BAY AREA AIR QUALITY MANAGEMENT DISTRICT

PROPOSED AMENDMENTS TO REGULATION 8, RULE 3: ARCHITECTURAL COATINGS

DRAFT

ENVIRONMENTAL IMPACT REPORT

September 14, 2001

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1. INTRODUCTION

1.1 Background

Architectural coatings are coatings applied to stationary structures and their appurtenances at the site of installation, to portable buildings at the site of installation, to pavements or to curbs. Architectural coatings include house paints, stains, sealers, primers, industrial maintenance coatings, roof coatings, swimming pool coatings and traffic coatings. The use of architectural coatings in California results in substantial emissions of volatile organic compounds which contribute to the formation of ozone and particulate matter. These two pollutants pose the Bay Area's, and California's, most serious air quality problems.

Control of emissions from architectural coatings has historically been the responsibility of local air pollution control and air quality management districts. Widespread regulation of architectural coatings began in 1977, when the California Air Resources Board (CARB) adopted a Suggested Control Measure (SCM) for architectural coatings. Many districts adopted architectural coatings rules based on this SCM and on revisions to the SCM approved by CARB in 1985 and 1989. The Bay Area Air Quality Management District Board of Directors adopted Regulation 9: Architectural Coatings, on March 1, 1978, and later recodified it as Regulation 8: Organic Compounds, Rule 3. Rule 3 was subsequently amended the Rule in 1982, 1983, 1986, 1990, and 1998.

In September, 1998, the Environmental Protection Agency promulgated a national rule for architectural coatings, based on authority derived from Section 183 (e) of the Clean Air Act. The national rule does not preempt state or local authority, nor did the promulgation of the national rule provide emission reductions for the Bay Area. From 1998 through June of 2000, staff of CARB, in cooperation with the staff from air districts and based on a comprehensive coating survey, developed another SCM for architectural coatings. This SCM and the accompanying Program Environmental Impact Report was adopted and certified, respectively, by the California Air Resources Board on June 22, 2000. It is this SCM on which the District's proposed amendments are based.

In accordance with the California Environmental Quality Act (CEQA)[1], the CARB, as lead agency, prepared a Program Environmental Impact Report prior to approving the architectural coatings SCM. The CEQA Guidelines permit the use of a Program EIR when agencies are evaluating the issuance of "rules, regulations, plans, or other general criteria."[2] CARB anticipated that local air districts would rely upon the Program EIR when conducting their own environmental evaluation of amendments to district rules based on the SCM.[3]

The Program EIR developed by CARB staff included an analysis of environmental impacts that could potentially result from implementation of architectural coatings rules based on the SCM. CARB staff prepared and published a Notice of Preparation and Initial Study (NOP/IS) for the Program EIR and allowed a 30-day review and comment period, which ended July 22, 1999. The NOP/IS identified the potential for adverse impacts in the following areas: air quality, water, public services, transportation and circulation, solid and hazardous waste, and hazardous substances. CARB staff prepared a Draft Program EIR, which was distributed to responsible agencies and interested parties for a 45-day review and comment period. The comment period ended April 7, 2000. The Draft Program EIR contained a detailed discussion of the environmental impacts identified in the NOP/IS, mitigation measures for the potentially significant impacts, and alternatives to the adoption of the proposed SCM. CARB staff then prepared a final Program EIR, which was certified on June 22, 2000.

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[1] Pub. Resources Code, § 21000 et seq.
[2] 14 CCR § 15168, subs. (a)(3)
[3] ARB Final Program EIR, pp. I-2 to I-4.

This draft EIR is tiered from the CARB-certified Program EIR. CEQA allows environmental impact reports be tiered whenever feasible. Tiering means that the use of information and analyses of matters contained in a broader EIR may be incorporated into an EIR for a specific project.[4] Accordingly, this draft Environmental Impact Report incorporates the CARB Program EIR by reference. Relevant sections of the CARB Program EIR are summarized as appropriate throughout this draft EIR.

In addition, this draft EIR looks at the CARB Program EIR and analyzes whether the proposed amendments to Rule 3 may cause significant effects on the environment as a result of unique or peculiar conditions of the Bay Area environment that may not have been examined in the CARB Program EIR.

Copies of the CARB Final Program EIR are available at:

Street Address:	California Air Resources Board CalEPA Headquarters Building 1001 I Street Sacramento, CA 95814	*or*	Bay Area AQMD 939 Ellis Street San Francisco, CA 94109

Internet Address: www.arb.ca.gov/arch/CEQA/FEIR.htm

A discussion of the technical, economic and legal rationale for the proposed rule amendments will be contained in the staff report developed for the amendments to Rule 3: Architectural Coatings.

1.2 Legal Authority

The California Clean Air Act (CCAA) establishes a comprehensive air pollution control program[5]. Under this program, the responsibility for controlling air pollution in California is shared by CARB and the local districts. The districts have the primary responsibility, subject to CARB oversight, to adopt control measures for nonvehicular sources of air pollution, including architectural coatings.[6]

CARB has the responsibility to adopt control measures for vehicular sources of air pollution,[7] . The CCAA also assigned numerous other duties to CARB. For example, CARB is charged with coordinating efforts to attain and maintain ambient air quality standards, and conducting research into the causes of and solution to air pollution[8]; providing technical assistance to the districts when appropriate;[9] coordinating, encouraging, and reviewing the districts' efforts to attain and maintain air quality standards[10]; and doing such acts as may be necessary for the proper execution of the powers and duties imposed upon the CARB by the CCAA and any other provision of law.[11] To fulfill these statutory mandates, the CARB often provides guidance and other assistance to the districts, including the development of model rules such as the SCM for Architectural Coatings.

The District is designated as a serious nonattainment area for the California ozone standard. The California Clean Air Act requires areas designated as serious nonattainment for ozone to adopt control measures required in Sections 40913, 40914, and 40919 of the California Health and Safety Code (CHSC).

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[4] 14 CCR, § 15152, subs. (a)
[5] California Health & Safety Code, § 39000 et seq.
[6] California Health & Safety Code, §§39002, 40000, 40001, and 40702
[7] California Health & Safety Code, §§39002 and 40000
[8] California Health & Safety Code, §39003
[9] California Health & Safety Code, §§39605, 40916
[10] California Health & Safety Code, §§39500, 41500
[11] California Health & Safety Code, §39600).

Section 40913 requires districts to develop a plan to achieve California's ambient air quality standard by the earliest practicable date. The District's 1991 Clean Air Plan for attaining the state ambient air quality standard for ozone includes proposed amendments to the architectural coatings rule. The proposed amendments to Rule 3 that constitute the scope of this project will meet this requirement.

Section 40914 requires each district plan to demonstrate that the plan includes "every feasible measure". Districts must adopt the most effective control measures to reduce VOC emissions from architectural coatings. A CARB letter dated December 8, 2000 identifies the SCM as a "feasible measure" that should be adopted by districts that are required to prepare California Clean Air Act triennial progress reports and plan revisions. The proposed amendments to Rule 3 will meet this requirement.

Section 40919 requires districts with serious nonattainment for ozone to adopt Best Available Retrofit Control Technology (BARCT) for all existing sources. BARCT means an emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of sources (CHSC Section 40406). Staff have found that the SCM requirements meet the BARCT requirement and therefore the proposed rule will meet the requirements of CHSC Section 40919.

1.3 Purpose and Intended Use of The Draft Environmental Impact Report

This draft Environmental Impact Report is intended to identify any significant effects that the proposed amendments to Rule 3: Architectural Coatings may have on the Bay Area environment. The draft EIR also identifies several alternatives to the proposed amendments and analyzes those alternatives.

This draft EIR will be circulated and available for review by the public, interested parties, agencies and organizations for a fort- five day period, and the review process will include a public workshop at which staff will receive comments on the draft EIR as well as on the proposed amendments to Rule 3. Subsequent to the comment period, staff will prepare a Final Environmental Impact Report. The Final Environmental Impact Report, consisting of this draft EIR incorporating any changes, public comments received on the EIR and the responses to those comments will accompany the proposed amendments to Rule 3 when the Board of Directors of the Bay Area Air Quality Management District considers adoption of those amendments.

Reviewers should focus on the adequacy of the environmental review in discussing possible impacts on the environment, ways in which potentially significant adverse effects might be minimized, and any alternatives to the proposed amendments to Rule 3 that might accomplish the same objectives. Questions or comments about the draft Environmental Impact Report should be addressed to:

Daniel Belik
Air Quality Specialist
Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109

(415) 749-4786 *or* dbelik@baaqmd.gov

4 EXECUTIVE SUMMARY

2.1 Introduction

Architectural coatings are coatings applied to stationary structures and their appurtenances. They include a wide variety of products for use on a wide variety of substrates. The use of architectural coatings in California results in substantial emissions of volatile organic compounds (VOC) which contribute to the formation of ozone, for which the District is classified as a nonattainment area. District Regulation 8, Rule 3 controls emissions from architectural coatings. The project for which this document is being prepared consists of proposed amendments to Rule 3 that will reduce the emissions from architectural coatings. The proposed amendments are derived from a Suggested Control Measure (SCM) for Architectural Coatings adopted by the California Air Resources Board on June 22, 2000. Along with the SCM, a Final Program Environmental Impact Report (EIR) was certified.

Legal authority to produce the SCM is derived from the California Clean Air Act. The California Environmental Quality Act requires projects that may have a significant impact on the environment to be analyzed so that decision making bodies can understand any environmental consequences of their actions. The authority and necessity for the proposed amendments are derived from the California Health and Safety Code and from the California Clean Air Act. Staff intend to distribute this draft EIR for comments prior to producing a final EIR for consideration by the District Board along with proposed amendments to Rule 3.

2.2 Project Description

The project location is defined as the boundaries of the Bay Area Air Quality Management District. The project consists of amendments to the existing VOC limitations in Rule 3 which would reduce the allowable VOC contents of many types of architectural coatings, resulting in an emission reduction of 2.9 tons VOC per day. This is an integral part of the proposed 2001 San Francisco Bay Area Ozone Attainment Plan and of the stationary source control measures in the 2000 Bay Area Clean Air Plan and Triennial Assessment.

2.3 Environmental Settings, Impacts and Mitigation Measures

CEQA Guidelines §15126.2(a) require the following: “An EIR shall identify and focus on the significant environmental effects of the proposed project. Direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short-term and long-term effects.”

The following subsections briefly summarize the analysis of environmental impacts that were identified as potentially resulting from implementation of the proposed rule amendments.

2.3.1 AIR QUALITY

The adoption and implementation of the proposed amendments into Rule 3 are expected to produce substantial VOC emission reductions. The analysis concludes that no significant adverse air quality impacts will result from the proposed rule amendments. Some companies in the architectural coatings industry have claimed that lowering the VOC content of coatings will result in increased VOC emissions for a variety of reasons, including an increase in coating thickness, an increase in thinning, an increase in topcoats used to do an adequate job, an increase in the amount of touch-up and recoating required to do an adequate job, an increased need for priming, an increase in the amount of substitution of low VOC coatings with higher VOC coatings, and greater reactivity of low-VOC coating solvents. The analysis reveals that, overall, the proposed rule amendments will achieve significant VOC emission reductions and the claimed adverse impacts will not occur. Also, staff analyzed the potential impacts of the proposed exemption for methyl acetate and found that, although methyl acetate emissions would be expected to increase,

there would not be any significant adverse impacts expected. The analysis also concludes that cumulative impacts are insignificant, and that no mitigation measures are necessary.

2.3.2 WATER

Impacts on water resources are divided into two categories - water demand and water quality. Increased water demand from the manufacturing and use of compliant water-borne coatings was evaluated. The analysis concluded that water demand impacts associated with the proposed rule amendments will be insignificant. The proposed rule amendments are also not expected to adversely impact water quality for several reasons. Due to the existing knowledge of and education programs for coating users, improper disposal is not currently and is not expected to be a problem. The use of toxic solvents that might impact water quality is expected to decline. Also, because many currently available coatings are already water-borne technology, the current impacts on publicly owned treatment works are not expected to significantly change. Finally, any increase in water demand cannot possibly impact the salinity of the Bay. The analysis also concludes that cumulative impacts are insignificant, and no mitigation measures are necessary.

2.3.3 PUBLIC SERVICES

Public service impacts were examined from the viewpoint of potential adverse impacts on public facility maintenance and on the need for increased fire protection. Infrastructure needs at public facilities are not expected to be impacted due to more frequent touchups or recoating to maintain any facility appearance, function or safety. Implementation of the proposed rule amendments is also not expected to result in the need for new or altered public facilities. The increased use of exempt solvents or other replacement solvents as a result of implementing the proposed rule amendments will not result in any significant increased need for fire protection. Although acetone, which is flammable, is expected to be used to reformulate a limited number of coatings it is unlikely that implementation of the proposed rule amendments will increase the need for fire protection, because the solvents that acetone would replace carry the same fire hazards. Finally, risks from accidents or spills was analyzed as a result of the proposed rule amendments and the risk was anticipated to stay the same or decrease. The analysis concludes that cumulative impacts are insignificant, and no mitigation measures are necessary.

2.3.4 TRANSPORTATION AND CIRCULATION

The potential for additional trips to supply newly compliant coating to retailers and distributors, additional trips to solid waste disposal sites to dispose of unusable coating, and additional trips to job sites to finish jobs made longer by inadequate coating were analyzed. Among the reasons cited for these trips were the possibility of shorter shelf or pot lives of coatings or lesser freeze-thaw capabilities, as well as the need for more topcoats. The analysis found that there was no expectation for additional trips and that no adverse impacts were anticipated. The analysis concludes that cumulative impacts are insignificant, and no mitigation measures are necessary.

2.3.5 SOLID AND HAZARDOUS WASTE

The solid and hazardous waste analysis examined increased disposal of compliant coatings due to the possibility of shorter shelf or pot lives or lesser freeze-thaw capabilities, and as, for the potential for additional trips, found that any impact could not be significant. In addition, as hazardous compounds are expected to decrease in the future, the analysis found no potential for additional hazardous waste impacts. The analysis concludes that cumulative impacts are insignificant, and no mitigation measures are necessary.

2.3.6 HAZARDS

Hazards impacts were analyzed for risk of accidental releases that would expose hazardous response workers or members of the public to an increase in exposure to a hazardous substance.

It was found that, consistent with the public facilities impacts, no significant adverse impacts were anticipated. In addition, human health impacts were analyzed for short term and long term exposure to solvents used to replace conventional solvents. The analysis concluded that the general public would not be impacted from additional exposure to replacement solvents. Manufacturers are replacing toxic solvents with less toxic solvents in existing low VOC coating formulations. Furthermore, professional coatings applicators' long-term exposure to more toxic replacement solvents such as diisocyanates in industrial maintenance coatings is expected to be minimal due, in part, to existing required and recommended safety procedures. The analysis concludes that cumulative impacts to human health, including lifetime exposures, are insignificant, and no mitigation measures are necessary.

2.4 Other Required CEQA Topics

2.4.1 ENVIRONMENTAL IMPACTS FOUND NOT TO BE SIGNIFICANT

The CEQA Initial Study prepared by CARB staff for the SCM includes an environmental checklist of 15 environmental categories. For the remaining nine environmental areas not analyzed above, the Initial Study concluded that the project would have no significant direct or indirect adverse effects. In addition, no comments were received on these topics at the public meetings for development of the SCM that changed this conclusion. District staff also conclude that there is not possibility of significant impacts to the following environmental resources in the Bay Area resulting from proposed amendments to Rule 3: Land Use and Planning; Population and Housing; Geophysical; Biological Resources; Energy and Mineral Resources; Noise; Aesthetics; Cultural Resources; and Recreation.

2.4.2 IRREVERSIBLE ENVIRONMENTAL CHANGES

CEQA requires EIR's to address the potential for irreversible environmental changes. Consistent with CEQA, additional analysis of the proposed amendments confirms that it would not result in irreversible environmental changes or the irretrievable commitment of resources.

2.4.3 POTENTIAL GROWTH INDUCING IMPACTS

CEQA requires EIR's to address the potential for growth-inducing impacts. Consistent with CEQA, additional analysis of the proposed amendments confirms that it would not foster economic or population growth or the construction of new housing.

2.4.4 CONSISTENCY WITH OTHER PLANS

CEQA requires that an EIR address any inconsistency between the proposed project and applicable general plans and regional plans. Analysis of the proposed amendments to Rule 3 confirms that the project is consistent with the State Implementation Plan, the District's Clean Air Plan, and other regional plans, including the San Francisco Bay Plan, the Suisun Marsh Protection Plan, the Regional Airport System Plan, the San Francisco Bay Area Seaport Plan, regional housing allocation plans, habitat conservation plans, natural resource conservation plans, and smart growth plans.

2.4.5 PROJECT ALTERNATIVES

The alternatives analyzed include alternate measures for attaining the objectives of the proposed amendments to Rule 3. There were alternative methods of structuring a regulation that were analyzed that were rejected as infeasible because they did not meet the project objectives or they were deemed inconsistent with other rule elements, such as EPA policies. These included a rule with performance based standards, seasonal regulation, regional regulation, exceedance fees for non-compliant coatings, an exemption based on tonnage excess emissions, a low vapor pressure exemption, and reactivity based standards.

Some alternatives were also analyzed that were deemed to be feasible. Those were: No Project, Extended Compliance Dates, Further VOC Reductions, Permanent Product Line Averaging and Different VOC Limits. Although an analysis of each of these alternatives revealed a varying degree of environmental impact with each alternative, staff concluded that the most desirable project alternative is the amendments to Rule 3, as proposed.

3. PROJECT DESCRIPTION

3.1 Project Location

This project location is coincident with the boundaries of the Bay Area Air Quality Management District. The District includes all of seven counties; Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa, and portions of two others; southwestern Solano and southern Sonoma.

The San Francisco Bay Area is an area of exceptional physical and cultural diversity. It covers 5,600 square miles or 3.6 million acres. It includes 98 cities and approximately 6.75 million people, living in approximately 2.5 million homes. The Pacific Ocean, San Francisco Bay, coastal mountain ranges and inland valleys are among the more prominent features that create a physical setting among the most distinct in the world.

The climate and physical features of the Bay Area in combination with emissions from natural and human activities can result in the buildup of pollutants in the atmosphere, causing periodic exceedances of air quality standards. The combination of the amount of emissions generated and the natural factors acting on those emissions to disperse the pollutants or allow them to accumulate and react is referred to as the atmospheric pollution potential. The sheltered inland valleys of the Bay Area with their tendency for light winds, atmospheric stability, abundant sunshine and high summer temperatures, have a high pollution potential. Coastal areas, which experience less atmospheric stability, less sunshine, higher winds and more moderated temperatures, have a lower pollution potential.

3.2 Background

The project consists of amendments to an existing rule. Regulation 8, Rule 3: Architectural Coatings imposes volatile organic compound (VOC) limits on paints and coatings applied to architectural structures. Coatings with VOC contents (a measure of the amount of organic solvent) above the limits may not be sold, distributed or used in the District. Architectural coatings are those coatings to be applied to stationary structures and their appurtenances at the site of installation, to portable buildings at the site of installation, to pavements and to curbs. The rule was originally adopted in 1978, and subsequently amended in 1982, 1983, 1986, 1990 and 1998[12]. Staff of the California Air Resources Board (CARB) , in conjunction with staff of California air districts and under the direction of the California Air Pollution Control Officers Association (CAPCOA), developed a suggested control measure (SCM) for architectural coatings in 1999 and 2000. Although control of stationary sources, including architectural coatings, is the jurisdiction of air pollution control districts, the CARB staff was able to devote sufficient resources to conduct and analyze a survey of architectural coatings sold in 1998 in California, which in turn became the basis for proposed VOC limits in the SCM. Because of the nature of distribution patterns of various companies, a greater resolution of sales data, such as on a district by district basis, is often not possible. In addition, the state had the resources to conduct a series of public workshops for manufacturers, distributors, sellers and users of coatings in a more efficient manner than would each district, if done separately. The SCM was adopted by the CARB on June 22, 2000. The proposed amendments to District Rule 3 are derived from the SCM, as was expected from the statewide process.

In association with the development and adoption of the SCM, CARB staff, as lead agency under the California Environmental Quality Act, also prepared a Program Environmental Impact Report

[12] Of these amendments, in 1990 the District adopted amendments that were overturned by action of the San Francisco Superior Court, Dunn-Edwards Corp. v. Bay Area Air Quality Management District (1992) 9 Cal. App. 4th 644,650

(State Clearinghouse No. 99062093). The Program Environmental Impact Report was certified at the June 22, 2000 CARB hearing when the SCM was adopted.

The California Environmental Quality Act (CEQA) allows a Program Environmental Impact Report to be prepared when a series of actions that can be characterized as one large project are related either as logical parts in the chain of contemplated actions, or in connection with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program.[13] The SCM, as designed to be adopted into law in California districts, may be considered the large project that leads logically to actions at the district level. CARB anticipated that local air districts would use the Program Environmental Impact Report when conducting their own environmental assessments as part of adoption of the SCM.[14] This draft Environmental Impact Report (EIR) is tiered from the CARB certified Program Environmental Impact Report. CEQA allows tiering when agencies prepare separate but related projects. Tiering is appropriate when the sequence of analysis is from an EIR prepared for a general program to an EIR for another program of lesser scope, such as a rule adopted based on, and not different from, an SCM.[15] Consequently, the CARB certified Program Environmental Impact Report is adopted by reference as part of this analysis, and this analysis will concentrate environmental impacts unique or peculiar to the Bay Area.

The Bay Area District is designated as a non-attainment area for the federal one hour ozone standard. Ozone, a criteria pollutant, is formed from a reaction of hydrocarbon and oxides of nitrogen in the presence of ultraviolet light. Ozone in the lower atmosphere is an air pollutant that is harmful to humans because it causes respiratory problems. Ozone also reduces crop yields, and accelerates deterioration of paints, finishes, rubber products, plastics and fabrics. The EPA has set primary national ambient air quality standards (NAAQS) for ozone and other air pollutants to define the levels considered safe for human health The District is designated as an unclassified non-attainment area, meaning that the District is not classified into one of the federal categories of moderate, serious or extreme pursuant to the 1990 Clean Air Act Amendments. EPA had redesignated the Bay Area to attainment status for the national 1-hour ozone standard on May 22, 1995. The agency did this because the Bay Area attained the ozone standard at the end of the 1992 ozone season (having had three “clean” years – 1990, 1991 and 1992), and had maintained the standard in 1993 and 1994. In the summers of 1995 and 1996, the Bay Area experienced a number of episodes of hot, stagnant weather. This led to exceedances of the standard. EPA received two petitions requesting redesignation of the Bay Area to nonattainment status (see 63 Fed. Reg. 37261). EPA determined that the "contingency measures" in the *Ozone Maintenance Plan*, approved by EPA in 1995 were not adequate to bring the region back into compliance with the standard and that the region's adopted and projected actions would not be sufficient to re-establish attainment of the standard.[16]

EPA published a final notice that revoked the region's ozone attainment status on July 10, 1998.[17] The co-lead agencies responsible for air quality planning in the Bay Area, the District, the Association of Bay Area Governments, and the Metropolitan Transportation Commission, prepared the *1999 Ozone Attainment Plan* to comply with these requirements. The 1999 Plan was submitted to EPA in August, 1999. The deadline EPA set for attaining the 1-hour national ozone standard was November 15, 2000. The region continued to experience exceedances of the 1-hour ozone standard in 1999 and 2000. Emission reductions from control measures in the *1999 Ozone Attainment Plan* did not prove to be sufficient to bring the Bay Area back into compliance. On March 30, 2001, EPA proposed to make a formal finding that the Bay Area has not attained the national 1-hour ozone standard. The notice also proposed partial approval and

[13] 14 California Code of Regulations, §15168
[14] Final Program Environmental Impact Report; CARB; June, 2000; I-4
[15] 14 California Code of Regulations, §15152
[16] San Francisco Bay Area Ozone Attainment Plan, June 2001, BAAQMD
[17] 63 FR 37258

partial disapproval of the 1999 Plan[18]. The notice set new planning requirements for the District and co-lead agencies. On July 18, 2001, the Board of Directors of the District approved the San Francisco Bay Area Ozone Attainment Plan for the 1-Hour National Ozone Standard. The Plan, submitted to the CARB as an amendment to the California State Implementation Plan, but not yet approved, contains new transportation, mobile source and stationary source control measures. Among the stationary source control measures is a commitment to adopt amendments to District Regulation 8, Rule 3: Architectural Coatings, based on the provisions of the SCM.

The Bay Area District is also designated as a non-attainment area for the state one hour ozone standard. The CARB set the ozone standard at a level of 9 parts per hundred million (pphm) for a one-hour average, significantly more stringent than the national standard of 12 pphm. Under the requirements of the California Clean Air Act of 1988, areas not complying with the standard must prepare plans to reduce ozone. Plans were required in 1991 and each three years thereafter. The most recent District Clean Air Plan to meet this requirement was prepared in 2000 and adopted by the District Board of Directors on December 20, 2000.[19] In the 2000 Plan, and in fact, in every triennial Clean Air Plan, a control measure has been listed to reduce emissions of VOC by amendments to Regulation 8, Rule 3 that would lower allowable VOC limits for architectural coatings. Initially, as the 1991 Clean Air Plan was adopted, the District was still subject to the lawsuit that eventually overturned the 1990 amendments to Rule 3. Subsequently, District staff, along with staff of CARB and representatives of industry, other state agencies, environmental groups and EPA, participated in a national regulatory negotiation for architectural and industrial maintenance coatings[20]. EPA chose to regulate architectural coatings under Section 183(e) of the Clean Air Act. This effort lasted nearly two years, until 1994, but concluded without consensus on a regulation. EPA then promulgated a national rule for architectural coatings on August 14, 1998.[21] Generally, it is believed that California districts would not see emission reductions from the national rule, as the majority of VOC limits set were higher than, or, at best, equal to, VOC limits in effect in the District, and in many areas of California, since the late 1980's. The significant exception was for traffic coatings. However, Caltrans, the largest user of traffic coatings, already used coatings that were in compliance with the national VOC standard, except in the extreme northwest area of California. It was estimated in the SCM that the national rule would only reduce VOC emissions from traffic coatings by 0.36 tons/day statewide.[22]

3.3 Purpose and Objectives of the Project

The purpose of this project is to reduce ozone forming emissions of volatile organic compounds from architectural coatings by setting maximum allowable VOC contents for various categories of architectural coatings sold and used in the Bay Area. The objective of this project is to reduce emissions of VOC by 2.9 tons/day from an architectural coatings emissions inventory of about 24.7 tons/day. According to the proposed 2001 Ozone Attainment Plan, these emissions reductions are necessary to meet and maintain the federal ambient air quality standards for ozone.[23] They are also necessary to make progress toward the California state ozone standard of 0.08 ppm.

3.4 Description of the Proposed Amendments to Regulation 8, Rule 3

The proposed project is to revise BAAQMD Regulation 8, Rule 3: Architectural Coatings, to incorporate, with minor modifications, the VOC maximum allowable limits and other requirements contained in the state SCM for Architectural Coatings adopted by the California Air Resources

[18] 66 FR 17379
[19] Bay Area 2000 Clean Air Plan and Triennial Assessment, December 2000, BAAQMD
[20] 57 FR 1443
[21] 63 FR 48877
[22] Staff Report for the Proposed Suggested Control Measure for Architectural Coatings, CARB, June 2000, p. 218.
[23] SF Bay Area 2001 Ozone Plan, op. cit.

Board on June 22, 2000. The SCM sets allowable VOC content limits based on existing and currently developing coating technologies for a number of architectural coating categories, including flats, nonflats, industrial maintenance, lacquers, floor, roof, rust preventative, stains, and primers, sealers, and undercoaters.

The amended Rule 3 would apply to any person who supplies, sells, offers for sale, or manufactures any architectural coating for use within the District, as well as any person who applies or solicits the application of any architectural coating within the District. The appendix presents the proposed amendments to Rule 3 in strikeout/underline regulatory format. Further information regarding CARB's SCM for architectural coatings is presented in the CARB Final Program EIR.

The proposed revisions to Rule 3 involve lowering the VOC content limit for a number of architectural coating categories. The proposed revisions also include increasing VOC content limits for several coating categories. The proposed revisions to increase the VOC content limits for certain architectural coating categories are being proposed because coatings that meet the current VOC limits in Rule 3 for those categories may not be available, or the lowered VOC content limits require new categorization of these coatings. These revised VOC limits will be consistent with the corresponding limits in the SCM. The subject categories are Antenna Coatings, Anti-fouling Coatings, Faux Finishing Compounds, Flow Coatings, Rust Preventative Coatings, and Temperature-Indicator Safety Coatings. The current and proposed VOC limits for these categories are indicated in the appendix.

Provisions for product-line averaging are included in the proposed rule amendments. These provisions add an averaging compliance option to the rule. It allows manufacturers to average designated coatings such that their average cumulative emissions are less than or equal to the cumulative emissions that are allowed under the rule. The averaging compliance option is only in effect from January 1, 2003 until January 1, 2005. The language includes a VOC ceiling, or maximum VOC limit for coatings that may be used in an averaging compliance option. This issue came up as ARB and the South Coast AQMD were working on specific guidelines for the averaging program. The VOC ceiling was adopted by the Sacramento Metropolitan Air Quality Management District at the first District adoption of the state SCM in June, 2001. The maximum limits represent the most common Sacramento District limits in effect when the SCM was approved in June, 2000. In an effort to maintain statewide consistency, an important element of the averaging compliance option since the averaging may be done on a statewide basis, Rule 3 proposes the same maximum VOC ceiling limits for averaging.

4. ENVIRONMENTAL SETTINGS, IMPACTS AND MITIGATION MEASURES

4.1 Introduction

Under CEQA, an Environmental Impact Report must identify the potentially significant adverse environmental effects that may result from a proposed project. The EIR analysis must include direct and indirect significant adverse effects of a project, including short and long-term impacts. The discussion of environmental impacts should include, but is not limited to: the resources involved; physical changes; alterations of ecological systems; health and safety problems caused by physical changes; and other aspects of the resource base, including water, scenic quality, and public services. If potentially significant adverse environmental impacts are identified, the EIR must then discuss mitigation measures that could either avoid or substantially reduce those adverse environmental impacts.

This section describes the environmental setting for the project, any adverse impacts that may result from the project, and mitigation measures that would be proposed to lessen or reduce the adverse impacts fro the project. CEQA Guidelines establish a checklist for use by public agencies, which lists 16 environmental categories to be addressed when determining whether to prepare an EIR. CARB staff prepared an initial study based upon this checklist prior to preparing the Draft Program Environmental Impact Report for the SCM. District staff reviewed the CARB Initial Study, draft Program EIR and final Program EIR, as well as the Sacramento Metropolitan Air Quality Management District's draft and final EIR prior to preparation of this draft EIR for the Bay Area. On August 2, 2001, District staff sent a Notice of Preparation to responsible and trustee agencies. Of the 16 potential environmental impact categories on the checklist, District staff determined that an EIR should be prepared to address potential adverse effects on the following environmental categories: air quality, water, public services, transportation and circulation, solid and hazardous waste, and hazards. The following sections analyze the potential adverse environmental impacts associated with implementing the proposed amendments to Regulation 8, Rule 3: Architectural Coatings.

4.2 Air Quality

4.2.1 ENVIRONMENTAL SETTING

The jurisdictional boundaries of the Bay Area Air Quality Management District, known as the Bay Area air basin, encompasses the Counties of Alameda, Contra Costa, Marin, Napa, San Francisco, Santa Clara and portions of western Solano and Southern Sonoma, totaling approximately 5,600 square miles. The Bay Area physiograpy is characterized by a large shallow basin surrounded by coastal mountain ranges tapering into sheltered inland valleys. The combined climatic and topographic factors present in the Bay Area result in an increased potential for accumulation of air pollutants in the inland valleys and a reduced potential for buildup of air pollutants along the coast.

The climatology of the Bay Area, in combination with the topography and pollutant emissions, determines the atmospheric pollution potential. The atmospheric pollution potential is the potential for a given quantity of air emissions to be dispersed as a result of the combined influence of atmospheric and geographic conditions, either lowering or increasing the potential for exceedances of ambient air quality standards. In the Bay Area there is a wide range of atmospheric pollution potential resulting predominantly from four factors; winds, atmospheric stability, solar radiation and sheltering terrain.

Winds can disperse pollutants. Atmospheric pollution potential increases in the sheltered valleys of the Bay Area because the terrain tends to reduce wind speeds. Reduced wind speed in the valleys combined with daytime up-valley and nighttime down-valley air flow can result in the accumulation of pollutants. Temporally, these low wind speeds usually occur in conjunction with periods of high pollution emissions, typically during the early morning and late afternoon or evening commute traffic, and on clear, cold winter nights.

Whereas winds are indicative of horizontal dispersion of air pollution, atmospheric stability determines the ability of air pollutants to dispersed vertically. In the Bay Area, the ability of air pollutants to be dispersed vertically is frequently limited by inversions. An inversion, a blanket of warm air trapping a layer of cooler air underneath, forms an almost impenetrable barrier to the vertical dispersion of air pollutants at the boundary between the two air masses. Inversions result from a variety of climatic factors and the different types of inversion have a wide seasonal variation.

Between late spring and early fall, a layer of warm air often overlays a layer of cool air from the Delta and San Francisco Bay, resulting in an inversion. Typical winter inversions are formed when the sun heats the upper layers of air, trapping below them air that has been cooled by contact with the colder surface of the earth during the night. Although each inversion type predominates at certain times of the year, both types can occur at any time of the year. Local topography produces many variations that can affect the inversion base and thus influence local air quality.

Solar radiation plays an integral role in the formation of photochemical smog. In the presence of sunlight and warm temperatures, hydrocarbons, referred to as volatile organic compounds, or VOC, and oxides of nitrogen (NO_x) combine through a complex series of chemical reactions to produce photochemical smog, the largest fraction of which is ozone. The inland valleys of the Bay Area experience higher temperatures and more abundant sunshine than coastal areas and, therefore, have a higher atmospheric pollution potential with respect to the formation of photochemical smog.[24] Ozone is primarily a summer and fall pollution problem due to the hotter temperatures, longer exposure of precursor pollutants to solar radiation, and potential for less vertical and horizontal dispersion.

The Bay Area violates the federal and state standards for ozone. According to the 2001 Ozone Plan, emissions of VOC from stationary sources must be reduced by over 8 tons/day to meet the federal air quality standard for ozone.[25] Figure 4.1 illustrates the contribution of various sectors of VOC producing activities to the Bay Area total.[26] It is important to note that the BAAQMD does not have jurisdiction over all sources of VOC. Motor vehicles and other mobile sources are under the jurisdiction of CARB and the federal government. Also, CARB has jurisdiction over consumer products and aerosol paints. In Figure 4.1, architectural coatings are included in the category labeled, “Petroleum and Solvent Evaporation”. Architectural coatings, specifically excluded from the definition in the California Health and Safety Code as consumer products[27], emit about 25 tons/day of the approximately 550 tons/day Bay Area VOC emissions, or about 4.5 % of the total. Of the VOC emissions that BAAQMD has jurisdictional control of, emissions from architectural coatings represent a little over 14%. Figure 4.2 shows the contributions of various sectors of NO_x producing activities. NO_x functions as both a precursor to ozone and as a reactant with ozone, acting, in effect, to scavenge ozone out of the atmosphere.

[24] Environmental Impact Report for the 1991 Bay Area Clean Air Plan, BAAQMD, 1991
[25] 2001 SF Bay Area Ozone Plan, op. cit.
[26] Bay Area 2000 Clean Air Plan, op. cit.
[27] CH&C 41712(a)(1)

FIGURE 4.1
2000 Summer Emissions: Ozone Precursors
Volatile Organic Compounds (VOC)
551 tons/day

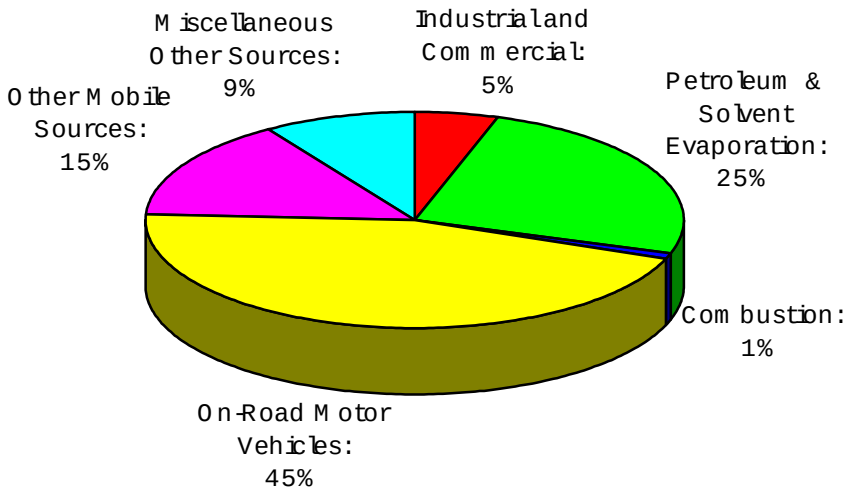
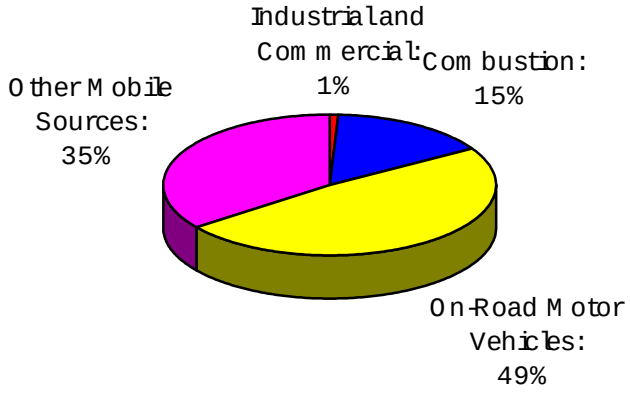


FIGURE 4.2
2000 Summer Emissions: Ozone Precursors
Oxides of Nitrogen (NOx)
571 tons/day



Under Section 185B of the federal Clean Air Act, the National Academy of Sciences was charged with studying the role of VOC and NO_x emissions in ozone formation. Its study, *Rethinking the Ozone Problem in Urban and Regional Air Pollution*, was conducted by the National Research Council and published in 1991. A central finding of the study was that the relative effectiveness of

VOC and NO_x controls for reducing ozone depends on the ambient VOC to NO_x ratios within an air basin. At ambient VOC to NO_x ratios of about 10 or less, VOC control is more effective, and NO_x controls may be counterproductive. At VOC to NO_x ratios of 20 or more, NO_x control is generally more effective. The Bay Area ratio of VOC to NO_x is less than 10. The Bay Area is a VOC limited area, meaning that formation of ozone is limited by the amount of VOC in the air, and NO_x is in excess. Therefore, the most effective strategy for reducing Bay Area ozone concentrations is to limit VOC emissions.[28] It is estimated that VOC reduction alone is sufficient to meet the federal standards for ozone, however, both VOC and NO_x reductions are necessary to meet the more stringent California standards. Also, reductions in NO_x are required to reduce transport emissions to air districts downwind from the Bay Area.

4.2.2 SIGNIFICANCE CRITERIA

The District has established thresholds of significance for air quality impacts. The threshold of significance for a given environmental effect is that level at which the District finds the effects of the project to be significant. According to the California Office of Planning and Research (OPR), a threshold of significance can be defined as: "A quantitative or qualitative standard, or set of criteria, pursuant to which the significance of a given environmental effect may be determined." The following table lists the threshold of significance established in 1996.[29]

Table 1. Thresholds of Significance for Air Quality Impacts

Pollutant	ton/yr	lb/day	kg/day
VOC	15	80	36
NO_x	15	80	36
PM_{10}	15	80	36

In addition, thresholds of significance exist for potentially odorous projects and for toxic air contaminants. The threshold of significance for toxic air contaminants is defined as a project that has either; 1) a probability of contracting cancer for the Maximally Exposed Individual (MEI) that exceeds ten in one million, or 2) a ground level concentration of non-carcinogenic toxic air contaminants that would result in a Hazard Index of greater than 1 for the MEI. The threshold of significance for odorous projects is somewhat more subjective. It is based on distance between potential receptors and the project source, the type of source and any history of complaints.

4.2.3 ANALYSIS OF POTENTIAL ENVIRONMENTAL IMPACTS

The following is a discussion and analysis of issues raised by some members of the coating industry. For each issue area, District staff reviewed the detailed analysis of these issues prepared by CARB staff and contained in Section IV, Subsection C of the Program EIR prepared for the SCM for architectural coatings. Staff also reviewed the comments received in response to the Program EIR, and the responses to those comments. In addition, staff considered the information compiled to date through ongoing studies by the South Coast Air Quality Management District (SCAQMD) with National Technical Systems (NTS), a testing program by the essential public service agencies (EPSA), a testing program by the Southern California Alliance of Publically Owned Treatment Works (SCAP), and an analysis of the Harlan Associates Study prepared by Stan Cowen of the Ventura County Air Pollution Control District. The analysis and discussion in this EIR also considers the following update of the studies prepared since certification of the CARB Program EIR.

<u>SCAQMD Phase II Assessment Study of Architectural Coatings</u>. In 1998, the SCAQMD initiated a performance study with National Technical Systems (NTS) to evaluate the following six architectural coating categories: Industrial Maintenance, Non-flats, Primers/Sealers/Undercoaters,

[28] Bay Area 1997 Clean Air Plan and Triennial Assessment, BAAQMD, December 17, 1997
[29] BAAQMD CEQA Guidelines, Assessing the Air Quality Impacts of Projects and Plans, BAAQMD, April, 1996 and December, 1999

Quick Dry Enamels, Quick Dry Primers/Sealers/Undercoaters, and Waterproofing Sealers. The objective of the performance study was to conduct side-by-side laboratory and outdoor exposure tests for coatings with varying VOC contents.

The study involved 31 manufacturers or brands, 94 coatings, 46 coating systems (e.g., primer and topcoat), and over 3000 test panels. The laboratory portion of the study was completed in 1999, and is summarized in Appendix E of the CARB staff report for the proposed SCM, which was approved by CARB concurrent with the adoption of the SCM on June 22, 2000. In general, the laboratory portions of the study revealed similar performance among high and low-VOC coatings.

The outdoor real time exposure testing is ongoing and includes a desert and coastal environment. The outdoor real time exposure will last for two years, and will not be completed until 2002. CARB staff will summarize the data at that time.

Essential Public Service Agencies Testing Program. In response to comments provided by the essential public service agencies (EPSA), the SCAQMD's May, 1999 architectural coatings rule amendments established a new specialty category called "essential public service coating." The category is for protective coatings applied to components of power, municipal wastewater, water, bridges and other roadways, transmission or distribution systems during repair and maintenance procedures. The category includes coatings used by the EPSA that were previously included in the industrial maintenance coatings category. The essential public service category was created to allow additional time for the ESPA to complete the lengthy administrative processes to identify, evaluate, budget and purchase new coatings to replace those currently used for public infrastructure. The category's VOC limit decreases to 100 g/l by 2006 in the South Coast rule, then matching the SCAQMD industrial maintenance category limit. Thus, the ESPA testing program will primarily focus on coatings capable of meeting the 100 g/l VOC limit. However, the program is also evaluating some coatings at the 250 g/l VOC level.

Earlier this year, the members of EPSA entered into a memorandum of understanding (MOU) to accomplish their common coating performance testing goals. The EPSA membership consists of: Caltrans (California Department of Transportation); California Department of Water Resources; Los Angeles Department of Water and Power; and Metropolitan Water District of Southern California.

A technical steering committee consisting of representatives from each public service agency, SCAQMD, and CARB has been established. The technical steering committee has approved a test program design that includes test sequences, test procedures, and performance evaluation criteria. Coating selection and application is ongoing. The scope of testing will involve laboratory and field tests of compliant coatings and is expected to last a number of years even with expedited testing efforts. For example, the coating evaluation process at Caltrans entails a laboratory screening and characterization, including health and safety review (4 months), cyclic corrosion testing in the laboratory (8 months), field application tests (2 years), and specification development (2 years).

Southern California Alliance of Publicly Owned Treatment Works Testing Program. The Southern California Alliance of Publicly Owned Treatment Works (SCAP) represents over 55 government agencies involved in the treatment and recycling of water and wastewater. As a result of VOC limits specified in SCAQMD Rule 1113 and the SCM, SCAP has committed to evaluate the performance, durability and application requirements of low VOC (less than 100 g VOC/liter to 340 gram VOC/liter) coatings suitable for wastewater environments. The testing program includes laboratory and field tests and is scheduled to conclude in 2003.

Harlan Associates Study. In February 1995, CARB published the results of performance testing of architectural coatings by Harlan Associates, Inc. The purpose of the study was to determine the physical properties and performance of representative products in eight coating categories. A total of 110 coating products, purchased during late 1993 and throughout 1994, were tested in the

following categories: industrial maintenance primers and topcoats, high-temperature industrial maintenance coatings, lacquers, varnishes, non-flats (including quick-dry enamels), primer/sealers (including quick-dry primer/sealers), sanding sealers and waterproofing sealers (wood and concrete).

While the raw data from this study were published in 1995, an analysis of the overall comparison of the coatings' test performance was not published. In developing the proposed SCM, CARB and districts' staff analyzed and summarized the raw data. This performance study, although somewhat dated, is used to supplement the newer NTS study.

i) Industry Issue: Increased Thickness of Lower VOC Coating Films

Industry has commented that, in order to meet the VOC limits proposed, manufacturers would need to reformulate many of their coatings to increase the amount of solids contained in those coatings, and would correspondingly reduce the amount of solvent. According to industry, this increase in solids content would lead to an increased thickness of the low-VOC coatings being applied. Increased coating thickness would have two main effects. First, the coatings would become more difficult to handle during application due to increased viscosity. Secondly, a set amount of coating would cover less surface area, resulting in application of more coating to cover the desired surface, canceling the benefit of a lower VOC content per unit of coating. Industry representatives have contended that it is mainly high-solid, solvent-based alkyds, non-flats in particular, that will have this problem. During the review period of the draft Program EIR, CARB received comments from industry that they had misinterpreted earlier comments that addressed this issue. Industry stated that CARB had focused too narrowly on increased thickness as it applied to waterborne coatings, not high solid, solvent-based alkyds.

CARB staff response to these comments indicated that more attention was paid to water-borne coatings because water-borne coatings made up a very large percentage (95%) of non-flats. CARB also stated that there are a number of options manufacturers could choose which would allow them to reformulate coatings that would comply with the rule while not increasing solids. These include using exempt solvents or moving to a water-based system. If a manufacturer does decide to reformulate a coating to increase solids content, less viscous resins exist which would allow compliant coatings to be manufactured while not increasing overall thickness. CARB used labels and product data sheets in part to determine the coverage expected from use of coating products. According to CARB staff, in evaluating product data sheets[30] from 500 different coatings and the results of its 1998 Architectural Coatings Survey, there was no apparent relationship between VOC content and the amount of solids that are present in the coating and no relationship between solids content and coverage. CARB also stated that an indicative way to determine whether low-VOC levels corresponded to increased solids and increased thickness was to see whether there had been an increase in overall per-capita sales over time. It was found that coatings sales had remained constant on a per-capita basis over the last 12 years.

CARB staff analysis of this issue in the Program EIR is relevant to the Bay Area. District staff looked at this issue to see if there were any local issues that might alter CARB's conclusion and found that CARB's analysis is applicable to the Bay Area. There is nothing to suggest that reformulated coatings that work in other parts of the state would not also work in the Bay Area, nor is there any reason why coatings would exhibit an increase in viscosity or film thickness in humid coastal areas. Although a decrease in temperature would result in higher viscosity, coatings typically carry advisories regarding application temperatures. For example, labels on water based coatings often advise application at 50°F or above. Typically, although coastal

[30] Product data sheets contain the performance specifications made by coatings manufacturers to their customers. These specifications are generally based on laboratory tests performed by the manufacturers. Manufacturers usually use test methods approved by the American Society for Testing and Materials (ASTM).

regions are cooler than inland areas in the summer, they are often warmer in the winter and rarely have diurnal temperatures of less than 50°F.

ii) Industry Issue: Illegal Thinning of Lower VOC Coatings

When commenting on CARB's draft Program EIR, industry representatives also raised the issue of possible illegal thinning that would occur if the proposed VOC limits were adopted. The coatings affected by this are supposedly the same kinds of coatings that would be affected by the increased thickness problem discussed previously. According to industry, individual users will add solvent to thin products that have been made more viscous due to increased solids content, potentially exceeding the maximum allowable VOC limits. Representatives from industry also commented that the CARB field study on thinning was flawed due to inaccurate sampling because the focus was on higher-VOC specialty coatings that are less likely to be thinned.

Coatings can be reformulated to a lower VOC content in three ways: 1) by the use of solvents, determined by the US EPA to have a negligible contribution to photochemical reactivity and exempted by the District in Rule 3, as substitutes for regulated organic solvents; 2) by the substitution of water for organic solvent; and 3) by an increase in the solids content and a corresponding decrease in organic solvent per unit volume of coating. In the case of the first two options, the addition of exempt solvents or water to further thin coatings does not increase the VOC content of coatings. The third option could be thinned with organic solvents as alleged, however, as stated previously, low-VOC coatings were found to exhibit similar thickness and coverage to higher VOC coatings when applied without excessive thinning. In addition to the 1991 CARB field study on thinning, South Coast AQMD staff conducted two field studies in connection with amendments to the South Coast architectural coatings rule (Rule 1113). The studies, conducted in 1993 and 1996, summarized in the CARB Program EIR, indicated that coating applicators rarely thinned coatings, and, when they did, most of the time they followed the manufacturer's instructions and so did not exceed allowable VOC limits.

In the Bay Area, lower coastal temperatures and higher humidity would not encourage a coating applicator to thin coatings to decrease viscosities or film thickness, in fact, these Bay Area attributes would discourage thinning. Inland valleys in the Bay Area have a climate more akin to the other areas in the state where amendments to architectural coating rules have already been adopted, the South Coast and Sacramento County. Coatings should be expected to be used and thinned in the same way.

iii) Industry Issue: Lower VOC Coatings Require More Priming

Industry representatives have commented that adopting the proposed VOC limits will lead to an increase in the application of primers that would be necessary to get low-VOC water-based latex enamels to adhere and perform adequately. The contention is that water-based latex enamels have poorer adhesion when being used to coat difficult substrates, and because the coatings have poor sealing and stain-blocking properties.

Product data sheets reviewed by CARB staff for low-VOC coatings do not indicate that priming is recommended to a greater extent than for higher VOC coatings. Typically, both high and low-VOC coatings are recommended to be applied only to "clean, dry surfaces." Many products are marketed as having excellent adhesion properties. Also, the NTS study demonstrated that adhesion characteristics of low-VOC coatings are similar to conventional coatings. No increase in primer sales is evident that would correspond with previous restrictions on VOC contents of topcoats. Finally, the SCM includes a category for "Specialty Primers." Those are primers that are recommended for use to seal fire, smoke or water damage, condition chalky surfaces, or block stains. The VOC content limit set by the proposed amendments to Rule 3 for specialty primers will be the same as currently exists, 350 g VOC / liter.

The allegation of increased use of primers associated with low VOC topcoats is a function of the surfaces to be coated and the preparation of those surfaces. In cooler coastal conditions, higher

humidity might be expected to be a factor if surfaces are wetter as a result. However, if surfaces are excessively wet, neither low nor higher-VOC primers nor topcoats should be applied, and application in these conditions is not recommended by manufacturers. The proposed amendments to Rule 3 incorporate several provisions to address exposure of substrates to humid environments. The first is the creation of a category for "Rust Preventative" coatings. This category is not found in the existing Rule 3. The category is specifically for prevention of corrosion of non-industrial metal surfaces, as might be expected in high-humidity environments. The VOC limit proposed is 400 g/liter, sufficient to accommodate existing solvent-borne coatings used for this purpose. Also, although the amendments propose a reduction in the allowable VOC content for Industrial Maintenance Coatings in 2004, from 420 g VOC/liter to 250 g/VOC/liter, there is a special provision in the SCM and in the proposed amendments that allow the Bay Area to allow Industrial Maintenance coatings of up to 340 g VOC/liter, provided the applicator can demonstrate a need (for example, application to coastal bridges). This allowance was instituted by CARB in the SCM after consultation with Caltrans about the need for non-water borne coatings for some applications in high-humidity environments. The allowance, however, can also be used for the use of other industrial maintenance painting projects throughout the Bay Area, provided need for a coating with a VOC content greater than 250 g/l is demonstrated.

iv) Industry Issue: The Necessity for More Topcoats

Industry representatives have commented that the proposed VOC reductions will result in an increased usage of topcoats. This is because low-VOC products will not exhibit satisfactory coverage, film build, or flow-and-level, described as the movement of a coating during and after application so as to obliterate surface irregularities caused by the application equipment such as brush marks or of the coating itself during drying and curing, such as cratering or "orange peeling". The contention is that the problems that would lead to more topcoat use are mostly exhibited in water-based latex topcoats and that CARB staff, in producing the Program EIR, relied in part on studies that focused mostly on solvent based products. Industry also stated that the NTS study used by ARB was flawed because test panels were coated by draw down method that does not reflect real-world application, and because industrial maintenance topcoats were not subjected to real-world exposure levels for a sufficient amount of time. Industry representatives, however, were on the NTS technical advisory committee that approved the testing protocol, including draw downs.

CARB staff have noted that the data showed that water based latex products did not demonstrate the deficiencies iterated by industry. These products examined make up the majority of latex non-flats available on the market. The use of the draw down method to coat test panels was thought to be appropriate because this helps to standardize the application process, important to establish a consistent base from which to judge results. CARB staff also responded to the issue of insufficient exposure, stating that the tests represent a reasonable amount of exposure, and that to subject coatings to all possible types of exposure and lengths of service would be an unrealistic undertaking. The length of exposure was not deemed to be an important factor for measuring characteristics that can be measured shortly after application, such as coverage, build, and flow-and-level.

There is nothing in the characteristics of the Bay Area climate that indicate that there would be any difference in these issues. Cooler summertime temperatures and higher coastal humidity would, if anything, help expand the window of time for coatings to flow-and-level. Nothing in climatic conditions would indicate greater or lesser film build or coverage.

v) Industry Issue: More Touch-Ups and Coating Repair Will Be Needed

Some coatings manufacturers and contractors claim that water-borne and low-VOC solvent-borne formulations do not dry as fast as conventional coatings and, therefore, are susceptible to damage such as sagging, wrinkling, or "alligatoring" during drying or curing, or becoming scraped and scratched before forming a sufficiently resistant coating film. Also, some industry representatives contend that low-VOC, acetone-borne lacquers, water-borne topcoats, and

substitutes will require more touch-up repair work because longer drying times allow for the contamination of the coated surface with airborne dust and construction debris. Industry representatives also claim that water-based coatings tend result in severe blocking problems, the undesirable sticking together of two coated surfaces. Because of these problems, there will be a need to apply additional coating to touch-up or repair surfaces.

CARB staff reviewed product data sheets to analyze the recommended drying time between coats, which would be the cause of wrinkling or sagging, and found that the dry time recommended for low-VOC coatings was similar or less than the average drying time for conventional coatings in all categories except lacquers. Also, per-capita coating sales have not increased since 1988 which indicates that there is no increase in touch-up and repair due to the increased use of water-borne coatings. The NTS study examined blocking characteristics of coatings, and results of the study demonstrated that blocking characteristics of low-VOC coatings are similar to conventional coatings. Consequently, more coating usage due to an increased need for touch-up and repair work is not anticipated. The NTS study did note a greater dry time for lacquer, specifically acetone based lacquers. In order to alleviate this potential problem, the SCM and proposed amendments to Rule 3 for the lacquer category contain a provision allowing the addition of up to 10% VOC-containing thinner to compliant acetone based lacquers under certain conditions, when the temperature is less than 65°F and the relative humidity is greater than 70%.

The climatic conditions of the Bay Area, cooler and more humid environments along the coast, might presuppose a greater use of the provision to add thinner to lacquer as previously described. This provision is applicable to any area in the Bay Area (or in the state as per the SCM) where those conditions exist, so would counteract any problems that might be encountered for lacquers. For other categories of coatings, as demonstrated by the NTS study and analysis of product recommendations, there would not be expected to be any significant impact on coating application in coastal areas.

vi) Industry Issue: The Necessity for More Frequent Re-coating

Some coating manufacturers and contractors assert that durability of compliant water-borne and low-VOC solvent-borne coatings are inferior to that of traditional solvent-borne coatings. They claim that the new coatings have many finish and durability problems that become apparent over time, such as cracking, peeling, excessive chalking, blistering and color fading. Therefore, low-VOC coatings result in more frequent re-coating and, consequently, result in more VOC emissions than traditional coatings over time due to this lack of long term durability.

The long term durability of a coating is affected by many factors, such as surface preparation, application method, environment (mechanical stress, thermal weathering), type of binder or resin in the formulation, and the substrate coated. Generally, of these factors, surface preparation recommendations, application methodology, environment and substrate are the same for older high-VOC coatings as for newer low-VOC ones. Although conventional binder systems and newer low-VOC compatible binder systems have different performance attributes, results of the NTS study show that low-VOC coatings overall have similar or superior performance and application characteristics to higher-VOC coatings. The CARB Program EIR found that low-VOC coatings are as durable and long lasting as conventional coatings. In addition, poorer long term performance would result in higher coating sales, which would be evident on a per capita basis. This is not the case. Advancements in coatings technology, including modification of the binder systems and in the many additives that impart special characteristics such as UV light resistance, color retention, flexibility, and preservatives have resulted in improvement of the durability of new coatings. Therefore, claims of increased VOC emissions from more frequent re-coating are unfounded.

In the Bay Area, cooler or more humid coastal conditions would not result in long term durability consequences. In fact, many of the allegations are based on exposure to solar radiation, which would be less of a factor at the coast. One other attribute of coastal conditions that could affect

coatings is the corrosive properties of a salt spray environment. The NTS study did examine salt spray, and found that newer, low-VOC coatings tend to resist salt spray environments equally well as do higher-VOC coatings. As mentioned above, the Bay Area is incorporating special provisions from the SCM into the proposed Rule 3 that will allow for a higher VOC content for industrial maintenance coatings when surface needs dictate. Consultation with Caltrans, especially regarding coastal structures such as bridges, led to the implementation in the SCM of this provision.

vii) Industry Issue: Illegal Substitution of Higher-VOC Coatings for Lower Due to Consumer Dissatisfaction

Some coating manufacturers and contractors assert that because water-borne and low-VOC solvent-borne coatings are inferior in durability and more difficult to apply than conventional coatings, consumers and contractors will substitute allegedly better performing, higher VOC coatings, the use of which might be applicable to other categories, for use in coating categories with low VOC compliance limits (e.g., use of a rust preventive coating, which has a higher VOC content limit allowance, in place of an industrial maintenance coating or nonflat coating with a lower VOC limit.)

The Program EIR did not find that widespread substitution is likely as a result of adopting a rule based on the SCM for several reasons: 1) the results from the NTS study show that low-VOC coatings with similar performance characteristics to conventional coatings are currently available; 2) the SCM, on which the Rule 3 proposal is based, does not allow the application of certain categories of coatings in some specific settings and labeling requirements make it clear for what uses the coating is recommended and where it is prohibited (e.g., rust preventative coatings cannot be used in industrial settings.); and, 3) the SCM requires that when a coating can be used in more than one coating category, the lower VOC limit of the two categories is applicable, with the exception of some specified categories where the performance needs of the higher VOC coatings are paramount. It is not expected that consumers and contractors will substitute higher-VOC coatings for low-VOC coatings when recommendations make it clear that coatings are recommended for specific purposes and additional uses are restricted. In addition, reporting requirements for some categories that require manufacturers to report California sales in will highlight a shift from one category to another if one occurs.

This allegation of substitution based on dissatisfaction has no bearing on any special climatic considerations that might be present in the Bay Area. As iterated above, tested performance characteristics that compare low-VOC coatings to high-VOC coatings do not lead to a conclusion that consumers will be less than satisfied with low-VOC products.

viii) Industry Issue: Solvent Species Used in Low-VOC Coatings Have More Reactivity

Some industry representatives claim that requiring manufacturers to reformulate to water-borne technology will lead to increases in ozone formation because the VOC's used in water-borne coatings are more reactive than those used in solvent-borne coatings. Industry also suggested that the VOC's used in architectural coatings, such as mineral spirits, have an atmospheric reactivity potential that is low enough to have an effectively negligible contribution to ozone formation. It has also been also suggested that NOx control alone may be most appropriate for reducing ground level ozone. Finally, it has been claimed that mass-based controls may not be effective and that reducing VOC under certain conditions may be counterproductive and may actually lead to ozone nonattainment.

Existing data do not support the claim that water-borne coatings are more reactive than solvent-borne. Using the Maximum Incremental Reactivity (MIR) scale developed by Dr. William Carter at UC Riverside, and others, as the basis for comparing reactivities of different species of VOC, it is true that, on a per gram basis, a typical VOC used in water-borne coatings, such as propylene glycol, is two to three times more reactive than a typical mineral spirit used in a solvent-based coating. However, considering the typical difference in mass of VOC between waterborne low-

VOC coatings and solvent-borne high-VOC coatings, which can be characterized as the total, or weighted, reactivity of a product (or product category), CARB staff found out that solvent-borne coatings are over two times more reactive than water-borne coatings. In addition, the reactivity of propylene glycol is approximately three times less reactive (on a per gram basis) than that of some species of VOC used extensively in solvent-borne coatings, such as xylene and toluene. Analysis also showed that the reactivity of some solvents used in water-borne coatings is similar to a typical mineral spirit used in solvent-borne coatings. An additive complication is that "mineral spirits" is a generic term used to describe a non-specific mix of petroleum distillates. The reactivity of some blends of mineral spirits may be low, however, as the proportion of some species, such as aromatic hydrocarbons, increases, the reactive potential increases. In any case, studies show that the reactivity of mineral spirits is several times that of ethane, which is considered by EPA to be the cut point for determination of whether a VOC should be regulated or would be considered a negligible contributor to photochemical smog, and therefore not regulated. Therefore mineral spirits cannot be unregulated. The analysis is described in greater detail in CARB's Program EIR for the SCM.

The allegation that VOC control is less effective than NOx control at reducing ozone is true in some conditions in atmospheres characterized by ratios of VOC to NOx where VOC is predominant. However, those conditions are not typical in California and are certainly reversed in the Bay Area, where ozone formation is VOC limited, as discussed previously. Quite the opposite of this allegation, in the Bay Area, NOx control may be counterproductive, however, is believed to be necessary for long term ozone attainment planning and ozone transport considerations. The allegation that mass based controls are counterproductive is refuted by the long history of mass based controls in California and in the Bay Area and, in spite of increased population, the declining levels of measured ozone over the time period.

ix) Industry Issue: The Synergistic Effects of the Eight Issues

Industry representatives have stated that the synergistic effect of the eight issues discussed above should be analyzed. Synergy occurs when two or more effects interact to produce a subsequent effect and the subsequent effect is not evident in any individual effect. However the information analyzed in the Program EIR does not indicate any significant adverse impacts as a result of the individual impacts that would combine in a way to produce a synergistic effect. Most of the impacts are related to application and performance issues, including long term performance. The analysis of information available found that low-VOC coatings have similar application and performance characteristics to conventional higher-VOC coatings. Further, manufacturers' recommendations are consistent, indicating that the alleged need for extra primers or topcoats is not founded. Finally, the allegations of synergistic issues should be especially borne out over time and reflected in sales data on a per capita basis. This is not the case, as the sales data per capita analyzed by CARB staff in the Program EIR shows there to have been no significant increase in sales.

In the Bay Area, characterized by some cooler and more humid coastal regions, but inland areas climatologically consistent with the rest of the state, there is no evidence of a synergistic effect of the above alleged impacts. The Bay Area Rule 3 proposes to include a provision in the SCM for the Bay Area and other coastal districts that will allow for a limited amount of industrial maintenance coating to be used that does not meet the proposed VOC limit for the industrial maintenance category of 250 g / liter. This provision, negotiated with Caltrans and applicable to more than just Caltrans' areas of responsibility (roads, bridges, etc), will alleviate some concerns associated with implementation of lower VOC coating limits in cool, humid coastal areas.

x) Issue: Exemption of Methyl Acetate

On April 1, 1998, the US EPA exempted methyl acetate from control based on a determination that methyl acetate had a negligible effect on atmospheric photochemical reactions.[31] An

[31] 63 Fed Reg 17331, US EPA, April 9, 1998

exemption from the definition of VOC in a district rule serves as an encouragement to consider formulations with an increased amount of that exempt compound. Therefore, the environmental effects of a possible increase in the use, and subsequent evaporation into the atmosphere, of an exempt compound must be considered. In November, 1991, the Board of Directors of the BAAQMD adopted an ozone depletion policy that stated that staff should consider the environmental effects of any exemption, including possible toxic exposure. Since that time, staff have considered the possible ramifications of increased usage of any chemical compound via an exemption in a District rule, and not recommended any without consideration of the potential benefits of reducing VOC emissions balanced against the potential environmental detriments and the need for a test method to quantify the compound for compliance testing purposes. In Rule 3, the currently exempt compounds are all useful as replacements for regulated solvents to varying degrees. They are: acetone, methylene chloride (a toxic air contaminant), 1,1,1 trichloroethane (an ozone depletor), parachlorobenzotrifluoride, and the family of volatile, completely methylated siloxanes. To this list, staff propose to add methyl acetate.

Methyl acetate is a low boiling ester solvent that rapidly evaporates. It usefulness is suggested because it is soluble in water, alcohol, acetone and a variety of other solvents. It is not an ozone depleting chemical and has not been found to be toxic by the US EPA or state of California. It is flammable and has a fruity odor characteristic of esters. The odor threshold, that concentration at which the chemical can be detected, is 4.6 parts per million, just slightly lower than methyl ethyl ketone, a commonly used coating solvent. It is not considered to be a significant contributor to global warming.[32]

Staff have examined the “de-listing” or de-regulation of methyl acetate and found that, even if usage increases as a substitute for ozone forming solvents, it should not present any potential adverse air quality impacts. Typically, the odor of esters is not found to be unpleasant to most people compared to a variety of other solvents. Architectural coatings often have esters already in the solvent mixture so it is not expected that the addition or substitution of methyl acetate will result in the creation objectionable odors.

xi) Issue: VOC Definition for Low Solids Coating

On November 4, 1998, the Board of Directors amended Rule 3 to include provisions for low solids coating. Those provisions include a definition for low solids coating, “A coating containing 0.12 kilograms or less of solids per liter (1 pound or less of solids per gallon) of coating material”; a VOC standard for low solids coating, 120 grams VOC per liter; a reference to the appropriate test method, Laboratory Method 31: Determination of Volatile Organic Compounds in Paint Strippers, Solvent Cleaners and Low Solids Coatings; and an amendment to the definition of Volatile Organic Compounds, “For the purposes of calculating VOC content of a low solids coating, any water shall be considered part of the coating.” These amendments were based on a variance request by the Sherwin Williams Company in 1991, re-granted by the District Hearing Board until the 1998 amendments, to manufacture and sell a water based low solids exterior stain in the District that did not meet the VOC limit for stains as calculated in the test methods for water based coating. The reason the product, which was demonstrated to have coverage equivalent to a compliant stain and has only a small portion of organic solvent in the coating, did not meet the VOC limit is because the calculation to measure VOC content is what is termed a “less water calculation”.

A “less water calculation” subtracts water and any volatile organic solvents that do not contribute to the formation of photochemical smog from the mass of the total volatile content and also subtracts the volume of these components from the total volume of the coating. Because the standard is stated in terms of mass of VOC per volume of coating, a smaller volume of coating, due to the subtraction, “calculates” to a greater VOC mass. For example, a liter of coating with 0.5 liters water, 0.25 liters VOC and 0.25 liters coating solids would calculate to a volume of 0.5 liters, because the water is subtracted from the total volume. The mass, then, of the VOC would

[32] Hazardous Substance Fact Sheet, New Jersey Dept. of Health and Senior Services, Dec., 1996

be multiplied by 2 because the standard is in terms of grams VOC per (full) liter of coating. For a coating which is not intended to form a significant surface film, such as a stain that is only intended to color but not hide the surface, the amount of coating solids is typically low. For a coating which has a large amount of water, but only a little coating solids and VOC, the less water calculation would show a large amount of VOC, in some cases making it impossible for the coating to comply. A liter of the Sherwin Williams exterior stain for which the variance was sought had only 100 grams of VOC, but calculated to 570 grams per liter, exceeding the 400 grams/liter VOC limit for stains.

The effect of the 1998 amendments was allow low solids coatings to include the water in the volume of the coating, but it did not allow the inclusion of any exempt VOC. The purpose was to allow and encourage water based low solids coating but not to encourage inclusion of large amounts of exempt VOC solvent in the calculation of the volume of a coating, due to the deleterious environmental effects of some exempt solvents. However, for the proposed amendments, staff propose to allow exempt solvents to be included in the volume for the purposes of the VOC calculation of a low solids coating. There are two exempt compounds in the list that have the potential for significant adverse environmental effects, should a significant amount of low solids coating be manufactured using these compounds. They are methylene chloride, a hazardous air pollutant and a carcinogen; and 1,1,1 trichloroethane, or methyl chloroform, a hazardous air pollutant, mutagen and ozone depleting substance. The other exempt compounds, including methyl acetate, have not been identified as being hazardous air pollutants, toxic or ozone depleting substances. The proposed amendments will allow exempt compounds to be included in the calculation of the volume of a low solids coating, but will not allow methylene chloride or 1,1,1 trichloroethane to be considered exempt for any coating, low solids or not. Although this would not prohibit the use of these substances, it would remove any incentive to use them, fulfilling the objectives of the District's 1991 Ozone Depletion Policy.

The proposed change in the VOC definition for low solids coating could have adverse environmental impacts if a significant amount of low solids coating were manufactured and used that contained acetone or methyl acetate as a base or large volume diluent instead of water. This is because acetone has an approximately 33% greater reactivity than ethane, generally the cut point for EPA's consideration of whether or not the compound is a negligible contributor to ozone formation, although that of methyl acetate and the other exempt compounds are significantly less reactive than ethane.[33] The use of a large amount of acetone instead of water or a less reactive compound could create more ozone than would otherwise be formed under the current definition which only encourages water based low solids coating.

It is not expected that an increase in acetone as a result of the proposed change in the low solids coating definition would result in a significant increase in ozone formation for two reasons. First, although the impact of acetone is greater than water, the VOC standard for low solids coating is quite low at 120 grams/liter, so that the use of a low solids coating, even containing a low reactive compound like acetone, would displace the use of a higher VOC non-low solids coating, most likely a waterproofing sealer with a current VOC limit of 400 g/l and a proposed future VOC limit of 250 g/l (wood waterproofing sealers only, concrete and masonry waterproofing sealers proposed to remain at 400 g/l), a stain with a current VOC limit of 350 g/l and a proposed future VOC limit of 250 g/l, or a wood preservative with a current and proposed future VOC limit of 350 g/l. Second, low solids coatings accounted for only 4 tons of emissions statewide per year in CARB's 1998 Architectural Coatings Survey (1996 data). This is the result of sales volumes too low to be reported on the survey due to confidentiality. The use of low solids coating technology is not expected to grow to a degree that the use of acetone could be expected to promote ozone formation to a greater degree than it would reduce. Finally, it should be noted that the proposed deletion of toxic and ozone depleting exempt compounds from the list of exempt compounds in the VOC definition is expected to reduce emissions of methylene chloride in the Bay Area by

[33] Regulation for Reducing the Ozone Formed from Aerosol Coating Product Emissions, 17 CCR 95420 *et. seq*.

approximately 52 tons per year and the emissions of 1,1,1 trichloroethane by approximately 80 tons per year, again based on the CARB survey.

4.2.4 CUMULATIVE IMPACTS

There is no evidence of any incremental adverse impacts to air quality from review of the nine industry concerns, nor from the issue of the exemption of methyl acetate, nor from the addition of non-toxic, non-ozone depleting substances to the definition of VOC for low solids coatings. Adoption of the proposed amendments to Rule 3 based on the SCM will result in a net air quality benefit to the District, and no adverse impacts, individually or in combination, are expected to be significant.

4.6.5 MITIGATION MEASURES REQUIRED TO REDUCE SIGNIFICANT IMPACTS

Since the proposed project is not expected to result in significant adverse environmental impacts to the air quality of the Bay Area District, no mitigation measures are required.

4.3 Water

4.3.1 ENVIRONMENTAL SETTING

The San Francisco Bay Basin includes all or major portions of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano and Sonoma Counties. The Bay Basin is bounded by the Santa Cruz Mountains to the west, the Diablo Range to the east, and the Bayside foothills to the north and northeast. About 40 percent of the land in California drains into the San Francisco Bay and the Bay functions as the only drainage outlet for waters of the Central Valley. The San Francisco Bay system is the most extensive and significant estuary on the California coast.

San Francisco Bay has been greatly altered from its natural condition by human activities. Between 1853 and 1884, hydraulic mining of gold in the Sierra Nevada washed tens of million of tons of sand and mud into San Francisco Bay, reducing the extent of open water and creating new mud banks. Later, much of the tidal marsh surrounding the Bay was filled for urban and agricultural use. In this century, as industry expanded and urban sewerage systems were built, increasing quantities of wastewater were discharged into the Bay. Freshwater inflows to the Bay diminished, as large quantities of water were diverted, and exported to the San Joaquin Valley and Southern California for urban and agricultural use. Despite the changes, the Bay remains a prized natural resource.

The Sacramento and San Joaquin Rivers contribute almost all the of the fresh water inflow to the Bay. These major rivers are at the eastern boundary of the San Francisco Bay Basin and enter the Bay system through the Delta at the eastern end of Suisun Bay. There are many small streams and rivers within the basin, including the Petaluma River, Sonoma Creek, Napa River, Suisun Marsh and Alameda Creek. Other major receiving water segments, in addition to the Pacific Ocean and Bay include Suisun Bay, San Pablo Bay, Richardson Bay and Tomales Bay.

Rainfall ranges in the Bay Area from an average of 12 inches a year in San Jose to over 60 inches in parts of the Santa Cruz Mountains. Stream flow in the Bay Area is highly seasonal with 90 percent of the average runoff occurring between November and April. Many streams go dry during the summer months.

The quality of San Francisco Bay and other major receiving waters in the Bay Area varies seasonally. For most of the year, the quality of these waters is similar to that of the water of the Pacific Ocean. From December through April, water quality is affected by freshwater inflow from the Sacramento-San Joaquin delta and from other, smaller tributaries. The rivers that feed the

Bay are it's major source of metal pollutants. City streets are the major source of hydrocarbons in the Bay.

The San Francisco Bay Area has 18 major reservoirs with a total capacity of 697,000 acre-feet of water. Historically, the average amount of water in these reservoirs is 403,900 acre-feet. All private an public suppliers of municipal and domestic water are required to meet the water quality standards set forth in the California Code of Regulations.

There are several major groundwater basins in the Bay Area. The Regional Water Quality Control Board (RWQCB) maintains a groundwater monitoring network of wells in the Bay Area. The network is used to record existing conditions, establish baseline conditions, evaluate trends in quality, detect pollution and water quality degradation at an early stage, and evaluate the effect of point and non-point source pollution on groundwater quality.

Areas susceptible to groundwater contamination include areas where wells or permeable soils serve as pathways for contaminants; areas of rapid percolation; areas susceptible to flooding; surface water infiltration areas; and areas where there are no impermeable layers of clay or other material to shield the natural aquifers. Sources of groundwater contamination include wastewater treatment facilities; septic tank leach field; agriculture or landscaping activities that use pesticides or fertilizers; spills or leaks of hazardous materials and waste; leachate from improperly located or mismanaged solid waste disposal sites; and illegally dumped materials and wastes. Abandoned and unused wells can act as conduits to transfer contaminated water form an upper to a lower aquifer.[34]

4.3.2 SIGNIFICANCE CRITERIA

A significant adverse impact to water resources could result if the project would result in either an increase in demand for water or if the project would result in a decline in water quality. As determined by CARB in the Program EIR, a significant impact would result if the proposed amendments to Rule 3 would result in a demand for water by more than 5,000,000 gallons per day, or if the project would result in the construction of any new water conveyance infrastructure. If any one of the following resulted from adoption and implementation of the proposed amendments, there would be a significant impact on water quality: 1) a substantial increase in mass inflow of effluents to public wastewater treatment facilities; 2) a substantial degradation of surface water or groundwater quality; 3) a substantial increase in the area of impervious surfaces, so that interference with groundwater recharge efforts occur; or 4) an alteration to the course or flow of floodwaters. In addition, in the San Francisco Bay, a variety of salinities due to the variable influx of fresh water from the Sacramento River and San Joaquin River and from many other smaller water courses mix with the salt water from the Pacific Ocean that is pushed into the Bay by tidal actions. The varying degrees of salinity are closely associated with Bay and river plant and animal communities. A significant impact would result if the project resulted in a change in salinities by diluting saline water or by diverting fresh water that would normally dilute saline or brackish water, resulting in an increase in salinity in an area.

4.3.3 ANALYSIS OF POTENTIAL ENVIRONMENTAL IMPACTS

i) Water Demand

A projected increase in water demand as a result of the proposed project could occur based on the manufacturing, use and cleanup of water-borne coatings. The CARB Program EIR presented a worst-case scenario for water demand, which assumes that all currently solvent-borne coatings would be replaced by waterborne coatings, and that all waterborne coatings used in California would be manufactured in California. In reality, other coating technologies might be used to substitute for solvent technology, exempt solvent formulations or very high solids formulations. Also, an assumption of no imports of coatings when currently, many major coating manufacturers

[34] EIR for the 1991 Clean Air Plan, op. cit.

are based outside of California, is unrealistic. However, based on that scenario, the total demand on water resources from an increase in manufacture of waterborne coatings and water usage to clean up waterborne coatings would be 17,196 gallons per day by 2010. This represents an increase in demand of 0.000334% (3.34×10^{-4}%). This increase in demand, one third of one thousandth of one percent, could not be considered a significant impact.

ii) Water Quality

Potential impacts that might occur as a result of implementing the proposed rule include an increase in the improper disposal of waste. A significant impact could result if there were difficulties associated with waste disposal, however it is relatively easy for sources to safely dispose of waste generated from architectural coatings. As described in the CARB Program EIR for the SCM, based on the South Coast Air Quality Management District's unannounced site visits conducted for its 1996 architectural coatings rule amendments, the majority of contractors currently either dispose of the waste material properly or recycle the waste material.

In addition, the National Paint and Coatings Association has made significant efforts to educate coating users about potential re-use and proper disposal of painting waste products. They have developed online guidance and manuals to assist consumers and communities to set up paint disposal facilities[35]. Also, a number of communities around the Bay Area have set up city or county household hazardous waste disposal programs, often with specific facilities for water based paint. These programs often include educational material for consumers about proper disposal to prevent water and air contamination. The availability of these programs is expected to significantly reduce the amount of paint, especially from consumers, that would be disposed of in a way that would impact water quality, and, in fact, the improper disposal of paint waste products is expected to decline.

Based on a concern for usage of materials determined to be toxic, one trend in the paint and coatings industry is to replace more toxic solvents with less toxic solvents, resulting in less impact on the environment for any waste materials that are improperly disposed. The staff report for the SCM concludes that manufacturers will be able to formulate coatings that will meet the proposed VOC limits without increasing the amount of toxic air contaminants (TAC's) used in coatings. However, to verify this, the SCM and the proposed Rule 3 provide for new annual reporting requirements for coatings containing perchloroethylene or methylene chloride. The purpose of these reports is to assess the need for further regulation of these toxic solvents.

If more water is used for clean up of waterborne coatings, there could be expected to be an increase in the amount of wastewater that would require treatment at publicly owned treatment works (POTW's). In the CARB Program EIR, this increase has been projected for the year 2010 as a result of adoption of the SCM. The following table, part of Table IV-9 in the CARB Program EIR, gives the results for the nine Bay Area counties:

Table 2: Projected POTW Impact from Reformulated Coatings

County	2010 Coatings Disposal (gal/day)	Percentage Increase in Wastewater due to Rule 3
Alameda	2,207	0.0014 %
Contra Costa	1,368	0.0021 %
Marin	345	0.0018 %
Napa	191	0.0113 %
San Francisco	1,044	0.0012 %
San Mateo	1,088	0.0019 %

[35] NPCA 2001 Publications and Online Services Update, National Paint and Coatings Association, July/August, 2001

Santa Clara	2,696	0.0016 %
Solano*	639	0.0018 %
Sonoma*	726	0.0029 %
Bay Area Total	**10,304**	**0.0062 %**

* Only a portion of Solano and San Francisco Counties are included in the proposed amendments to Rule 3, however, the table includes projected wastewater increases for the entire county.

The table shows that the impact on the amount of wastewater generated in the Bay Area from adoption of the proposed amendments to Rule 3, less than two thirds of one hundredth of one percent, would not have a significant impact.

iii) Salinity

An increase in water usage would reasonably be expected to be commensurate with a decrease in the availability of water for other uses, including dilution of saline or brackish water with fresh. The assumption, however, of an increase in water usage being all derived from surface water is not founded. However, even if the expectation of increased water usage would all result from surface waters, the amounts projected above could not be expected to have any significant impact on salinities associated with areas in or around San Francisco Bay.

4.3.4 CUMULATIVE IMPACTS

There is no evidence of any adverse incremental effect on water quality. However, there is a potential cumulative impact on salinity if the increase on water demand is considered for the up river regions of the Sacramento and San Joaquin Rivers. An analysis of the increase in water demand, similar to the above for San Francisco Bay, shows an increase in demand of 6,493 gallons/day for manufacture and clean up of waterborne coatings for the Sacramento River and an increase in demand of 6,460 gallons/day for the San Joaquin River, both of which are major tributaries of the San Francisco Bay. Combined with the increase in demand of 17,196 gallons/day for the Bay, one might assume that, if the water reaching and in the Bay would be decreased, there would be less fresh water to dilute the salinity of ocean water coming into the Bay by a total of 30,149 gallons/day. This, however, equates to a decrease in available water of only 5.85×10^{-4}%,or less than six tenths of one thousandth of one percent. This cannot be considered a significant cumulative impact.

The negligible incremental increase in wastewater flow to wastewater treatment plants as well as the negligible increase in water demand cannot be considered cumulatively significant when viewed in context of past, present and future projects.

4.3.5 MITIGATION MEASURES REQUIRED TO REDUCE SIGNIFICANT IMPACTS

Since the proposed project is not expected to result in significant adverse environmental impacts to the hydrology, water quality or salinity of the San Francisco Bay or any of the associated waters or groundwater, no mitigation measures are required.

4.4 Public Services

4.4.1 ENVIRONMENTAL SETTING

Residents of the San Francisco Bay Area are provided with a number of essential public services. These services include fire and police protection, schools, water, electricity and natural gas, sewage and waste disposal, and library services. The services are provided by cities or counties or special districts, such as flood control districts, transit districts and school districts funded through tax monies; or private companies, such as electricity and gas providers or waste disposal funded directly by service users.

Architectural coatings are used by public facilities and public utilities to the extent that they have structures or appurtenances subject to Rule 3, which include bridges owned by the state of California or transit districts, streets and highways owned by the cities, counties and state, school buildings owned by the various school districts, power plants and gas and electricity transmission infrastructure owned by private power providers and distributors, and water storage and transmission infrastructure owned by cities and wastewater infrastructure and processing facilities owned by cities, counties or special districts. Additional examples of publicly owned buildings and structures, the coating of which is subject to this rule, are police and fire stations, prisons, hospitals, administrative buildings, park structures, streetlights and statues.

4.4.2 SIGNIFICANCE CRITERIA

The proposed amendments to Rule 3 would have significant impacts to public services if they resulted in either new or altered government services in any of the following areas: fire protection, police protection, schools, parks and recreational facilities, maintenance of public facilities, or other governmental services. The proposal would have a significant impact on utilities if it would result in a need for new systems or substantial alterations to water, wastewater or solid waste facilities. Public service impacts may also include increased demand on local city or county agencies. Condition baselines for public services in the Bay Area are established by local service standards or ratios. The impacts on utilities must be evaluated based on whether or not the proposal would result in a substantial increase in the consumption of potable water or a substantial increase in demand for water supply treatment or distribution facilities, wastewater treatment and collection capacity, storm water drainage systems, or landfill capacity. Utility impacts may also include an increased demand for hazardous waste-related services and wastewater treatment.[36]

4.4.3 ANALYSIS OF POTENTIAL ENVIRONMENTAL IMPACTS

i) Industry Issue: Additional Maintenance of Public Facilities

A potential significant impact could occur if local agencies were forced to use inferior coatings as iterated under industry issues associated with air quality, above, which would lead to increased maintenance under the proposed rule. Industry has commented that the proposed VOC limits for coatings may cause local agencies to use products that are of an inferior quality or lack the durability of coatings that are currently used. This could lead to an overall greater use of architectural coatings and of agency staff resources to use them. Also, a longer drying time could restrict coating operations in parks to the sunniest and driest time of the year, the summer, when park usage is highest. This would create an impact by restricting public access to at least part of the park in the time period when access was most desirable.

In addition to all the coatings used on the interiors and exteriors of any building, public or private, the following coatings, derived from the specialty coating category in the SCM and the proposed amendments, might see particular use by public agencies: fire resistive and fire retardant coatings, flow coatings, industrial maintenance coatings, recycled coatings, rust preventative coatings, swimming pool and swimming pool repair and maintenance coatings, and traffic marking coatings. Among these coating categories, the ones that currently do not exist in Rule 3 are fire resistive coatings, flow coatings, recycled coatings, rust preventative coatings and swimming pool repair and maintenance coatings. Of the remaining categories, fire retardant coatings and swimming pool coatings are presently exempt, meaning that the VOC content of these coatings is not limited. Fire resistive coatings are a subcategory of the existing category of fire retardant coatings. It was created to accommodate a need for a VOC limit that is not as low as the general flat or non-flat category, as the definition of a fire retardant coating has become more restrictive, allowing only coatings that meet certain flame spread standards and are required by state or local building officials to meet the definition. Flow coatings address a need for a high VOC coating for

[36] EIR for the 1991 Clean Air Plan, op. cit.

electrical transformer units. Recycled coatings are an attempt to reduce liquid or solid waste by the reuse of water based latex emulsion coatings, they are required for use by state and some local agencies. The VOC limits accommodate existing formulations even though new latex emulsions will have a lower VOC limit as the proposed limits go into effect. Rust preventative coatings are in part a subcategory of industrial maintenance coatings, used for exterior exposure of metal surfaces, and in part a method to preserve solvent based alkyd technology formerly sold under the category of quick dry enamels when necessary for use on metal. The VOC limit proposed for this category is higher than the proposed future limit for industrial maintenance coatings and quick dry enamels. Finally, swimming pool repair and maintenance coatings are a subcategory of swimming pool coatings. Although the proposed VOC limit, to become effective in January, 2003 would unify the VOC limits for these two categories at 340 grams VOC per liter, in many districts the limits are currently different, usually with a higher VOC limit for the repair and maintenance coatings, so as to repair and maintain older coating systems. In the proposed Rule 3, the 340 g/l limit is effective on different dates for the two categories.

Data collected by CARB staff show that there are many coatings available that will perform at a level equal to that of coatings with higher VOC limits. In fact, these tests conclude that low-VOC coatings compare well with other coatings in all areas of performance, including drying times and durability. CARB analysis of the coatings currently sold in California also found that a fairly large percentage of the coatings marketed meet the proposed VOC limits. Also, the SCM and proposed Rule 3 have many new categories of coating utilized by public service agencies where consideration of coating needs have been shown, resulting in higher VOC limits. Regarding park usage, low VOC coatings were found to have dry times similar to conventional higher VOC coatings, and many of the structures found in a park would tend to be coated with rust preventative coatings, which accommodate solvent-borne formulations as explained above. In the Bay Area, summertime is often not the driest time of the year, particularly in coastal regions. As the rest of the land mass cools in the autumn, or before it heats up in the spring, coastal areas are likely to see more sunny and dry days amenable to painting activities. It cannot be concluded that the public's ability to use parks will be significantly impacted by the proposed amendments. Potential impacts to public services related to water demand and wastewater discharge have been previously discussed, above, in Section 4.3.

ii) Industry Issue: Increased Need for Fire Protection Due to the Increased Use of Acetone

A potential impact could occur if the use of coatings dictated by the SCM and proposed amendments to Rule 3 would result in releases of hazardous or flammable material that would cause a greater fire hazard or a need to store greater quantities of hazardous or flammable material that would need to be inspected by fire agencies at a greater frequency. Industry representatives have commented that the lower VOC limits proposed will lead to a greater use of acetone based coatings, which would result in a greater fire hazard.

CARB staff responded to this concern in the Program EIR for the SCM. It is unlikely that most coatings will be reformulated with acetone to meet VOC limits. The exceptions are lacquers, some floor coatings and some waterproofing sealers. Storage requirements for acetone based coatings are the same as the requirements for other solvent based coatings. In fact, the National Fire Protection Association assigns the same flammability classification to acetone as to toluene, xylene, methyl ethyl ketone, ethyl alcohol and methyl alcohol, all commonly used coating solvents. Among these compounds, acetone has the lowest flashpoint, the temperature at which the solvent will form an ignitable mixture with air, but the highest lower explosive limit (LEL), the concentration in air at which ignition will cause an explosion. An expected painting temperature of 60°F is above the flashpoints of all the solvents listed except xylene. Acetone also has the highest evaporation rate of the solvents listed, and a lower odor threshold than the two alcohols, approximately the same as methyl ethyl ketone and much higher than toluene and xylene[37]. This indicates that the distinctive odor of acetone may be more noticeable or noticeable sooner than the other solvents. Although it is dangerous to rely on odor as an indicator of fire or explosive danger, this analysis

[37] New Jersey Hazardous Substance Fact Sheet, op. cit.

indicates that acetone based coatings do not present a significant increase in flammability or explosivity danger than the solvent-borne coatings they replace. Existing fire codes address paint spraying in confined and open situations, as would be the case with most architectural coating applications. There would, therefore, not be an additional impact on fire service resources.

The Bay Area has no climatic conditions or special provisions of local public services that would suggest a different or more severe impact than those discussed above. In a cooler coastal area, there might be a greater incentive to use coating reformulated with acetone, if both waterborne and solvent-borne formulations were available, but the cooler and more humid air would retard the evaporation rate of any solvent. The provision previously discussed that will allow the use of a higher VOC content for industrial maintenance coatings, based on a petition demonstrating need, was discussed extensively with and agreed to by Caltrans, the state agency primarily responsible for maintaining bridges and road works along coastal areas in the Bay Area. The provision, however, is also available to other users of industrial maintenance coatings, which include many public agencies. Although CARB staff believe that many low-VOC coatings are available, the provision will alleviate expressed concerns about potential difficulty of coating application and curing.

4.4.4 CUMULATIVE IMPACTS

There is no evidence of any adverse incremental impact on the maintenance of public facilities due to the application, performance or durability of coatings subject to this proposal. There is also no indication that any public services would be adversely impacted, including fire services. Consequently, there cannot be considered to be any cumulative impacts that would be considered significant.

4.4.5 MITIGATION MEASURES REQUIRED TO REDUCE SIGNIFICANT IMPACTS

Since there will be no increase in the amount of public services needed to provide maintenance for public facilities, and no increase in the amount of fire protection necessary, the proposed rule amendments to Rule 3 will not exceed any significance threshold in place for the Bay Area. Because there is no significant impact to public services or to fire protection needs from the proposed project, no mitigation measures are required.

4.5 Transportation and Circulation

4.5.1 ENVIRONMENTAL SETTING

The proposed project, amendments to Rule 3 based on the SCM for architectural coatings developed by the staff of the CARB, will affect the jurisdictional area of the BAAQMD. In the District, the nine counties, incorporated cities in the counties and District 4 of Caltrans are the primary agencies responsible for planning, funding, designing, constructing, operating and maintaining streets and highways in the region. The Metropolitan Transportation Commission is responsible for regional transportation planning and general oversight of the efforts of local agencies. A special service district, the Golden Gate Bridge, Highway and Transportation District, maintains the Golden Gate Bridge and operates inter-county bus and ferry services between Marin, Sonoma and San Francisco counties. Some public transit services in the Bay Area are funded and operated by counties and cities. These include the City and County of San Francisco (MUNI), Fairfield and Suisun City (Fairfield Transit), the City of Napa (Napa Transit), Santa Rosa (CityBus), Sonoma County (Sonoma County Transit), Vallejo (Vallejo Transit), and Marin County (Marin Transit). Various other special service districts also plan, fund, design, construct, and operate public transit services. These include the Alameda Contra Costa Transit District (AC Transit), the Bay Area Rapid Transit District (BART), the Central Contra Costa Transit Authority (CCCTA), the Livermore Amador Valley Transit Authority (LAVTA), the San Mateo County Transit District (SamTrans), the Santa Clara County Transit District (SCCTD), the West Contra Costa

Area Transit District (WestCat), and the Delta Transit District (Tri-Delta). Caltrans operates CalTrain service between San Jose and San Francisco.[38]

In spite of a variety of public transit options, the majority of trips in the Bay Area are by automobile. The Bay Area road network is characterized by interstate highways running along both sides of the San Francisco Bay, by highways coming into and exiting the Bay Area from the south, the east along the Sacramento River and over the Altamont Pass, and from the north along through Marin and Sonoma Counties to the Golden Gate. Major arteries also exist along the spine of the San Francisco-San Jose peninsula, and roughly parallel to and further east from the Bay in Contra Costa, Alameda and Santa Clara Counties. The Bay and major rivers are transversed by bridges, the Golden Gate Bridge from Marin to San Francisco Counties, the Bay Bridge, San Mateo Bridge and Dumbarton Bridge across the South Bay, and the Carquinez Bridge, Benicia Bridge and, further east, the Antioch Bridge across the Carquinez Straights, and Sacramento River. The Caldecott Tunnel bores through the hills of the East Bay between Orinda and Oakland. Between the year 2000 and 2010, the number of auto-person trips is expected to increase by over 2,000,000 per weekday, and the vehicle miles traveled per weekday is expected to increase by over twenty million miles. In this time period, trips on public transit are expected to increase by somewhat less than 200,000 per weekday.[39] Traffic congestion is a major concern for Bay Area residents. The bridges and the Caldecott Tunnel, as well as intersections between major traffic arteries, represent congestion points during heavy traffic times. According to the 1998 Highway Congestion Monitoring Program by Caltrans, 112,000 vehicle hours are spent in congested traffic each weekday and the Bay Area has 327 miles of congested roadways each weekday at a daily cost to motorists of over $1.2 million. It has been estimated that commute hours, at which times traffic peaks, now occupy over 5 hours each weekday.

4.5.2 SIGNIFICANCE CRITERIA FOR TRANSPORTATION AND CIRCULATION

During development of the Program EIR for the SCM, CARB staff considered that an impact on transportation or circulation would be considered significant if one of the following criteria were met in any district: 1) the project would result in the need for 350 or more employees; 2) the project would increase heavy-duty truck traffic to or from any facility by more than 350 truck trips per day; or 3) the project would increase customer traffic by more than 700 trips per day. However, in the EIR for the 1991 Bay Area Clean Air Plan, a project impact was considered significant if one of the following criteria were met: 1) a 10 percent increase at any location or time of day in travel time or delay to vehicle drivers, transit passengers, bicycle riders and/or pedestrians associated with increased traffic congestion; 2) an increase in accident hazards for vehicle drivers, transit passengers, bicycle riders, and/or pedestrians associated with an increase in the number of persons or vehicles exposed to a potential accident hazard situation; 3) an increase in travel discomfort associated with overcrowding of passengers on transit vehicles; or 4) an increase in parking demand likely to overflow existing lots and impact local streets.

4.5.3 ANALYSIS OF POTENTIAL ENVIRONMENTAL IMPACTS

Concern was expressed by industry representatives that the cost analysis does not take into account the additional distribution costs associated with distribution of reformulated coating as a result of modified VOC limits. Based on available data, however, there is no reason to believe distribution costs would increase in a significant way. The proposed amendments to Rule 3 include a sell-through provision. This means that coatings manufactured before the effective dates for VOC limit changes, provided they were in compliance with the requirements of Rule 3 before the changes, could be distributed, offered for sale or sold for three years after the effective dates, and applied at any time after the effective dates. An expectation that stores would be likely to carry coating inventory for over three years, resulting in a necessity for increased distribution

[38] 1991 Bay Area Clean Air Plan, op. cit.
[39] San Francisco Bay Area Regional Demographic and Traffic Characteristics, Metropolitan Transportation Commission, (www.mtc.ca.gov, accessed 8/23/01)

trips to deliver newly reformulated coating and take away old, unsellable coating is unrealistic. This is reinforced by manufacturers' recommendations regarding dates by which the coating should be used.

Another issue expressed was the potential for transportation or circulation impacts created by increased trips to landfills due to a need to dispose of additional waste materials. This waste, it was proposed, would come from coatings and containers due to problematic performance characteristics, including shelf life, pot life and freeze-thaw characteristic of certain waterborne low VOC coatings. Comments were also received indicating that out-of-state manufacturers would have to ship coatings to California during the three non-winter seasons to avoid potential freezing en route. It was proposed that this would cause an increase in traffic during spring, summer and fall, especially impacting the high ozone periods.

However, manufacturers have indicated that addition of surfactants will improve freeze-thaw capabilities of water-borne coatings. Large amounts of waterborne coatings are currently in use, and the assertion does not take into account the propensity of consumers to use coatings, especially waterborne coatings, during warmer and dryer weather anyway. Water-borne technology is not new, and consumers can be considered to be familiar with manufacturers' recommendations regarding ambient temperatures and humidity for painting. Also, the NTS study showed that compliant water-borne coatings passed freeze-thaw stability tests. Based on this information, it is determined that there would be no significant increase in distribution or landfill trips.

Another commenter stated that drying times would be longer for low-VOC coatings. As a result, more commute trips would be generated due to the additional days required to complete a project. However, the NTS evaluation of coating products indicates that low-VOC coatings in all categories except lacquers have comparable drying times to conventional coatings. Thus, additional commute trips would not be required for the workers applying the low-VOC coatings. The lacquer category has an allowance so that reformulated acetone based lacquers may add ten percent VOC solvent under certain conditions, those where the temperature was low and humidity was high, which will help alleviate concerns about dry time.

In the Bay Area, one might expect concerns about the impacts from application of coatings in cool and moist climates to be most raised in coastal areas. As mentioned above, concerns about the application of lacquer should be partly alleviated by the provision to add some VOC solvent. In addition, the proposed amendment to Rule 3 that will allow a higher VOC content for industrial maintenance coating upon approval of a petition will also alleviate concerns about application of industrial maintenance coatings. Consequently, there should be no additional amount of truck traffic generated that could be considered significant. In addition, there is nothing in the characterization of the transportation network in the Bay Area that would indicate that there would be any unique or additional impacts beyond what has been considered in the context of the CARB Program EIR.

4.5.4 CUMULATIVE IMPACTS

The expected impacts of the proposed project cannot be considered significant individually. In addition, there is insufficient evidence of individual impacts that could be considered significant if combined. Therefore, the proposed amendments to Rule 3 would not result in cumulative impacts.

4.5.5 MITIGATION MEASURES REQUIRED TO REDUCE SIGNIFICANT IMPACTS

No significant impacts in transportation or circulation are anticipated from the proposed project. Staff does not find any of the significance criteria, either that used by the state or by the district, to have been exceeded. Thus, there are no significant impacts that will require mitigation measures.

4.6 Solid and Hazardous Waste

4.6.1 ENVIRONMENTAL SETTING

The Bay Area has a number of solid waste disposal sites, both active, inactive and closed. Neither closed nor inactive solid waste disposal sites accept waste, however to be closed a site must complete satisfy all the requirements of a solid waste disposal site closure plan filed with the California Integrated Waste Management Board. The Bay Area sites are:

County	Site	Status
Alameda	City of Alameda	Closed
	City of Berkeley	Closed
	Tri-Cities Recycling	Active
	Waste Management of Alameda County	Active
	Browning-Ferris Industries	Active
	Pleasanton Garbage Service	Closed
	GSF Energy	Active
	Turk Island Solid Waste Disposal Site	Closed
	Tony Lema Landfill	Closed
Contra Costa	Contra Costa Sanitary Landfill	Inactive
	Acme Fill Corp	Active
	Keller Canyon Landfill Company	Active
	West Contra Costa Sanitary Landfill	Active
Marin	Redwood Landfill, Inc.	Active
	West Marin Landfill	Closed
Napa	Clover Flat Landfill	Active
	Napa-Vallejo Waste Management Authority	Active
San Mateo	Sunquest Properties (Tuntex)	Inactive
	City of Burlingame	Inactive
	Cypress Amloc Land Company	Active
	Metro Bay Centre	Closed
	Browning-Ferris Industries	Active
	City of Menlo Park	Closed
Santa Clara	South Valley Refuse Disposal	Active
	International Disposal Corporation	Active
	Shoreline Amphitheatre	Closed
	City of Mountain View	Closed
	City of Palo Alto Landfill	Active
	City of San Jose (Singleton Road Landfill)	Closed
	County of Santa Clara	Closed
	Guadalupe Rubbish Disposal	Active
	Kirby Canyon Landfill	Active
	Zanker Road Resource Management	Active
	City of Santa Clara	Closed
	City of Sunnyvale Solid Waste Program	Closed
Solano	Potrero Hills Landfill	Active
Sonoma	Sonoma County Department of Public Works	Active

There is currently in excess of 200 million tons of solid waste currently in these Bay Area landfills, which does not include that which is in dozens of small, old landfills that have long since closed. About eight and a half million tons of waste is accepted each year into Bay Area landfills and existing landfills have a total maximum design capacity of approximately 385 million tons.

Leftover coating that has dried may be disposed of as solid waste. Coating which have not dried must be disposed of at a Class I landfill. None of the disposal sites in the Bay Area are active for

disposal of Class I hazardous waste. However, most active landfills have hazardous waste collection facilities, often free for consumers for household hazardous waste, which includes paint products. In addition, counties and cities often offer separate locations for disposal of household hazardous waste. Waterborne latex emulsions are often collected for recycling into usable paint product as part of the household hazardous waste disposal program. Contractors can usually use the same disposal facilities, but for a fee.

4.6.2 SIGNIFICANCE CRITERIA FOR SOLID AND HAZARDOUS WASTE

According to the Program EIR for the SCM developed by CARB staff, the proposed amendments would have significant adverse impact on solid or hazardous waste if either: 1) the generation and disposal of hazardous or non-hazardous waste would exceed the capacity of designated landfills; or, 2) the project would not comply with federal state or local statutes and regulations related to solid waste and hazardous waste. In addition, it could be considered a significant impact if the project generated an amount of waste significant enough to impact existing solid waste reduction plans.

4.6.3 ANALYSIS OF POTENTIAL ENVIRONMENTAL IMPACTS

The potential environmental impacts for the proposed amendments deal with increased generation of solid waste or hazardous waste and its disposal. Comments received by CARB staff related to the Program EIR allege that compliant lower-VOC coatings that are water based will not have the same freeze-thaw capabilities as existing coatings, resulting in coating shipped during colder months becoming unusable and requiring disposal in landfills. Also, reformulated coatings will have shorter shelf lives, and, therefore, a certain portion of inventories will have to be disposed of. Further, it was alleged that, as a result of more stringent VOC content limits, specifically for industrial maintenance and floor coatings, manufacturers will formulate more two-component systems that may have, on average, a shorter pot life compared to conventional coatings. Therefore, low-VOC coatings could cure and solidify during the application process, resulting in a portion of coating being unusable, and would need to be discarded into a landfill. Finally concern was expressed that, because the proposed amendments to Rule 3 will require the use of water-borne technologies, more surface preparation in the form of sandblasting will be required. Because sand mixed with cured coating would need to be disposed of in a landfill, this would increase the total amount of waste deposited.

The issue of freeze-thaw characteristics of new water-borne coatings was previously discussed in connection with Section 4.5, Transportation and Circulation, above. A CARB staff investigation into manufacturers' recommendations regarding shelf life revealed that low VOC coating has a recommended shelf life at least as long as conventional higher-VOC coating. In response to the issue of shorter pot life, coating for metal parts and products, subject to another District rule, was reformulated to two component, lower-VOC content coating in the mid-1980's. Although initial formulations had significantly shorter pot lives, manufacturers quickly added retarders to slow catalytic reactions and allow paint to stay usable longer. The technology since that time has become widely recognized and adopted. Two component coatings are typically not used by consumers. They are used by professional contractors, often for industrial maintenance applications. The contractors are well acquainted with calculations of necessary paint for a job without creating excess waste and with manufacturers' recommendations concerning pot life. Finally, because surface preparation recommendations are the same for low VOC coating as for higher VOC coating, there should not be an expectation of additional sand/paint waste to be disposed of.

For the purpose of the Program EIR, CARB staff estimated impacts on solid waste generation if 5% of coating that currently does not comply with the VOC limits in the SCM and proposed in Rule 3 were produced, suffered freeze-thaw problems and had to be disposed of in landfills, 1% of these coatings were produced, suffered unacceptably short shelf lives and had to be disposed of in landfills, and 10% of floor and industrial maintenance coatings were produced, suffered

unacceptably short pot lives and had to be disposed of in landfills. Although this probably overestimates the actual amount of waste that would be generated, the analysis shows that the total amount of solid waste and hazardous waste materials created would not be a significant impact. For the Bay Area, anticipated solid waste impacts based on this analysis would equal 1.7 tons per day. This equates to 0.003%, three thousandths of one percent, of the total permitted Bay Area throughput. Since the average capacity of a refuse truck is 10 tons, the total Bay Area daily waste generated according to this analysis would be less than one fifth of one truck. This cannot be considered a significant increase in the amount of hazardous waste generated.

4.6.4 CUMULATIVE IMPACTS

The analysis referenced above combines estimates of increases in solid waste from separate issues and found that the impacts, considered separately or together, cannot be considered significant. Even in the unlikely event that waste increases as described above, in future years, that waste would decrease as manufacturers improve freeze-thaw characteristics, transportation of product is arranged to avoid freezing conditions, manufacturers adjust formulations to lengthen shelf life, stores arrange more rapid inventory turn-around, and manufacturers will two component coating reaction times or users will mix less for use to avoid product setting before application can be complete. Consequently, any solid waste impacts from new formulations over time will be reduced. Therefore, cumulative impacts cannot be considered significant.

4.6.5 MITIGATION MEASURES REQUIRED TO REDUCE SIGNIFICANT IMPACTS

District staff reviewed potential solid waste impacts regarding local issues that might alter the conclusions reached in the CARB Program EIR and that the analysis and conclusions are equally applicable to the Bay Area. The proposed amendments to Rule 3 would not result in a significant increase in the generation and disposal of solid wastes or hazardous wastes. Disposal of wastes and landfill development and maintenance practices are extensively regulated on a local, state and federal level. The proposed project will not alter any of these requirements. Therefore, staff conclude that no mitigation measures are required.

4.7 Hazards

4.7.1 ENVIRONMENTAL SETTING

When considering hazards associated with the proposed amendments to Rule 3, the environmental setting must consider the context in which architectural coatings are manufactured, distributed and used. Although many coatings used in the Bay Area are not manufactured locally, some are. The basic ingredients of an architectural coating can be broken down into solids and liquids. The solid portion of the coating includes resins, also called binders, and pigment, and some minor ingredients. This is the portion of the coating that ultimately remains on the surface coated. The liquid portion includes solvent to dissolve and suspend the solid portion, and liquid additives that add a number of functional properties, such as preservatives, flow levelers, wetting agents and freeze-thaw stabilizers. For one component coatings, the liquid portion, which include water and organic solvents, may be generally be considered to enter the atmosphere as the coating dries and cures. For two component coatings, mixed at the application point or shortly before application, some of the liquid may function as a catalyst to a chemical reaction that forms the coating film, and may not enter the atmosphere, although a reaction by-product might.

Coating manufacturers receive solid and liquid ingredients in bulk and process and mix those ingredients at their facilities. The transportation of these bulk materials, depending on the nature of the material, may present certain hazards, the use of these materials may present others. The distribution of manufactured coating may represent hazards, either distribution into the Bay Area from outside or distribution to sales outlets and directly to users from manufacturing facilities inside the District. Finally, use of coating may present hazards, through exposure of users or the public at large to the coatings in the process of application or drying and curing. Hazards include

the risk of fire, explosion or the release of hazardous materials in the event of an accident or upset, and the hazards associated with human health through exposure to toxic or carcinogenic materials, either acutely or chronically.

There are certain hazards associated with architectural coating that exist as background for the proposed project. Those include the transportation of solvents in bulk to manufacturers that have flammable, explosive and human health properties associated with them. Those solvents have the potential to cause problems in the event of an accident or upset. In addition, the use of solvents in bulk in manufacturing may cause workers to be exposed to compounds that might have an impact on human health. Generally speaking, the solid content of coating presents much less of a potential for a hazard in the manufacturing process. One exception is the use of pigments. Some pigments traditionally have been made from materials, or compounds of materials, that are considered toxic, such as cadmium and chromium. These can present a hazard in manufacturing when workers are exposed to the materials in dry bulk form that may not be present in the final product, when pigments are bound in resin systems and emulsified in liquid. The distribution of coating presents the potential for additional hazards. The coatings in finished form may be flammable or explosive and may, if released in bulk in the event of an accident, present a human health hazard that may be absent in smaller quantities. Finally, the application of coatings may present hazards. Of particular concern in this final category is the exposure of either coating applicators or the general public to materials that may be released as the coating is applied or as it dries and cures. In this final category, liquids and reaction by-products that do not end up in the final coating film must be considered for their impact on human health.

Coatings use a number of solvents in the manufacturing at present that are flammable, explosive or have human health impacts. A partial list of solvents used in existing coating formulations, both water-borne and solvent-borne, follows: toluene, xylene, methyl ethyl ketone, stoddard solvent, ethyl alcohol, methyl alcohol, ethylene glycol monobutyl ether (EGBE), ethylene glycol monoethyl ether (EGEE), and ethylene glycol monomethyl ether (EGME). These represent the most commonly occurring solvents, by volume. There are established health effects associated with these solvents. Threshold Limit Values (TLV's) have been established by the American Conference of Governmental Industrial Hygiene, Permissible Exposure Limits (PEL's) and Short Term Exposure Limits (STEL's) have been established by the Occupational Safety and Health Administration, and Immediately Dangerous to Life and Health (IDLH's) levels have been established by the National Institute for Occupational Safety and Health. In addition to these, in development of the Program EIR, CARB staff utilized established Health Risk Assessments (HRA's) to evaluate conventional and replacement solvents. An HRA determines the likelihood of an individual contracting cancer or experiencing other adverse health effects from exposure to a toxic air contaminant. Risks from exposure to carcinogens are expressed as an added lifetime risk of contracting cancer due to exposure to a carcinogen.

4.7.2 SIGNIFICANCE CRITERIA

The proposed amendments to Rule 3 would be considered to have significant adverse hazard impacts if any one of the following criteria is exceeded: 1) the project results in a substantial number of people being exposed to a substance that causes irritation; 2) the project results in one or more people being exposed to a substance causing serious injury or death; or 3) the project creates substantial human exposure to a hazardous chemical. In the April 1996 BAAQMD CEQA Guidelines, the threshold for significance for exposure to toxic air contaminants is when either: 1) the probability of contracting cancer for the Maximally Exposed Individual (MEI) exceeds 10 in one million; or 2) ground level concentrations of non-carcinogenic toxic air contaminants would result in a Hazard Index greater than 1 for the MEI. The Hazard Index (HI) is defined as the ratio of the estimated exposure level to the reference exposure level.

4.7.3 ANALYSIS OF POTENTIAL ENVIRONMENTAL IMPACTS

i) Industry Issue: Increased Use of Acetone Might Increase Exposure to Hazards

The proposed rule amendments will require the reformulation of prospectively non-compliant coatings in order to achieve more stringent VOC standards. Coating manufacturers may choose to reformulate coatings using exempt solvents as a replacement for existing, regulated solvents. To the extent that exempt solvents, in particular, acetone, could be accidentally released into the environment, exposure to this hazardous substance could result. Acetone usage has been increasing as a result of a finding of negligible photochemical reactivity by the US EPA and exemption in district coating rules. Acetone was made exempt in Rule 3 by action of the District Board on November 4, 1998.

An increase in the amount of acetone used to reformulate coatings may increase the number of trucks or rail cars that transport acetone to Bay Area manufacturers. However, individual trucks and rail cars that ship flammable and hazardous materials are already equipped to safely transport this solvent and will not be affected by the proposed rule amendments. In the event of a spill, the procedures involved are not different for acetone than for solvents that acetone would replace, which are also flammable. Therefore, the probability of a release of acetone that would expose a proportion of the population to this hazardous substance would be offset by the reduction in probability of a release of some conventional solvent. The flammability characteristics of acetone compared to other solvents have previously been discussed in Section 4.4, Public Services, above. There is also a risk of exposure to hazards associated with an increased use of acetone in a manufacturing facility. Manufacturing facilities routinely deal with solvents and must be cognizant of the flammability and explosivity of each solvent they deal with. Consequently, they are already equipped with grounded equipment to eliminate the possibility of an explosion due to an electrical spark, and have numerous safety procedures associated with handling and blending solvents to produce coatings. The coatings themselves, once reformulated with acetone, would not become significantly more flammable than solvent based coatings using regulated solvents. For users, handling, storage of and solvent laden waste from acetone reformulated coatings might be an issue. Manufacturers of conventional solvent based coatings, however, already include use, handling and storage instructions. For example, recommendations for storage, cleaning and disposal of brushes and rags might proscribe procedures to avoid spontaneous combustion, such as immersion of rags in water. The CARB Program EIR did not find any significant increase in hazards associated with reformulation using acetone. It should be noted that reformulation with exempt solvents is only one of the potential avenues for a manufacturer, and acetone is only one of the possible solvent replacements, although it is attractive given it's relatively inexpensive price and good solvency characteristics. The other possibilities are water-borne formulations and higher solid formulations. Each of these possibilities, especially water-borne, represents a probable decrease in exposure to flammable or explosive hazards.

ii) Industry Issue: Low VOC Compounds Increase Exposure to More Toxic Compounds

Waterborne coatings may contain glycol ethers (EGBE, EGME or EGEE) or their acetates, useful as coalescing solvents. These solvents have TLV's that are significantly lower than many standard coating solvents. In addition, the OSHA PEL's are lower, with the exception of EGEE, and STEL's have not been established. The IDLH for EGBE and EGEE is comparable to xylene and toluene, all of which are higher than the IDLH for EGME. The National Institute for Occupational Safety and Health recommended occupational exposure limit to EGME and it's acetate is only 0.1 part per million, and the recommended occupational exposure limit for EGBE and EGEE and their acetates is 0.5 parts per million. The CARB Program EIR indicates that the trend in coatings technology is to replace EGME with less toxic/less hazardous coalescing solvents such as Texanol® and propylene glycol. Additionally, the Program EIR indicates that a majority of water-based formulations (flats and nonflats) do not contain solvents that are classified as hazardous air pollutants (HAP's). The CARB Program EIR concluded that the potential for increased use of toxic compounds to reformulate coatings is not significant. In addition, there is a provision in the SCM, and proposed in Rule 3, that requires annual reporting of the amount of exempt, but toxic, solvents used to monitor for the possibility of increased use. These toxic compounds, methylene chloride and perchloroethylene, are unlikely to be significantly used as reformulation alternatives. Although exempt, they are not particularly good solvents for many

coating resin systems. Perchloroethylene is not exempt in Rule 3. Methylene chloride is proposed to be deleted from the list of exempt compounds in the VOC definition.

Some reformulated two-component industrial maintenance coatings contain diisocyanate compounds. Diisocyanates are liquids that are part of the chemical reaction of the two component systems. One particular diisocyanate, TDI is a carcinogen, however, there are replacement diisocyanates which are not. Industry representatives have alleged that two-component systems may increase to replace water-borne systems as a result of the proposed low-VOC standards. The use of diisocyanates in the manufacturing process may cause worker exposure, however, manufacturers routinely deal with toxic compounds and would be able to properly equip workers to deal with all manner of potentially hazardous chemicals. The greater concern is exposure of applicators and of any downwind receptors to diisocyanates released in the coating application process. As mentioned, diisocyanates are not intended to be emitted in the way that solvents used in one component coatings are, instead they are designed to be part of the catalytic reaction that forms the coating film. The application of two-component industrial maintenance coating is usually done by applicators who are specialists in this type of application. Training courses exist which feature safety procedures, and coating application companies frequently participate in these courses so that they can add that certification to their advertising. The specialization required to apply diisocyanate systems implies that applicators will likely be acquainted with employing proper respiratory procedures to protect workers. Also, the use of a plural component application system, a spray gun that mixes to a specification in the gun, can reduce the probability of diisocyanate emissions caused by improper mixing. It is therefore unlikely that an increase in diisocyanate-containing systems will result in a significantly higher amount of worker exposure to toxic compounds.

The CARB Program EIR evaluated the potential for impacts on downwind receptors. For TDI, the increase in cancer risk of one in one million for a MEI would occur at less than a gallon of coating usage per day for individuals less than 100 meters away. However, the calculation is based on chronic exposure, that is, for individuals exposed for seventy years or for forty-six years in a worker setting. Because exposure is expected to be limited due to the infrequent nature of painting and to the industrial setting of most applications of industrial maintenance coating, the risk to a receptor exposed occasionally every several years for several days or, at most, several weeks is significantly less. For example, for painting once every five years for five days, the worker exposure level would not be significant until the project used over 85 gallons of coating per day. The residential exposure level would not be significant until the project used 130 gallons of coating per day. The Program EIR concludes that potential impacts to downwind receptors from diisocyanate exposure are not significant.

There is no discernable reason why any aspect of the Bay Area environment should create any significantly greater hazard for workers or the general public from the adoption of the proposed amendments to Rule 3 than would any other area of the state. Therefore, the findings in the CARB Program EIR are equally applicable to the Bay Area. As previously noted, the proposed amendments to Rule 3 also include a provision to allow a limited amount of industrial maintenance coating at higher VOC levels than would otherwise be required. This provision would offset some of the potential impacts from conversion to low-VOC coating alleged by industry representatives, such as increased use of diisocyanates and increased use of glycol ethers.

One aspect of the Bay Area environment that might lead one to conclude that more industrial maintenance type coating would be used, is in coastal environments where it is cooler and more humid. However, in addition to the provision mentioned above, rust preventative coating is a new category created in the SCM and in proposed amendments to Rule 3. Rust preventative coating is to be used on metal substrates, to protect them from corrosion. The category accommodates existing solvent-borne formulations, so it can reasonably be expected that metal substrates that were formerly protected with industrial maintenance coating, but that were not in industrial

settings, such as schools, hospitals, and commercial establishments, will now be protected with solvent-borne rust preventative coating.

4.7.4 CUMULATIVE IMPACTS

Potential cumulative impacts related to a potential increase in fire danger or accidental spills are not considered to be significant. This is because any new solvents used in manufacturing coating would be replacing existing solvents with equally as great a potential to cause a fire or accident hazard. Potential cumulative impacts related to human health due to potential exposure to toxic or carcinogenic compounds over time may be assessed by examining chronic exposure. The CARB Program EIR examined chronic exposure of conventional and replacement solvents in terms of gallons per day use that would result in a downwind receptor experiencing a Chronic Hazard Index of 1.0. To exceed the Chronic Hazard Index (ratio of lifetime expected exposure to a lifetime reference exposure) of 1.0, far fewer gallons of coating containing the conventional solvents toluene, xylene and methyl ethyl ketone need be used than do coatings containing replacement solvents propylene glycol or ethylene glycol. Although unlikely to be used as a replacement, even methylene chloride-containing coating usage may exceed that of toluene, xylene or methyl ethyl ketone-containing coating usage before triggering the Chronic HI of 1.0. The glycol ether-containing coatings (EGBE, EGEE, and EGME) have a lesser gallonage allotment to exceed the HI than do conventional solvent-containing coatings for downwind receptors (EGEE-containing coating is equivalent to toluene-containing coating). The glycol ethers are used in coatings currently. CARB staff reviewed product data sheets for coatings that currently comply with the proposed VOC limits and found that the use of glycol ethers is being replaced by less hazardous coalescing solvents.

For downwind receptors at a distance of 25 meters, the only coating usage that would exceed the Chronic Hazard Index of 1.0 at an expected usage of 25 gallons per day or less is the diisocyanates. However, as previously discussed, chronic exposure is based on continuous exposure for 46 years or 70 years for workplace or residential exposure. Exposure to emissions from architectural coatings, in particular, to industrial maintenance coatings that might contain diisocyanates, is infrequent. Industrial maintenance coating is expected to be durable and provide long-lasting protection for substrates in harsh conditions. The exposure of a downwind receptor to emissions from industrial maintenance coating would be expected to be less than would be expected from non-industrial types of coating, more often single component systems designed for the non-sophisticated consumer or unspecialized contractor.

Cumulative impacts should also be considered for any potential impacts due to combined usage of industrial maintenance coating and other architectural coating. However, as previously mentioned, the use of toxic materials such as glycol ethers and their acetates in coating that complies with the proposed VOC limits is declining. That trend is expected to continue. The exposure to emissions from non-industrial architectural coating and to industrial maintenance coating has little probability of being additive. This is because existing sites are set in different areas, and planning requirements, already in place in all cities and counties in the Bay Area will not allow the type of industry that would typically use industrial maintenance coating to be located in or near residential settings. Consequently, any cumulative impacts from adoption of the proposed amendments to Rule 3 cannot be considered to be significant.

4.7.5 MITIGATION MEASURES REQUIRED TO REDUCE SIGNIFICANT IMPACTS

Potential hazard impacts in the Bay Area that result from the proposed Rule 3 amendments are not expected to be significant. The increased use of acetone will generally be balanced by reduced usage of other hazardous materials. Emergency contingency plans that are already in place throughout the Bay Area are expected to minimize potential hazards impacts posed by an increased use of acetone in future compliant coatings. In addition, existing fire codes ensure adequate conditions are in place to protect against hazard impacts. Thus, no mitigation measures are required.

It is expected that resin manufacturers and coatings formulators will continue the trend of away from usage of toxic or hazardous solvents in future low-VOC coatings. Future architectural coatings, even projecting changes due to the imposition of lower VOC limits, will likely contain less toxic and carcinogenic compounds than do existing architectural coatings. Although manufacturers will continue the trend away from these compounds, the a reduction in the allowable VOC content of industrial maintenance coating might increase the use of diisocyanates. However, applicators of these coatings will have adequate safety procedures to protect against exposure and the exposure of downwind receptors is not expected to be individually or cumulatively significant. Consequently, no mitigation measures to protect human health are required.

5. OTHER REQUIRED CEQA TOPICS

5.1 Introduction

This section presents the following topics that are required to be addressed in the EIR pursuant to CEQA and the CEQA Guidelines: Environmental Impacts Found Not to be Significant, Irreversible Environmental Changes, Potential Growth-Inducing Impacts, and Consistency with Other Plans. The findings in this section incorporate, by reference, the findings in the CARB Program EIR.

5.2 Environmental Impacts Found Not to be Significant

The CARB Program EIR found no possibility of significant impacts resulting from adoption and implementation of the SCM for each of the following CEQA considerations. In addition, District staff reviewed the following considerations and found that there were no potential significant impacts in the Bay Area based on the proposed amendments to Rule 3: Architectural Coatings.

5.2.1 LAND USE AND PLANNING

Implementation of proposed amendments to Rule 3 will not cause any adverse impacts to land uses or land use planning in the Bay Area. Although no significant increase in architectural coating activity is expected, if it were, it would not result in any new construction not already planned or that would be planned and would not result in any land use impacts.

No new development or alterations to existing land use designations will occur as a result of the proposed Rule 3 amendment adoption. It is not anticipated that existing land uses would require additional land or require rezoning to continue current operations. Land use and other planning considerations are determined by local governments. No additional planning considerations are necessary nor will existing planning considerations be altered by adoption of the proposed project. Therefore, no adverse impacts affecting existing or future land uses are expected.

5.2.2 POPULATION AND HOUSING

Adoption of the proposed amendments will primarily affect the formulation of architectural coatings and cannot be expected to generate any significant effects, either direct or indirect, on the Bay Area population, as no significant amount of additional workers are anticipated to be required. Furthermore, adoption of the proposed amendments is not expected to cause a relocation of population within the Bay Area. As a result, housing is not expected to be affected by the proposed amendments. The amount or types of new housing construction is not expected to be affected by the use of reformulated lower-VOC coatings.

Additionally, adoption of the amendments to Rule 3 is not expected to contribute to any significant housing cost increases. As part of the staff report to accompany the proposed amendments to Rule 3, cost and socioeconomic conclusions are developed. It is anticipated, based on the CARB Staff Report that accompanied the SCM adoption, that there would be no significant difference in cost to consumers between compliant and existing non-compliant coatings. Direct economic impacts are not required to be analyzed pursuant to CEQA unless they also have a significant, direct effect on physical environmental parameters

5.2.3 GEOPHYSICAL

Architectural coatings are applied to buildings, stationary structures, roads, etc. The proposed amendments to Rule 3 limit the VOC content of these coatings and require certain labeling and reporting requirements of manufacturers. There is no possibility that the proposal will have effects on any geophysical formations, nor is there any possibility that residents will be exposed to any additional geophysical hazards.

5.2.4 BIOLOGICAL RESOURCES

Adoption of the proposed amendments have no possibility to cause any adverse impact to sensitive habitats of plants or animals because all activities will occur at construction, industrial, institutional, commercial or residential sites either already in operation or planned. No new development that could potentially adversely affect plant and animal life is anticipated as a result of these amendments. Potential impacts to aquatic life from releases of any paint and associated wastewater disposed of in sewers and storm drains are discussed in Section 4.3: Water, above. The analysis of water quality impacts to both groundwater and surface water concluded that implementing the revised rule would not generate significant adverse water quality impacts.

5.2.5 ENERGY AND MINERAL RESOURCES

i) Electricity

The proposed project relies on limitations of VOC content in each container of architectural coating. Unlike many District rules, there is no alternative control potential in the Rule based on the use of add-on control equipment such as thermal oxidization or carbon adsorption. Because add-on control equipment will not be used to comply with the provisions of Rule 3, no additional energy use is expected from such equipment. Any energy use associated with increased use of specialized spray equipment (plural systems) to apply reformulated two-component coatings can be expected to be negligible. There will be no increases in electricity consumption from implementation of the proposed amendments. Consequently, electricity use impacts are not considered to be significant.

Some industry representatives have asserted that adoption of lower VOC limits in the SCM and proposed in Rule 3 would increase the demand for electrical power to manufacture more coatings than are currently manufactured. This comment is based on the allegation that low-VOC coatings are inferior to high-VOC coatings, therefore an overall increase in coatings use will result. The issues that were alleged to result in greater coating manufacturing and usage have been analyzed in the CARB program EIR and in Section 4.2: Air Quality, above. Although manufacturers in and outside of the Bay Area will be manufacturing coatings to new formulations, the potential for a significant increase in manufacturing demand is not founded, therefore an increase in electricity demand is not expected.

ii) Natural Gas

Electricity will be the source of energy used to power any additional spray equipment or manufacturing equipment operated at various sites in the Bay Area. Consequently, there are not expected to be any impact foreseeable to the usage of natural gas.

iii) Fossil Fuels

Implementation of the proposed amendments to Rule 3 is not expected to increase the consumption of nonrenewable fossil fuel resources (diesel and gasoline) within the Bay Area. As analyzed in the CARB Program EIR and under Section 4.6: Transportation and Circulation, above, it is not anticipated that there will be additional trips associated with more frequent application of reformulated coatings, nor will there be additional trips due to increased disposal of coatings. Any incremental increase in fuel usage is expected to be negligible. Therefore, fossil fuel energy impacts from implementing of this proposal cannot be considered significant.

iv) Mineral Resources

Some industry representatives have asserted that implementation of the VOC limits proposed in the SCM would require the increased production of coatings in the future. It has been alleged that this would result in the disposal of more paint cans, resulting in a wasteful use of a mineral resource (metal). As discussed previously, available information on low-VOC coatings contradicts the assertion that more low-VOC coatings would need to be manufactured than would otherwise

be necessary with conventional coatings. In addition, metal paint cans are recyclable, once emptied of paint. Recycling centers already exist for paint and metal containers. Consequently, the SCM and proposed amendments to Rule 3 cannot be expected to result in a wasteful use of mineral resources.

A comment received during the environmental review process for the CARB SCM for Architectural Coatings stated that there could be non-renewable resources impacts resulting from the use of non-paint alternatives such as vinyl or aluminum siding or interior wall coverings, in lieu of unsatisfactory paints. The allegation is highly speculative. The use of non-painted substrates such as siding or unpainted concrete are used throughout the Bay Area currently. However, the use of these products has nothing to do with the availability of coatings, but more with stylistic preferences. Implementation of proposed lower VOC limits is not expected to result in substitution of paint with non-paint alternatives.

5.2.6 NOISE

No significant noise impacts are associated with the use of architectural coatings. Coatings formulators that are potentially affected by proposed amendments to Rule 3 are predominantly located in existing industrial or commercial areas. These facilities are subject to existing local noise standards. In addition to noise generated by current operations, noise sources in each area include nearby freeways, truck traffic to adjacent businesses, and operational noise from adjacent businesses.

In general, the primary noise source at existing facilities is from vehicular traffic. Noise is primarily generated during operating hours, which generally range from 6 a.m. to 5 p.m. Monday through Friday. The proposal is not expected to alter noise from any existing noise-generating source. Because local noise ordinances are already in effect, no additional noise impacts are expected from the proposed project.

A comment received by CARB staff on the draft Program EIR indicated that because water-borne coatings require more thorough surface preparation compared to solvent-borne coatings, and because solvent-borne primers would no longer be available if the lower VOC limits in the SCM were implemented, more power washing and abrasive blasting would occur, generating noise in residential as well as industrial areas. The likelihood of the necessity of additional surface preparation was discussed in Section 4.2: Air Quality, above, as was the likelihood of the necessity of additional coats, creating the need to operate spray equipment more in residential areas, as was alleged in another comment. Low-VOC coatings do not require substantially different surface preparation than conventional coatings, nor is additional preparation recommended. Were there additional power washing or abrasive blasting, it would be subject to the same local community noise standards as are current practices. The alleged necessity for additional coats because of low VOC content is unfounded. Consequently, no additional noise is expected as a result of adoption of the proposed amendments.

5.2.7 AESTHETICS

The proposed amendments to Rule 3 do not require any changes in the physical environment that would obstruct any scenic vistas or views of interest to the public. In addition, no major changes to existing facilities or stockpiling of additional materials or products outside of existing facilities are expected because any physical changes would occur at existing industrial or commercial sites. Therefore, there is no possibility that an adverse significant impact to existing visual resources such as scenic views or vistas would occur.

A comment received by CARB staff on the draft Program EIR was that the aesthetics impacts resulting from the ban of over 90 percent of all architectural coatings must be analyzed. Implementation of the VOC limits contained in the ARB SCM and proposed for Rule 3 will not result in the ban of over 90 percent of all architectural coatings, as low VOC coatings that meet

the proposed VOC limits are already available and are being used for many applications. In addition, the provisions of Rule 3 that will allow a limited amount of higher VOC industrial maintenance coating to be used and the provision that will allow rust preventative coating and a number of small volume coating categories will preserve many conventional solvent based formulations. The analysis by CARB staff on currently available coating products that will comply with the proposed VOC limits and which have performance characteristics comparable to conventional coatings, indicates that coatings will be available to meet the lower VOC limits and far fewer than 90 of coating products will be banned. Therefore, no aesthetic impacts can be expected.

Another comment received during the by CARB staff on the Program EIR stated that the aesthetics impacts from the elimination of the anti-graffiti coatings category must be analyzed. The existing Rule 3 has no anti-graffiti coatings category. Anti-graffiti coatings were traditionally either classified as tile-like glaze coatings or industrial maintenance coatings. There is no proposed category for tile-like glaze coatings in the SCM or proposed in Rule 3. Based on the availability of anti-graffiti systems that comply with the proposed VOC content limits, CARB staff found that anti-graffiti coatings will not be banned by imposition of the low VOC limits. Anti-graffiti coatings willfall into the categories of industrial maintenance coatings, flats or non-flats. Adoption of proposed amendments to Rule 3 cannot be expected to result in any significant aesthetic impacts.

5.2.8 CULTURAL RESOURCES

There are existing laws that protect and mitigate potential impacts to cultural resources. Should archaeological resources be found during the application of architectural coatings to newly constructed or existing structures, the application of such coatings, and of construction, would cease until a thorough archaeological assessment was conducted. Furthermore, the application of architectural coatings would almost always occur after construction, where archaeological resources would have already been discovered. The proposed amendments to Rule 3 are therefore not anticipated to result in any adverse impact on any cultural resources in the Bay Area.

A comment received by CARB staff on the draft Program EIR stated that implementation of the VOC limits in the SCM may jeopardize the maintenance of historic buildings because the unavailability of traditional coatings will make maintenance of these buildings more difficult. The commentator stated that it might not be possible to find acceptable substitute products to maintain both the historical and physical integrity of these structures, which is considered especially problematic with the elimination of solvent-borne primers. CARB staff did not agree that there would be any such impacts. Based upon information on currently available products that comply with proposed VOC limits, performance characteristics of low-VOC products should be sufficient to meet the weathering impacts on outdoor structures. As discussed previously in Section 4.2: Air Quality, the review of the NTS study and product data sheets indicated that water-borne coatings have durability characteristics similar to conventional, solvent-borne coatings and thus do not require more touch-up and repair work. Water-borne primers also have performance characteristics similar to solvent-borne primers. Consequently, historic structures will be adequately protected after low VOC coatings replace existing higher-VOC formulations. Also, the historic integrity of structures is not based on the use of historic coating systems, but rather the architectural detailing. Typically, historic structures, including statuary and architecture, that are by nature more difficult to preserve because of the age of their construction materials, are protected with the best technology available. The history of regulation of architectural coatings, which dates from 1978, has not resulted in the destruction of historic buildings or the degradation of historic integrity. Therefore, the historic integrity of historic structures cannot be expected to be compromised because of proposed lower VOC limitations. No significant adverse impacts to cultural resources can be anticipated as a result of adoption of the proposed amendments to Rule 3.

5.2.9 RECREATION

It cannot be expected that adoption of proposed amendments to Rule 3 will generate additional demand for or otherwise affect land used for recreational purposes. Further, as already explained in the Land Use and Planning, Aesthetics, and Cultural Resources sections above, the proposed revisions are not expected to have any adverse effects on land uses in general. No adverse effects on recreational facilities can be expected.

In comments received by CARB staff on the SCM, some industry representatives have indicated that demand for parks would increase due to increased job losses and unemployed workers. This allegation is directly contrary to claims of increased coating usage due to lower VOC, which would create additional jobs. Adoption of lower VOC content limits as are proposed in Rule 3 is not expected to result in significant job losses and any job loss impact is properly assessed in socioeconomic analysis that will accompany the staff report for the proposed amendments. The implication that job losses would result in a significant impact on parks and recreation areas is speculative.

5.2.10 ECONOMIC IMPACTS

Under CEQA, detailed analyses of economic effects are necessary only when such effects have significant impacts on physical environmental parameters. Proposed amendments to Rule 3 would establish VOC content limits for various categories of architectural coatings, and this would have no impact on physical or environmental parameters. However, the staff report that will accompany the proposal will contain an analyses of the economic impacts associated with the rule revision.

5.3 Irreversible Environmental Changes

CEQA Guidelines § 15126(c) requires an environmental analysis to consider “any significant irreversible environmental changes which would be involved if the proposed action should be implemented.” In particular, CEQA Guidelines § 15126.2(c) indicates that “[u]ses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.”

The following impact areas have been evaluated in this draft EIR, as well as in the CARB Program EIR: air quality, water, public services, transportation and circulation, solid and hazardous waste, and hazards. The analyses presented in this draft EIR and in the CARB Program EIR concluded that no significant adverse project-specific or cumulative impacts would occur to any of these environmental areas.

For example, the air quality impacts analysis included an evaluation of eleven issues, nine identified by industry, regarding potential adverse air quality impacts of the project. The analysis of these issues concluded that the proposed project would not have a significant adverse impact on air quality. Likewise, the analysis of potential water impacts, potential public service impacts, potential transportation and circulation impacts, potential solid and hazardous waste impacts, and potential hazards impacts showed that there could not be a reasonable expectation of significant adverse impacts associated with the adoption of the proposed amendments to Rule 3.

Architectural coatings are used on stationary structures and their appurtenances, and on pavements and curbs. The planning, design and construction of structures and pavements such as highways could lead to irreversible environmental changes, such as providing ready access to previously inaccessible areas or the creation of structures on what was previously undeveloped or

agricultural land. These projects in themselves require CEQA analysis, however, the application or re-application of architectural coatings to structures or pavements would not trigger any irreversible changes to any environment.

The production of coatings does use a number of irreplaceable natural resources, among them minerals to produce pigments and oil resources to produce solvents. As architectural coatings are already being produced that use these resources, the proposed amendments will only dictate a change in the types of solvents being used. The natural mineral resources in use to produce pigments are expected to remain relatively unchanged. The use of oil resources are expected to decrease, as allowable VOC contents of various categories of coatings are reduced. The oil resources are expected to be replaced by water, and, to a lesser extent, synthetic chemicals. As examined previously, in Section 4.2: Air Quality, the amount of coating used is not expected to significantly increase, and, based on the CARB survey of coatings currently available to meet the proposed VOC limits, much of the potential replacement of solvents has already occurred. Also, based on the analysis presented in Section 4.3: Water, the potential impact on water resources has been determined to be less than significant. Consequently, the proposed amendments to Rule 3 are not expected to produce any irreversible environmental changes or produce any irretrievable commitment of resources.

5.4 Potential Growth-Inducing Impacts

CEQA Guidelines § 15126(d) requires an environmental analysis to consider the "growth-inducing impact of the proposed action." CEQA Guidelines § 15126.2(d) states that the EIR shall "[d]iscuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment."

Adoption and implementation of the proposed amendments to Rule 3 and will not have any direct or indirect growth-inducing impacts on population or on the economy. The production and application of architectural coatings does not affect the decision making process concerning new development or housing allocation. As iterated in Section 5.2.1: Land Use and Planning, Section 5.2.2: Aesthetics, and Section 5.2.8: Cultural Resources sections, amendments to Rule 3 will not have any effect on planning or land use decisions, or on California or Bay Area population. Any potential adverse impacts on the Bay Area economy, such as job losses, will be assessed in the economic analyses as part of the staff report for the proposed amendments.

5.5 Consistency With Other Plans

CEQA Guidelines § 15125(d) states that "[t]he EIR shall discuss any inconsistencies between the proposed project and applicable general plans and regional plans. Such regional plans include, but are not limited to, the applicable air quality attainment or maintenance plan or State Implementation Plan, area wide waste treatment and water quality control plans, regional transportation plans, regional housing allocation plans, habitat conservation plans, natural community conservation plans and regional land use plans for the protection of the Coastal Zone, Lake Tahoe Basin, San Francisco Bay, and Santa Monica Mountains." The following is a brief discussion of how the proposed amendments to Rule 3 is consistent with these plans.

5.5.1 CONSISTENCY WITH STATE IMPLEMENTATION PLAN

It has been determined that the proposed amendments to Rule 3 will result in a net benefit to air quality, so the project is consistent with EPA policy associated with the State Implementation Plan (SIP). In the San Francisco Bay Area 2001 Ozone Attainment Plan for the One Hour Standard, there is a commitment to reduce emissions from architectural coatings based on adoption of the SCM. This commitment is expected to reduce VOC emissions to the atmosphere by 2.9 tons per day, which represents 35 percent of the specifically iterated total VOC emissions reductions from stationary sources. Consequently, the proposed amendments are not only consistent with the SIP, but an integral part of it.

5.5.2 CONSISTENCY WITH DISTRICT PLANS UNDER THE CALIFORNIA CLEAN AIR ACT

It has been determined that the proposed amendments to Rule 3 will result in a net benefit to air quality, so the project is consistent with the California Clean Air Act. Reduction in VOC emissions from architectural coatings based on Rule 3 amendments is included in the District's 1991 Air Quality Plan for attaining the state ambient air quality standard for ozone, and has been included as a stationary source control measure in each subsequent Clean Air Plan Update and Triennial Assessment, including the 2000 CAP.

5.5.3 CONSISTENCY WITH AREA-WIDE WASTE TREATMENT AND WATER QUALITY CONTROL PLANS

It has been determined that adoption of the proposed amendments to Rule 3 will not cause a significant adverse impact on the ability of Publicly Owned Treatment Works to treat and handle wastewater. It has also been determined that the proposed amendments cannot be expected to create any significant adverse impact on water usage or water quality through illegal discharge. Finally, it has been determined that the amendments will not have a significant adverse impact on the amount of solid waste that must be disposed of. Therefore, the project is consistent with existing waste treatment and water quality plans.

5.5.4 CONSISTENCY WITH REGIONAL TRANSPORTATION PLAN

The Metropolitan Transportation Commission is responsible for development of the Regional Transportation Plan. The update, required each three years, is currently in draft form and will be the subject of upcoming hearings.[40] The goals of the plan are to improve mobility of persons and freight, improve safety, promote equity for transportation system users, enhance environmental sensitivity, sustain economic vitality and to promote livable communities. In Section 4.5: Transportation and Circulation, above, it was determined that the proposed amendments to Rule 3 will not create any significant adverse impacts on traffic or congestion as a result of the low-VOC limits proposed. Any additions to the transportation infrastructure, roadways, bridges, public transit systems, stations or stops will require the use of architectural coatings, however, due to the expected availability and performance of currently available and project coating systems, it cannot be expected that any element of the regional transportation plan can be impacted by the proposed amendments.

5.5.5 CONSISTENCY WITH THE SAN FRANCISCO BAY PLAN

The San Francisco Bay Plan, and the McAteer-Petris Act, adopted by the California Legislature in 1969, and the federal Coastal Zone Management Act of 1972, recognizes the Bay as the most valuable natural asset in the Bay Area and provides for protection of the Bay from gradual destruction. The Bay Plan balances conservation requirements with appropriate shoreline development, and among the primary objectives is to prevent filling of the Bay.[41] Although architectural coatings will be used on any structures built into or on the Bay, or on any Bay fill, the use of architectural coatings themselves, either before or subsequent to the proposed amendments to Rule 3, will have no impact on any plans or proposals that would be consistent with, or contrary to, the provisions of the Bay Plan. Therefore, the proposed amendments cannot be considered to be inconsistent with the provisions of the San Francisco Bay Plan.

5.5.6 CONSISTENCY WITH SUISUN MARSH PROTECTION PLAN

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[40] Draft Regional Transportation Plan, Metropolitan Transportation Commission, (www.mtc.ca.gov), August 14, 2001

[41] San Francisco Bay Plan, Bay Conservation and Development Commission, (www.bcdc.ca.gov), April 15, 1999

The Suisun Marsh Protection Plan, and the Nejedly-Bagley-Z'berg Suisun Marsh Preservation Act, adopted by the California Legislature in 1974, provide for the preservation and enhancement of the quality and diversity of the 85,000 acre Suisun Marsh aquatic and wildlife habitats and for compatible uses of upland areas adjacent to the Marsh[42]. The plan is focused on lack of development, however, to the extent that bridges on walking trails or roadways, culverts for water flow, or embankments are constructed to help preserve the marshland area, any structure that requires painting will be coated with architectural coatings. However, the proposed amendments to Rule 3 do not have any possibility of impacting potential decisions regarding construction or placement of these structures in the marshland or upland area. Therefore, the proposed amendments cannot be found to be inconsistent with the Suisun Marsh Protection Plan.

5.5.7 CONSISTENCY WITH THE REGIONAL AIRPORT SYSTEM PLAN

The Regional Airport System Plan provides a recognition of the need for additional airport system capacity. It's objectives include consideration of alternatives to provide capacity, and an analysis of the significant environmental tradeoffs.[43] The Regional Airport System Plan may project additional runway capacity and to the extent that it does, that additional capacity would require the use of architectural coatings such as traffic marking coatings. Any associated structures would also require the use of architectural coatings. However, the proposed amendments to Rule 3 could not have the possibility of impacting any decisions made concerning the construction or siting of any structures associated with airport expansion. Therefore, the proposed amendments cannot be considered to be inconsistent with the provisions of the Regional Airport System Plan.

5.5.8 CONSISTENCY WITH THE SAN FRANCISCO BAY AREA SEAPORT PLAN

The San Francisco Bay Area Seaport Plan designates port priority areas, and suggests needs and improvements for those port areas.[44] As with airports, above, port structures require architectural coatings, yet the proposed amendments to Rule 3 could not possibly affect any decisions made concerning the construction or siting of any structures associated with port structures, either buildings, cranes or docks. Therefore, the proposed amendments cannot be considered to be inconsistent with the provisions of the San Francisco Bay Area Seaport Plan.

5.5.9 CONSISTENCY WITH REGIONAL HOUSING ALLOCATION PLANS

The proposed amendments to Rule 3 will not have any impact on projected population, land use, or housing in the Bay Area, as iterated above in Section 5.2.1: Land Use and Planning, and Section 5.2.2: Population and Housing. Any projected marginal increase in cost for new coatings to comply with the proposed VOC limits will not create a significant enough effect on the cost of housing so as to create an impact on the availability of housing for any income group. Furthermore, the proposed amendments will not affect how housing is planned or allocated within the Bay Area. Therefore, the proposed amendments cannot be considered to be inconsistent with any housing element in any Bay Area City or County General Plan.

5.5.10 CONSISTENCY WITH HABITAT CONSERVATION PLANS

The use of architectural coatings do not create or cause impacts to sensitive habitats of plants or animals because all activities occur at construction, industrial, commercial, institutional or residential sites. The proposed amendments to Regulation 3 could not have any possible effect on any existing or proposed habitat conservation area or on any proposed construction activity that might be affected by a habitat conservation plan. Therefore, the proposed amendments

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[42] Suisun Marsh Protection Plan, Bay Conservation and Development Commission, (www.bcdc.ca.gov), June 28, 2001
[43] Regional Airport System Plan, Draft Regional Transportation Plan, MTC, op.cit.
[44] San Francisco Bay Area Seaport Plan, Draft Regional Transportation Plan, MTC, op.cit.

cannot be considered to be inconsistent with any conservation element in any Bay Area City or County General Plan.

5.5.11 CONSISTENCY WITH NATURAL COMMUNITY CONSERVATION PLANS

The proposed amendments to Rule 3 cannot be found to have any impacts on any natural community conservation plans. As iterated previously in Section 5.2.4: Biological Resources, 5.2.7: Aesthetics, and 5.2.8: Cultural Resources, although architectural coatings are used on structures that may have impacts on one of these areas of concern, the coatings themselves would not have any impact on decisions made concerning construction or siting of any structures subject to these plans. Therefore, the proposed amendments cannot be considered to be inconsistent with any natural resource conservation element in any Bay Area City or County General Plan.

5.5.12 SMART GROWTH PLANS

Smart Growth Plans, or Programs, which may be integrated into the general plans of cities and counties, provide for linkages between land use and transportation plans so as to promote sustainable development, direct growth toward areas that can be served by public transit, and encourage the use of public transit.[45] Architectural coatings would be used on structures associated with housing and infrastructure elements of smart growth plans, but proposed amendments to the VOC limits for the coatings could not have any impact on decisions made concerning development connected with smart growth plans or programs. As iterated previously in Section 5.2.1: Land Use and Planning and Section 5.2.2; Population and Housing, the proposed amendments will not create any impact on the land use or housing decisions. Therefore, the proposed amendments to Rule 3 cannot not be considered to be inconsistent with any smart growth element in any Bay Area City or County General Plan.

[45] Smart Growth Programs, Draft Regional Transportation Plan, MTC, op.cit.

6. PROJECT ALTERNATIVES

6.1 Introduction

CEQA requires a description of a range of reasonable alternatives to the project that would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and an evaluation of the comparative merits of the alternatives. CEQA also requires consideration of a reasonable range of potentially feasible alternatives; it does not require consideration of alternatives that are not reasonable. The discussion and analyses of project alternatives presented below is based on and consistent with the analyses of project alternatives in the CARB Program EIR.

The following project alternatives present varying methods of regulation. They were developed by industry representatives and proposed during an public consultation meeting with CARB staff in August, 1998.

6.2 Project Alternatives Rejected as Infeasible

The Program EIR generated by CARB staff and certified at the CARB hearing on June 22, 2000 examined seven alternatives that were found to be infeasible. Following is a brief description of these alternatives, and a discussion of why these alternatives were found to be infeasible.

6.2.1 PERFORMANCE BASED STANDARDS

Rather than establish lower VOC content requirements for specified categories of coatings, this alternative would establish emission standards based on performance standards such as “substrate protectivity” or coating durability. This alternative has been rejected as infeasible by CARB staff because it would be difficult, if not impossible, to reach a consensus among involved parties as to how to create the standards to cover the multitude of coatings reformulations with varying performance characteristics, including how to characterize the degree of substrate protection. In addition, to create a regulation that relied on durability of coatings as a standard, it would take years or in some cases tens of years to enforce regulatory limits. The manufacturer, distributor, seller and applicator could all be impossible to trace in that time period. As well, because coating durability is a market driven phenomena, unlike lower VOC content, there is a natural incentive for manufacturers to create a more durable product. A performance based standard based on durability would encourage structure owners to leave coating on as long as possible to avoid enforcement actions, possibly risking damage to the structure itself. In the case of public agencies who are responsible for the maintenance of bridges, water supply systems and sewage systems, for example, the results of delayed maintenance could be disastrous. Finally, decisions to paint are often made for reasons other than that to protect substrates. Consequently, even though a coating might meet a performance or durability standard, it might be recoated, losing the benefit of the durability.

6.2.2 SEASONAL REGULATION

Under this alternative, the VOC content limits proposed for various architectural coatings would be in effect during the “high ozone season" (typically the summer months). During the “low ozone season” (typically the winter months), coatings formulators could sell and distribute, and contractors and do-it-yourself consumers could use coatings with higher VOC contents. This alternative was found infeasible for the project area because it is too difficult to implement and enforce. It would be difficult for coatings formulators, distributors, and retail stores to manage their inventories to ensure that only complying coatings are sold during the high ozone season. In addition, regulation of end users is effective only when there can be a presumed knowledge base at the level of the end user and the numbers and locations of end users were within reason to contact and inspect. In the case of architectural coatings, end users are potentially everyone in the Bay Area. As the use of architectural coatings is not connected with most peoples’ jobs, it is

unlikely that users would be able to develop a sufficient knowledge base to be able to predict the likelihood that their use of any of the many architectural coatings were being done in compliance with the law. It is for this reason that sales of non-compliant products are prohibited. Finally, because of different ozone seasons in different areas of California, typically longer in the south than in the north, the rule would not be consistent across regulated areas of the state at some times of the year. There have been exceedances of the California state ozone in all months of the year except February and December, based on data from 1980-1995.

6.2.3 REGIONAL REGULATION

Under this alternative, areas within the District that do not have an ozone problem or contribute to the District's ozone problem would be exempted from the VOC requirements of Rule 3. This alternative was rejected as infeasible for two main reasons. First, in order to determine the viability of such an approach, the District would have to conduct an extensive analysis involving ambient air quality modeling to determine which geographical areas would be subject to the lower VOC requirements and which would be exempted. The proposal also ignores the fact that ozone is a regional and trans-regional problem, emissions from one part of the District will impact other parts of the District and may impact other air districts.

Second, the problem of enforcing this regulatory approach remains. Enforcement at the retail level, as well as the end-user level would be difficult and would require significant additional resources from distributors to ensure that only compliant products were delivered to the "clean air" areas, as well as significant additional enforcement resources. District boundaries already present a problem for activities conducted barely inside as opposed to barely outside the district. With the creation of boundaries within the largely urbanized Bay Area, this problem would be severely compounded.

6.2.4 EXCEEDANCE FEES

This alternative would allow manufacture, sale and purchase of non-compliant coatings on payment of a fee, similar to the system that exists in the national Architectural and Industrial Maintenance coatings rule. The system used in the national AIM rule allows coatings manufacturers and importers to sell coatings that exceed the applicable VOC limit if they pay a fee of $0.0028 per gram of excess VOC. This is sometimes termed a "pay-to-pollute" approach. It is a market based program, the theory being that companies would be driven to reduce the VOC content of their coating to avoid the fee. However, there are several unknowns associated with any market based approach of this type. Chief among them is that there is a presumption that this fee will steer the market for architectural coatings. If it does not, the rule will generate revenue but it will not produce the intended emission reductions and may actually hinder efforts to attain both the state and federal ozone standards. In a typical gallon of flat house paint, a company that chose to not reformulate their coating from the existing standard of 250 grams VOC per liter to the proposed standard of 100 grams VOC per liter would have to pay a fee of $1.59 per gallon. The question of whether a consumer who purchased a gallon of paint that might range in price from $15 to $40 a gallon, depending on brand and quality, would notice and react to this increment cannot be answered, and has not been answered as a result of the exercise of the exceedance fee in the national rule. The company that chose to pass this cost on to the consumer would reasonably be expected to have that cost partly balanced by the expected cost increase to recover the research and testing that went into reformulation efforts made by a competitor.

An additional problem is that, if it were determined that the fee was insufficient to drive the market, this approach would necessitate more rulemaking, putting a strain on District resources. Even if the fee would be sufficient to drive market behavior, rulemaking would be required periodically simply to recover value lost to inflation that would be expected to retard market driven behavior. Finally, the District does not have the legal authority to directly levy taxes, which is what the

exceedance fee would be considered. For all of these reasons, an exceedance fee approach is not considered a feasible alternative.

6.2.5 TONNAGE EXEMPTION

As with the "Exceedance Fees" alternative, this type of alternative is part of the national Architectural and Industrial Maintenance Coatings rule. A tonnage exemption would allow coatings manufacturers to produce and sell some quantities of coatings that exceed the applicable VOC limit in Rule 3, based on the mass of VOC emissions that were in excess of the limits in the Rule. The tonnage would set a limit on these excess emissions. The national rule contains a 25 ton per manufacturer exemption in the first year of the rule that would decrease in subsequent years to 10 tons.

The tonnage exemption approach in the national rule is additive with the small container exemption (also in the existing and proposed District Rule) and the exceedance fee. The District would have to calculate the foregone emissions due to each manufacturer's share of the exemption that would reach the Bay Area market, and, given the pressures to create emission reductions to satisfy state and federal ozone attainment plans, produce emission reductions from other source categories or from within the source category of architectural coatings. Also, to enforce this sort of provision on a district level, labeling, reporting and record keeping would have to be instituted which would include tracking of "tonnage exempt" coatings through distribution and sales channels. For these reasons, a tonnage exemption is not considered a feasible alternative.

6.2.6 LOW VAPOR PRESSURE (LOW VOLATILITY) EXEMPTION

Under this alternative, VOC's with low vapor pressures (i.e., "low vapor pressure VOC's" or "LVP-VOC's") would be exempted from the determination of the overall VOC content of a coating. This type of exemption is based on an assumption that low vapor pressure VOC's volatilize more slowly, so contribute very little to ozone formation in the atmosphere. The Program EIR developed by CARB identified a number of reasons why this alternative should be rejected as infeasible. First, EPA would not approve any rule into the SIP that had a less restrictive definition of what constitutes a regulated VOC than does EPA. Second, LVP compounds do contribute to ozone formation when they are in the atmosphere, it is just that they are emitted in lesser quantity or over a much greater time period. The CARB consumer product regulations exempted LVP compounds as a way of streamlining the development of consumer product rule, minimize economic impacts on industry and provide formulation flexibility. Most importantly, the test method for determining VOC content of consumer products, which consists of a compendium of existing test methods appropriate for different types of substances, had a instrumentation limit of detection of 0.1 mm Hg, which was the vapor pressure "cutoff" between LVP compounds and regulated VOC.

The CARB Program EIR points out that consumer products and architectural coatings may be quite different in nature. Architectural coatings are (mostly) designed to have the solvent portion evaporate from a thin coating film to produce a dry film. The low vapor pressure compounds in architectural coatings, such as propylene glycol, ethylene glycol, or Texanol®, are eventually almost completely emitted into the atmosphere, so are then available for photochemical reaction.

From one perspective, the test method determines the VOC content of a coating rather than the definition. EPA Method 24 and the equivalent District methods, Laboratory Methods 21 and 22, determine volatile content by heating a coating sample at 110°C for one hour. Regardless of definition, those organic compounds that do not evaporate during this procedure, which include resin systems, organic pigments, and any other components that do not volatilize, are not measured as VOC. The assumption that exempting low vapor pressure compounds in order to reduce the VOC inventory of architectural coatings would somehow lessen the need to regulate this source category is not founded. It would simply result in an exercise in paperwork, but do nothing to reduce the need to regulate and reduce the significant emissions from this source

category. Nor would this exercise change either the cost efficiency or the technical feasibility of regulating architectural coatings relative to other source categories. Consequently, the alternative of a low vapor pressure exemption for the SCM and for Rule 3 is not considered to be feasible.

6.2.7 REACTIVITY BASED VOC LIMITS

This alternative would involve establishing coating VOC limits based on the reactivity characteristics (i.e., the tendency to react in the atmosphere to form ozone) of the compounds contained in the coating, instead of the mass-based VOC limits that are used in other District rules including the current and proposed amendments to Rule 3. Historically, control of VOC emissions has been through mass-based reductions, and the efficacy of this approach has been borne out by the significant reductions in both absolute levels of ozone and population based exposure levels.

The CARB has committed to evaluating the feasibility of reactivity-based regulations for certain VOC source categories, and has an ongoing reactivity research program that includes funding for scientific studies of reactivity and a Reactivity Research Advisory Committee consisting of interested representatives of industry, academia, air district and CARB staff. In addition, CARB has begun to incorporate reactivity characteristics of compounds into some existing regulations, such as the California state rule for aerosol coatings. However, at this time, a number of issues need to be addressed before this type of control strategy could be developed and implemented for architectural coatings.

First among these is the need to fully speciate VOC for each product. To establish viable limits and calculate the potential of new limits to reduce ozone formation, a survey much more complex than the previous CARB survey would need to be completed. This would be a complex administrative task and would need a new level of protection of confidential data. For large companies with dedicated environmental specialists, this might be achievable, however many small companies exist that produce architectural coatings for which the task of speciation for each product would constitute a significant burden. Complicating this task is the problem that not all solvent ingredients in a coating constitute a single VOC species. For example, mineral spirits is a blend of hydrocarbons that will vary from manufacturer to manufacturer. A coatings formulator looks at his ingredients form the standpoint of functionality, not speciation. It is doubtful that a coatings formulator could speciate mineral spirits, and more doubtful whether mineral spirits are made up of the same species and same percentage of species from manufacturer to manufacturer and batch to batch.

Second, there is not yet full consensus on the scale of reactivity that is most appropriate for regulatory purposes. Each scale that has been sufficiently developed measures an increment of ozone produced for an amount of a specific compound added to a sample of air. The air samples are intended to replicate air in urban, polluted environments. Dr. William Carter, at the University of California at Riverside, a leading researcher into reactivity, has evaluated potential scales and concluded that the Maximum Incremental Reactivity (MIR) scale, which measures grams ozone formed per gram VOC added to the base, is the most appropriate for California. This scale best replicates ozone formation in low VOC to NO_x ratios, typical of California. However, the EPA has yet to agree that this scale is most appropriate for the country.

Also, the reactivity of different species varies with atmospheric conditions. An ideal scale for Southern California may be less than ideal for the Bay Area. There is variability in the reactivity estimates for species, and the reliability of estimates for some species is not good. Uncertainty estimates have been assigned for species for the purposes of establishing the MIR scale, in some cases the uncertainty may be sufficient to overwhelm reactivity calculations for small volume ingredients. There is currently research ongoing to attempt to reduce uncertainties, and consensus as to the feasibility of enacting reactivity scales for environmental regulations is growing. However, these factors are not sufficiently established at this time to consider this a feasible project alternative.

Lastly, the problem remains of a test method to speciate hydrocarbons. Although with the use of gas chromatography or gas chromatography/mass spectrophotometry, speciation is possible, it is more time consuming and expensive by a factor of ten than is the test method based on mass. Because of this, the District would have to allocate significantly more resources to testing coating samples with a reactivity based regulation than with a mass based regulation. For all of these reasons, a reactivity based project alternative is not considered to be feasible.

6.3 Description of Alternatives Considered Feasible

The Program EIR developed by CARB staff included an evaluation of four project alternatives, one of which was Alternative D: Product Line Averaging. The CARB eventually incorporated a version of this alternative into the SCM, and this provision is reflected in the proposed amendments to Rule 3. Alternative D: Product Line Averaging in this draft EIR is slightly different than this provision. In addition, one other alternative is presented. These alternatives may also be considered feasible alternatives to the proposed amendments to Rule 3. They are briefly described below:

6.3.1 ALTERNATIVE A: NO PROJECT

This alternative assumes that the proposed revisions to Rule 3 will not be implemented, and that the existing VOC limits in Rule 3 would continue to apply. As a result, VOC emissions from architectural coatings in the Bay Area would remain at the same level for an equivalent volume of coating used. No emission reductions would be achieved.

6.3.2 ALTERNATIVE B: EXTENDED COMPLIANCE DEADLINES

This alternative would extend all of the effective dates for compliance with the proposed lower VOC content limits to January 1, 2004. The amendments currently proposed for Rule 3 set effective dates for compliance with lower VOC content limits of January 1, 2003, except for a January 1, 2004 compliance date for industrial maintenance coatings. As a result, VOC emissions reductions from architectural coatings would be equivalent, but delayed.

6.3.3 ALTERNATIVE C: FURTHER REDUCTION OF VOC CONTENT LIMITS

This alternative would reduce the VOC content limits for architectural coatings to lower limitations than the currently proposed amendments require. As a result, VOC emission reductions from architectural coatings would be greater than those projected from the proposed amendments to Rule 3.

6.3.4 ALTERNATIVE D: PERMANENT PRODUCT LINE AVERAGING

The SCM and proposed amendments to Rule 3 contain a provision to allow a company to average the VOC contents of architectural coatings sold from January 1, 2003, when the lower VOC limits go into effect, until January 1, 2006. This provision is intended to provide flexibility for companies that would have a considerable number of coatings to reformulate and to improve the cost effectiveness of the rule. This alternative would allow any company to average coating products sold into California on a permanent basis. As a result, VOC emission reductions expected as a result of adoption of amendments to Rule 3 might be reduced or delayed to the extent that averaging was employed.

6.3.5 ALTERNATIVE E: DIFFERENT VOC LIMITS

This alternative would provide for equivalent emission reductions as would the proposed amendments to Rule 3, but would accomplish the emission reductions by a different mix of VOC limitations than are proposed. As a result, projected VOC emission reductions would be retained.

6.4 Comparison of Alternatives

The Program EIR developed by CARB staff included an assessment of impacts for air quality, water supply, water quality, public services, transportation and circulation, solid and hazardous waste, and hazards for the proposed SCM. There were no significant impacts identified for these resource areas for the proposed SCM. There were also no significant impacts associated with any attributes of the Bay Area's environment. However, a brief discussion of the potential environmental impacts that may be generated by each project alternative is described below:

6.4.1 AIR QUALITY

Alternative A: No Project, assumes that the proposed revisions to Rule 3 would not be adopted, and that the VOC limits in the current Rule 3 would remain in effect. As a result, approximately 2.9 tons per day of VOC emission reductions from architectural coatings would not be achieved throughout the Bay Area. This scenario would jeopardize the ability of the District to meet the target emission reductions contained in the federal 2001 Ozone Attainment plan, and would, should replacement emission reductions be unable to be found, render the Plan unapproveable by the EPA.

Alternative B: Extended Compliance Deadlines, would extend the VOC content limits to January 1, 2004. This alternative would ultimately achieve the same VOC emission reductions as the SCM, however the reductions would be achieved one year later. Under the California Clean Air Act, "… priority shall be placed on expeditious progress toward the goal of healthful air", and air districts must adopt a plan "to achieve attainment of the state standards by the earliest practicable date."[46] Extended compliance deadlines may result in a violation of these requirements.

Alternative C: Further Reduction of VOC Content Limits, would implement lower VOC content limits than those included in the proposed amendments to Rule 3. This alternative, assuming the lower VOC limits were feasible, would reduce emissions to a greater extent than would the proposed amendments. If the limits proved to be infeasible, the alternative could actually hinder progress toward clean air. This is because, based on technical reasons and good faith efforts, manufacturers, distributors, sellers, and users could apply for variances, and there would be a good likelihood of those variances being granted. If granted, because a company would have put all its' efforts into meeting a VOC limitation in the Rule, no lower-VOC-yet-feasible coating may have been developed, so no emission reductions would be achieved.

Alternative D: Permanent Product Line Averaging, would make permanent a provision to allow averaging until 2006. Although the record keeping and reporting associated with a temporary or permanent averaging scheme would act as a natural disincentive to use the scheme unless a company felt it necessary until such time as product could be reformulated to meet a lower VOC limit, or unless a company felt it could improve market share for a given coating, there would be, to the extent that companies used the provision, fewer emission reductions achieved from the Rule, or emission reductions would be delayed or both. Similar to Alternative B, this might be contrary to the provisions of the California Clean Air Act.

Alternative E: Different VOC Limits, would create a different mix of VOC content limits for the amendments to Rule 3. This would achieve the same emission reductions as the proposed amendments. However, companies would have to formulate specifically for the Bay Area and there would be considerable confusion over products legal in other regulated areas in California but illegal in the Bay Area and vice versa. The proposed limits for Rule 3 are based on the SCM. The driving consideration behind the SCM was to reduce emissions from architectural coatings to the maximum extent feasible. Therefore, it is doubtful that an alternate mix of VOC limits could be found that would achieve the same emission reduction result and be technically feasible.

[46] California Health and Safety Code §40910 and 40913 (b)

6.4.2 WATER

i) Water Demand

Alternative A would not change current water demands. It would, therefore, have fewer water demand impacts than would the proposed Rule 3 amendments.

Alternative B would produce the same water impact demands as the currently proposed amendments, but the water demands would occur at a later date.

Alternative C would probably result in an increase in water demand impacts as the proposed amendments, but, conceivably, could result in fewer impacts. This is because, although many industrial maintenance formulations are expected to be based on water-borne technology, if the VOC limits were even lower, some coatings would be replaced by two component coatings, formulated without water. Were more water used, it is anticipated that the water demand impacts would still be considered insignificant.

Alternative D would probably result in somewhat less water demand, however the water demand could be equivalent. If higher VOC coatings could be permanently averaged, they would not have to be reformulated, but other coatings might have to be reformulated to lower VOC contents for those coatings to average against. Overall, water demand would be impossible to predict but should be close to the demand created by the proposed amendments.

Alternative E would result in a different water demand for different coating categories than would the proposed amendments. Overall, it is impossible to predict whether the overall impact would be greater or less. If in some categories it was greater and in some less, the overall impact would probably still be considered insignificant.

ii) Water Quality

Alternative A would result in no change in the current quantities of coatings entering the sewer systems, storm drainage systems, or groundwater in the Bay Area. Therefore, Alternative A would not create any new or additional water quality impacts.

Alternative B would result in the same coatings that would be reformulated with water in the proposed amendments but they would be reformulated with water one year later. Therefore, to the extent that this alternative would result in water quality impacts, they would be delayed by one year.

Alternative C may require increased use of waterborne technology. Although the worst-case scenario analyzed in the CARB Program EIR, that all affected coatings would be reformulated using waterborne technology, showed that water quality impacts were insignificant for the proposed project, Alternative C would reasonably be expected to have greater impacts. Whether those impacts would be still considered insignificant cannot be projected at this time.

Alternative D would have similar water quality impacts as would the proposed amendments. If there were any water quality impacts that would arise after the sunset of the averaging provision in the proposed amendments, those impacts would not occur under Alternative D. The water quality impacts in the CARB Program EIR were analyzed, and found to be insignificant, without considering averaging.

Alternative E would probably have similar water quality impacts to the proposed amendments. A different mix of VOC limits might create water quality impacts in some categories more so than in others, in a different mix than would the proposed amendments, but it is impossible to say whether the impacts would be greater overall or lesser.

6.4.3 PUBLIC SERVICES

i) Public Facility Maintenance

Alternative A would not require any change to coatings application practices done for maintenance purposes at public facilities. Thus, Alternative A would not create any new or additional public facility maintenance impacts.

Alternative B would only delay any potential public facility maintenance impacts. The impacts were found to be insignificant, so it would be expected that the delayed compliance limits, when they became effective, would also be insignificant.

Alternative C would result in the use of coatings with a lower VOC content than those in the proposed amendments. To the extent that the lower coating VOC limits proved feasible, the impacts on public facility maintenance would be insignificant, as was determined for the proposed amendments. However, were the lower VOC limits infeasible, maintenance of public facilities could be impacted.

Alternative D would result in a product line averaging system that, to the extent that coating companies chose to average coatings used on public facilities, could result in fewer changes to coatings currently in use. This could reduce, by some small amount, the impacts, both environmental and economic, on public facility maintenance. However, any reduction in impacts would probably be offset by greater impacts on other coating users.

Alternative E could result in fewer impacts on public facility maintenance or could result in greater impacts on public facility maintenance. Without an iteration of which categories of coatings would get lower VOC limits and which would get higher VOC limits, the impacts on public facility maintenance are impossible to predict.

ii) Fire Protection

Alternative A will not change the current requirement on fire department servicing. Because the alternative would not create the need for the use of any new coatings, it would not create any new or additional fire department impacts.

Alternative B is expected to result in some coatings formulators using waterborne technology containing less flammable solvents. The exception to this would be the use of acetone in some specific coating categories. However, fire departments treat all National Fire Protection Act Class 3 flammable liquids the same. Because the same replacement and coalescing solvents used to meet the proposed project VOC content limits would be used to meet the Alternative B VOC content limits, this alternative would result in similar insignificant impacts to fire departments as do the proposed amendments, but the impacts would occur one year later.

Alternative C would probably require an increased use of waterborne technology. Manufacturers might be able to reformulate solvent-borne coatings with exempt solvents, some of which would contain more flammable solvents. The overall impact would be impossible to quantify, however, due to the anticipated increase in waterborne technology containing smaller amounts of flammable solvents to meet even lower VOC limits, Alternative C would probably result in fewer fire department impacts than would be expected from the proposed amendments to Rule 3.

Alternative D would result in an increased use of waterborne technology, and if so, it could conceivably be used to offset traditional solvent-borne coatings rather than reformulate those coatings with acetone. Even though the traditional solvents are considered flammable, it is conceivable that Alternative D could result in fewer impacts on fire protection demands than would the proposed amendments.

Alternative E could conceivably result in fewer fire protection demands than would the proposed amendments to Rule 3. This is because it is expected that the greatest use of water-borne technology will be for the large categories of coatings already largely water-borne, that is, flats, non-flats and high gloss non-flats. Should these categories of coatings be assigned lower VOC limits than are in the proposed amendments, other solvent-borne categories might be assigned higher VOC limits. If that were the case, they might not have to be reformulated with acetone, resulting in overall fewer fire protection demand impacts.

6.4.4 TRANSPORTATION AND CIRCULATION

Alternative A would not result in changes to the volume of traffic or traffic circulation patterns associated with the manufacturing, distribution, and use of architectural coatings. Thus, Alternative A would not create any new or additional transportation or circulation impacts.

Alternative B would result in the same impacts to transportation and circulation as would the currently proposed amendments, however, the impacts would occur one year later. Based on the allegations raised by industry that transportation and circulation demands would be a result of poorer or less stable coating, those impacts one year later might conceivably be somewhat less than they would be under the proposed amendments due to anticipated coating improvements over time. In both cases, the expected impacts would be expected to be insignificant.

Alternative C could result in greater impacts to transportation and circulation than would the proposed amendments. If coatings increasingly had to rely on water-borne technology and the VOC limits were such that solvent that performed functions such as freeze-thaw stabilizers were minimized, transportation and circulation could be impacted. Any additional trips associated with the disposal of reformulated low-VOC waterborne coatings due to freeze-thaw, shelf life, or pot-life problems could potentially be greater than would be the case for the proposed amendments.

Alternative D would result an insignificant change to the transportation and circulation impacts. This alternative would make it somewhat easier to meet the VOC limits on a permanent basis by requiring fewer coatings above the proposed VOC limits to be reformulated. The proposed amendments have been determined to result in insignificant impacts, so it is reasonable to expect that this alternative would also have insignificant impacts.

Alternative E would probably also result in an insignificant change to transportation and circulation impacts for the same reasons as iterated for Alternative D, except that, with a different mix of VOC limits, the coatings shipped into the Bay Area for distribution and sale would result in more truck traffic. This is because the Bay Area shipments would have to be segregated because their legality would be different than for the rest of the regulated areas in the state.

6.4.5 SOLID AND HAZARDOUS WASTE

Alternative A would not require any changes to existing coatings manufacturing processes or coatings application practices. The volume of solid waste and hazardous waste generated from the manufacturing, distribution, and use of architectural coatings would not change under this alternative. Alternative A would not create any new or additional solid waste/hazardous waste impacts.

Alternative B would be expected to generate an equivalent amount of solid waste or hazardous waste from the manufacturing, distribution, and use of architectural coatings as would the proposed amendments, it would only be delayed by one year. Because the proposed amendments were determined to result in insignificant impacts to solid or hazardous waste demands, the demands from Alternative B would also be insignificant.

Alternative C might result in increased demand on solid waste disposal sites. If the coatings produced to meet even lower VOC limitations suffered from reduced freeze-thaw characteristics,

shelf life, or pot-life, additional need for disposal could result. The proposed amendments will not produce a significant impact, so it is likely that, in the case of even lower VOC limits, solid or hazardous waste disposal impacts could also be insignificant, however, they would likely increase.

Alternative D would not result in a change in the solid or hazardous waste disposal impacts. Because the impacts of the proposed amendments were found to be insignificant, and averaging would require the reformulation of many of the same coatings as would the proposed amendments, Alternative D would probably result in the same impacts.

Alternative E could result in an increase in impacts or could result in no change in impacts. If the coating categories selected for more stringent regulation proved to be less technically viable, there could conceivably be more waste generated. If, on the other hand, coatings under a different mix of VOC limits were to prove, individually or overall, to be as technically viable, then waste impacts would be expected to be about the same as under the proposed amendments.

6.4.6 HAZARDS

i) Increased Exposure to Hazards

Alternative A will not change the current risk of exposure to hazards associated with the manufacture, distribution, and use of architectural coatings. Therefore, Alternative A would not create any additional risk of exposure to hazards than currently exists.

Alternative B would be expected to create the same risk of exposure to hazards as would the proposed amendments to Rule 3, but would create them one year later. The potential exposure to hazards has been found to be insignificant for the proposed amendments, therefore the risk of exposure to hazards under Alternative B would also be considered insignificant.

Alternative C might require the increased use of waterborne technology. In this context, exposure to flammable or explosive hazards could reasonably be expected to be less. Conversely, if industrial maintenance coatings formulators increased the use of exempt solvent based systems, the potential for exposure to flammable or explosive situations could possibly increase for these coatings. It can be surmised that, overall, Alternative C would result in a similar risk of exposure to hazards as would the proposed amendments. The risk of exposure to hazards for the proposed amendments was found to be insignificant.

Alternative D might allow the continued use of some existing solvent-borne coatings that would otherwise be reformulated. To offset the higher VOC levels of these coatings, some other coatings might be reformulated to water-borne technology to lower VOC levels. As do the VOC levels, the net result might average to no change in the exposure to hazards from the proposed amendments.

Alternative E might produce the same resultant exposure to hazards as would Alternative D, for the same reasons. Overall, the level of exposure to hazards would be impossible to predict without an iteration of the coating categories that might be involved, but it would be expected that the exposure to hazards would be considered insignificant.

ii) Exposure to Toxic Substances

Alternative A would allow the same coatings to be used as were currently in use. This alternative would not create any change in possible health impacts derived from exposure to toxic substances.

Alternative B anticipated that the same health impacts would be present as would be present under the proposed amendments to Rule 3, but they would be present one year later. As manufacturers strive to replace toxic solvents with less toxic ones, an additional year might conceivably give manufacturers more time to find alternative solvents to use. Therefore,

Alternative B could result in slightly fewer human health impacts than would the proposed amendments.

Alternative C would require more reformulation, because more existing coatings would not be able to meet the VOC limits. To the extent that coating reformulation would require the use of toxic solvents, it would be reasonable to expect the potential exposure to toxic solvent to be higher, regardless of warnings and protective equipment recommendations. Whether the risk would still be considered insignificant, as is the risk for the proposed amendments, is impossible to predict.

Alternative D would probably result in equivalent exposure to toxic solvents. This is because, if, due to averaging, the net result would probably be about the same amount of reformulation as the proposed amendments, the net exposure would also probably be about the same. However, it is also conceivable that a permanent averaging provision would allow manufacturers a little more flexibility in their product formulations and they could use that flexibility to reduce toxic solvents used. In this scenario, it could be expected that Alternative D would result in fewer health impacts due to exposure to toxic solvents.

Alternative E would probably result in equivalent exposure to toxic solvents. This is because some coatings would require more reformulation, or reformulation to a greater degree, and some coatings would require less reformulation. The net result would probably produce about equivalent exposure. However, if, in selecting categories of coatings that would be granted higher VOC limits and others that would be granted lower VOC limits, attention was paid not only to overall emission reductions, but also to potential exposure of coating applicators and the general public based on expected reformulation technology, it is conceivable that Alternative E could result in fewer health impacts due to exposure to toxic solvents.

6.5 Conclusion

Following is a brief explanation of why the District staff is recommending the proposed amendments to Rule 3 instead of Alternatives A, B, C, D, or E.

Pursuant to CEQA Guidelines Section 15126.6(e)(2), if the environmentally superior alternative is the “no project” alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives. Since Alternative A: No Project would not achieve any VOC emission reductions resulting in air quality benefits, it cannot be considered environmentally superior. Therefore, this section of the CEQA Guidelines does not apply.

Alternative A: No Project is not supported by District staff because it would not result in any emission reductions. The District needs VOC emissions reductions specifically from the source category of architectural coatings in order to comply with the proposed 2001 San Francisco Bay Area Ozone Attainment Plan, to fulfill the objectives of Stationary Source Control Measure A1 in the 2000 Bay Area Clean Air Plan and Triennial Assessment, and progress toward the California ambient air quality standards for ozone. The proposed amendments, based on the SCM approved by CARB, appear to be a technically feasible and cost effective way to achieve VOC emission reductions. For these reasons, staff does not recommend Alternative A.

Alternative B: Extended Compliance Deadlines is not supported by District staff because the VOC limits in the proposed rule appear to be feasible by January 1, 2003, with the exception of January 1, 2004 for industrial maintenance coatings, and additional time to comply is not necessary. Both the federal and California Clean Air Acts mandate that air quality standards be attained as expeditiously as practicable. It should be noted that the SCM, on which the proposed amendments to Rule 3 is based, is itself based on a coatings survey that found many coatings at the proposed VOC limits already available. The delay would give more time to industry to produce compliant coating formulations, however, the coating limits in this alternative would be the same, as would any adverse environmental impacts associated with the coating limits. As any impacts

would only be delayed, but otherwise equivalent, and the delay in air quality benefits would be detrimental and would appear unwarranted, staff does not recommend Alternative B.

Alternative C: Further Reduction of VOC Content Limits is not recommended by District staff because staff cannot state with any degree of surety that lower VOC limits than those in the proposed amendments are technically feasible and economically viable within the time period for implementation of the proposed VOC limits in Rule 3. There is the possibility that, should lower limits not prove either technically or economically feasible, significant adverse impacts may occur, including projected air quality benefits that might not be achieved. For these reasons, although it may appear that emission reductions might be greater than from implementation of the proposed amendments to Rule 3, staff does not recommend Alternative C.

Alternative D: Permanent Product Line Averaging is not recommended by District staff because, although it would provide a permanent degree of flexibility and create rule amendments that would be more cost effective, it would also impact the emission reductions achieved by the rule amendments to an unknown degree, depending on how many companies decided to take advantage of the averaging provision. It should be noted that enforcement of the averaging provision is problematic. In the proposed amendments to Rule 3, averaging is a statewide program, however, the Rule in total must be enforceable by each district. That means that enforcement of the averaging provision is dependent on staff at the California Air Resources Board to approve averaging plans and review record keeping and reporting requirements in Rule 3 and to relay that information to each district. To the extent that CARB staff were unavailable to administer the averaging provisions due to disruption or reallocation between programs, the "enforceability" of Rule 3 would suffer. The staff report that accompanied the SCM stated that the averaging provision was a way of making the rule more cost effective in the short term, but in no way was reflective of the infeasibility of the proposed VOC limits. Finally, should other districts not adopt a permanent averaging provision, this alternative would revert to averaging only within the District. Representatives have already stated that averaging, which involves tracking of high VOC and low VOC coatings within each district, is impossible. For these reasons, staff does not recommend Alternative D.

Alternative E: Different VOC Limits, is not recommended by District staff because, although the air quality benefits and environmental impacts would probably be equivalent. Adoption of different VOC limits would require coating formulators to develop different formulations for the Bay Area, some of lower VOC content, and would also allow them to import coatings with a higher VOC content than were allowed in other regulated areas. This would involve additional, potentially complex administrative procedures for the Bay Area alone and also the added cost of producing additional formulations, even assuming the VOC limits in the alternative were technically feasible to the extent that they appear to be in the proposed Rule 3 amendments. In addition, enforcement of different VOC limits would become difficult. Coating users could not purchase coatings outside of the District with any surety that they would be legal inside the District and vice versa, unless those users, including both professional and non-professional users, would have a working knowledge of both Rule 3 and the applicable architectural coating rule in the other district. For these reasons, staff does not recommend Alternative E.

Based on the information and analyses in this draft EIR and the CARB Program EIR, District staff has concluded that the proposed amendments to Rule 3 are necessary to achieve the objectives of the proposed 2001 San Francisco Bay Area Ozone Attainment Plan, to fulfill the objectives of Stationary Source Control Measure A1 in the 2000 Bay Area Clean Air Plan and Triennial Assessment and progress toward the California ambient air quality standards for ozone. Also, staff has concluded that the proposed amendments to Rule 3 is the most feasible of the alternatives presented, considering potential environmental impacts.

7. PERSONS AND AGENCIES CONSULTED

7.1 Individuals, Organizations and Agencies Consulted

William Guy, Principal Air Quality Specialist, BAAQMD
Henry Hilken, Senior Environmental Planner, BAAQMD
Jean Roggenkamp, Manager, Planning and Transportation, BAAQMD
Barb Fry, Manager, Measures Development Section, CARB
Christian Hurley, Air Resources Engineer, CARB
Mike Jaczola, Air Pollution Specialist, CARB
Robert Jenne, Senior Staff Counsel, CARB
Jim Nyarady, Manager, Strategy Evaluation Section, CARB
Cheryl Young, Air Pollution Specialist, CARB

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7.2 Persons Preparing the draft Environmental Impact Report

Daniel Belik, Air Quality Specialist, BAAQMD