Association of Regional Councils (NARC) in 2003-04 for examples of scenario planning using land use, transit, and other policies to reduce travel. Land use policies typically included density increases, clustering development in transit corridors or around rail stations, and urban limit lines. Both travel models and geographic information system (GIS) evaluation tools were used in the scenario evaluations. The median reduction in VMT in the 20-year scenarios for 31 exercises with adequate data was 2.3% but 11 scenarios resulted in reductions of 5% or more.

Five scenarios resulted in reductions of 10% or more. These studies generally evaluated modest growth management policies and did not employ the pricing of parking or fuels or roadways. So, these results may be viewed as lower bounds on what VMT reductions could occur in scenario exercises.

Example data from the projects are:

1. Arizona, Maricopa Association of Governments. ~ 3% VMT reduction in 20 yrs.
2. S.F. Bay Area Alliance for Sustainable Development. 4.6% reduction in VMT by 2020. Most of the growth in this scenario is located in the existing urban cores of the region.
3. Georgia Regional Transportation Authority. 7% VMT reduction.
4. Baltimore Regional Transportation Board. 8.2% VMT reduction. Redevelopment was emphasized, road capacity maintained at current levels, and transit capacity moderately expanded.
5. Portland Metro. ~8.8% VMT reduction in 20 yrs (17.6% VMT reduction in 40 yrs). Growth contained within urban growth boundary, plus auto pricing, transit investment, and pedestrian improvements.
6. Southern California Association of Governments. ~10% VMT reduction in 25 yrs. Housing and jobs focused in existing centers and corridors.
7. Denver Regional Council of Governments. 12.5% VMT reduction in 25 yrs. Most growth would locate in infill development sites within the central city and existing suburbs.
8. Envision Central Texas . ~17% VMT reduction compared to current trend. New growth in existing developed areas, which would accommodate 1/3 of anticipated new households and 2/3 of new jobs.
9. Contra Costa County, CA. 17.3% reduction in VMT in 20 yrs. Growth placed in existing urbanized areas, and along rail transit routes.
10. EPA, Atlanta , GA. ~38% difference in VMT between worse and best scenarios.

The European Studies

For many years the European Commission has performed sophisticated studies of policies to reduce pollution, traffic accidents, noise, and greenhouse gas emissions. We review the three main reports here. In these studies, urban models were used, which are state-of-the-practice methods representing both travel and land development and use. These model sets are composed

primarily of discrete choice models based on microeconomics and so give elasticities of demand with respect to price. These statistics permit comparisons across regions and validation of most model components.

Quite significant policies were evaluated, including higher taxation of fuels, larger auto purchase and registration fees, and tolling of roadways, both all-day and for peak periods, as well as urban limit lines, and density increases. So, we may view these projections as the upper bounds of what could be achieved in most regions in the U.S. As these are the most complete and best designed studies ever done, this review gives some detail about the policies and results.

F.V. Webster, P.H. Bly, and N.J. Paulley, eds., *Urban Land-use and Transport Interaction*, Avebury (Brookfield , MA), 1988.

Seven urban models were run on seven cities around the world on the same policy sets, intended to reduce VMT and emissions. Each region ran a 20-year Future Base Case, different for each region, but basically a trend scenario plus any major investments already programmed. All results are reported as differences from the future base case.

The results were reasonably coherent and showed that only urban limit lines reduce residential sprawl. Such controls did not raise housing prices, however, due to increased density.

Increasing land use density is effective in reducing VMT, especially if the walk and bike modes are well-provided for. Parking charges in the central business district (CBD) decentralize employment, whereas vehicle purchase and registration taxes (or fuel taxes) reduce auto ownership and VMT. The vehicle taxes are much more effective, if supported by good transit service, especially to the CBD and other employment centers. Land use and transit policies have little effect, unless supported by pricing.

Faster radial travel by freeway or rail increases the decentralization of upper-income households, thereby increasing segregation by income. Increasing the cost of both auto travel and transit by 50% decreases travel and energy use about 10%. Increasing auto costs by 400% reduces VMT and emissions about one third. (Note that making workers pay for parking or providing cash-in-lieu-of-parking incentives in the U.S. increases “felt” travel costs by around 400%, without actually increasing costs, as the parking costs are merely being unbundled from wages.) All pricing scenarios decreased travel delays.

Travel models must include an auto ownership step and the walk and bike modes in order to represent these policies accurately. Also, the peak and non-peak periods must be modeled separately.

SPARTACUS, Final Report. European Commission, Environment and Climate Research Programme. Sept., 1998. On internet at www.ltcon.fi/spartacus or from Kari.Lautso@LTcon.fi.

This study used MEPLAN, one of the most-advanced urban models, on Helsinki , Bilbao , and Naples . A raster (grid) GIS program was added to MEPLAN to calculate impacts from noise

and emissions on households and to produce maps. A user interface was also added to simplify the input of policies and also the production of output tables, maps, and graphs. Policy impacts were net from the future base case, as above.

Overall, only the travel pricing policies were found to reduce VMT substantially. For example, increasing auto costs by 50% decreased VMT by 16%. Land use policies were not very effective, except to back up the transit system. Pricing is required in order to gain large increases in transit use.

The most effective pricing policies combined congestion pricing with mileage or travel pricing (fuel tax or all-day tolls). Increasing rail service increased all travel speeds in Bilbao and Helsinki, due to some auto travelers switching to rail, while in Naples the existing transit system was made more efficient. This shows the need to not add highway capacity in long-range investment plans that are intended to reduce VMT and emissions.

Combining land use policies for intensification in transit corridors and urban limit lines with transit investments and the pricing of auto travel was found to be the most effective approach to reducing VMT. Greenhouse gases and fuel use are reduced between 13% and 24%, depending on pricing levels, with an increase in auto operating costs of about 100% being most effective. Delays were decreased significantly in all pricing scenarios.

The raster system was effective for analysis and mapping. The user interface was also very useful in aggregating the outputs in various ways. Various weighting schemes with social, economic, and environmental indicators were tried. Also, sensitivity tests were conducted on the various equity measures and on indicator weighting ranges. They also found that such studies should include surrounding rural areas, as they often receive significant impacts. The authors also recommend that studies should also be for at least 20 years, to capture counterintuitive and changing effects over time.

PROPOLIS: Planning and Research of Policies for Land Use and Transport for Increasing Urban Sustainability. Final Report. European Commission, Energy, Environment, and Sustainable Development Thematic Programme. February, 2004. Available from Kari.Lautso@LTcon.fi.

This study carried on the SPARTACUS approach, modeling 7 urban regions using three advanced integrated urban models. The study was firmly embedded in the sustainable development policy analysis paradigm, using many indicators of Social, Economic, and Environmental effects. All models used a raster analysis and mapping capability and a user interface for policy inputs and for the analysis of model outputs. Policy results were net from the future base case, as in the two previous studies.

The policy results were generally the same as in the SPARTACUS study, with more variation due to differences among the urban regions. The results were generally similar across all 7 regions, though. Methodologically, the findings were also the same as in the previous study. In the future baseline (trend) scenarios, the large number of European Commission sustainability

indicators deteriorated in all regions.

By applying pricing, land use, and transit investment policies, most of the indicators could be reversed. Increasing auto operating costs by 75%, adding parking charges, and decreasing transit fares by 50% was the most effective pricing policy component. It reduced greenhouse gas emissions and fuel use by 15-20% in all regions, over 20 years. Because the same policy set gave the same general results in the 7 regions, the study concluded that this policy set would likely work in most EC regions. Making workers pay for work trip parking would increase “experienced” auto costs by 100-500% in most regions, since drivers choose modes based on out-of-pocket costs (gas, tolls, parking charges, transit fares). In the U.S. , the true unbundled cost to employers of providing free parking is typically much larger than the employee’s out-of-pocket fuel costs to drive to work by auto.

The effects of the various pricing policies were found to vary by region and often had negative effects on sprawl (increased sprawl) and so all must be studied individually and in combination with other policies. Increasing transit speeds increased sprawl unless accompanied by pricing and urban limit line policies. Increases in transit service often reduced road congestion and caused more sprawl. This finding shows that highways must be allowed to become congested, while improving transit. The VMT-reducing policy sets increased economic welfare by 1,000-3,000 Euros per person (net present value over 20 years) and also reduced traffic accidents, congestion, and noise.

Studies by Robert A. Johnston

A dozen published papers simulating similar policies in the Sacramento , California region by this author have produced findings similar to those in the three EC studies. These studies, conducted over a 20-year period, used three versions of the official MPO travel model and three versions of an urban model, the last version being the official version adopted by the MPO. These were all 20-year studies, unless otherwise noted. All results are compared to the future trend scenario or to a no-build (do nothing beyond the funded 3-year Transportation Improvement Program (TIP) projects) scenario. Because SAFETEA-LU requires MPOs to include support for increased economic development as a factor in developing their adopted plans, economic welfare findings are also presented. These are similar to consumer surplus for travelers, calculated from the mode choice model logsums, a measure commonly used in this kind of analysis across the world.

Synthesis of Findings:

1. Expanding road capacity increases auto travel and emissions, compared to doing nothing. New HOV lanes on radial freeways increase travel and emissions. They also increase sprawl. Congestion generally becomes worse, in spite of adding highway capacity.
2. Expanding transit only decreases emissions about 1%, compared to doing nothing. It decreases travel costs for lower-income households. It can increase sprawl somewhat, due to the outer rail stations.
3. Expanding transit only and supporting it with land use intensification around Light Rail

stations decreases emissions about 5%. It decreases travel costs for lower-income households.

4. Expanding transit only and supporting it with land use intensification around Light Rail stations and with urban growth boundaries decreases emissions about 10%. It decreases travel costs and travel delays for all households.

5. Expanding transit only and supporting it with higher fuel taxes and with workplace parking charges (refunded in higher wages as cash-in-lieu-of-parking incentives) and shopping parking charges (refunded through lower costs for goods and services) lowers emissions about 10%. It greatly increases economic benefits to all travelers, due to better transit and faster freeways. This scenario reduces congestion significantly.

6. Expanding transit only and supporting it with land use intensification and urban limit lines and with fuel taxes and parking charges, as above, lowers emissions about 15-30%. This scenario maximizes economic welfare for the region and reduces congestion the most.

Results from the most recent study using the most advanced urban model:

This analysis was performed by the author with the MEPLAN urban model, developed for the Sacramento MPO. It assumed more ambitious transit investment levels than in previous studies. The model analysis was performed for a 50-year time horizon to enable comparison with the MPO's recent 50-year visioning study results.

1. The transit-only scenario assumed many Bus Rapid Transit (BRT) lines, in exclusive lanes within the urban areas, and on highways to the outlying cities in the region. The analysis did not include use of the California emissions model, but emissions and fuel use correlate very strongly with total travel (VMT). This scenario reduced VMT by 8% in 2025 and 12% in 2050.

2. The MPO's transportation plan assumed more freeways, more HOV lanes, more or wider ramps, and more Light Rail lines, was modeled with an urban growth boundary (UGB). This scenario reduced VMT 7% in 2025 and 8% in 2050 and so performed somewhat worse than the transit-only scenario.

3. The transit-only scenario was tested with a UGB. This reduced VMT by 15% in 2025 and 20% in 2050. Congestion was also reduced.

4. The transit-only scenario was tested with an extra fuel tax of \$1.00 per gallon and parking charges for work trips. This reduced VMT by 14% in 2025 and 18% in 2050. Congestion was reduced substantially.

5. The transit-only scenario was tested with the pricing policies and with a UGB. This reduced VMT 20% in 2025 and 25% in 2050. In this scenario, congestion was reduced the most.

Such strong results stem from the inclusion of a comprehensive transit scenario with fast BRT in exclusive lanes. Also, the urban model allows new development to complement the transportation systems.

All of the tested scenarios were found to be economically beneficial for low-income travelers. The three Urban Growth Boundary scenarios were strongly positive for all travelers together, with savings of about \$0.5 million per day. The analysis method used includes only the morning peak period, so if the results are factored to get all daily travel, the savings become about \$1.5

million per day (\$500 million per year).

These scenarios all included only moderate pricing policies and thus the results should be viewed as the middle range of what is achievable for most large regions, where such levels of transportation pricing incentives will likely become acceptable within a few years.

Including transportation investment and policy scenarios together with pricing and Smart Growth policies has a significant positive impact on system performance (congestion) and on user satisfaction. This likely enhances the political feasibility of adopting such policies.

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