SUMMARY OF BOARD ITEM

ITEM NO. 01-6-6: PUBLIC MEETING TO CONSIDER APPROVAL OF A REVISION TO THE OZONE STATE IMPLEMENTATION PLAN (SIP) FOR THE SAN FRANCISCO BAY AREA

STAFF RECOMMENDATION: Contingent on adoption by the local agencies with the clarifications requested by ARB staff, we recommend that the Board approve the San Francisco Bay Area Ozone Attainment Plan (Plan) as an interim revision to the California SIP, for submittal to the U.S. Environmental Protection Agency (U.S. EPA).

DISCUSSION: The Bay Area Air Quality Management District (District) and its two co-lead agencies—the Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments—prepared the Plan and will consider adoption following a joint hearing on July 18, 2001.

The SIP revision responds to the Bay Area's failure to attain the federal ozone standard by its 2000 deadline. The plan adds new control measures to reduce emissions of volatile organic compounds (VOC) and nitrogen oxides (NOx) by a combined 246 tons per day (tpd) in 2006. The Plan also addresses the U.S. EPA's proposal to disapprove elements of the Bay Area's 1999 SIP and to require submittal of an updated, approvable plan that shows attainment by the new 2006 deadline.

The District proposes to adopt seven new or strengthened VOC measures affecting aqueous solvents, architectural and metal parts coatings, and multiple sources at refineries. In addition, the District proposes to request that the Bureau of Automotive Repair implement certain VOC reduction elements of the Smog Check 2 program in the Bay Area.

The MTC also proposes to add five new transportation control measures (TCMs) to reduce motor vehicle use or activity and to evaluate six additional TCMs for further study.

The greatest portion of the reductions in the Plan come from ARB's previously adopted measures for cleaner vehicles, fuels, and consumer products. The projected benefits of the State motor vehicle strategies and the proposed TCMs support new 2006 transportation conformity budgets of 164 tpd VOC (recommended correction by ARB staff from the 168 tpd shown in the proposed final Plan) and 270 tpd NOx.

We view the Plan as an important interim step on the road to attainment in the Bay Area. Recognizing the need for improved air quality modeling tools for the region, the local agencies and ARB staff also commit to use the results of the Central California Ozone Study in 2003 to reassess the attainment target and define further measures as needed.

ARB will continue to pursue all technically feasible and cost-effective measures to reduce emissions that contribute to ozone, particulate matter, and air toxics statewide; these measures will be detailed in our 2001 Clean Air Plan. Some of the measures ARB staff will develop for consideration by the Board in 2001-2002 that would cut ozone-forming emissions in the Bay Area include: emission standards for inboard marine engines; reduced evaporative emissions from lawn and garden equipment; diesel retrofit program measures for trash trucks and gasoline cargo tankers; vapor recovery on above ground storage tanks; and continued incentive programs for zero-emission vehicles and cleaner trucks/equipment. We will reflect the additional reductions in the Bay Area from these or other future ARB measures in the region's next SIP update.

SUMMARY AND IMPACTS:

The 246 tpd of emission reductions in the Plan, together with the commitment to reassess attainment in 2003, make the Plan an effective step toward cleaner air. The Bay Area Plan meets applicable legal requirements and should be approved for forwarding to U.S. EPA as a SIP revision. The District adequately evaluated the potential environmental impacts of the Plan and found that the Plan will not result in significant adverse environmental effects.

State of California
AIR RESOURCES BOARD

NOTICE OF PUBLIC HEARING TO CONSIDER APPROVAL OF A REVISION TO THE OZONE STATE IMPLEMENTATION PLAN FOR THE SAN FRANCISCO BAY AREA

The California Air Resources Board (Board or ARB) will conduct a public hearing at the time and place noted below to consider a revision to the State Implementation Plan (SIP) for ozone for the San Francisco Bay Area.

DATE: July 26, 2001

TIME: 6:30 p.m.

PLACE: Ramada Plaza Hotel
Whitcomb Ballroom
1231 Market Street
San Francisco, California

This item will be considered at a two-day meeting of the Board, which will commence at 9:00 a.m., July 26, 2001. In order to provide opportunity for full community participation, this item has been scheduled for hearing at 6:30 p.m. on the evening of July 26, 2001.

This facility is accessible to persons with disabilities. If accommodation is needed, please contact ARB's Clerk of the Board by July 12, 2001, at (916) 322-5594, or TDD (916) 324-9531, or (800) 700-8326 for TDD calls outside the Sacramento area.

The San Francisco Bay Area did not attain the one-hour federal ozone standard by November 15, 2000—the deadline set by the U.S. Environmental Protection Agency (U.S. EPA). On March 30, 2001, the U.S. EPA proposed to make an official finding of failure to attain, and to partially approve and partially disapprove the submitted 1999 Ozone SIP for the Bay Area.

On June 15, 2001, the Bay Area Air Quality Management District (District) and its co-lead agencies, the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG), published a 2001 revision, the *Proposed Final San Francisco Bay Area Ozone Attainment Plan for the 1-Hour National Ozone Standard* (Proposed Plan), to update, supplement, and partially replace the 1999 SIP. The governing boards of the Bay Area District, MTC and ABAG are scheduled to hear the Proposed Plan on July 18, 2001. Contingent on local adoption, the ARB will consider approval of the Plan at its July 26, 2001 hearing, including any changes made to the proposal by the local agencies in response to comments.

The Proposed Plan includes new 1995 and 2000-2006 emission inventories for volatile organic compounds (VOC) and oxides of nitrogen (NOx); an updated attainment assessment for 2006, based on available data; additional control measures; new conformity emissions budgets; a review of reasonably available control measures; and contingency measures. Between 2000 and 2006, the measures in the Proposed Plan will reduce VOC emissions by 122 tons per day and NOx by 124 tons per day.

ARB staff has reviewed the Proposed Plan and is recommending changes that may affect the inventory, control measures, and conformity budgets. ARB staff has described these changes in its report to the Board and will submit them as comments directly to the three co-lead agencies before their July 18, 2001 public hearing. We anticipate that the local agencies will make changes to the Proposed Plan based on our comments. With those anticipated revisions, staff will recommend that the Board approve the Bay Area Plan as a SIP revision and that the Board direct the Executive Officer to submit it to U.S. EPA immediately.

ARB staff will post its report to the Board on the ARB's web site http://www.arb.ca.gov by June 26, 2001. Alternatively, written copies may be obtained from the Board's Public Information Office, 1001 I Street, 1st Floor, Environmental Services Center, Sacramento, California 95814, (916) 322-2990, on June 26, 2001.

ARB staff will make an oral presentation and present recommendations to the Board at the hearing. Interested members of the public may also present comments orally or in writing at the hearing, and in writing or by e-mail before the hearing. To be considered by the Board, written comments submissions not physically submitted at the hearing must be received **no later than 12:00 noon, July 25, 2001**, and addressed to the following:

Postal mail is to be sent to:

Clerk of the Board
Air Resources Board
1001 "I" Street, 23rd Floor
Sacramento, California 95814

Electronic mail is to be sent to baysip@listserv.arb.ca.gov and received at the ARB **no later than 12:00 noon, July 25, 2001.**

Facsimile submissions are to be transmitted to the Clerk of the Board at (916) 322-3928 and received at the ARB **no later than 12:00 noon July 25, 2001.**

The Board requests, but does not require 30 copies of any written submission. Also, the ARB requests that written and e-mail statements be filed at least 10 days prior to the hearing so that ARB staff and Board members have time to fully consider each comment. Further inquiries regarding this matter should be directed to Bruce Tuter at (916) 322-2832.

CALIFORNIA AIR RESOURCES BOARD

Michael P. Kenny
Executive Officer

Date: June 20, 2001

"The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our Web-site at www.arb.ca.gov."

State of California
AIR RESOURCES BOARD

STAFF REPORT ON APPROVAL OF A REVISION TO THE OZONE STATE IMPLEMENTATION PLAN FOR THE SAN FRANCISCO BAY AREA

Release Date: June 26, 2001
Hearing Date: July 26, 2001

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California Environmental Protection Agency
AIR RESOURCES BOARD

State of California
AIR RESOURCES BOARD

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State of California
California Environmental Protection Agency
AIR RESOURCES BOARD

STAFF REPORT

PUBLIC HEARING TO CONSIDER APPROVAL OF THE 2001 SAN FRANCISCO BAY AREA OZONE ATTAINMENT PLAN FOR THE 1-HOUR NATIONAL OZONE STANDARD AS A REVISION TO CALIFORNIA'S STATE IMPLEMENTATION PLAN (SIP)

Hearing
July 26, 2001
6:30 p.m.
Ramada Plaza Hotel
Whitcomb Ballroom
1231 Market Street
San Francisco, California

For questions, contact: Mr. Bruce Tuter, District Liaison
Air Quality and Transportation Planning Branch
Air Resources Board
P.O. Box 2815
Sacramento, California 95812
Phone: (916) 322-2832
Fax: (916) 322-3646
Email: btuter@arb.ca.gov

This report has been reviewed by the staff of the Air Resources Board and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the Air Resources Board, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

If you are a person with a disability and desire to obtain this document in an alternative format, please contact the Air Resources Board ADA Coordinator at (916) 323-4916, or TDD (916) 324-9531, or (800) 700-8326 for TDD calls from outside the Sacramento area. This report is available for downloading from the Air Resources Board's Internet site at http://www.arb.ca.gov/sip/basip01.htm.

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EXECUTIVE SUMMARY

The Bay Area Air Quality Management District (District), together with its co-lead agencies, the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG), released the Proposed Final *San Francisco Bay Area 2001 Ozone Attainment Plan for the 1-Hour National Ozone Standard* (Plan) on June 15, 2001. These agencies will consider adoption of the plan as a revision to the State Implementation Plan (SIP) at a joint hearing scheduled for July 18, 2001. Contingent on adoption by the local agencies, the Air Resources Board (ARB or Board) will consider adoption following a public hearing on July 26, 2001. This Staff Report presumes that the local agencies will adopt the Plan, with the changes requested by ARB staff.

1. Why have the local agencies developed a new SIP revision?

The SIP revision responds to the Bay Area's failure to attain the federal ozone standard by its 2000 deadline by adding new control measures to reduce ozone precursor emissions of volatile organic compounds (VOC) and nitrogen oxides (NOx) by a combined 246 tons per day by 2006. (The monitor at the peak ozone site in Livermore exceeded the standard twice in 2000.) The Proposed Plan also addresses the U.S. Environmental Protection Agency's (U.S. EPA) proposal to disapprove elements of the Bay Area's 1999 SIP and require submittal of an updated, approvable plan that shows attainment by the new 2006 deadline.

2. How much will the Plan reduce emissions by 2006?

The table below shows that implementation of all quantified measures in the Plan will reduce ozone forming emissions by a combined 246 tons per day (tpd) between 2000 and 2006. The significant technology controls and cleaner fuels required for passenger vehicles (cars, pickups, minivans, sport utility vehicles, and motorcycles) drive the total emissions down, despite growth:

Table ES-1
Reductions in Ozone-Forming Emissions with Proposed Plan
Bay Area, 2000-2006

	VOC Emissions		Nox Emissions	
	Reductions (tpd)	% Reduction	Reductions (tpd)	% Reduction
Stationary and Area Sources	32	14	25	26
On-Road Vehicles				
• Passenger Vehicles	69	33	61	31
• Heavy Trucks and Buses	6	20	20	13
Off-Road Vehicles and Equipment	15	18	18	9
Total	122	22	124	19

3. How does the Plan amend and strengthen the 1999 SIP?

The Proposed Plan builds on the 1999 SIP, adding new controls, emission inventory projections, conformity budgets, and attainment analyses. Specifically, the Plan:

- reduces air pollutant emissions in the Bay Area by 246 tons per day between 2000 and 2006;
- supplements District and State control strategies with additional measures;
- adds five new MTC transportation control measures for implementation, and maintains the prior request to delete four obsolete measures;
- supplements the contingency measures with further reductions through 2010;
- replaces the conformity emissions budgets with budgets derived from ARB's latest vehicle emissions model (EMFAC2000) and updated travel activity;
- updates and supplements the attainment assessment with new emission inventories, year 2000 data and additional analyses;
- updates and replaces the baseline 1995 and projected 2000 emission inventories, plus supplements with inventories for 2001-2006; and
- supplements with comprehensive responses to public suggestions for Reasonably Available Control Measures.

4. What new measures does the District commit to adopt?

In the Proposed Plan, the District commits to adopt seven new measures for sources under its control in 2001-2003, for implementation beginning 2002-2004:

- aqueous solvents;
- improved architectural coatings (consistent with ARB's suggested control measure);
- surface preparation and cleanup for metal parts coatings;
- storage of organic liquids;
- low emission refinery valves;
- vessel depressurization; and
- flare monitoring.

The last four measures would reduce VOC emissions, including toxic constituents, from refineries. The District also proposes to request that the Bureau of Automotive Repair (BAR) implement certain elements of the Smog Check 2 program in the Bay Area if they are not imposed statewide.

5. What new measures does MTC commit to implement?

Although most of the mobile source emission reductions come from technological improvements in engines and fuels, transportation control measures (TCMs) provide an important benefit by reducing motor vehicle use or activity and associated emissions. MTC proposes to implement five new TCMs beginning 2001-2004:

- regional express bus program;
- bicycle and pedestrian program;
- transportation for livable communities/housing incentive program;
- expanded freeway service patrol; and
- transit access to San Francisco Airport.

MTC also proposes to evaluate six additional measures, including improvements to the Smog Check 2 program, for further study. Four obsolete measures are proposed for deletion from the ozone SIP – two are completed projects; the other two are carbon monoxide measures.

6. What new reductions do State measures provide?

The bulk of the State measures with benefits between 2000 and 2006 are already adopted by ARB; as a result, they are reflected in the projected inventories rather than being itemized separately. The State measures include regulations for cleaner passenger vehicles, trucks, and off-road equipment, as well as cleaner gasoline and less polluting consumer products. Mobile source measures account for three-quarters of the total VOC plus NOx reductions in the Bay Area between 2000 and 2006. Mobile measures typically show increasing benefits after implementation as fleet turnover expands the number of cleaner vehicles.

In addition to the quantified emission reductions discussed above, ARB will consider adoption of other new measures to reduce ozone, particulate matter, and air toxics statewide as part of our 2001 Clean Air Plan. This Report identifies some of the measures ARB staff will develop for consideration by the Board in 2001-2002 that would cut ozone-forming emissions in the Bay Area, including:

- emission standards for inboard marine engines;
- reduced evaporative emissions from lawn and garden equipment;
- diesel retrofit program measures for trash trucks and gasoline cargo tankers; and
- vapor recovery on above ground storage tanks; as well as
- continued incentive programs for zero-emission vehicles and cleaner trucks/equipment.

We will reflect the additional reductions from these or other future ARB measures in the next SIP update.

7. How does the Plan assess the region's ability to attain by 2006?

This assessment uses what we know today -- current air quality and emissions data -- combined with existing information on ozone formation in the Bay Area, to evaluate how changes in emissions affect ozone and to project an attainment target. The assessment utilizes all available information to present six different analyses of emissions and ozone levels over time. Two of these analyses are based on "isopleth" diagrams constructed from the only existing air quality modeling for the Bay Area, based on a 1989 ozone

study, which defines the complex relationship between changes in VOC emissions, NOx emissions, and ozone levels in the Bay Area. Taking projected NOx reductions in 2006 as a constant, these analyses project that Bay Area can attain the standard with VOC *emission* levels in the range of 396 - 450 tons per day. To meet these estimates of the carrying capacity, VOC reductions of 91-145 tons per day would be needed between 2000 and 2006.

The interim goal identified in the Plan is to reduce VOC emissions by 122 tons per day through specified measures. Other actions described in the Plan and this Report, but not yet quantified, will ensure additional reductions. These actions include commitments for three District measures, six MTC further study measures, and development of five defined ARB measures or programs; plus four recently adopted controls (three by ARB and one by U.S. EPA) that are not reflected in the projected Plan inventory.

The District's attainment assessment acknowledges the limitations of the available modeling. The ideal technical analysis of the emission reductions required to attain the standard would be a recent field study focused on the Livermore site. But, we do not have such ideal study data today and must move ahead with the information on hand. We agree that the isopleth diagrams, based on a 1989 study and updated with current inventory projections, represent our best understanding today of the fundamental relationship between VOC and NOx emissions in the Bay Area.

Although the two isopleth diagrams are the most appropriate tools available to define a VOC reduction target, there is uncertainty about the emission levels needed to attain at the Livermore site. We support the District's use of a range and acknowledge that it is possible that reductions greater than the 246 tpd quantified in the Plan may be needed to address the upper bound analysis. The emission reduction target will be revisited in 2003 using the Central California Ozone Study results.

We believe that public health is best served by relying on the existing tools and making 246 tpd of reductions federally enforceable now via the 2001 SIP, with the understanding that if further reductions are needed, we will pursue them and update the SIP accordingly.

8. <u>When will the Bay Area SIP be updated again?</u>

ARB staff are currently developing comprehensive regional modeling for the northern half of the State, based on a $8-plus million intensive field study conducted in Summer 2000. The Central California Ozone Study (CCOS) gathered detailed, day-specific information on emissions, meteorology, and ozone and precursor levels at the ground and aloft for several high ozone episodes. These data, combined with improved atmospheric chemistry, will provide the rigorous air quality modeling capability we all seek for the Bay Area, as well as the rest of the study region.

In the Plan, the District committed to take certain actions a specified number of days after milestones in model development. With this Staff Report, ARB is committing to complete model development for this purpose by the dates noted below, which then allows us to present the overall timeline for use of the new model to reassess attainment of the one-hour federal ozone standard in the Bay Area by 2006.

Date	Milestone
April 2003	ARB develops 2000 baseyear CCOS modeling episode suitable for use in predicting ozone concentrations in Bay Area, with a focus on Livermore.
June 2003	District and ARB complete modeling protocol to assess attainment.
July 2003	ARB completes work to apply CCOS model to reassess attainment at Livermore site by 2006.
October 2003	District holds public meeting to present results of modeling and latest ozone monitoring to its Board and to determine need to update SIP.
January 2004	If update needed, District staff releases draft inventory, modeling, and control strategy for SIP revision.

9. What clarifications is ARB staff asking the local agencies to make to the Plan?

- Modify the District's commitment to request opt-in to Smog Check 2 for the total 4.5 tons per day of VOC reductions to include: the liquid leak check, improved evaporative emission testing, stricter testing standards (cutpoints), and other VOC reduction elements. This would make the Bay Area request similar to the joint ARB-BAR commitment to improve the VOC element of the Smog Check 2 program in other areas through a variety of approaches.

- Correct the VOC emissions budget for transportation conformity to reflect the benefits expected from the Smog Check program improvements being requested by the District. The VOC budget for 2006 should be 164 tons per day, rather than the 168 tons per day shown in the Plan.

- Clarify the timing of the CCOS modeling consistent with the milestones identified above and delete the two unnecessary footnotes on page 21 of the Plan regarding CCOS Policy and Technical Committees. The milestones are based on ARB and District approval of the CCOS modeling, which takes into account peer review by the Technical Committee, as well as others.

10. Is the Plan consistent with state and federal requirements?

Yes. The Plan meets the requirements of state and federal law.

The Clean Air Act (section 110(a)(2)(K)) requires air quality modeling prescribed by the Administrator for the purpose of predicting the effect of emissions on ambient air quality. In this case, two different U.S. EPA Administrators specifically recognized the limitations of existing technical tools for the Bay Area when each established the requirement (in 1998 and again in 2001) for an attainment *assessment*, rather than the conventional attainment *demonstration*. We believe the Proposed Plan's use of the only available air quality modeling to project an attainment target range and additional analyses to provide weight of evidence as to the appropriateness of the range, together with new measures and a commitment to reassess attainment with improved tools by a date certain, all combine to provide an approvable attainment assessment.

The Clean Air Act (section 172(c)(1)) also requires SIPs to provide for implementation of all reasonably available control measures as expeditiously as practicable – the Plan meets this test. The Plan components also remedy the deficiencies in the 1999 SIP cited by U.S. EPA in its notice of proposed action, and provide the additional elements U.S. EPA identified as necessary for an approvable SIP revision. The three co-lead agencies have also met the technical, administrative, and procedural requirements for SIP revisions.

11. What are the emissions budgets for transportation conformity?

The Clean Air Act requires transportation plans to conform to air quality plans. Because the attainment assessment in the Bay Area Plan relies on lower emissions from on-road motor vehicles for the years 2000-2006 than in the 1999 submittal plan, the emissions budget for transportation conformity must be updated. The differences are due to changes in the emissions models and from implementation of additional controls. The emissions budget is derived from the 2006 emissions inventory in the Bay Area Plan, after accounting for the effects of growth and control. The new budget for transportation conformity should be 164 tpd VOC and 270 tpd NOx, and will become effective upon U.S. EPA's finding of adequacy.

12. Why did the agencies develop this SIP revision on an expedited schedule?

Although the Clean Air Act allows up to twelve months to prepare a new SIP (following U.S. EPA's finding of failure to attain), the local agencies and ARB staff made development a high priority to improve air quality as expeditiously as possible and avoid federal transportation sanctions in the Bay Area. We defined a schedule that meets all legal requirements for public notice and comment, plus allows time for submittal and U.S. EPA action prior to imposition of the first sanction (a conformity "freeze") in mid-October 2001 and the second sanction (a conformity "lapse") in January 2002.

The October date is determined by the schedule for final U.S. EPA action on the 1999 SIP, as contained in a Consent Decree that the Agency signed to settle a lawsuit filed by a coalition of Bay Area environmental and community groups -- Bayview Hunters Point Community Advocates, Communities for a Better Environment, Latino Issues Forum, Transportation Solutions Defense and Education Fund, Sierra Club, and Urban Habitat Program.

A conformity freeze would prevent MTC from receiving federal approval and funding for *new* projects and from adopting the 2001 Regional Transportation Plan due at the end of the year. If MTC and the U.S. Department of Transportation do not approve a new Regional Transportation Plan by January 2002, a conformity lapse will occur. A lapse is even more serious than a freeze, because a lapse effectively stops the flow of federal funding for transportation expansion projects, including those already approved at the local, state, and federal level.

We believe it is necessary to move forward with July consideration by the local boards and ARB. We hope to secure U.S. EPA approval of the new 2001 SIP before the Agency would be required to finalize its disapproval of the 1999 SIP and trigger the freeze. However, we consider this plan to be an interim step for the region and believe it must include firm commitments for the next steps with an expanded public process.

13. <u>What have been the opportunities for public involvement in the Plan?</u>

Since the Bay Area recorded two exceedances of the standard during the 2000 ozone season, the co-lead agencies met with ARB, U.S. EPA and a number of community and environmental groups in Fall 2000 to discuss the region's response. Prior to publication of the draft Plan, staff from ARB and the District met in February and April of 2001 with subsets of these same groups to review Plan development.

MTC conducted a workshop on potential transportation control measures in May 2001. The local agencies released the Draft Plan for a 25-day review period, with a public workshop in May. The District also held two additional community meetings on a range of issues, with the opportunity for discussion of the Plan, in May and June. The co-lead agencies released the Proposed Final Plan on June 15 for the formal 30-day review and comment period prior to their hearing.

ARB, in conjunction with the District, has scheduled an additional Plan workshop on the evening of July 9, 2001 in Richmond. On the evening of July 10, 2001, ARB staff is making a presentation on the proposed SIP at a meeting of the North Richmond Municipal Advisory Committee.

14. Is the Plan expected to cause a significant adverse environmental impact?

No. As required under the California Environmental Quality Act (CEQA), the District evaluated the potential environmental impacts of the Proposed Plan and found that the control measures will not result in significant adverse environmental effects. ARB staff concurs with the District's findings. At its July 18, 2001 hearing, the District Board will consider a Negative Declaration for the Plan, as required by CEQA.

15. How will the Plan and its approval as a SIP revision benefit the Bay Area and downwind communities?

The measures in this SIP will reduce not only ozone, but also fine particulate matter and the toxic components of volatile emissions. Because the measures are regionwide, or statewide, they will benefit all neighborhoods, not just the high ozone area in Livermore. In addition, the District has committed to adopt four new measures to monitor and reduce emissions from refineries, based on suggestions from community members and ARB staff. Local, state, and federal approval of the Plan as a SIP revision would lock-in the commitments to adopt measures and to reduce ozone-forming emissions by over 246 tons per day across the Bay Area. These reductions will also help mitigate the impact of Bay Area emissions on downwind communities.

16. What action is the staff recommending to the Board?

We recommend that the Board approve the Bay Area Plan as an interim revision to the California SIP, with the clarifications ARB staff is requesting the local agencies to make. Board action should also encompass any other revisions that strengthen the Proposed Plan in response to public comments.

With these changes, the Proposed Plan is approvable as an interim SIP because: it presents a comprehensive technical characterization of what we know today about ozone in the Bay Area; it defines a path to attainment that is as expeditious as practicable; it makes local commitments for new measures, as well as further emission reductions, federally enforceable; it ensures use of up-to-date budgets for transportation conformity based on the latest emissions and vehicle travel data; and it commits to perform scientifically rigorous air quality modeling in 2003 and develop a second SIP revision if needed.

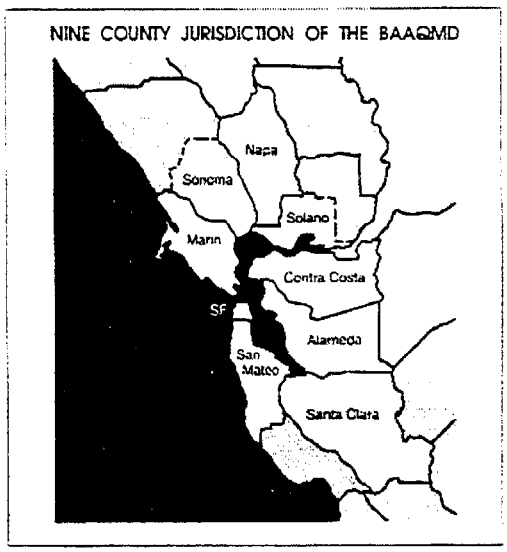
Staff is recommending further that the Board direct the Executive Officer to submit this SIP revision to U.S. EPA as soon as possible and seek expedited federal approval to avoid imposition of transportation sanctions in the Bay Area.

I. BACKGROUND

A. Profile of the Bay Area

The San Francisco Bay Area Air Basin covers Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, southwestern Solano, and southern Sonoma Counties (see Figure I-1). The Bay Area is California's second largest metropolitan region with a population of about six million, about 20 percent of the statewide total. Pollution sources in the region also account for about 20 percent of the statewide emissions of ozone-forming volatile organic compounds (VOC) and nitrogen oxides (NOx).

Figure I-1



The Bay Area Air Quality Management District (District or BAAQMD) is the air quality agency responsible for the air basin. The District's co-lead agencies for air quality planning are the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG). MTC is the transportation planning agency and ABAG coordinates land use planning for the same nine counties, including those portions of Solano and Sonoma Counties that lie outside the air basin.

B. Historical Air Quality and Emissions

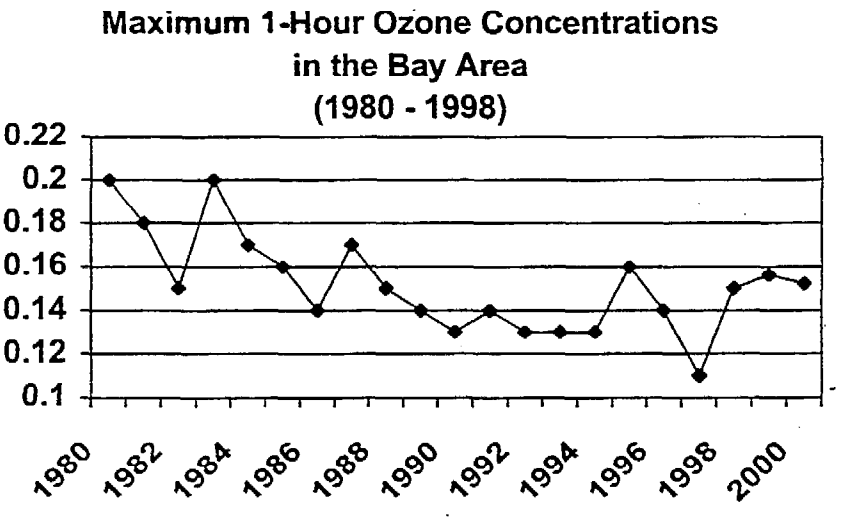
Overall, air quality in the Bay Area is much better than in other urban areas of California, largely due to its cooler temperatures and better ventilation. The climate in the Bay Area varies, ranging from mild temperatures all year along the coast, to warmer temperatures with greater seasonal fluctuation in the inland counties. This variation can also be seen in the ozone levels—lower along the coast and higher in the inland valleys.

The District operates 25 routine monitoring sites for ozone in the Bay Area. The monitoring station located in Livermore typically records the highest ozone levels. Most of the measured values above the standard in 1998, 1999, and 2000 occurred at this site. The other monitoring stations that experienced days over the standard include Concord, Los Gatos, San Martin, and Gilroy.

Evaluating historical ozone air quality data to determine how ozone levels respond to changes in emissions is difficult because meteorology plays such a large role. While this is true of all areas, it is even more so for the Bay Area. The Bay Area with its extensive urbanized areas and industrial sources produces significant amounts of emissions. But because the Bay Area generally has cool temperatures and nearly steady ocean breezes, these emissions usually do not result in high local ozone concentrations. However, when the meteorology changes and there are no ocean breezes and temperatures are hot, ozone levels within Bay Area can exceed the standard.

Because the frequency of these conditions can change from year to year or not at all, ozone concentrations can fluctuate significantly over a period of years, in spite of steadily declining emissions. Figure I-2 illustrates the variability in the annual maximum one-hour ozone concentrations recorded in the Bay Area over the last 20 years.

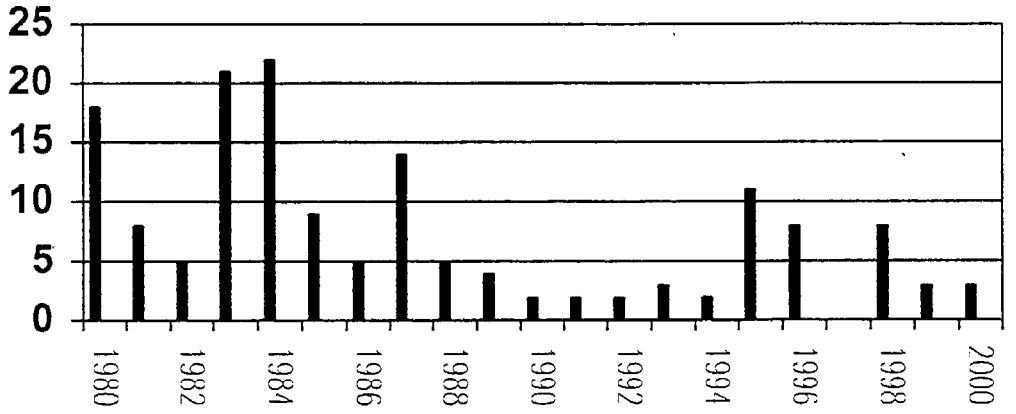
Figure I-2



A graph of the annual number of days with exceedences (see Figure I-3) further illustrates this variability. The Bay Area experienced no days over the ozone standard in 1997, eight days in 1998, three days in 1999, and three days again in 2000. This pattern can be attributed to differences in the number and severity of episodes of "ozone conducive" weather from one year to another. Even though there has been steady progress in reducing total VOC and NOx emissions in the Bay Area, the reductions have not been enough to prevent exceedances under all meteorological conditions.

Figure I-3

Number of Days National 1-Hour Ozone Standard Exceeded (1985 - 2000)



C. Transport of Bay Area Pollution to Other Regions

As noted above, the Bay Area enjoys relatively low ozone concentrations despite its extensive urbanized area, vehicles, and industrial sources. The Bay Area's coastal location and favorable meteorology helps to keep its pollution levels low most of the time. However, the Bay Area does produce significant emissions which are carried out of the area when the onshore winds blow. These emissions and resulting pollution can spread far downwind of the Bay Area: in the San Joaquin and Sacramento Valleys, the Monterey Bay area, northern Sonoma County, and even as far away as San Luis Obispo County and the Sierra foothills.

These emissions and pollution have varying impacts on the ozone levels in these downwind areas. Those impacts can range from being the overwhelming cause of ozone levels above the standard in nearby areas (like Vacaville in eastern Solano County, northern Sonoma County, and Monterey County) to contributing to elevated ozone levels in more distant areas such as Sacramento, the San Joaquin Valley, and the Mountain Counties. Many of these areas are also designated as nonattainment for the federal one-hour ozone standard (all violate the State's more protective standard) and are carrying out emission reduction programs to attain the standards.

II. AIR QUALITY PLANNING

This chapter briefly reviews the relevant planning provisions in both the federal Clean Air Act (Act) and the California Clean Air Act (California Act), and describes recent Bay Area plans. It also expands on the Executive Summary discussion of the planning schedule, the impacts on transportation planning, and public outreach on plan development.

A. Planning Requirements

The federal Clean Air Act establishes specific requirements for nonattainment areas. For ozone, nonattainment areas are classified as marginal, moderate, serious, severe, or extreme, based on the severity of the problem. The planning and control requirements, as well as the time allowed to reach attainment (from 1994 to 2010), vary based on the area's classification. Areas classified serious and above were required to develop, adopt, and submit attainment demonstrations by November 15, 1994. The 1994 California State Implementation Plan for Ozone (SIP) contains the overall strategy for achieving the federal one-hour ozone standard in the six nonattainment areas. Although the SIP does not explicitly address the Bay Area, the significant new state and federal measures in the SIP provide benefits statewide.

The Bay Area was designated as nonattainment with a moderate classification, which carried an automatic attainment date of 1996. Moderate and above areas were required to develop, adopt, and submit a "15 Percent Rate-of-Progress Plan" showing how the area would reduce VOC emissions by 15 percent between 1990 and 1996. Because of the near-term attainment date, moderate areas were not required to submit plans with air quality modeling to demonstrate how the area would attain the ozone standard. Since there were no violations of the ozone standard in the Bay Area between 1990 and 1993 when the 15 Percent Plan was due, the District instead prepared a request for redesignation to attainment that included an ozone maintenance plan.

1. 1994 Ozone Maintenance Plan

After experiencing clean air (no violations) from 1990 to 1994, the District submitted a request to U.S. EPA for redesignation to attainment for the federal one-hour ozone standard. U.S. EPA approved the redesignation request and accompanying maintenance plan, including contingency measures, on May 22, 1995. Shortly after U.S. EPA announced the region's redesignation to attainment, the area logged multiple exceedances of the ozone standard in the Summer of 1995.

2. 1999 SIP

After reviewing the violations of the standard in 1995 and 1996, U.S. EPA determined that the contingency measures in the approved ozone maintenance plan were not sufficient to bring the Bay Area back into attainment. Instead, U.S. EPA returned the Bay Area to nonattainment status once again and called for a new plan to demonstrate attainment by November 15, 2000.

In the July 10, 1998 *Federal Register* notice of redesignation, U.S. EPA provided an extended discussion of the "streamlined" requirements that would govern the Bay Area's new ozone attainment plan. U.S. EPA determined that the Act's classification system did not apply to the Bay Area and redesignated the Bay Area under the general provisions of the Act, as nonattainment with no classification. U.S. EPA stated that it wanted the Bay Area District and its co-lead agencies to focus on emission reductions and not on a burdensome and duplicative planning effort. U.S. EPA's requirements for the 1999 SIP were a new inventory, an attainment "assessment," a revised control strategy and contingency measures, and new transportation conformity budgets.

The co-lead agencies adopted the 1999 SIP and ARB submitted it to U.S. EPA on August 12, 1999. In Summer 2000, the Livermore monitoring site recorded two exceedances of the federal standard, precluding the area's request to extend the attainment date based on "clean" data. On March 30, 2001, U. S. EPA published a Federal Register notice (Vol. 66, No. 62, 17379) proposing a finding of failure to attain for the Bay Area and a partial approval and partial disapproval of the 1999 SIP submittal.

U.S. EPA proposed to approve the:

- baseline (1995) emission inventory,
- reasonable further progress demonstration,
- commitments for new control measures,
- contingency measures, and
- the proposal to delete TCMs 6, 11, 12 and 16.

U.S. EPA concurrently proposed to disapprove the:

- attainment assessment,
- transportation emissions budgets, and
- the Reasonably Available Control Measure (RACM) demonstration.

To correct these deficiencies, the region must update them and ARB must submit them to U.S. EPA as a SIP revision that shows attainment by 2006.

3. 2001 Ozone Plan

The boards of the District, ABAG, and MTC are scheduled to consider approving the resulting Proposed Plan in a joint meeting on July 18, 2001. Although additional legal actions have been filed by some of the same groups over the emission budgets and attainment assessment, we believe the Proposed Plan, with ARB staff's requested revisions, can resolve the outstanding issues.

4. California Clean Air Act Plans

The California Act requires districts that violate the State one-hour ozone standard of 0.09 ppm to demonstrate every three years (2000, 2003, etc.) that they are making steady progress towards attainment through a five percent annual reduction in ozone

precursors or implementation of all feasible measures. Thus far, all districts have relied on the all feasible measures option to show progress. Districts like Bay Area that send "overwhelming" pollutant transport to other regions must also mitigate their contribution. As part of its transport mitigation responsibility, the Bay Area's California Clean Air Act plan includes additional NOx reduction measures to aid attainment in downwind regions. Unlike the 1999 SIP revision, the attainment assessment in this 2001 SIP for Bay Area reflects the NOx reductions from adopted measures since they affect actual emissions between 2000 and 2006.

B. Planning Schedule and Impact on Transportation Funding

The Executive Summary describes why the local agencies and ARB staff expedited development of the Proposed Plan to improve air quality and avoid federal transportation sanctions in the Bay Area. This section provides more detail on the timing and consequences if we do not succeed in adopting, submitting, and obtaining U.S. EPA approval of this SIP revision before imposition of the first sanction (a "conformity freeze") in mid-October 2001 and the second sanction (a "conformity lapse") in January 2002.

1. Deadline for U.S. EPA Action on 1999 SIP

On January 8, 2001, a coalition of environmental and community groups (Bayview Hunters Point Community Advocates, Communities for a Better Environment, Latino Issues Forum, Our Children's Earth Foundation, Sierra Club, Transportation Solutions Defense and Education Fund, and Urban Habitat Program) filed suit in U.S. District Court to compel U.S. EPA to find that the Bay Area had failed to attain the federal one hour ozone standard and to disapprove the 1999 SIP submittal. On April 3, 2001, U.S. EPA signed a Consent Decree with this coalition and committed to final action on the 1999 SIP by August 28, 2001. This action will be published in the Federal Register, most likely in September 2001. The effective date is expected to be in mid-October 2001.

The adverse consequences of final U.S. EPA action to disapprove the attainment assessment in the 1999 SIP and to find that the Bay Area failed to attain the standard by 2000 begin on the effective date (mid-October) of the action. These consequences include:

- an immediate conformity freeze that would, if it remains in effect, also cause a conformity lapse in January 2002,
- a 12-month period to submit a new SIP,
- an 18-month clock to impose federal sanctions on new and modified stationary sources (including new power plants) by requiring emission offsets at a 2:1 ratio, and
- a 24-month clock to impose federal highway sanctions to cut off funding and to require that U.S. EPA takeover the region's air quality planning and implementation responsibilities through a federal implementation plan .

The only mechanism to avoid all of these consequences is to develop, adopt, submit, and gain U.S. EPA approval of a new SIP. In response, the local agencies and ARB staff agreed to push for completion of these actions before mid-October.

2. Transportation Conformity Requirements

Under section 176(c) of the Clean Air Act, federal funds and decisions may not support activities that contribute to violations of the national ambient air quality standards. The Act established a process, known as conformity, for assuring that federal decisions are consistent with the SIP. Regional transportation plans (RTPs), transportation improvement programs (TIPs), and transportation projects that involve federal funds must be shown to result in emissions that do not exceed estimates for motor vehicles in the SIP's progress and attainment demonstrations. The ceiling established for the transportation system is known as the motor vehicle emissions budget.

A metropolitan area that does not have a conforming transportation plan and program is unable to receive federal dollars or federal approvals for certain transportation projects. Only projects that are SIP transportation control measures, projects with final federal approval, and specified safety, maintenance, transit and air quality projects may receive federal dollars. RTP and TIP conformity must be demonstrated at least every three years, and the conformity of the current Bay Area plan expires in January 2002. MTC plans to adopt, and assess conformity for, an updated RTP and TIP in October 2001. The Federal Highway Administration and the Federal Transit Administration also must make a conformity finding on the Bay Area's RTP and TIP.

3. Impact of a Conformity Freeze

Under federal conformity rules, U.S. EPA disapproval of a SIP submittal precludes amendments to RTPs and TIPs. This means that new projects or changes in existing projects may not be advanced, as the existing, previously conforming RTP and TIP are "frozen." Projects in the first three years of the TIP may continue to move forward for the duration of the freeze. It is difficult to anticipate projects that may be affected by a freeze, since RTP and TIP amendments are not always known far in advance. The Bailey Avenue interchange on Route 101, proposed by Cisco Systems, is an example of a project recently amended into the RTP and TIP.

Timing: If U.S. EPA disapproval of the 1999 Bay Area SIP takes effect prior to their determination that the 2001 SIP motor vehicle emissions budgets are adequate for conformity purposes, a conformity freeze will occur, until the budgets are found adequate and conformity can be determined.

4. Impact of a Conformity Lapse

A lapse of conformity is an expiration of the previous conformity finding without a new finding. MTC has identified about thirty transportation projects that may potentially be delayed if they are unable to make a new finding of conformity by January (see Appendix A) A lapse is a more serious limitation on project development than a freeze. Projects that are SIP transportation control measures (TCMs), projects with final federal approval, and specified safety, maintenance, transit, and air quality projects may

receive federal funds during a lapse of conformity, through adoption of an interim RTP and TIP. New TCMs such as pending transit improvements may be advanced if they are first approved as SIP measures and included in an interim RTP and TIP.

Timing: If MTC, the Federal Highway Administration and the Federal Transit Administration are unable to make findings of conformity for the RTP and TIP prior to expiration of the current finding in January 2002, a conformity lapse will occur, until those agencies complete conformity findings.

C. Outreach on Plan Development

While the schedule for developing this interim SIP was compressed, the agencies involved did conduct outreach and provide opportunities for public involvement.

Because the Bay Area recorded two exceedances of the standard during the 2000 ozone season, the co-lead agencies met with ARB, U.S. EPA and a number of community and environmental groups in Fall 2000 to discuss the region's response. Prior to publication of the draft Plan, staff from ARB and the District met in February and April of 2001 with subsets of these same community and environmental groups to review Plan development. MTC conducted a workshop on potential transportation control measures in May. The local agencies released the Draft Plan for a 25-day review period, with a public workshop in May. The District also held two additional community meetings on a range of issues, with the opportunity for discussion of the Plan, in May and June. The co-lead agencies released the Proposed Final Plan on June 15 for the formal 30-day review and comment period prior to their hearing.

ARB, in conjunction with the District, has scheduled an additional Plan workshop on the evening of July 9, 2001 in Richmond. On the evening of July 10, 2001, ARB staff is making a presentation on the proposed SIP at a meeting of the North Richmond Municipal Advisory Committee.

We will also continuing meeting with Bay Area residents and neighborhood groups to address their concerns on other air quality issues through ARB's Community Health and Environmental Justice Program, including air quality monitoring at schools as part of the Children's Environmental Health Program.

Finally, we will work with the local agencies to begin an extended public involvement process on the next phase of the attainment assessment—development of scientifically rigorous air quality modeling based on the Central California Ozone Study (see Chapter IV for further discussion of this subject).

III. PLAN EVALUATION

This chapter reviews the contents of the 2001 Proposed Plan and provides ARB staff's evaluation of each significant element. We also identify changes to the State control measure strategy compared to the Proposed Plan, including the elements of the Smog Check 2 program that the District proposes to request for implementation in Bay Area.

A. Inventory

Emissions inventories are fundamental elements of any air quality plan, incorporating the effects of growth and existing regulations to determine the expected emissions in future years. U.S. EPA selected 2000 as the desired base year for the VOC and NOx emission inventory because this was the Bay Area's former attainment deadline. Total emissions in 2000 were 541 tpd of VOC and 647 tpd of NOx.

Table III-1 shows the breakdown of emissions by broad source category. About 41 percent of total VOC emissions and 15 percent of total NOx emissions in 2000 are from stationary and area sources; their proportional contribution increases in future years. The District is responsible for reducing emissions from these sources, except for the consumer products, aerosol paints, and pesticides subject to state control. Mobile sources, which include both on-road and off-road vehicles, account for approximately 59 percent of VOC emissions and about 85 percent of NOx emissions in 2000. As mobile source emissions decrease in the future, their percentages decline also. On-road motor vehicles include passenger cars, minivans, sport utility vehicles, motorcycles, heavy-duty trucks, and buses. Off-road mobile sources include heavy-duty construction equipment, marine pleasurecraft, ships, aircraft, lawn and garden equipment, forklifts, pumps, and compressors.

Table III-1
2000 Base Year Emission Inventory

	VOC (tpd)	Percent of Total VOC	NOx (tpd)	Percent of Total NOx
Stationary and Area Sources	222	41	95	15
Mobile Sources				
- On-Road Motor Vehicles	238	44	352	54
- Off-Road Vehicles/Equipment	81	15	200	31
Total	541	100	647	100

Staff reviewed the emission inventory data that the District compiled for 2000 and future years and found it to be generally consistent with ARB's current inventory. We discuss the issues and exceptions below.

1. Power Plants

The Proposed Plan discusses the anticipated increase in use of diesel generators to supply electricity during blackouts. We agree with the District that there may be a short-term increase and subsequent decline in NOx emissions. We believe the District's estimate of 17 tons per day additional NOx from these engines this summer represents a conservative approach based on a worst-case scenario. However, ARB expects that diesel generator use will taper off beginning in 2002—rather than the 2004 date in the Proposed Plan—as new power plants come on-line. As a result, we expect emissions from diesel generators (included under "reciprocating engines" in the Proposed Plan's Table 4) to be less in 2002-2005 than the District estimated. In the Bay Area alone, at least four new plants or expansions have been approved:

- a peaker plant in Gilroy (Calpine, 135 MW, anticipated to begin operating September 2001),
- a baseload plant in Pittsburg (Los Medranos Energy Center, 559 MW, anticipated to begin operating July 2001),
- a second baseload plant in Pittsburg (Delta Energy Center, 880 MW, anticipated to begin operating April 2002), and
- an expansion to a baseload plant in Antioch (Contra Costa Repower, 530 MW).

Other projects are in the review stage and may provide additional non-diesel power to Bay Area and California.

2. Motor Vehicles

The Proposed Plan notes that since ARB developed the emissions component of the EMFAC2000 model last year, the State and federal government have made regulatory and program changes that will affect vehicle emissions in the Bay Area. These changes include:

- ARB adoption of accelerated standards for medium duty trucks (like larger sport utility vehicles) under California's Low Emission Vehicles program to align with the schedule for U.S. EPA's Tier 2 vehicle standards – this will decrease future year emissions.
- ARB adoption of tighter emission standards for new heavy-duty gasoline vehicles (like delivery vans and small shuttle buses) – this will decrease future year emissions.
- ARB adoption of guidance to implement a $50 million incentive program for cleaner schoolbuses statewide – this will decrease future year emissions.
- U.S. EPA promulgation of national requirements for low sulfur diesel fuel for use in on-road vehicles – this will decrease future year emissions.

From an ozone standpoint, we expect the combined reductions from these measures to be relatively small by 2006, but are working to quantify the impact, in consultation with the District and MTC. We will reflect any available information in our oral presentation to the Board on July 26.

The Proposed Plan also acknowledges that U.S. EPA's June 12, 2001 denial of California's request for a waiver from the federal oxygenated fuel requirements may increase future year emissions. If California must significantly increase the amount of ethanol added to gasoline in the future, we will assess the emissions impact on areas subject to the requirement, as well as the rest of the State (including Bay Area).

B. Attainment Assessment

1. Requirements

The Clean Air Act (section 110(a)(2)(K)) requires air quality modeling prescribed by the Administrator for the purpose of predicting the effect of emissions on ambient air quality. In this case, two different U.S. EPA Administrators specifically recognized the limitations of existing technical tools for the Bay Area when each established the requirement (in 1998 and again in 2001) for an attainment assessment.

U.S. EPA directed the District to use current data and available analytical tools to estimate the emission reductions needed to achieve the ozone standard. In its March 30, 2001 *Federal Register*, U.S. EPA stated that the region should update the attainment assessment using the most recent data. U.S. EPA staff strongly encouraged the District to include a number of air quality data analyses to provide a "weight of evidence" basis for the estimate of the needed emission reductions.

2. Analyses and Results

The Plan's revised attainment assessment presents six different analyses in an effort to provide an estimate based on the weight of evidence: (1) trends of ozone forming emissions (VOC and NOx) from 1991 to 2000 and projections to 2006; (2) trends of the ambient concentrations of VOC and NOx from 1991 to 2000; (3) trends of ozone concentrations from 1980 to 2000; (4) rollback; (5) an updated 1995 ozone isopleth; and (6) a 2000 ozone isopleth. Following is a discussion and our evaluation of the assessment approaches in the Plan.

a. Trends Analyses

The District staff analyzed trends of VOC and NOx emissions, as well as ambient VOC and NOx concentrations, from 1991 to 2000. These trends correlate well in that both have been steadily declining over the time period evaluated. VOC emissions have declined at an average rate of 4 percent annually over the past decade, while average ambient VOC levels also declined an average of 4 percent per year. For NOx, emissions decreased at an average rate of 3 percent annually, while ambient concentrations decreased an average of 2.5 percent per year. The strong correlation between these trends confirms our historic and current projections that emissions have declined over time, even though updated inventory tools periodically revise the baseline estimates.

The District staff also analyzed ozone trends from 1980 to 2000. The long-term trend for ozone is less clear, partly because ozone is so strongly affected by weather conditions. A trend line based on one-hour design values (fourth highest value in three

years) from 21 long-term Bay Area monitoring sites shows an overall reduction in ozone from 1980 until 1992, followed by a slight increase from the 1992 point to 1995, then remain relatively constant with a slight further drop post-1998. A similar trend line of the ozone design values at Livermore is more varied. The trend is relatively flat from 1980 to 1988, decreasing from 1988 until 1992, sharply increased until 1994 and then remained constant.

The ozone experience at Livermore continues to challenge our ability to explain why ozone values are decreasing in the rest of the Bay Area but not at the Livermore high site, despite reductions in ozone precursor emissions averaging more than three percent per year. Some possible explanations include: (1) the topography and meteorology of the Livermore Valley, which shares more in common with the Sacramento and San Joaquin Valleys, than most of the Bay Area; and (2) the high growth rates in population, vehicles, and vehicle miles traveled in the Livermore Valley and nearby western San Joaquin County. These growth areas have large numbers of commuters to Santa Clara that create high traffic volumes and congestion as they pass through the Livermore Valley and may be affecting ozone levels. Other possibilities include a change in the mix of reactive VOCs and a change in the ratio of VOC to NOx.

We expect to have a better understanding of the ozone formation process in the Bay Area when the results of the Central California Ozone Study become available in 2003. Until then, we agree that the best strategy is continued reductions in ozone precursor emissions.

b. Rollback

One of the approaches to calculating emission reductions needed is a rollback analysis. The approach assumes a linear relationship between ozone precursor emissions and the resulting ambient ozone concentration. For example, if the ozone design value exceeds the ozone standard by a certain percent, the rollback approach projects that ozone precursor emissions need to be reduced by that same percent to attain the standard. The limitation with this approach is that it cannot account for the complex, non-linear response of ozone levels to varying changes in VOC and NOx emissions.

The District used the second highest ozone value in 2000, 0.126 parts per million (ppm), in the rollback calculation to estimate the total percent emissions reduction needed—1.6 percent. Because emissions of VOC and NOx each are forecasted to decrease by more than 3 percent per year, the Plan concluded that this analysis demonstrates that already adopted measures are more than sufficient to demonstrate attainment. We believe that a more appropriate rollback analysis is to use the current ozone design value for 1998-2000 (which is 0.139 ppm) to calculate the percent reduction needed -- 11 percent. The conclusion remains the same -- emission reductions between 2000 and 2006 at 20 and 19 percent for VOC and NOx, respectively, are sufficient to demonstrate attainment.

c. Isopleth Diagrams Based on Urban Airshed Modeling

The third general type of analysis is based on urban airshed modeling (UAM) that met applicable state and federal performance criteria at the time it was developed. The District relied on two applications of the same UAM-based isopleth diagram to provide estimates of needed emission reductions between 2000 and in 2006.

To develop the isopleths, the District staff relied upon a previous modeling using inputs from a study done in 1989. The 1989 study involved meteorological and air quality monitoring, emission inventory development, and air quality modeling. The objectives of the study were: (1) collect a database for emissions, meteorology, and air quality for use in grid-based photochemical models, and (2) apply photochemical models to simulate ozone episodes in the Bay Area. The study examined ozone formation and transport among the nine Bay Area counties and portions of surrounding air basins in central California.

The field monitoring study was conducted during a six-week period from August through September 1989. To supplement data from the District's existing monitoring network, upper level winds and temperatures were measured at six locations throughout the Bay Area using rawinsoundes. Ten supplemental sites were also located in the Bay Area to collect VOCs in canisters during the morning hours (6-9 a.m.). To measure the air quality aloft, one aircraft was flown twice daily to measure ozone, NOx, VOC, carbonyls, and temperature.

During the study, an ozone episode was observed on September 13-14, 1989. The highest ozone concentration was 0.14 ppm measured near Livermore, with another high ozone concentration of 0.130 ppm at Gilroy. The data for this episode were used to develop the inputs for the photochemical model, and to test and evaluate the model for use in the 1990 SIP planning process. The District used the Urban Airshed Model (UAM-IV). At that time, this model was U.S. EPA's recommended model for SIP applications. The District used the RAMS model to simulate the three-dimensional wind and temperatures throughout the modeling domain. RAMS is one of the state-of-science 3-dimensional prognostic models that is currently used to simulate winds and temperatures. The gridded emissions inventory used as input to UAM-IV was developed using the District's emissions data as well as ARB data.

The District carried out a model performance evaluation, a process of comparing model estimates with observational data by using various metrics. The District followed ARB modeling guidance to evaluate the performance of UAM-IV. Although there were some concerns about the model's under response to emission reductions, the model's performance was deemed adequate for the SIP air quality planning work in 1990.

The isopleth diagrams shown in the Plan were generated from the 1989 data with emissions forecasted to 1997. Various combinations of VOC and NOx emission reductions were simulated using UAM-IV to generate various points on the carrying capacity diagram from which isopleths (or contour) lines were drawn. The first isopleth shows how the combination of actual VOC and NOx emissions in 1995 relate to measured ozone levels in 1995; the second isopleth repeats the analysis with 2000

data. From each of these starting points, you can see how possible combinations of VOC and NOx reductions would influence ozone levels.

Taking projected NOx reductions in 2006 as a constant on each isopleth, the analyses project that Bay Area can attain the standard with VOC *emission* levels in the range of 396 - 450 tpd. To meet these estimates of the carrying capacity, VOC *reductions* of 91 - 145 tpd would be needed between 2000 and the 2006 attainment deadline. The interim goal identified in the Plan is to reduce VOC emissions by 122 tpd through the specified measures. Other actions described in the Plan and this Report, but not yet quantified, will ensure additional reductions. These actions include commitments for three District measures, six MTC further study measures, and development of five defined ARB measures or programs; plus four recently adopted controls (three by ARB and one by U.S. EPA) that are not reflected in the projected Plan inventory. The emission reduction target will be revisited in 2003 using the Central California Ozone Study modeling results.

3. Conclusion

The assessment utilizes all available information to present six different analyses of emissions and ozone levels over time. Two of these analyses, the isopleth diagrams, are constructed from the only existing air quality modeling for the Bay Area which met the applicable State and federal guidelines at the time it was performed.

The District's attainment assessment acknowledges the limitations of the available modeling. The ideal technical analysis of the emission reductions required to attain the standard would be a recent field study focused on the Livermore site. But, we do not have such ideal study data today and must move ahead with the information on hand. We agree that the isopleth diagrams, updated with current inventory projections, represent our best understanding today of the fundamental relationship between VOC and NOx emissions in the Bay Area. The isopleths also indicate that additional VOC reductions are most effective for reducing local ozone levels in the Bay Area.

Although the two isopleth diagrams are the most appropriate tools available to define a VOC reduction target, there is uncertainty about the emission levels needed to attain at the Livermore site. We support the District's use of a range and acknowledge it is possible that reductions greater than the 246 tpd quantified in the Plan may be needed to address the upper bound analysis.

We believe the Proposed Plan's use of the only available air quality modeling to project an attainment target range and additional analyses to provide weight of evidence as to the appropriateness of the range, together with new measures and a commitment to reassess attainment with improved tools by a date certain, all combine to provide an approvable attainment assessment.

C. Reasonable Further Progress

U.S. EPA's proposed finding that the Bay Area did not attain the standard by the November 2000 deadline includes a requirement for the Bay Area to attain the standard as "expeditiously as possible," but no later than 2006. Under the general progress

provisions of the Clean Air Act for nonattainment areas (section 171), the Bay Area must provide annual incremental reductions in emissions as needed to ensure attainment by the applicable deadline.

U.S. EPA suggested that the Bay Area demonstrate progress by achieving 50 percent of the emissions reductions needed for attainment halfway between 2000 and the attainment deadline, i.e., by 2003. Total VOC emission reductions in the Plan, including reductions from already adopted measures and new commitments total 122 tons per day. The Plan projects achieving 56 percent of the VOC reductions by 2003, thus meeting the suggested 50 percent reduction target. The total NOx reductions in the Plan are 124 tpd by 2006, creating a "half-way" goal of 64 tpd by 2003. Although the Plan does not project reaching this point until 2004, we believe it will occur by 2003. The difference goes back to the District's 20+ tpd overestimation of NOx emissions in 2003 from use of diesel generators during electricity blackouts. If you reduce the projected NOx emissions in 2003 to correct for this, the Plan would show that the region meets U.S. EPA's suggested NOx progress target as well.

D. Control Strategy

The Proposed Plan includes a control strategy to attain the federal one-hour ozone standard based on continued reductions from existing regulations as well as additional reductions from enforceable commitments to adopt and implement new control measures by specified dates. The District has lead responsibility for adopting and implementing stationary and most area source controls; MTC for transportation control measures (TCMs); ARB for mobile sources, fuels, and consumer products; the Bureau of Automotive Repair (BAR) for vehicle inspection and maintenance; the Department of Pesticide Regulation; and U.S. EPA for national transportation sources.

1. Stationary and Area Source Measures

a. Proposed Measures

The District is proposing to adopt seven new control measures for stationary and area source with implementation dates in the 2000-2006 timeframe. These proposed measures will reduce VOC emissions from architectural coatings, storage of organic liquids, surface preparation of metal parts for coating, aqueous solvents, refinery flares, and vessel depressurization (Table III-2). The District estimates that these seven control measures collectively will reduce VOC emissions by 8.2 tpd. Following is a description and our evaluation of the proposed measures.

Table III-2
Proposed District Stationary Control Measures

2001 SIP Number	Source Category	Adoption Date	Implementation Date	VOC Reduction 2000 to 2006 (tpd)
SS-11	Improved Architectural Coatings Rule	2001	2003-2004	2.9
SS-12	Improved Storage of Organic Liquids Rule	2002	2002	1.9
SS-13	Surface Preparation and Cleanup Standards for Metal Parts Coating	2002	2003	0.3
SS-14	Aqueous Solvents	2002	2003	3.0
SS-15	Petroleum Refinery Flare Monitoring	2003	2004	TBD
SS-16	Low-Emission Refinery Valves	2003	2004	TBD
SS-17	Improved Process Vessel Depressurization Rule	2003	2004	0.1
			TOTAL TONS	***8.2***

SS-11, Improved Architectural Coatings Rule This new measure would reduce the VOC content in architectural coatings. The District is committing to adopt Control Measure SS-11 this year in response to the Suggested Control Measure (SCM) for architectural coatings that the Board approved in June 2000. We support the proposal and encourage the District to adopt a rule that is as effective as the SCM.

SS-12, Improved Storage of Organic Liquids Rule This new measure would continue efforts to reduce emissions from organic liquid storage tanks by requiring better seals or upgrades upon replacement and more frequent inspections of seals and fittings. The degree of control required depends upon the size of the tank and the true vapor pressure of the tank contents. New control requirements for slotted guidepoles were implemented as a result of a measure that was included in the 1999 SIP revision. Community groups have expressed concerns about emissions from organic liquid storage tanks and suggested that all open tanks with external floating roofs be replaced by fixed roof tanks and vapor control systems. While we agree that this may be the most effective for reducing emissions, it is also very costly and not cost-effective because of the relatively small emission reductions that would result. We agree with the District's ongoing effort and proposed measure, and encourage it to continue exploring cost-effective means for reducing emissions from storage tanks.

SS-13, Surface Preparation and Cleanup Standards for Metal Parts Coating. This new measure would limit the VOC content of surface preparation and cleanup solvents used in the metal parts coating process. Other California districts have adopted limits, about 70 g/l VOC, for solvents, and some allow, as an alternative, the use of an enclosed solvent cleaner for clean-up of spray equipment. We support this measure and encourage the District to work with ARB staff in developing a rule that is consistent in effectiveness with the most stringent rules in other districts.

SS-14, Aqueous (Water-Based) Solvents This measure would amend the current District rule to further reduce VOC emissions from the cleaning solutions used in cold cleaners. The District proposes to adopt the general cleaning requirements like those in

the San Joaquin Valley District rule and the specialty cleaning requirements like those in the South Coast District rule. We believe that if the District does combine the most applicable and stringent sections of these two rules it would have the most effective aqueous solvent controls.

SS-15, Petroleum Refinery Flare Monitoring This measure proposes to adopt a refinery flare monitoring rule similar to the South Coast District rule. Newer technologies, particularly ultrasonic flow monitors, making it possible to have more accurate measurements of flare emissions. Community groups have also identified flare emissions as a significant concern and believe that the emissions are seriously underreported. We believe this measure represents a first good effort and recommend that the District continue to explore all available opportunities to minimize flare emissions.

SS-16, Low-Emission Refinery Valves The District currently requires valves at new refinery sources to meet current best available control technology (BACT) requirements, e.g., bellows valves, diaphragm valves, quarter-turn valves, live-loaded valves, or other low-emission valves. However, replacements of existing refinery valves are exempt from the BACT requirements. This measure proposes to amend District Regulation 8, Rule 18 to require that replacement valves also meet BACT requirements or that they be "leakless" valves. The measure may also add incentives to encourage the early replacement of valves with low-emission valves or "leakless" valves.

This measure would provide the tightest standards for valves in California. We commend the District for proposing this measure and recommend that the District commit to adding standardized inspection and reporting procedures to the Rule in the next California Clean Air Plan to increase the consistency and accuracy in reporting leaks from these components.

SS-17, Improved Process Vessel Depressurization Rule This measure would amend District Regulation 8, Rule 10 by requiring that emissions from refinery vessel depressurization be controlled until it reaches a lower internal pressure, or until the VOC concentrations inside the vessel reaches a minimal point. This control measure should help reduce significant releases of pollutants, including toxic compounds. We find that the District's measure is reasonable and that with the three other refinery measures submitted with this Plan, will not only reduce VOC emissions, but toxic compounds as well.

b. Reasonably Available Control Measures Analysis

In its proposal to disapprove the Bay Area's 1999 ozone SIP revision, US. EPA identified three specific elements for disapproval, including the reasonably available control measure demonstration. U.S. EPA stated that the District had failed to justify why a number of suggestions made by the public, but not incorporated in the SIP, were not reasonably available. In the Plan, the District responded to over twenty suggestions for stationary source controls; some suggestions were made during the development of this Plan and some were made during the 1999 Ozone SIP development process.

Comments Regarding VOC Control Measures Most of the suggestions for additional control measures dealt with petroleum refineries. Generally, the comments reflect two concerns: first is the concern over VOC emissions and their effect on regional air quality; and second, the concern over the localized impacts of toxic emissions from refineries. While the latter is not directly within the scope of the Plan, it is a concern. It is important to note that because some VOCs are also toxic air contaminants, many VOC control measures have a toxic control benefit as well. Over the past two years, the District has responded to refinery control suggestions by the public with commitments to adopt two measures, one during the 1999 Plan process (which District has since adopted) and one new in the Draft 2001 Plan. In our comments on the Draft 2001 Plan, we recommended that the District adopt three additional refinery control measures. The District included all three of these in the Proposed Final Plan. These measures are:

- Regulations on pressure relief valves (1999)
- Organic liquid storage (Draft 2001 Plan)
- Flare monitoring (Proposed Final 2001 Plan)
- Low-emission valves and flanges (Proposed Final 2001 Plan)
- Improved vessel depressurization (Proposed Final 2001 Plan)

The District included other VOC control measures in the 2001 Plan in response to public and ARB comments:

- Aeration of contaminated soils (1999)
- Solvent cleaning

We believe the District's RACM analysis adequately responds to the suggestions raised by the public. We encourage the District to continue tracking technological developments that would support more stringent controls and we commit to working with the District in the development of these controls.

The Plan also contains a number of District comments on measures that were included in the Bay Area 2000 California Clean Air Plan. The Clean Air Plan included four proposed measures and five measures for future study, many of which are coatings control measures, that are not included in the 2001 plan. The District states that analyses of these measures indicate that they are not technologically or economically feasible. We agree with the District's evaluation but recommend that, as coating technology advances, the District re-evaluate the feasibility of adopting these measures.

Comments Regarding NOx Control Measures The District believes that the most effective approach for achieving the federal one-hour ozone standard is to further reduce VOC emissions. We agree that, based on the available modeling analyses, the Plan includes the most effective mix of VOC and NOx reductions.

2. Mobile Source Measures

Measures to reduce emissions from mobile sources are the combined effort of ARB, the Bureau of Automotive Repair (BAR), and U.S. EPA at the State/federal level, plus MTC and the District at the local level. This section begins with the State/federal measures, followed by the transportation control measures to be implemented by MTC.

a. Proposed State/Federal Measures

The majority of emission reductions in the Bay Area between 2000 and 2006 will result from ARB's mobile source control program. Currently adopted State and federal controls will result in 85 tpd VOC reductions and 99 tpd NOx reductions in the Bay Area during this period. Since these measures are already adopted, they are reflected in the projected baseline inventory of the Plan, rather than itemizing the reductions of each control separately. Mobile source related measures in the Plan baseline, which were not part of the 1999 Bay Area SIP, include:

- Low-Emission Vehicles II (ARB);
- Phase 3 California Reformulated Gasoline (ARB)
- 2002/2004 Emission Standards for Heavy Diesel Trucks/Buses (ARB, U.S. EPA);
- Urban Transit Bus Regulations (ARB);
- Emission Standards for Heavy-Duty Off-Road Diesel Engines (ARB, U.S. EPA);
- Emission Standards for Gas and LPG Equipment 25 - 175 horsepower (ARB);
- Standards for Locomotives (U.S. EPA);
- Emissions Standards for Marine Pleasure Craft (ARB);
- Portable Fuel Container Regulations (ARB); and
- Enhanced Vapor Recovery Regulations (ARB).

In addition, ARB will consider adoption of other new measures to reduce ozone, particulate matter, and air toxics statewide as part of our 2001 Clean Air Plan. This Report identifies some of the measures we will develop for consideration by the Board in 2001-2002 that would cut ozone-forming emissions in the Bay Area, including:

- emission standards for inboard marine engines;
- reduced evaporative emissions from lawn and garden equipment;
- diesel retrofit program measures for trash trucks and gasoline cargo tankers;
- vapor recovery on above ground storage tanks; and
- continued incentive programs for zero-emission vehicles and cleaner trucks/equipment.

We will reflect the additional reductions from these or other future ARB measures in the next SIP update.

The District's element of the Plan identifies another mobile source measure: MS-1, Improved Motor Vehicle Inspection and Maintenance Program: Liquid Leak Inspection and Improved Evaporative System Test. The Bay Area is currently subject to just the basic Smog Check program, rather than the enhanced Smog Check 2 program. The District states its desire that BAR implement two VOC reduction elements of the tighter

Smog Check 2 program statewide. (Smog Check 2 is only *required* in the urbanized portions of ozone nonattainment areas classified as serious, severe, or extreme.) Otherwise, the District proposes to "opt in" to these provisions as allowed by State law to achieve 4.5 tpd of VOC reductions in 2006.

We support this step toward a more effective Smog Check program in the Bay Area. However, the District needs to modify its commitment to request opt-in to Smog Check 2 to expand the mechanisms that may be used to accomplish the reductions claimed. These mechanisms should include: the liquid leak check, improved evaporative emission testing, stricter testing standards (cutpoints), and other VOC reduction elements. This change is necessary to make the Bay Area request consistent with the joint ARB-BAR commitment to improve the VOC element of the Smog Check 2 program in other areas through a variety of approaches.

Chapter IV includes further discussion of the Smog Check program in the Bay Area.

b. Proposed Transportation Control Measures

The Plan also contains transportation control measures (TCMs) aimed at reducing motor vehicle use or activity. The TCMs are MTC's contribution to the Plan. While there has been tremendous success in reducing emissions through exhaust, evaporation, and fuel technology improvements, transportation emissions continue to be a significant cause of air pollution. This is primarily due to continuing increases in the number of vehicles and vehicle miles traveled. Although minimal emission reductions are expected from TCMs in the short term, the benefits of these measures are often realized years after adoption. Therefore, TCMs are an integral part of any plan for achieving and maintaining air quality standards.

Twenty-eight TCMs were included in the Bay Area's 1994 maintenance SIP and are almost complete. The 1999 SIP withdrew four TCMs from the Ozone SIP because they are either permanent (e.g., Guadalupe light rail line and BART Colma station) or reduce only carbon monoxide emissions; ARB approved these changes as part of its action on the 1999 SIP and U.S. EPA has also proposed approval. Appendix B lists the 24 remaining TCMs. In addition, MTC has proposed five new TCMs shown in Table III-3.

Table III-3
Proposed New Transportation Control Measures

2001 SIP Number	Measure	Schedule
TCM A	Regional Express Bus Program	FY 2002
TCM B	Bicycle / Pedestrian Program	FY 2004 – 2006
TCM C	Transportation for Livable Communities/ Housing Incentive Program	FY 2004 – 2006
TCM D	Additional Freeway Service Patrol	FY 2001
TCM E	Transit Access to Airports	To start in 2002
Combined Reductions: 0.5 tpd VOC, 0.7 tpd NOx		

MTC has also included five potential measures that can not yet be thoroughly evaluated for technical and economic feasibility, and are therefore, not yet available as RACM. Table III-4 lists these measures.

Table III-4
Transportation Control Measures Proposed for Further Study

2001 SIP Number	Measure
FS 1	Study Potential for Accelerating Particulate Trap Retrofit Program for Urban Buses
FS 2	Update MTC High Occupancy Vehicle (HOV) Lane Master Plan
FS 3	Study Air Quality Effects of High Speed Freeway Travel
FS 4	Evaluate Parking Charge Incentive Program
FS 5	Enhanced Housing Incentive Program
FS 6	Further Smog Check Program Improvements

c. Reasonably Available Control Measures Analysis

Recent U.S. EPA guidance has renewed examination of proposed SIPs to ensure they contain all reasonably available control measures (RACM), including transportation control measures (TCMs). In response, MTC has evaluated all measures suggested in the Clean Air Act, measures listed on the U.S. EPA web site, measures adopted in the South Coast Air Basin, and measures recommended at public hearings and in letters from members of the public (see pp. 69-108 of the Plan).

ARB staff finds MTC's RACM analysis satisfactory. The Proposed Plan contains a thorough review of Clean Air Act Section 108(f) TCMs, most of which are already in the SIP as measures or included in the baseline. MTC has also delivered thoughtful responses to most of the comments offered by the public. Four of the five additional TCMs proposed for adoption in this plan respond to comments made at public workshops or in letters to MTC. Though ARB staff does not agree with all statements made in the analysis and supports efforts to update already-implemented SIP TCMs, the Plan proposes a TCM program that is complete by reasonable standards and includes several new measures.

It is important to note that transportation measures proposed for inclusion in the SIP must also be part of the metropolitan planning area's 20-year regional transportation plan (RTP) and short-term regional transportation improvement program (TIP). Under federal transportation law, RTP and TIP development occur within a continuing, cooperative and comprehensive (known as "3-C") transportation planning process that considers all modes and addresses multiple factors. Factors that must be considered include community economic vitality, safety and security of all system users, mobility of people and freight, protection and enhancement of the environment, intermodal connectivity, and transportation system efficiency and preservation. Though air quality agencies are partners in the 3-C process, and often advocate for priorities that benefit air quality, we cannot dictate or pre-suppose the outcome of that process.

E. Transportation Conformity Budgets

This plan establishes new emissions budgets for transportation conformity for the year 2006, the attainment year required by U. S. EPA. However, the Plan includes an error in the derivation of the budget, which must reflect the 4.5 tpd emission reduction credited in the attainment assessment for improved Smog Check provisions. Thus, the VOC budget should be 164 tpd, not the 168 tpd shown in the Plan.

The currently adopted emissions budgets for the Bay Area, from the 1994 ozone maintenance plan, are shown in Table III-5. This Plan will replace the maintenance plan emissions budgets, which are based on 1990 emissions calculated with the EMFAC7F emissions model with new budgets for the year 2006. The new budgets will become applicable when U.S. EPA approves the plan or makes a finding of emissions budget adequacy. Though the new budget for NOx appears to be larger than the previous budget, this is an artifact of the change in emissions models--a change in emissions *currency*. Use of the new model for conformity assessments, coupled with applicability of future year emissions budgets instead of budgets for a past year when emissions are declining, will make the conformity test for both NOx and VOC more stringent.

Table III-5
Motor Vehicle Emission Budgets for Ozone in the Bay Area

	VOC Budget (tpd)	NOx Budget (tpd)
1994 Maintenance Plan (emissions in 1990, EMFAC7F)	299.6	251.1
2001 Attainment Plan (emissions in 2006, EMFAC2000)	***164 (corrected)***	270

F. Contingency Measures

Contingency measures are those control measures that take effect if the control measures identified in an attainment plan are not adequate to return the area to attainment by the deadline. The contingency measures in the Plan are the post-2006 benefits of measures that ARB has adopted and will be implemented without the need for further actions by the local co-lead agencies, ARB, or U.S. EPA.

Technology-advancing mobile source and consumer products control measures are projected to provide all of the post-2006 reductions. VOC and NOx emissions from the mobile and consumer products categories *alone* are projected to decline by over 15 percent between 2006 and 2010. Since sources under local control are not projected to achieve further reductions in this time period, we believe the District will need to continue updating its rules based on technology advances to ensure these sources contribute to maintenance of the federal one-hour ozone standard and attainment of other air quality standards.

Ozone-forming emissions in the Bay Area will continue to decline after 2006, with VOC and NOx reductions of ten percent or greater by 2010. These reductions serve as the contingency measures for 2007-2010, should the Bay Area experience any ozone violations during that time.

IV. FUTURE ACTIONS AND AIR QUALITY PLANS

We view the 2001 Bay Area SIP as an approvable, but interim, plan to be supplemented with new air quality modeling analyses in 2003 when the results of the comprehensive ozone study are available. If those analyses and air quality data demonstrate a need for further reductions, the local agencies are committing to complete a timely update to the SIP. This chapter describes the future actions that will enable reassessment of the Bay Area's attainment prospects for the federal one-hour ozone standard. It also discusses the opportunities for long-term air quality benefits from enhanced regional coordination, including the Bay Area's responsibility to mitigate its transport contribution to ozone levels in downwind communities.

A. Central California Ozone Study

ARB staff are currently developing comprehensive regional modeling for the northern half of the State, based on an $8 million intensive field study conducted in Summer 2000. The Central California Ozone Study (CCOS) gathered detailed, day-specific information on emissions, meteorology, and ozone and precursor levels at the ground and aloft for several high ozone episodes. These data, combined with improved atmospheric chemistry, will provide the rigorous air quality modeling capability we all seek for the Bay Area, as well as the rest of the study region.

B. Commitment for Air Quality Modeling and Plan Revision

In the Proposed Plan, the District committed to take certain actions a specified number of days after milestones in model development. With this Staff Report, ARB is committing to complete model development for this purpose by the dates noted below, which then allows us to present the overall timeline for use of the new model to reassess attainment of the one-hour federal ozone standard in the Bay Area.

Date	Milestone
April 2003	ARB develops 2000 base year CCOS modeling episode suitable for use in predicting ozone concentrations in Bay Area, with a focus on Livermore.
June 2003	District and ARB complete modeling protocol to assess attainment.
July 2003	ARB completes work to apply CCOS model to reassess attainment at Livermore site by 2006.
October 2003	District holds public meeting to present results of modeling and latest ozone monitoring to its Board and to determine need to update SIP.
January 2004	If update needed, District staff releases draft inventory, modeling, and control strategy for SIP revision.

C. Transport Mitigation

As noted in Chapter I, the Bay Area emissions flow out of the region on most days with the onshore breezes and impact neighboring areas to varying degrees. The issues of how much these transported emissions impact downwind areas and what actions should be taken to reduce impacts are important to the Bay Area and its neighbors.

1. Transport Mitigation Requirements

Part of ARB's responsibility is to ensure that the impacts of transport are mitigated by the upwind district, as required by State law. At the July 26, 2001 Board meeting on the Bay Area's 2001 Ozone SIP, staff will also respond to the Board's request for information on how to strengthen ARB's transport mitigation regulation. Staff will also be working with districts and the public on guidance for the first comprehensive attainment plans in 2003 to achieve the State's more health protective ozone standard, pursuant to the California Clean Air Act. These plans will include a suite of measures to reduce both local and transported pollution across the State.

2. Integration of Bay Area and San Joaquin Valley SIPs

ARB is also responsible for ensuring that SIPs for different regions of California fit together, with common assumptions about emissions and controls.

One of the Bay Area's downwind neighbors is also revising its ozone SIP. The San Joaquin Valley (Valley) failed to attain the federal ozone standard by its 1999 deadline, and is developing a new plan. Modeling work to support the Valley's 1994 Ozone SIP indicated that on the 1990 episode day studied, emissions from Bay Area contributed 27 percent of the ozone measured in Stockton in the northern part of San Joaquin Valley. To determine if recent ozone exceedances in the northern valley fit the same meteorological pattern, we looked at the 15 days between 1995 and 2000 when ozone monitors in San Joaquin County or Stanislaus County exceeded the federal standard.

Based on a comparison of six meteorological variables to the conditions that existed for the 1990 episode, our preliminary analysis indicates that each of the 15 days showed a transport influence from the Bay Area. On some days, air quality in the northern Valley was also affected by transport from the Sacramento region or the central part of San Joaquin Valley. We believe the majority of the exceedances were due to a combination of local emissions and transport from the Bay Area. On some days, emissions from Sacramento, and elsewhere in the Valley, also contributed.

The additional VOC and NOx reductions reflected in the Bay Area's new attainment plan will also be an important component of the San Joaquin Valley's attainment demonstration.

3. Smog Check in the Bay Area and Downwind Regions

One of the key transport issues has been equity in the requirements for the vehicle inspection and maintenance program, or Smog Check. Currently, Bay Area vehicles are tested under the "basic" Smog Check program. The Bay Area is the only major urban area in the State *not* subject to the "enhanced" Smog Check 2 program. Smog Check 2 is required for vehicles registered in the urbanized portion of federal ozone nonattainment areas classified as serious, severe, or extreme – these areas include the South Coast, the Southeast Desert, the San Joaquin Valley, the Sacramento region, Ventura County, and San Diego County.

Smog Check 2 includes a more rigorous emission test that better simulates real world driving conditions because the vehicle is operated on a treadmill (called a "dynamometer"), rather than being tested just in idle mode like the basic program. Use of the dynamometer allows the test to measure NOx emissions while the engine is under load. The enhanced program also includes a requirement that vehicles expected to have higher emissions be directed to special "test only" stations that do not perform vehicle repairs.

Under State law, any region can "opt in" to the Smog Check 2 provisions, *except* the requirement for "test only" stations. The San Joaquin Valley District Board recently adopted a resolution requesting to expand the Smog Check 2 program beyond the required urbanized areas to include all Valley vehicles (excluding those in remote regions without easy access to smog check stations). Some districts in the Sacramento region are considering similar action.

These actions from some of the Bay Area's downwind neighbors raise the pressure to bring the Area's 4.5 million vehicles into the Smog Check 2 program. The Bay Area District takes a positive step with its proposal to request implementation of two Smog Check 2 elements to reduce evaporative VOC emissions. However, this limited request would not achieve the full VOC and NOx reductions possible with a complete opt in to the Smog Check 2 program. These reductions could benefit overall air quality in the Bay Area and in all downwind regions.

D. Regional Cooperation

In highly urbanized regions such as the Bay Area, successful implementation of the most effective land use policies, transportation plans, and air quality improvement initiatives is entirely interdependent. Maintaining the quality of life, the prosperity, and the environmental advantages of living in the Bay Area relies on successfully integrating actions of three regional government agencies—MTC, ABAG, and the District—and the local agencies, the nine county congestion management agencies (CMAs) and the 101 city and nine county governments.

These agencies have different missions and different goals spelled out in State statute. MTC and the CMAs are responsible for planning, funding, and implementing transportation improvements, in cooperation with local governments. ABAG is charged

with developing a vision that encompasses land use policies, housing, and sustainable growth in the Bay Area, and working with the cities and counties to achieve that vision. The District is responsible for protecting the public health by improving and maintaining air quality.

More recognition of the integral link between planning, transportation, and air quality is vital to support all of these goals. In some arenas, the various agencies do work together. This is the only region in the State where a transportation agency, a land planning agency and a local air district are jointly responsible for developing and implementing the federal ozone attainment plan. However, congestion is getting worse; and the area has not attained the federal 1-hour ozone standard. Joint policies and coordinated decision-making, are essential to achieving the region's overarching economic, environmental and quality of life goals.

The need to protect the living environment of the Bay Area is further complicated by interregional pressures. The Bay Area and the San Joaquin Valley are linked daily by long lines of cars and trucks transversing the Altamont Highway, transporting goods, and carrying workers between homes and jobs. This means that broader coordination between these two large regions—perhaps an even greater challenge—is imperative.

V. LEGAL AUTHORITY

The Clean Air Act Amendments of 1990 (42 U.S.C. section 7401 et seq.) require states such as California to submit to the U.S. EPA revisions to the SIP for ozone and PM10 for certain areas. The primary tool to be used in the effort to attain national ambient air quality standards is a plan to be developed by any state with one or more nonattainment areas which provides for implementation, maintenance and enforcement of the standards—the SIP (section 110(a)(1)). Section 110(a)(2)(A) broadly authorizes and directs states to include in their SIPs:

> "...enforceable emission limitations and other control measures, means, or techniques (including economic incentives such as fees, marketable permits, and auctions of emissions rights), as well as schedules and timetables for compliance, as may be necessary or appropriate to meet the applicable requirements of the Act."

Pursuant to these statutory provisions, ARB is charged with coordinating State, regional and local efforts to attain and maintain both State and national ambient air quality standards. The direct statutory link between ARB and the mandates of the Clean Air Act is found in section 39602 of the Health and Safety Code. Which states:

> "The state board is designated the air pollution control agency for all purposes set forth in federal law.
>
> The state board is designated as the state agency responsible for the preparation of the state implementation plan required by the Clean Air Act (42 U.S.C., Sec. 7401, et seq.) and, to this end, shall coordinate the activities of all districts necessary to comply with that act.
>
> Notwithstanding any other provision of this division, the state implementation plan shall only include those provisions necessary to meet the requirements of the Clean Air Act."

VI. ENVIRONMENTAL IMPACTS

The California Environmental Quality Act (CEQA) requires that state and local agency projects be assessed for potential significant environmental impacts. Air quality plans are "projects" that are subject to CEQA requirements. For the Bay Area Plan, the District prepared a Negative Declaration (ND) that includes a CEQA Initial Study. The ND references the environmental impact report (EIR) for the Bay Area 1991 Clean Air Plan and the subsequent EIR Addenda for the 1994, 1997, and 2000 Clean Air Plans and the 1999 SIP. The ND determines that the Bay Area Plan will not have a significant impact on the environment.

The ND discusses the adopted measures, the proposed measures, and the contingency measures. The potential environmental impacts of the adopted measures were analyzed adequately in the 1991 EIR, the 1994, 1997, 1999, and 2000 EIR Addenda, and within the rule development staff reports for the measures. The contingency measures in the Bay Area Plan are all ARB measures that were analyzed adequately for environmental impacts in the respective ARB staff reports. Therefore, the adopted and already implemented measures and contingency measures are considered as part of the existing setting, and their impact is not further analyzed. The project analyzed in the ND is limited to the implementation of the proposed measures.

Thirteen control measures are analyzed for environmental impacts in the ND. These measures include:

Seven stationary source control measures
- SS 11-Improved Architectural Coatings Rule
- SS 12-Improved Storage of Organic Liquids Rule
- SS 13-Surface Preparation and Cleanup Standards for Metal Parts Coating
- SS 14-Aqueous Solvents
- SS15-Petroleum Refinery Flare Monitoring
- SS 16-Low-Emission Refinery Valves
- SS 17-Improved Process Vessel Depressurization Rule

Five transportation control measures
- TCM A-Regional Express Bus Program
- TCM B-Bicycle / Pedestrian Program
- TCM C-Transportation for Livable Communities/Housing Incentive Program
- TCM D-Additional Freeway Service Patrol
- TCM E-Transit Access to Airports

And one mobile source control measure
- MS 1-Motor Vehicle Inspection and maintenance Program: Opt in Request for Leak Inspection and Evaporative System Test

These control measures will reduce VOC emissions, thereby contributing to reduction of ozone levels in the Bay Area. Toxic air contaminants are also expected to decline as a result of the implementation of many of these measures.

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In the ND, District staff states that the Plan will improve the quality of the environment in the Bay Area by reducing air pollutant emissions. The CEQA process requires mitigation of potential negative impacts on the environment. ARB staff agrees that the measures contained in this plan will reduce emissions in the Bay Area thereby improving the environmental quality.

We reviewed the ND prepared by the District for the Plan, and find that it accurately describes the potential environmental impacts of the plan. Staff concurs with the District's conclusions, and finds that the District has met its obligations under CEQA.

VII. STAFF RECOMMENDATIONS

We recommend that the Board approve the Bay Area Plan as an interim revision to the California SIP, with the clarifications ARB staff is requesting the local agencies to make. Board action should also encompass any other revisions that strengthen the Proposed Plan in response to public comments.

With these changes, the Plan is approvable as an interim SIP because: it presents a comprehensive technical characterization of what we know today about ozone in the Bay Area; it defines a path to attainment that is as expeditious as practicable; it makes local commitments for new measures, as well as further emission reductions, federally enforceable; it ensures use of up-to-date budgets for transportation conformity based on the latest emissions and vehicle travel data; and it commits to perform scientifically rigorous air quality modeling in 2003 and develop a second SIP revision if needed.

Staff is recommending further that the Board direct the Executive Officer to submit this SIP revision to U.S. EPA as soon as possible and seek expedited federal approval to avoid imposition of transportation sanctions in the Bay Area.

Appendix A

TIP Projects Potentially at Risk From a Conformity Lapse[1, 2]

County	Project
Alameda	• Rte. 84 Expressway on new alignment (Fremont, Union city, Hayward) • Hayward Bypass and connectors to I-580 (Rte. 238) • I-880 widening in Fremont, Newark, Union City • Rte. 238 Northbound widening (Rte. 580 to I-880, including I-880 auxiliary lane) • I-680 SB HOV lane Final project • I-880/Rte. 92 Interchange reconstruction for San Mateo Bridge
Contra Costa	• State Route 4 Bypass—Later phases • Phase III (parking expansion) of Martinez Amtrak station • I-680 HOV lanes from Marina Vista to North Main • I-680 Auxiliary lanes: Diablo to Bollinger
Marin	• US 101 Reversible HOV lane (Gap Closure)
Napa	• Rte. 29/Trancas Interchange in Napa • Maxwell Bridge replacement in Napa
Santa Clara	• I-880 widening-Bayshore to Montague • Rte. 85/87 connector ramps • Dixon Landing Rd. interchange modifications • Rte. 101 widening from 4 to 6 lanes (Rte. 85 to Cochrane Rd.) • Rte. 101 widening from 6 to 8 lanes for HOV (Rte 85 to Cochrane Rd) • Rte. 87 HOV lanes—later phases • Rte. 87 Guadalupe Freeway corridor—later phases • New light rail vehicles for Tasman, Capitol, Vasona corridors • Rte. 101/Bailey Avenue Interchange (Cisco Systems) • Vasona light rail corridor
SF	• None
San Mateo	• Bayfront Expressway extension in Menlo Park • Dumbarton—Bayfront Expressway Widening • Rte. 92 slow vehicle lane (Rte. 35 to I-280) • Rte. 101 auxiliary lanes (Marsh Rd. to Ralston)
Solano	• I-80 Interchange (Cherry Glen) • Rte. 37 widening • Rte. 29/37 Interchange • Green Valley Bridge expansion in Fairfield
Sonoma	• Rte. 101 HOV (Rte. 12 to Steele Lane)
Multi-County	• Caltrain Rapid Rail Improvements (expansion rolling stock) • Benicia Bridge

[1] Based on information as of June, 2001. Some projects may be able to proceed forward into construction prior to a conformity lapse (which could occur in January 2002) and thus would not be subject to delay.
[2] Listing only includes projects in current TIP. Potential additions to the TIP, which would be prevented by a conformity lapse, are not shown.

APPENDIX B

Transportation Control Measures Remaining in the SIP

TCMs REMAINING IN THE SIP	
TCM Id #	**Control Measure**
FTCM 1	Reaffirm commitment to 28% transit ridership increase between 1978 and 1983
FTCM 2	Support post-1983 improvements identified in transit operator's 5-year plans/Adopt ridership increase targets for 1983-1987
FTCM 3	Seek to expand and improve public transit beyond committed levels
FTCM 4	285 miles of HOV lanes. (Formerly FTCM 4 and FTCM 20)
FTCM 5	Support a regional ridematching service and encourage employers to participate in ridesharing activities
FTCM 7	Support the development of park and ride lots, serving carpools and transit
FTCM 8	Shared Use Park and Ride Lots
FTCM 9	Expand commute alternatives
FTCM 10	Information Program for Local Government
FTCM 13	Increase bridge tolls to $1.00 on all bridges
FTCM 14	Bay Bridge surcharge of $1.00
FTCM 15	Increase state gas tax by 9 cents
FTCM 17	Continue October 1989 Post-Earthquake Transit Services
FTCM 18	Sacramento – Bay Area Amtrak Service
FTCM 19	Upgrade Caltrain Peninsula Service
FTCM 20	Regional HOV System Plan
FTCM 21	Regional Transit Coordination
FTCM 22	Expand Regional Transit Connection Services
FTCM 23	Employer Audits
FTCM 24 & 25	Expand and maintain signals
FTCM 26	Incident management on Bay Area freeways
FTCM 27	Update MTC guidance on development of local Transportation Systems Management programs
FTCM 28	Local TSM initiatives