VENTURA COUNTY AIR QUALITY ASSESSMENT GUIDELINES

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Ventura County
Air Pollution
Control District

VENTURA COUNTY

AIR QUALITY ASSESSMENT

GUIDELINES

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Air Pollution Control Board

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VENTURA COUNTY AIR POLLUTION CONTROL DISTRICT

Mission Statement

To protect public health and agriculture from the adverse effects of air pollution by identifying air pollution problems and developing a comprehensive program to achieve and maintain state and federal air quality standards.

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1. INTRODUCTION

1.1 INTRODUCTION

The California Environmental Quality Act (CEQA) requires evaluation of the environmental impacts, including air quality impacts, of proposed projects. CEQA applies to all discretionary activities proposed or approved by California public agencies, unless an exemption applies. The *Ventura County Air Quality Assessment Guidelines* (Guidelines) is an advisory document that provides lead agencies, consultants, and project applicants with a framework and uniform methods for preparing air quality evaluations for environmental documents.

The Guidelines recommend specific criteria and threshold levels for determining whether a proposed project may have a significant adverse air quality impact. The Guidelines also provide mitigation measures that may be useful for mitigating the air quality impacts of proposed projects. It should be noted, however, that these are guidelines only, and their use is not required or mandated by the Ventura County Air Pollution Control District (APCD or District). The final decision of whether to use these Guidelines rests with the lead agency responsible for approving the project.

The Guidelines are available for purchase from the District by calling 805/645-1433, or they can be downloaded free of charge from the District website at http://www.vcapcd.org/pubs.htm. This document is divided into eight chapters:

- Chapter 1: Introduction
- Chapter 2: Environmental Setting
- Chapter 3: Air Quality Significance Thresholds
- Chapter 4: Air Quality Management Plan Consistency
- Chapter 5: Estimating Ozone Precursor Emissions
- Chapter 6: Assessing Project-Specific, Localized, Non-Ozone Impacts
- Chapter 7: Mitigation Measures
- Chapter 8: General Conformity

The Guidelines are not applicable to equipment or operations required to have Ventura County APCD permits (Authority to Construct or Permit to Operate). APCD permits are generally required for stationary and portable (non-vehicular) equipment or operations that may emit air pollutants. This permit system is separate from CEQA and involves reviewing equipment design, followed by inspections, to ensure that the equipment will be built and operated in compliance with APCD regulations. The District has a two-step permit processing system. An Authority to Construct must be obtained before initiating construction or installation of the equipment or operations subject to APCD permit requirements. The second step of the process requires the applicant to apply for a Permit

to Operate upon completion of construction or installation authorized by an Authority to Construct.

Moreover, the emissions from equipment or operations requiring APCD permits are not counted towards the air quality significance thresholds. This is for two reasons. First, such equipment or processes are subject to the District's New Source Review permit system, which is designed to produce a net air quality improvement. Second, facilities are required to mitigate emissions from equipment or processes subject to APCD permit by using emission offsets and by installing Best Available Control Technology (BACT) on the process or equipment.

To determine whether or not the proposed equipment or operation requires an APCD Permit, contact the APCD Engineering Division at 805/645-1401. Table 1-1 lists examples of equipment and operations that may require an APCD permit pursuant to the APCD Rules and Regulations. See Appendix B, Common Equipment and Processes Requiring a Ventura County APCD Permit To Operate, for more a more detailed list of processes and equipment that require an APCD Permit to Operate.

The District assists project applicants and lead agencies with preparation of environmental documents by providing air quality data and other needed information. The District also reviews and comments on air quality sections of environmental documents and prepares air quality sections of environmental documents for agencies upon request.

The District may be involved in the CEQA process in several ways, as described below:

Lead Agency - The District acts as a lead agency when it has the primary authority to implement or approve a discretionary project. This typically occurs when air pollution rules and air quality plans are developed.

Responsible Agency - The District acts as a responsible agency when it has discretionary approval authority over an aspect of a project, but does not have the primary discretionary authority of a lead agency. As a responsible agency, the District may coordinate the environmental review process with the District's permitting process.

Commenting Agency - The APCD acts as a commenting agency for projects that have the potential to impact air quality and for which it is not a lead agency or a responsible agency. To this end, the APCD regularly reviews and provides comments on environmental documents prepared by lead agencies.

TABLE 1-1
EXAMPLES OF EQUIPMENT AND OPERATIONS
THAT MAY REQUIRE AN APCD PERMIT

Combustion Equipment
- Boilers and process heaters
- Engines 50 HP or greater
- Gas turbines
- Incinerators

Equipment That Emit Dust or Other Particulate Matter
- Concrete batch plants
- Asphalt concrete plants
- Rock, sand, and aggregate plants
- Abrasive blasting operations

Equipment and Processes That Emit Solvents or Other Reactive Organic Compounds (ROC)
- Dry-cleaning machines
- Gasoline tanks and dispensing facilities
- Contaminated soil or groundwater remediation systems
- General painting and coating operations

Equipment and Processes That Emit Air Toxics or May Cause a Nuisance
- Chrome plating operations
- Operations such as spa, bathtub, or counter-top manufacturing that use polyester resins
- Wood stripping operations that use methylene chloride
- Agricultural produce fumigation chambers that use organic gases

The District is available for consultation at any time during the project review and approval process. At certain times, consultation is required by CEQA. When the District has discretionary approval authority over an aspect of a project for which another public agency is serving as lead agency, the District should be consulted as a responsible agency. Moreover, CEQA requires and provides opportunities for District review before the preparation of the environmental document and during public review of the completed environmental document.

The District encourages local jurisdictions to address air quality issues as early as possible in the project review process. Local jurisdictions should work with project applicants on issues such as potential land use conflicts and site design to encourage transportation alternatives to the automobile. Resolving land use and site design issues while a proposal is at the conceptual stage maximizes opportunities to incorporate measures to minimize a project's air quality impacts. By the time a project gets to the CEQA process, it may be more costly and time-consuming to redesign the project to

incorporate air quality mitigation measures. Therefore, features benefiting air quality should be incorporated into a project before significant resources have been expended designing the project.

In Ventura County, motor vehicles are the largest category of air pollutant emissions. Land use decisions are critical to air quality planning because land use patterns influence transportation usage. The District encourages site planning that incorporates land use design features that benefit air quality. Project applicants and consultants should consider land use design issues during project design to:

- Encourage the development of higher density housing and employment centers near public transit corridors.
- Encourage compact development featuring a mix of uses that locates residences near jobs and services.
- Provide services such as food sales, banks, post offices, and other personal services within office parks and other large developments.
- Encourage infill development.
- Ensure that the design of streets, sidewalks, and bike paths within a development encourages walking and biking.
- Orient building entrances toward sidewalks and transit stops.
- Provide landscaping to reduce energy demand for cooling.
- Orient buildings to minimize energy required for heating and cooling.

1.2 BACKGROUND

Air pollution is hazardous to human health. It also diminishes the yield and quality of many agricultural crops, reduces atmospheric visibility, degrades soils and materials, and damages native vegetation. State and national ambient air quality standards are established to protect public health and welfare, and minimize the effects mentioned above. These standards pertain to pollutants in ambient air, the air that people breathe outside of buildings as they go about their daily activities.

The federal government has established National Ambient Air Quality Standards (NAAQS) to protect public health (primary standards); and welfare, such as property and agriculture (secondary standards). California has separate, more stringent standards. There are state and national standards for ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM), and lead (Pb). In addition, California has standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-

reducing particles. Table 2-1, "Ambient Air Quality Standards," presents federal and state ambient air quality standards. Regions throughout the state and country are classified as being either attainment or nonattainment areas, depending on the number of times an air quality standard has been exceeded.

The air pollutants of most concern in Ventura County are ozone and particulate matter. Ventura County is an attainment area for all standards presented in Table 2-1, "Ambient Air Quality Standards," except the following:

Ozone	1 Hour	State and Federal: Nonattainment
	8 Hour	Federal: Not designated*
PM_{10}	24 Hour	State: Nonattainment**
	Annual Average	State: Nonattainment**
$PM_{2.5}$	24 Hour	Federal: Not designated
	Annual Average	State and Federal: Not designated

* The California Air Resources Board (ARB)has recommended to the United States Environmental Protection Agency (U.S. EPA) a designation of nonattainment for Ventura County.

** The ARB has designated Ventura County a nonattainment area based upon the state 24 hour and annual average PM_{10} standards

Check the District website at http://www.vcapcd.org for the most current attainment status.

Ozone, the primary ingredient of smog, is formed in the atmosphere through complex chemical reactions involving ROC, nitrogen oxides (NOx), and ultraviolet energy from the sun.

Particulate matter is comprised of very small solids or liquids, such as dust, soot, aerosols, fumes, and mists. The particles of primary concern are those with an aerodynamic diameter of 10 microns or smaller (PM_{10}). From a health perspective, the most damaging component of PM_{10} is the fine particle fraction 2.5 microns or smaller ($PM_{2.5}$). These particles have the greatest likelihood of being inhaled deeply and remaining in the lungs.

The federal Clean Air Act Amendments of 1990 (CAAA) require that states achieve the NAAQS by specified dates, based on the severity of an area's air quality problem. Ventura County is designated a severe ozone nonattainment area, and as such, is required by the CAAA to attain the federal one-hour ozone standard by November 15, 2005 (see Section 1.3.2, "Federal Clean Air Act"). Ventura County has made significant progress toward attainment of the federal one-hour ozone standard. For years 2000 - 2002, Ventura County averaged only one ozone exceedance day per year, technically meeting

the federal standard. Ventura County is still officially designated a nonattainment area for the federal standard, however. Ventura County has not been designated for the federal eight-hour ozone standard.

As of April 2003, air quality data indicate that Ventura County is in compliance with the federal annual $PM_{2.5}$ standard; official designation has not yet taken place.

Ventura County must also comply with the requirements of the California Clean Air Act (CCAA). The CCAA became effective January 1, 1989, and requires that all areas of California attain and maintain the State Ambient Air Quality Standards by the earliest practicable date (see Section 1.3.3, "California Clean Air Act"). Ventura County frequently exceeds the state ozone standard and is designated a severe ozone nonattainment area. The state ozone standard is more stringent than the federal one-hour ozone standard, and will be more difficult to attain.

PM_{10} concentrations in Ventura County exceed the state 24-hour air quality standard. Ventura County has not yet been classified for the state new PM_{10} or $PM_{2.5}$ annual average standards.

1.3 REGULATORY SETTING

1.3.1 California Environmental Quality Act

CEQA (Public Resources Code (PRC) §§21000 - 21177) was enacted by the State Legislature in 1970. The purpose of CEQA is to help ensure that governmental decision-makers and the public are fully informed of potential significant environmental effects of proposed projects and activities. CEQA also requires that environmental impacts be avoided or reduced where feasible. Project alternatives must be considered that accomplish the project purpose if the project is found to have significant impacts. Mitigation measures are employed when no feasible alternative can be identified. Any feasible mitigation measure that reduces the severity of a significant impact to insignificance must be implemented. When there are no feasible, viable alternatives, and there are no feasible mitigation measures available to reduce the project's impact, a statement of overriding considerations can be adopted. This enables a public agency to approve a project despite significant environmental effects. However, a public agency that approves a project with significant impacts after all feasible mitigation measures have been applied, must disclose to the public its reasons for approving the project despite the significant impacts.

CEQA applies to activities directly undertaken by governmental agencies, activities financed in whole or in part by governmental agencies, and private activities that require approval from governmental agencies. There are several basic steps in the CEQA process. First, an agency determines whether a project is subject to CEQA or exempt from CEQA analysis. Second, if the project is subject to CEQA, the agency prepares an

Initial Study to determine whether the project may have a significant effect on the environment. If there is no substantial evidence that the project may have a significant effect, the agency prepares a Negative Declaration (ND). If the project can be modified to avoid or reduce the significant effect to a level of less than significant (and there is no substantial evidence that the project as revised may have a significant effect), the agency prepares a Mitigated Negative Declaration (MND). If the Initial Study shows that the project may have a significant effect, and the effects cannot be reduced to a less than significant level with an MND, the agency prepares an Environmental Impact Report (EIR).

An EIR is a detailed report that analyzes the environmental effects of a project, identifies potential measures to mitigate identified significant adverse environmental effects, and potential project alternatives. If mitigation measures or alternatives are not available or are infeasible, a project may still be approved if the lead agency makes certain formal findings.

The California Resources Agency adopts procedures, known as the "CEQA Guidelines" (California Code of Regulations (CCR) §§15000 - 15387), that provide detailed steps that lead agencies must follow to implement CEQA. Sections of CEQA and the CEQA Guidelines that are relevant for the preparation of air quality analyses are presented in Appendix C, Sections of CEQA and the CEQA Guidelines Relevant to Air Quality Impact Analysis.

1.3.2 Federal Clean Air Act

The first comprehensive national air pollution legislation was the federal Clean Air Act of 1970. In 1977, the federal Clean Air Act was amended to require plans for meeting the national health-based standards "as expeditiously as practicable," but no later than December 31, 1982. However, the Clean Air Act permitted the U.S. EPA to extend the attainment date of some ozone and carbon monoxide nonattainment areas.

In 1990, the federal Clean Air Act was significantly amended. Under the CAAA, areas that do not meet the federal one-hour ozone standard are classified according to the severity of each area's respective ozone problem. The classifications are Marginal, Moderate, Serious, Severe, and Extreme. Marginal areas are closest to meeting the federal one-hour ozone standard. Extreme areas have the worst air quality problems. Areas with more severe ozone problems have progressively more stringent requirements to meet under the federal Clean Air Act. An area's classification determines how long the area has to attain the federal ozone standard. Marginal areas had three years; Moderate areas - six years; Serious areas - nine years; Severe areas - either 15 or 17 years, depending on the magnitude of their ozone problem; and, Extreme areas - 20 years. The South Coast Air Basin is the only area in the country designated as Extreme. Ventura County is a Severe area for ozone and must attain the federal one-hour ozone standard by 2005.

The CAAA contain a number of requirements designed to improve air quality. These include motor vehicle emission limits, pollution controls on industrial facilities, use of low-polluting vehicle fuels, permit and compliance programs, and economic incentives to encourage industries to voluntarily curtail emissions.

In July 1997, the U.S. EPA approved new federal standards for $PM_{2.5}$, and modified the PM_{10} and ozone standards. The new federal standards are presented in Table 2-1, "Ambient Air Quality Standards."

1.3.3 California Clean Air Act

The CCAA was enacted on September 30, 1988, and became effective January 1, 1989. The purpose of the CCAA is to achieve the more stringent health-based state clean air standards at the earliest practicable date.

The state standards are more stringent than the federal air quality standards. Similar to the federal Clean Air Act, the CCAA also classifies areas according to pollution levels. Under the CCAA, Ventura County is a severe ozone nonattainment area, and is a state PM_{10} nonattainment area. The CCAA requires that the standards be attained at the earliest practicable date. Further, districtwide air emissions must be reduced at least five percent per year (averaged over three years) for each nonattainment pollutant or its precursors. A district may achieve a smaller average reduction if the district can demonstrate that, despite inclusion of every feasible measure in its air quality plan, it is unable to achieve the five percent annual reduction in emissions.

On June 20, 2002, the ARB approved revisions to the PM_{10} annual average standard, and established an annual average standard for $PM_{2.5}$. These standards are presented in Table 2-1, "Ambient Air Quality Standards."

1.3.4 Ventura County Air Quality Management Plan

The 1991 Air Quality Management Plan (AQMP) was prepared in response to the CCAA. The 1991 Plan elaborated on information contained in the 1982 and 1987 AQMPs. It also included new and modified control measures designed to move the county further toward achieving state clean air standards.

The 1994 AQMP was prepared to satisfy the planning requirements of the CAAA and to outline a strategy for meeting the federal one-hour ozone clean air standard while accommodating anticipated growth. The Plan indicated that Ventura County would attain the federal one-hour air quality standard for ozone by 2005.

The District prepared a revision to the 1994 AQMP in 1995. This revision updated information that had changed since the 1994 AQMP, including minor adjustments to the 1990 baseline emission inventory, actions taken by the ARB to approve additional control strategies, changes to the photochemical modeling, and several other changes. The 1995

Plan Revision indicated that Ventura County would attain the federal one-hour ozone standard by 2005. It focused on ways to reduce ozone levels, and did not address PM_{10}, since Ventura County is an attainment area for the federal PM_{10} standard. The U.S. EPA approved the 1994 AQMP and 1995 AQMP Revision on February 7, 1997.

The District prepared a 1997 AQMP Revision to update the proposed adoption and implementation dates for nine control measures that were included in the 1995 Plan Revision. The U.S. EPA approved the 1997 AQMP Revision on April 21, 1998.

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2. ENVIRONMENTAL SETTING

2.1 INTRODUCTION

Section 15125 of the California Environmental Quality Act (CEQA) Guidelines states that "an environmental impact report (EIR) must include a description of the environment in the vicinity of the project, as it exists before the commencement of the project, from both a local and regional perspective." This chapter of the *Ventura County Air Quality Assessment Guidelines* (Guidelines) can be used as the basis for the air quality setting section of environmental documents. It also provides a description of the environmental factors that affect regional and local air pollutants.

The information in the air quality setting section of an EIR should include a discussion of the existing levels of air pollutants at the proposed project site and significant sources of air emissions, both stationary and mobile, at the site.

2.2 AIR QUALITY SETTING

The United States Environmental Protection Agency (U.S. EPA) and the California Air Resources Board (ARB) have established ambient air quality standards to protect the health and welfare of the general public. Regions throughout the state and country are classified as being either attainment or nonattainment for specific criteria pollutants, depending on the number of times an air quality standard is exceeded. Table 2-1, "Ambient Air Quality Standards," shows federal and state air quality standards for criteria pollutants.

Ventura County is located in the South Central Coast Air Basin (comprised of Ventura County, Santa Barbara County, and San Luis Obispo County, see Figure 2-1, "Ventura County Air Pollution Control District Boundaries").

Ventura County is a severe nonattainment area for the federal and state one-hour ozone standards, and has been recommended by the ARB as a nonattainment area for the federal eight-hour ozone standard. Table 2-2, "Number of Days Exceeding the Federal and State Ambient Air Quality Standards for Ozone," shows the number of days exceeding the federal and state ozone standards from 1990 to 2002. Table 2-3, "Maximum Ozone Concentrations - Ventura County," shows the maximum one-hour ozone concentrations in Ventura County during this same period. Ozone concentrations have declined steadily at most air monitoring stations, as have the number of exceedances, since 1980. These air quality improvements have occurred despite a growing population. Between 1980 and 2002, Ventura County's population increased by 253,500, a 47.6 percent increase. Although ozone levels have declined significantly in recent years, the county still experiences frequent violations of the state ozone standard. Inland areas of the county (Simi Valley, Thousand Oaks, and Piru) exceed the ozone standard more frequently than the coastal areas.

TABLE 2-1
AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	California Standards [1]	National Standards [2]	
		Concentration [3]	Primary [3,4]	Secondary [3,5]
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m^3)	0.12 ppm (235 µg/m^3) [6]	Same as Primary Standard
	8 Hour	-----	0.08 ppm (157 µg/m^3) [6]	
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	No Separate State Standard	65 µg/m^3	Same as Primary Standard
	Annual Arithmetic Mean	12 µg/m^3 *	15 µg/m^3	
Respirable Particulate Matter (PM_{10})	24 Hour	50 µg/m^3	150 µg/m^3	Same as Primary Standard
	Annual Arithmetic Mean	20 µg/m^3 *	50 µg/m^3	
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	None
	1 Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	-----	0.053 ppm (100 µg/m^3)	Same as Primary Standard
	1 Hour	0.25 ppm (470 µg/m^3)	-----	
Lead	30 Day Average	1.5 µg/m^3	-----	-----
	Calendar Quarter	-----	1.5 µg/m^3	Same as Primary Standard
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	-----	0.030 ppm (80 µg/m^3)	-----
	24 Hour	0.04 ppm (105 µg/m^3)	0.14 ppm (365 µg/m^3)	-----
	3 Hour	-----	-----	0.5 ppm (1300 µg/m^3)
	1 Hour	0.25 ppm (655 µg/m^3)	-----	-----
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per kilometer – visibility of ten miles or more (0.07 – 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent.	**No National Standards**	
Sulfates	24 Hour	25 µg/m^3		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)		

* On June 20, 2002, the Air Resources Board approved staff's recommendation to revise the PM_{10} annual average standard to 20 µg/m^3 and to establish an annual average standard for $PM_{2.5}$ of 12 µg/m^3. These standards took effect on July 5, 2003. Information regarding these revisions can be found at http://www.arb.ca.gov/research/aaqs/std-rs/std-rs.htm.

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter PM_{10}, $PM_{2.5}$, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The 1-hour ozone standard is attained when the expected number of days per calendar year with maximum hourly concentrations over the standard is equal or less than one. The 8-hour ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when 99 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact U.S. EPA for further clarification and current national policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25^{o}C and a reference pressure of 760 torr, Most measurements of air quality are to be corrected to a reference temperature of 25^{o}C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect public health.
5. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse affects of a pollutant.
6. New national 8-hour ozone and fine particulate matter standards were promulgated by U.S. EPA on July 18, 1997. Contact U.S. EPA for further clarification and current national policies.

FIGURE 2-1
VENTURA COUNTY AIR POLLUTION CONTROL DISTRICT BOUNDARIES

TABLE 2-2
NUMBER OF DAYS EXCEEDING THE FEDERAL AND STATE AMBIENT AIR QUALITY STANDARDS FOR OZONE
(1-hour standard*)

Location	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
El Rio	0/9**	0/12	3/17	1/8	0/7	0/7	0/8	0/2	0/1	0/1	0/0	0/0	0/0
Ventura	0/5	2/12	0/4	2/5	0/3	0/4	1/10	0/2	0/0	0/0	0/0	0/0	0/0
Simi Valley	14/86	32/97	6/58	8/40	15/80	22/85	13/73	2/47	4/37	2/31	1/31	2/32	0/14
Piru	4/46	4/44	0/15	0/4	2/19	1/20	0/17	0/6	1/4	0/3	0/3	0/16	0/10
Ojai	2/27	4/30	4/33	1/23	2/17	2/27	2/38	0/10	0/13	0/7	0/15	1/17	1/15
Thousand Oaks	3/27	0/20	2/31	4/22	2/28	1/28	5/26	0/20	1/13	0/9	0/6	0/4	0/3
Countywide	18/99	33/106	10/69	13/58	17/88	23/90	17/80	2/59	5/41	2/33	1/37	2/34	1/23

*Federal 1-hour standard: >0.12 parts per million; State 1-hour standard: >0.09 parts per million.

**Number of days exceeding national standard/number of days exceeding state standard.

Source: Ventura County Air Pollution Control District (APCD), February 2003.

TABLE 2-3
MAXIMUM OZONE CONCENTRATIONS - VENTURA COUNTY
(hourly average - parts per million)

Location	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
El Rio	0.12	0.12	0.14*	0.14	0.12	0.12	0.12	0.10	0.11	0.10	0.08	0.09	0.09
Ventura	0.11	0.13	0.11*	0.14	0.10	0.12	0.13	0.11	0.09	0.09	0.08	0.09	0.08
Simi Valley	0.16	0.17	0.14	0.15	0.16	0.17	0.16	0.13	0.17	0.13	0.13	0.13	0.12
Piru	0.14	0.15	0.12	0.11	0.14	0.13	0.12	0.11	0.13	0.10	0.10	0.l2	0.12
Ojai	0.14	0.17	0.15	0.14	0.13	0.14	0.14	0.11	0.11	0.11	0.11	0.13	0.13
Thousand Oaks	0.17	0.12	0.13*	0.13	0.14	0.15	0.14	0.12	0.13	0.11	0.10	0.12	0.12

*Does not meet representative criteria.

Source: Ventura County APCD, February 2003.

Ventura County also is a nonattainment area for the state standard for PM_{10} (particulate matter with an aerodynamic diameter of 10 microns or smaller). Table 2-4, "Number of Days Exceeding the State Ambient Air Quality Standards for PM_{10}," shows the number of violations of the state PM_{10} standard from 1990 to 2002.

Ambient levels of other pollutants in Ventura County do not violate state or federal standards.

TABLE 2-4
NUMBER OF DAYS EXCEEDING THE STATE AMBIENT AIR QUALITY STANDARDS FOR PM_{10}
(24-hour standard*)

Location	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
El Rio	10	4	5	4	2	3	1	3	1	1	1	2	2
Ventura	4	4	2	1	1	2	0	**	**	**	**	**	**
Simi Valley	11	16	7	4	4	8	2	4	0	6	3	4	3
Piru	8	11	5	5	2	4	5	8	1	2	3	1	1
Ojai	7	7	1	1	1	0	0	0	2	2	0	0	0
Thousand Oaks	**	**	3	2	4	4	1	3	0	5	6	1	0
Countywide	20	24	10	10	8	9	7	13	3	10	9	5	6

*Greater than 50 micrograms per cubic meter.

**No monitor at location.

Source: Ventura County APCD, February 2003.

2.3 METEOROLOGICAL FACTORS AFFECTING AIR QUALITY

The air above Ventura County often exhibits weak vertical and horizontal dispersion characteristics, which limit the dispersion of emissions and cause increased ambient air pollutant levels. Persistent temperature inversions prevent vertical dispersion. The inversions act as a "ceiling" that prevents pollutants from rising and dispersing. Mountain ranges act as "walls" that inhibit horizontal dispersion of air pollutants.

The diurnal land/sea breeze pattern common in Ventura County recirculates air contaminants. Air pollutants are pushed toward the ocean during the early morning by the land breeze, and toward the east during the afternoon, by the sea breeze. This creates a "sloshing" effect, causing pollutants to remain in the area for several days. Residual emissions from previous days accumulate and chemically react with new emissions in the presence of sunlight, thereby increasing ambient air pollutant levels.

This pollutant "sloshing" effect happens most predominantly from May through October ("smog" season). Air temperatures are usually higher and sunlight more intense during the "smog" season. This explains why Ventura County experiences the most exceedances of the state and federal ozone standards during this six-month period.

2.4 EFFECTS OF AIR POLLUTION

2.4.1 Health Effects

Ambient air pollution is a major public health concern. The most well-known acute air pollution episodes occurred in the Meuse Valley, Belgium in 1930 (60 deaths); in Donora, Pennsylvania in 1948 (20 deaths); and London, England in 1952 (4,000 deaths). Although acute air pollution episodes with such readily evident excess deaths are now unlikely in the United States, air pollution continues to be linked to respiratory illness and a slight increase in death rates.

According to the ARB, 80,000 deaths that occur each year in California may be attributed to illnesses aggravated by air pollution. While air pollution affects everyone, some people are more susceptible to its effects than others. Research has established that air pollution:

- Aggravates heart and lung illnesses.
- Adds stress to the cardiovascular system, forcing the heart and lungs to work harder to provide oxygen to the body.
- Speeds the aging process of the lungs, accelerating the loss of lung capacity.
- Damages respiratory system cells even after symptoms of minor irritation disappear.
- May cause immunological changes.
- Causes lung inflammation.
- Increases health care utilization (hospitalization, physician, and emergency room visits).
- May contribute to the development of diseases such as asthma, bronchitis, emphysema, and cancer.
- May cause a reduction in life span.

The federal government estimates that between 10 and 12 percent of United States total health costs are attributable to air pollution-related illnesses. Air pollution is thought to be responsible for a two percent loss in United States worker efficiency. If ozone pollution were reduced in urban areas, there would be approximately 49.9 million fewer cases of air pollution-related illnesses annually in the United States; asthma attacks alone would decrease by 1.9 million annually.

On a per-capita basis, the health benefits measured in dollars from reducing ozone concentrations to federal and state one-hour standards are estimated to be $196 and $214 each year, respectively, for every person living in the South Coast Air Basin (the greater Los Angeles area). Per capita annual health benefits associated with meeting federal and state particulate standards are estimated to be $575 and $972, respectively. Assuming the per capita savings in the South Coast Air Basin are applicable to Ventura County, the projected health cost savings for achieving the PM_{10} standard in Ventura County is estimated to be $45 to $69 million per year. According to the U.S. EPA, for every dollar spent on air pollution controls since 1970, $45 has been gained in health and environmental benefits.

2.4.2 Effects on Plants

2.4.2.1 Damage to Agriculture

Increased health costs are only one portion of the total economic effects that result from air pollution. Many of the major agricultural crops grown in California, including Ventura County, are significantly damaged by air pollution, with from 20 to 50 percent of losses in some crop yields. Studies on the effects of smog exposure on fruit trees (specifically orange trees, ornamental plants, and home garden plants) have shown reductions in fruit yield and visible plant damage resulting from smog. One study showed that productivity of Valencia orange trees can be reduced by 30 percent when exposed to ozone levels that frequently occur in Southern California. Another study showed that naval orange trees produced about 50 percent more fruit when protected from smog. In addition, trees protected from smog dropped fewer leaves. The statewide average yield loss for citrus due to air pollution was about 11 percent in 1988.

Smog and particulates interfere with photosynthesis and can injure leaves, reduce growth, reduce crop quality, reduce reproductive capacity, increase weed and pest infestation, and/or kill the plant, thereby reducing crop yield. Damage often occurs before visible symptoms of injury are noticed. Particulates also can interfere with beneficial biological pest control by preventing beneficial insects from preying on agricultural crop-eating pests.

Areas in California where plant damage from air pollution has been reported coincides with the areas of highest population density. These areas include a triangular zone extending from the Mexican border to approximately 80 miles north and eastward of Ventura. Some of the greatest plant damage from air pollution is seen on fruit and vegetable crops, and flowers.

According to a 1987 study by the ARB, a number of important statewide crops suffer substantial yield losses due to ozone. Air pollution has been estimated to cost the agricultural industry in California between $150 million and $1 billion a year. An economic analysis of the costs of air pollution to agriculture attributes 90 percent of direct

crop losses from air pollution to ozone. Nationally, ozone is estimated to account for a five to ten percent loss in agricultural production. The cost of this loss from ozone is about $5 billion each year. The greatest agricultural losses due to air pollution are in those crops in which the foliage is the marketed portion of the plant, such as lettuces, alfalfa, and spinach. Beans are no longer commercially grown in Southern California because of their susceptibility to air pollution.

Damage to agricultural crops from air pollution is an economic concern in Ventura County. According to the ARB, several agricultural crops grown in Ventura County suffer from exposure to air pollution. One study concluded that ozone exposure in Ventura County caused a reduction in orange crop yield of 19 percent in 1991. For that same year, lemon crops suffered an eight percent yield reduction, sweet corn seven percent, and dry beans 19 percent yield reductions, respectively.

2.4.2.2 Damage to Natural Vegetation

Air pollution is known to harm all major native plant groups, including flowering plants, conifers, ferns, mosses, lichens, and fungi. The effects on native vegetation are similar to those of agricultural crops. In the Geysers region of Napa, Lake, and Sonoma counties, injury to native plants, such as oaks and maples, has taken place downwind of geothermal power plants. Trees and other plant life in the San Joaquin Valley and adjacent Sierra Nevada Mountains suffer from air pollution generated in the upwind urban areas. Ozone damage has been observed in the forests of Southern California and in the Sierra Nevada mountains. Certain species of oak and pine trees are sensitive to air pollution.

Studies on Ponderosa and Jeffrey Pines trees in the 1980s revealed that two out of every five Ponderosa and Jeffrey Pine trees exhibited needle damage from air pollution. The National Park Service has measured an eleven percent reduction in the growth rate of selected Jeffrey Pine trees since 1965. Pine needles exposed to ozone develop yellow, blotchy marks and needles older than two years fall off, giving branches a whiskbroom appearance. Needles and debris from trees killed by smog not only increase the risk of forest fire, but reduce seed germination and the chances of seedling survival.

Coastal sage scrub and chaparral also are sensitive to air pollutants. The most important effect is a reduced ability to cope with drought, disease, and insects. Air pollution may put these plants at a reproductive disadvantage by causing them to produce fewer seeds. These conditions can lead to changes in succession, resulting in a totally different plant community occupying a site.

Total yield and quality of forage and range are all affected by air pollution. This presents serious consequences for the state's livestock industry. Compared to grasses grown in clean air, loss in yield of grasses grown in smoggy air is as high as 10 to 20 percent. Moreover, ozone reduces carbohydrate levels of grasses by up to 56 percent.

2.4.3 Damage to Materials

In addition to human health and vegetation, air pollution also damages materials such as plastics, rubber, paint, and metals. Damage includes erosion and discoloration of paint, cracking of rubber, corrosion of metals and electrical components, soiling and decay of building stone and concrete, fading, a reduction of tensile strengths of fabrics, and soiling and crumbling of nonmetallic building materials. High smog concentrations significantly shorten the lifespan of materials, which increases maintenance and replacement costs. The national cost of damage to materials caused by ozone is estimated to range from $1.5 to $3.9 billion every year.

2.5 CRITERIA AIR POLLUTANTS

A criteria air pollutant is any air pollutant for which ambient air quality standards have been set by the U.S. EPA or the ARB. Criteria pollutants include ozone (O_3), fine particulate matter ($PM_{2.5}$), respirable particulate matter (PM_{10}), carbon monoxide (CO), nitrogen dioxide (NO_2), lead (Pb), sulfur dioxide (SO_2), visibility-reducing particles, sulfates, and hydrogen sulfide. The sections below provide more detail about the criteria pollutants of concern in Ventura County.

2.5.1 Ozone

Ozone is formed in the atmosphere by a series of complex chemical reactions and transformations in the presence of sunlight. Oxides of nitrogen (NOx) and reactive organic compounds (ROC) are the principal constituents in these reactions. Ozone is a pungent, colorless, toxic gas and is the major air pollutant of concern in Ventura County.

Sources: Ozone is known as a secondary pollutant because it is formed in the atmosphere through a complex series of chemical reactions, rather than emitted directly into the air. The major sources of NOx in Ventura County are motor vehicles and other combustion processes. The major sources of ROC in Ventura County are motor vehicles, cleaning and coating operations, petroleum production and marketing operations, and solvent evaporation.

Effects: Ozone is a strong irritating gas that can chemically burn and cause narrowing of airways, forcing the lungs and heart to work harder to provide oxygen to the body. A powerful oxidant, ozone is capable of destroying organic matter – including human lung and airway tissue; it essentially burns through cell walls. Ozone damages cells in the lungs, making the passages inflamed and swollen. Ozone also causes shortness of breath, nasal congestion, coughing, eye irritation, sore throat, headache, chest discomfort, breathing pain, throat dryness, wheezing, fatigue, and nausea. It can damage alveoli, the individual air sacs in the lungs where oxygen and carbon dioxide are exchanged. Ozone has been associated with a decrease in resistance to infections. People most likely to be affected by ozone include the elderly, the young, and athletes. Ozone may pose its worst

health threat to people who already suffer from respiratory diseases such as asthma, emphysema, and chronic bronchitis.

2.5.2 Particulate Matter 10 Microns or Smaller in Diameter (PM_{10})

PM_{10} consists of particulate matter (fine dusts and aerosols) ten microns or smaller in aerodynamic diameter. Ten microns is about one-seventh the width of a human hair. When inhaled, particles larger than ten microns generally are caught in the nose and throat and do not enter the lungs. PM_{10} gets into the large upper branches of the lungs just below the throat, where they are caught and removed (by coughing, spitting, or swallowing).

Sources: The primary sources of PM_{10} include: dust, paved and unpaved roads, diesel exhaust, acidic aerosols, construction and demolition operations, soil and wind erosion, agricultural operations, residential wood combustion, and smoke. Secondary sources of PM_{10} include tailpipe emissions and industrial sources. these sources have different constituents, and therefore, varying effects on health. Road dust is compost of many particles other than soil dust. It also includes engine exhaust, tire rubber, oil, and truck load spills. Diesel exhaust contains many toxic particle and elemental carbon (soot), and is considered a toxic air contaminant in California. Airborne particles absorb and adsorb toxic substances and can be inhaled and lodge in the lungs. Once in the lungs, the toxic substances can be adsorbed into the bloodstream and carried throughout the body.

PM_{10} concentrations tend to be lower during the winter months because meteorology greatly affects PM_{10} concentrations. During rain, concentrations are relatively low, and on windy days, PM_{10} levels can be high. Photochemical aerosols, formed by chemical reactions with manmade emissions, may also influence PM_{10} concentrations.

Effects: Elevated ambient particulate levels are associated with premature death, an increased number of asthma attacks, reduced lung function, aggravation of bronchitis, respiratory disease, cancer, and other serious health effects.

Short-term exposure to particulates can lead to coughing, minor throat irritation, and a reduction in lung function. Long-term exposure can be more harmful. The U.S. EPA estimates that eight percent of urban non-smoker lung cancer risk is due to PM_{10} in soot from diesel trucks, buses, and cars. Additional studies by the U.S. EPA and the Harvard School of Public Health estimate that 50,000 to 60,000 deaths per year in the United States are caused by particulates. PM_{10} particles collect in the upper portion of the respiratory system, affecting the bronchial tubes, nose, and throat. They contribute to aggravation of asthma, premature death, increased number of asthma attacks, bronchitis, reduced lung function, respiratory disease, aggravation of respiratory and cardiovascular disease, alteration of lung tissue and structure, changes in respiratory defense mechanisms, and cancer.

2.5.3 Particulate Matter 2.5 Microns or Smaller in Diameter ($PM_{2.5}$)

$PM_{2.5}$ is a mixture of particulate matter (fine dusts and aerosols) 2.5 microns or smaller in aerodynamic diameter. 2.5 micrometers is approximately 1/30 the size of a human hair; so small that several thousand of them could fit on the period at the end of this sentence. Particles 2.5 microns or smaller get down into the deepest portions of the lungs where gas exchange occurs between the air and the blood stream. These are the most dangerous particles because the deepest portions of the lungs have no efficient mechanisms for removing them. If these particles are soluble in water, they pass directly into the blood stream within minutes. If they are not soluble in water, they are retained deep in the lungs and can remain there permanently.

Sources: $PM_{2.5}$ particles are emitted from activities such as industrial and residential combustion processes, wood burning, and from diesel and gasoline-powered vehicles. They are also formed in the atmosphere from gases such as sulfur dioxide, nitrogen oxides, ammonia, and volatile organic compounds that are emitted from combustion activities, and then become particles as a result of chemical transformations in the air (secondary particles).

Effects: $PM_{2.5}$ infiltrates the deepest portions of the lungs and remains there longer, increasing the risks of long-term disease, including chronic respiratory disease, cancer, and increased and premature death. Other effects include increased respiratory stress and disease, decreased lung function, alterations in lung tissue and structure, and alterations in respiratory tract defense mechanisms.

2.5.4 Carbon Monoxide

Carbon monoxide is a common colorless, odorless, highly toxic gas. It is produced by natural and anthropogenic combustion processes.

Sources: The major source of CO in urban areas is incomplete combustion of carbon-containing fuels (primarily gasoline, diesel fuel, and natural gas). However, it also results from combustion processes, including forest fires and agricultural burning. Over 80 percent of the CO emitted in urban areas is contributed by motor vehicles.

Ambient CO concentrations are generally higher in the winter, usually on cold, clear days and nights with little or no wind. Low wind speeds inhibit horizontal dispersion, and surface inversions inhibit vertical mixing.

Traffic-congested intersections have the potential to result in localized high levels of CO. These localized areas of elevated CO concentrations are termed CO “hotspots.” CO hotspots are defined as locations where ambient CO concentrations exceed the State Ambient Air Quality Standards (20 ppm, 1-hour; 9 ppm, 8-hour).

Effects: When inhaled, CO does not directly harm the lungs. The impact from CO is on oxygenation of the entire body. CO combines chemically with hemoglobin, the oxygen-transporting component of blood. This diminishes the ability of blood to carry oxygen to the brain, heart, and other vital organs. Red blood cells have 220 times the attraction for CO than for oxygen. This affinity interferes with movement of oxygen to the body's tissues. Effects from CO exposure include headaches, nausea, and death. People with heart ailments are at risk from low-level exposure to CO. Also sensitive are people with chronic respiratory disease, the elderly, infants and fetuses, and people suffering from anemia and other conditions that affect the oxygen-carrying capacity of blood. High levels of CO in a concentrated area can result in asphyxiation. Studies show a synergistic effect when CO and ozone are combined.

2.5.5 Nitrogen Dioxide

Nitrogen dioxide is formed in the atmosphere primarily by the rapid reaction of the colorless gas nitric oxide (NO) with atmospheric oxygen. It is a reddish brown gas with an odor similar to that of bleach. NO_2 participates in the photochemical reactions that result in ozone.

Sources: The greatest source of NO, and subsequently NO_2, is the high-temperature combustion of fossil fuels such as in motor vehicle engines and power plant boilers. NO_2 and NO are referred to collectively as NOx.

Effects: NO_2 can irritate and damage the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections such as influenza. Researchers have identified harmful effects similar to those caused by ozone, with progressive changes over four hours of exposure. Negative health effects are apparent after exposure to NO_2 levels as low as 0.11 ppm for a few minutes. This level of exposure may elicit or alter sensory responses. Higher concentrations (0.45 - 1.5 ppm) may cause impaired pulmonary function, increased incidence of acute respiratory disease, and difficult breathing for both bronchitis sufferers and healthy persons.

2.5.6 Lead

Lead is a bluish-gray metal that occurs naturally in small quantities. Lead also occurs in a variety of compounds such as lead acetate, lead chloride, lead chromate, lead nitrate, and lead oxide. Pure lead is insoluble in water. However, some lead compounds are water-soluble.

Sources: Lead and lead compounds in the atmosphere often come from fuel combustion sources, such as the burning of solid waste, coal, and oils. Historically, the largest source of lead in the atmosphere resulted from the combustion of leaded gasoline in motor vehicles. However, with the phase-out of leaded gasoline, concentrations of lead in the air have substantially decreased. Industrial sources of atmospheric lead

include steel and iron factories, lead smelting and refining, and battery manufacturing. Atmospheric lead may also result from lead in entrained dust and dirt contaminated with lead. Lead-based paints were commonly used in the past, and lead paint chips or dust can be inhaled or ingested.

Effects: Acute health effects of lead may include gastrointestinal distress (such as colic), brain and kidney damage, and even death. Lead also has numerous chronic health effects, including anemia, central nervous system damage, and male and female reproductive dysfunction, as well as effects on blood pressure, kidney function, and vitamin D metabolism. Developing fetuses and children are particularly sensitive to lower concentrations of blood lead, and the effects may include increased risk of pre-term delivery, low birth weight, and the impairment of hearing, growth, and mental development. The U.S. EPA's Office of Air Quality Planning and Standards ranks lead as a "high concern" pollutant based on its severe chronic toxicity. Human studies regarding the cancer risks of lead have been inconclusive. However, the U.S. EPA considers lead to be a probable human carcinogen.

2.5.7 Sulfur Dioxide

Sulfur dioxide is a colorless gas with a sharp, irritating odor. It can react in the atmosphere to produce sulfuric acid and sulfates, which contribute to acid deposition and atmospheric visibility reduction. It also contributes to the formation of PM_{10}.

Sources: Most of the SO_2 emitted into the atmosphere is from burning sulfur-containing fossil fuels by mobile sources such as marine vessels and farm equipment, and stationary fuel combustion.

Effects: SO_2 irritates the mucous membranes of the eyes and nose, and may also affect the mouth, trachea, and lungs. Healthy people may experience sore throats, coughing, and breathing difficulties when exposed to high concentrations. SO_2 causes constriction of the airways and poses a health hazard to asthmatics, who are very sensitive to SO_2. Research indicates that normally-breathing asthmatics performing moderate to heavy exercise will experience SO_2-induced bronchoconstriction (breathing difficulties) when breathing SO_2 for at least five minutes at concentrations lower than one part per million. Consecutive SO_2 exposures (repeated within 30 minutes or less) result in a diminished response compared with the initial exposure. Children often experience more respiratory tract infections when they are exposed to SO_2.

2.6 TOXIC AIR CONTAMINANTS

Toxic air contaminants (TACs), also referred to as hazardous air pollutants, are air pollutants (excluding O_3, CO, SO_2, and NO_2) that may reasonably be anticipated to cause cancer, developmental effects, reproductive dysfunction, neurological disorders, heritable gene mutations, or other serious or irreversible acute or chronic health effects in humans.

TACs are regulated under different federal and state regulatory processes than ozone and the other criteria air pollutants. Health effects of TACs may occur at extremely low levels and it is typically difficult to identify levels of exposure that do not produce adverse health effects.

TACs generally consist of four types: organic chemicals, such as benzene, dioxins, toluene, and percholorethylene; inorganic chemicals such as chlorine and arsenic; fibers such as asbestos; and metals such as mercury, cadmium, chromium, and nickel. These air contaminants are defined by the U.S. EPA, the State of California, and other governmental agencies. Currently, more than 900 substances are regulated TACs under federal, state, and local regulations. Appendix D, Major Toxic Air Contaminant Regulations and Common Toxic Air Contaminant Sources and Substances, presents the major federal and state programs and regulations to reduce toxic air contaminant emissions.

Sources: Toxic air contaminants are produced by a great variety of sources, including industrial facilities such as refineries, chemical plants, chrome plating operations, and surface coating operations; commercial facilities such as dry cleaners and gasoline stations, motor vehicles, especially diesel-powered vehicles; and, consumer products. TACs can be released as a result of normal industrial operations, as well as from accidental releases during process upset conditions.

Effects: Health effects from TACs vary with the type of pollutant, the concentration of the pollutant, the duration of exposure, and the exposure pathway. TACs usually get into the body through breathing, although they can also be ingested, or absorbed through the skin.

Adverse effects on people tend to be either acute (short-term) or chronic (long-term). Acute effects result from short-term, high levels of airborne toxic substances. These effects may include nausea, skin irritation, caridiopulomary distress, and even death. Chronic effects result from long-term, low level exposure to airborne toxic substances. Effects can range from relatively minor to life-threatening. Less serious chronic effects can include skin rashes, dry skin, coughing throat irritation, and headaches. More serious chronic effects can include lung, liver, and kidney damage; nervous system damage; miscarriages, and genetic and birth defects; and, cancer. Many TACs can have both carcinogenic and non-carcinogenic health effects.

2.7 OTHER POLLUTANTS OF CONCERN

2.7.1 San Joaquin Valley Fever

San Joaquin Valley Fever (formally known as Coccidioidomycosis) is an infectious disease caused by the fungus *Coccidioides immitis*. San Joaquin Valley Fever is also known as Valley Fever, Desert Fever, or Cocci.

Sources: Infection is caused by inhalation of *Coccidioides immitis* spores that have become airborne when dry, dusty soil or dirt is disturbed by wind, construction, farming, or other activties. The Valley Fever fungus tends to be found at the base of hillsides, in virgin, undisturbed soil. It usually grows in the top few inches of soil, but can grow down to 12 inches. The fungus does not survive well in highly populated areas because there is not usually enough undisturbed soil for the fungus to grow. Additionally, the fungus is not likely to be found in soil that has been or is being cultivated and fertilized. This is because manmade fertilizers, such as ammonium sulfate, enhance the growth of the natural microbial competitors of the Valley Fever fungus. Infection is most frequent during summers that follow a rainy winter or spring, especially after wind and dust storms. Valley Fever infection is common only in arid and semiarid areas of the Western Hemisphere. In the United States, it is mostly found from Southern California to southern Texas. In Ventura County, the Valley Fever fungus is most prevalent in the county's dry, inland regions.

Effects: In its primary form, symptoms appear as a mild upper respiratory infection, acute bronchitis, or pneumonia. The most common symptoms are fatigue, cough, chest pain, fever, rash, headache, and joint aches, although 60 percent of people infected are asymptomatic and do not seek medical attention. In the remaining 40 percent, symptoms range from mild to severe. A small percentage, less than one percent, die as a result of the disease.

The incubation period for the primary infection is from one to four weeks. Occasionally, a progressive form of Valley Fever develops from the primary form and may appear after a few weeks, months, or even years. In this progressive form, Valley Fever may cause a chronic infection of many organs, including the skin, lymph glands, spleen, liver, bones, kidneys, and brain. Individuals most vulnerable to Valley Fever are agricultural workers, construction and road workers, and archeologists, because they are exposed to the soil where the fungus might be just below the surface. Many infections, however, occur in persons without occupational exposure. Of those without an occupational risk of contracting the disease, the most susceptible are those with suppressed immune systems due to such conditions as organ transplants, HIV infection, Hodgkin's disease, diabetes, and pregnancy (3^{rd} trimester). Domestic animals, especially dogs, are also susceptible to Valley Fever.

There are about 100,000 new cases of Valley Fever per year in the southwestern United States. The average number of reported new cases of Valley Fever in Ventura County before 1994 was 40 per year. In 1994, the year of the Northridge earthquake, the number of reported new cases of Valley Fever was 243. This increase was attributed to the great quantities of airborne dust generated by the Northridge earthquake. Since 1995, the number of reported cases has been comparable to the average before 1994. However, the actual number of cases may be much higher because Valley Fever is often misdiagnosed as the flu and not reported by physicians.

2.7.2 Odors

Odors are substances in the air that pose a nuisance to nearby land uses such as residences, schools, daycare centers, and hospitals. Odors are typically not a health concern, but can interfere with the use and enjoyment of nearby property.

Sources: Odors may be generated by a wide variety of sources. Following are examples of facilities and operations that may generate significant odors:

- Wastewater treatment facilities
- Sanitary landfills
- Transfer stations
- Composting facilities
- Asphalt batch plants
- Painting and coating operations
- Fiberglass operations
- Food processing facilities
- Feed lots/ dairies
- Petroleum extraction, transfer, processing, and refining operations and facilities
- Chemical manufacturing operations and facilities
- Rendering plants

Effects: Objectionable odors created by a facility or operation may cause a nuisance or annoyance to surrounding populations.

2.7.3 Fugitive Dust

Fugitive dust refers to solid particulate matter that becomes airborne because of wind action and human activities. Fugitive dust particles are mainly soil minerals, but also can be sea salt, pollen, spores, tire particles, etc. About half of fugitive dust particles (by weight) are larger than 10 microns and settle quickly. Fugitive dust particles 10 microns or smaller can remain airborne for weeks.

Sources: The primary sources of fugitive dust are grading and excavation operations associated with road and building construction, aggregate mining and processing operations, and sanitary landfill operations. Unpaved roadways also are a large source of fugitive dust. Other sources of fugitive dust include demolition activities, unpaved roadway shoulders, vacant lots, material stockpiles, abrasive blasting operations, and off-road vehicles. The amount of fugitive dust created by such activities is dependent largely on the type of soil, type of operation taking place, size of the area, degree of soil disturbance, soil moisture content, and wind speed.

Effects: When fugitive dust particles are inhaled, they can travel easily to the deep parts of the lungs and may remain there, causing respiratory illness, lung damage, and even

premature death in sensitive people. Fugitive dust also may be a nuisance to those living and working nearby. Dust blown across roadways can lead to traffic accidents by reducing visibility. Fugitive dust can soil and damage materials and property, such as fabrics, vehicles, and buildings. Particulates deposited on agricultural crops can lower crop quality and yield. Additionally, fugitive dust can lead to the spread of San Joaquin Valley Fever, a potential health hazard caused by a fungus that lives in the soil.

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3. AIR QUALITY SIGNIFICANCE THRESHOLDS

3.1 INTRODUCTION

The Ventura County Air Pollution Control District (APCD or District) reviews and comments on the adequacy and accuracy of environmental documents for projects that may affect air quality in Ventura County. Such documents include Notices of Preparation, Initial Studies, Negative Declarations, Mitigated Negative Declarations (MND), and Environmental Impact Reports (EIR). The APCD recommends that an MND or an EIR be prepared for projects that meet one or more of the significance criteria listed below.

As stated in Chapter 1, these criteria are guidelines only. The final decision on the significance of air quality impacts, the appropriate environmental document, and mitigation measures, lies with the lead agency for the project. These Guidelines are not applicable to equipment, operations, or processes required to have an APCD Permit to Operate.

3.2 DEFINITION OF SIGNIFICANCE

Section 15002(g) of the California Environmental Quality Act (CEQA) Guidelines defines "significant effect on the environment" as "a substantial adverse change in the physical conditions that exist in the area affected by the proposed project." When an environmental document identifies a significant environmental effect, the government agency approving the project must make findings as to whether the adverse environmental effects have been substantially reduced or if not, why they were not substantially reduced. Appendix G, Environmental Checklist Form, of the state CEQA Guidelines presents a model initial study checklist. This checklist includes suggested criteria, in question format, for determining whether a project will have a "potentially significant impact" on air quality. According to the criteria, a project will have a "potentially significant impact" on air quality if it will:

- Conflict with or obstruct implementation of the applicable air quality plan.
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors).
- Expose the public (especially schools, day care centers, hospitals, retirement homes, convalescence facilities, and residences) to substantial pollutant concentrations.
- Create objectionable odors affecting a substantial number of people.

According to Appendix G, a "potentially significant impact" finding is appropriate if there is substantial evidence that an effect may be significant.

In addition, the Ventura County Air Pollution Control Board has adopted a policy stating that general development projects whose emissions are expected to meet or exceed the criteria in Section 3.3, "Recommended Significance Criteria," will have a potentially significant adverse impact on air quality.

3.3 RECOMMENDED SIGNIFICANCE CRITERIA

The following are suggested threshold criteria for determining whether an EIR or an MND should be prepared for a development project to address potential adverse air quality impacts. Tests of significance are not limited to the criteria listed below. Other factors, especially those related to the location of the project and potential impacts on nearby populations (e.g., schools, day care centers, residences, and hospitals) also should be examined. These include: proximity of the project to populated areas, proximity of the proposed project to other pollutant sources (e.g., industrial facilities emitting odorous or hazardous substances), and projects with potential land use conflicts.

3.3.1 Criteria Pollutants

1. Ozone (based on emission levels of reactive organic compounds and oxides of nitrogen)

   The following are the reactive organic compounds (ROC) and nitrogen oxides (NOx) thresholds that the Ventura County Air Pollution Control Board has determined will individually and cumulatively jeopardize attainment of the federal one-hour ozone standard, and thus have a significant adverse impact on air quality in Ventura County. Chapter 5, Estimating Ozone Precursor Emissions, presents procedures for estimating project emissions.

   (a) Ojai Planning Area*

Reactive Organic Compounds:	5 pounds per day
Nitrogen Oxides:	5 pounds per day

   (b) Remainder of Ventura County**

Reactive Organic Compounds:	25 pounds per day
Nitrogen Oxides:	25 pounds per day

   * The Ojai Planning Area is the area defined as the "Ojai Valley" in Ventura County Non-Coastal Zoning Ordinance, Article 12, Section 8112-2, plus the Ventura (Ojai) Non-growth Area (NGA) (as depicted in the *1987 Ventura County Air Quality Management Plan* (AQMP), Appendix E-87, Figure E-1,

"Map of Ventura County with Growth/Nongrowth Areas," page E-11). In these Guidelines, see Figure 3-1, "Ojai Planning Area."

** The City of Simi Valley uses a significance threshold of 13.7 tons per year of reactive organic compounds or nitrogen oxides, as directed by the City of Simi Valley City Council.

2. Criteria Pollutants – General

A project that may cause an exceedance of any ambient air quality standard (state or federal), or may make a substantial contribution to an existing exceedance of an air quality standard will have a significant adverse air quality impact. "Substantial" is defined as making measurably worse an existing exceedance of a state or federal ambient air quality standard. For example, a project that directly or indirectly produces large quantities of carbon monoxide (CO) could cause an exceedance of the state or federal CO standards. Such a determination may require the use of an appropriate air quality model.

3. Ozone – Cumulative Impacts Based on Project-Specific AQMP Consistency

A project with emissions of two pounds per day or greater of ROC, or two pounds per day or greater of NOx that is found to be inconsistent with the AQMP will have a significant cumulative adverse air quality impact. A project with emissions below two pounds per day of ROC, and below two pounds per day of NOx, is not required to assess consistency with the AQMP.

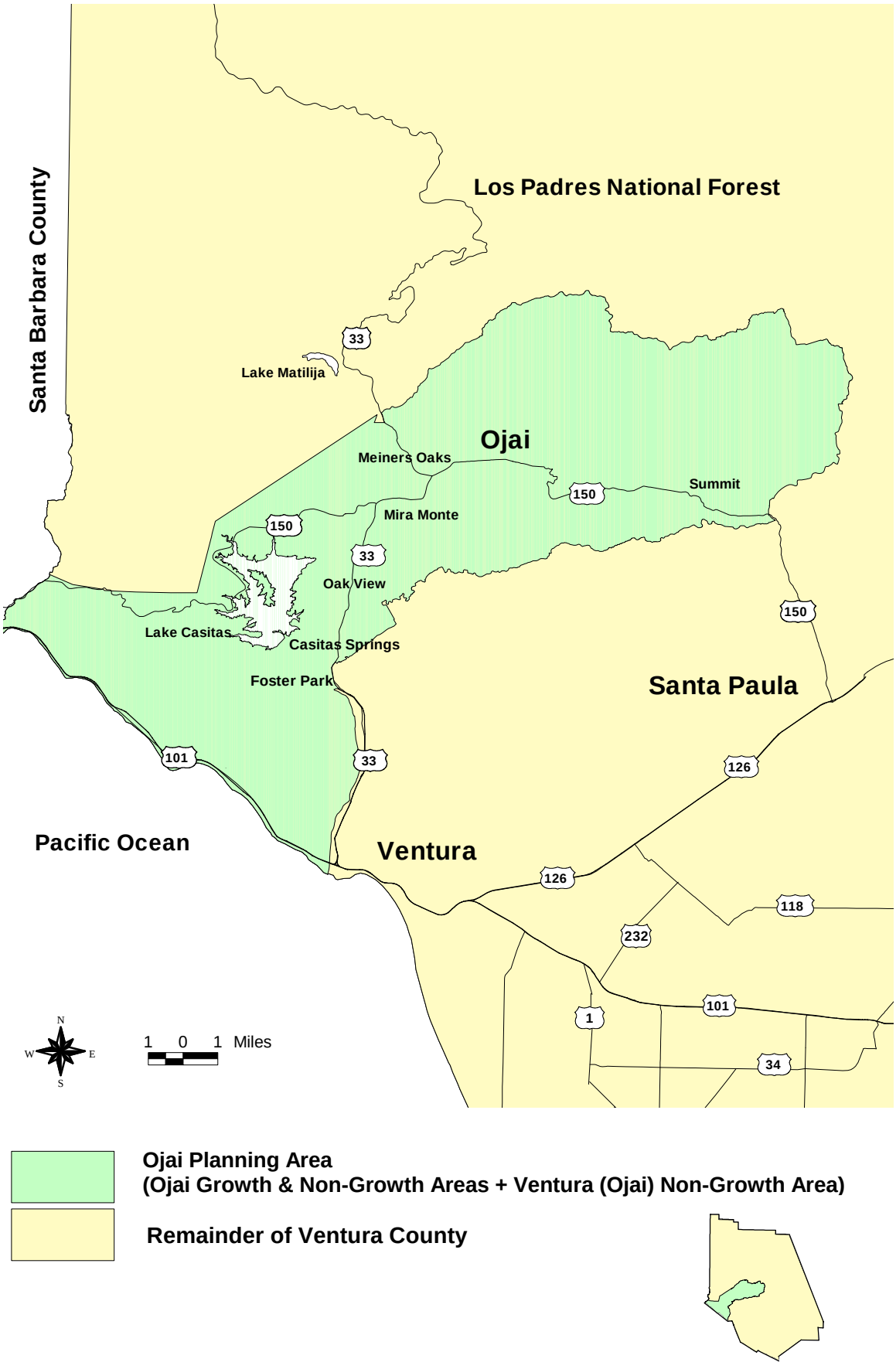
Inconsistent projects are usually those that cause the existing population to exceed the population forecasts contained in the most recently adopted AQMP. Chapter 4, Air Quality Management Plan Consistency, presents specific procedures for determining project consistency with the AQMP. Those procedures should be followed before making a final consistency determination for a project.

4. Ozone – Cumulative Impacts Based on General Plan AQMP Consistency

Any General Plan Amendment or revision that would provide directly or indirectly for increased population growth above that forecasted in the most recently adopted AQMP will have a significant cumulative adverse air quality impact.

FIGURE 3-1

OJAI PLANNING AREA



3.3.2 Other Pollutants of Concern

1. Fugitive Dust

   (a) A project that may be reasonably expected to generate fugitive dust emissions in such quantities as to cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which may endanger the comfort, repose, health, or safety of any such person or the public, or which may cause, or have a natural tendency to cause, injury or damage to business or property (see California Health and Safety Code, Division 26, §41700) will have a significant adverse air quality impact.

   (b) A project for which an appropriate air dispersion modeling analysis shows a possible violation of an ambient particulate standard will have a significant adverse air quality impact.

   Chapter 6, Assessing Project-Specific, Localized, Non-Ozone Impacts, includes a discussion of fugitive dust emissions.

2. Toxic Air Contaminants

   Impacts from toxic air contaminants (TACs) may be estimated by conducting a health risk assessment (HRA). The HRA procedure involves the use of an air quality model and a protocol approved by the APCD. Following are the recommended significance thresholds:

   (a) Lifetime probability of contracting cancer is greater than 10 in one million (as identified in an HRA).

   (b) Ground-level concentrations of non-carcinogenic toxic air pollutants would result in a Hazard Index of greater than 1 (as identified in an HRA).

   The Hazard Index is determined by dividing the "annual exposure level" by the "reference exposure level." The "annual exposure level" (AEL) is the estimated annual average concentration level of a TAC that is estimated to occur as a result of the proposed project. The "reference exposure level" (REL) is a concentration level or dose, at or below which no adverse health effects are anticipated. RELs generally are based on the most sensitive adverse health effect reported in the medical and toxicological literature.

   Chapter 6, Assessing Project-Specific, Localized, Non-Ozone Impacts, includes a discussion of toxic air pollutants.

3. Odors

A qualitative assessment indicating that a project may reasonably be expected to generate odorous emissions in such quantities as to cause detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which may endanger the comfort, repose, health, or safety of any such person or the public, or which may cause, or have a natural tendency to cause, injury or damage to business or property (see California Health and Safety Code, Division 26, §41700) will have a significant adverse air quality impact.

Chapter 6, Assessing Project-Specific, Localized, Non-Ozone Impacts, provides a discussion of odors.

3.4 CHOOSING THE APPROPRIATE ENVIRONMENTAL DOCUMENT FOR AIR QUALITY IMPACT ANALYSES

1. Negative Declaration

A negative declaration is appropriate if all of the following apply:

- The project will emit less than 5 pounds per day of ROC and less than 5 pounds per day of NOx in the Ojai Planning Area, or less than 25 pounds per day of ROC and less than 25 pounds per day of NOx in the remainder of the county.
- The project will be consistent with the most recently adopted AQMP.
- The project does not require a General Plan Amendment that will directly or indirectly increase population growth above that forecasted in the most recently adopted AQMP.
- The project will not have any other significant adverse air quality impacts.

2. Mitigated Negative Declaration

A mitigated negative declaration is appropriate if all of the following apply:

- Mitigation measures have been agreed to by the project applicant that reduce project emissions to less than 5 pounds per day of ROC and less than 5 pounds per day of NOx in the Ojai Planning Area, or less than 25 pounds per day of ROC and less than 25 pounds per day of NOx in the remainder of the county.
- The project will be consistent, or made to be consistent, with the most recently adopted AQMP.
- The project does not require a General Plan Amendment that will directly or indirectly increase population growth above that forecasted in the most recently adopted AQMP.

- There are no other significant air quality impacts, or the applicant has agreed to mitigate all other air quality impacts.

- The project applicant has agreed to mitigate project-related significant air quality impacts through a revision to the project description.

3. Environmental Impact Report

An EIR should be prepared for any project that meets or exceeds one or more of the significance criteria listed in Section 3.3, "Significance Criteria," and the project cannot qualify for an MND.

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4. AIR QUALITY MANAGEMENT PLAN CONSISTENCY

4.1 INTRODUCTION

The primary objective of the *Ventura County Air Quality Management Plan* (AQMP) is to provide continuous air pollutant emission reductions over time, with the goal of attaining the federal and state standards for ozone. City and county growth consistent with the AQMP is a vital component of the overall AQMP ozone control strategy to ensure continued progress towards attaining the federal and state ozone standards.

Section 15125(d) of the California Environmental Quality Act (CEQA) Guidelines stipulates that Environmental Impact Reports (EIR) shall discuss "any inconsistencies between a 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)..." Moreover, pursuant to Appendix G, "Environmental Checklist Form," of the state CEQA Guidelines, a project that would "conflict with or obstruct implementation of the applicable air quality plan" may have a significant adverse air quality impact. The lead agency proposing to approve or implement the project is responsible for making the AQMP consistency determination.

An environmental document for a proposed project must address project consistency with the AQMP. Project consistency with the AQMP can be determined by comparing the actual population growth in the county with the projected growth rates used in the AQMP. The projected growth rate in population is used as an indicator of future emissions from population-related emission categories in the AQMP. These emission estimates are used, in part, to project the date by which Ventura County will attain the federal ozone standard. The County of Ventura Planning Division maintains an ongoing population tracking system. Therefore, a demonstration of consistency with the population forecasts used in the most recently adopted AQMP should be used for assessing project consistency with the AQMP.

However, if there are more recent population forecasts that have been adopted by the Ventura Council of Governments (VCOG) where the total county population is lower than that included in the most recently adopted AQMP population forecasts, lead agencies may use the more recent VCOG forecasts for determining AQMP consistency.

The geographic subareas used in the forecasts are known as growth and non-growth areas. These areas are based on a network of analysis zones created by the State Department of Transportation and the Ventura County Public Works Agency. The growth and non-growth areas are comprised of aggregated analysis zones.

Figure 4-1, "Ventura County Growth and Non-growth Areas," is a map that shows the growth and non-growth areas of the county. This map is based on the February 1998 version of the 1990 Analysis Zones map prepared by the Graphics Division of the

Resource Management Agency. The entire present and projected boundary area of each of the ten cities in the county is within a respective growth area. In addition to the ten growth areas, there are three unincorporated growth areas. The unincorporated growth areas include urbanized development that has already occurred, or is expected to occur under the Ventura County General Plan. An example is the Piru Growth Area. The remainder of the AQMP population forecast covers the unincorporated non-growth areas. These areas are not expected to receive significant urban development. All of the non-growth areas, except for the Ojai Non-growth Area, are aggregated together for AQMP consistency assessment purposes. The excepted area comprises part of the Ojai Valley.

4.2 PROCEDURES FOR DETERMINING CONSISTENCY WITH THE AQMP

The following sections describe the procedures for determining project consistency with the AQMP. Consistency with the AQMP does not mean that a project will not have a significant project-specific adverse air quality impact. However, inconsistency with the AQMP is considered a significant cumulative adverse air quality impact.

A project with estimated emissions two pounds per day or greater of reactive organic compounds (ROC), or two pounds per day or greater of nitrogen oxides (NOx) that is inconsistent with the AQMP will have a significant cumulative adverse air quality impact. Inconsistent projects are usually those that cause the existing population to exceed the population forecasts contained in the most recently adopted AQMP (see Table 4-1, "1995 AQMP Population Forecasts").

In addition to addressing consistency with the population forecasts, the air quality impact assessment should also address project consistency with emission reduction strategies included in the AQMP. The AQMP contains a number of transportation and energy control measures that help to reduce project emissions. These often can be used to help reduce a project's indirect emissions. Transportation and energy conservation control measures should be incorporated into the project design early in the planning process.

4.2.1 Projects Exempt from Consistency Assessments

A project that conforms to the applicable General Plan designation and has emissions below two pounds per day of ROC, and below two pounds per day of NOx, is not required to assess consistency with the AQMP. Consequently, a project with emissions below these levels is also considered to have a less than significant cumulative adverse air quality impact.

4.2.2 General Plan Amendments

Any General Plan Amendment that will result in population growth above that forecasted in the most recently adopted AQMP is inconsistent with the AQMP. It will therefore have a significant cumulative adverse air quality impact.

TABLE 4-1
1995 AQMP POPULATION FORECASTS*

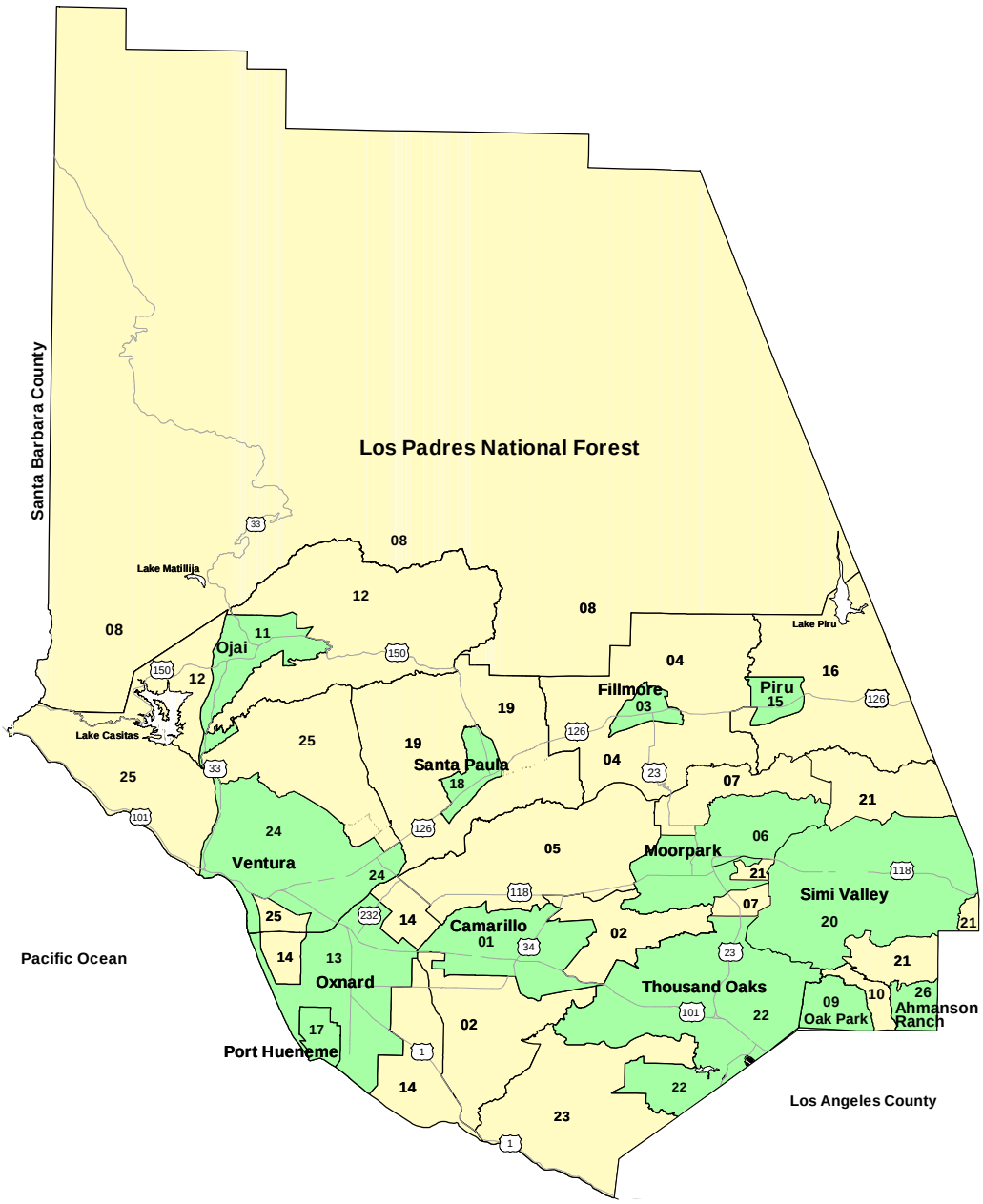
	2000	2001	2002	2003	2004	2005
Growth Areas						
Ahmanson Ranch	5,203	5,500	5,793	6,087	6,379	6,669
Camarillo	67,916	68,761	69,599	70,428	71,253	72,072
Fillmore	17,833	17,991	18,149	18,305	18,460	18,614
Moorpark	39,591	40,975	42,389	43,791	45,185	46,570
Oak Park	17,098	17,098	17,100	17,100	17,101	17,101
Oxnard	161,000	162,408	163,800	165,184	166,557	167,918
Piru	1,604	1,634	1,667	1,697	1,727	1,759
Port Hueneme	25,875	26,236	26,595	26,950	27,304	27,654
Santa Paula	30,070	30,548	31,021	31,493	31,963	32,429
Simi Valley	121,170	123,212	125,235	127,243	129,232	131,207
Thousand Oaks	122,816	124,010	125,192	126,369	127,533	128,691
Ventura	110,000	111,001	112,001	112,999	114,000	115,000
Ojai G/NGAs**	30,060	30,258	30,456	30,648	30,837	31,032
Non-growth Areas						
Aggregated NGAs***	26,182	26,592	26,978	27,379	27,758	28,158
County Total	776,418	786,224	795,975	805,673	815,289	824,874

* Based on population forecasts adopted by VCOG on June 24, 1993, and used in the 1995 AQMP Revision, Appendix E-95. Population forecasts from the most recently adopted AQMP should be used for AQMP consistency analyses. If there are more recent population forecasts that have been adopted by VCOG where the total county population is lower than that included in the most recently adopted AQMP, lead agencies may use the more recent VCOG forecasts for determining AQMP consistency. Contact APCD staff at 805/645-1427 or 805/645-1439 for questions about the most current population forecasts.

** G/NGAs = Growth and Non-growth areas.

*** Excludes the Ojai Non-growth Area.

FIGURE 4-1
VENTURA COUNTY GROWTH AND NON-GROWTH AREAS



GROWTH AREAS

01 Camarillo GA
03 Fillmore GA
06 Moorpark GA
09 Oak Park GA
11 Ojai GA
13 Oxnard GA
15 Piru GA
17 Port Hueneme GA
18 Santa Paula GA
20 Simi Valley GA
22 Thousand Oaks GA
24 Ventura GA
26 Ahmanson Ranch GA

NON-GROWTH AREAS

02 Camarillo NGA
04 Fillmore NGA
05 Las Posas NGA
07 Moorpark NGA
08 North Half NGA
10 Oak Park NGA
12 Ojai NGA
14 Oxnard NGA
16 Piru NGA
19 Santa Paula NGA
21 Simi Valley NGA
23 Thousand Oaks NGA
25 Ventura NGA

4.2.3 General Land Use Development Projects

The following procedures should be used to determine project consistency with the AQMP for projects conforming to applicable general plans and having emissions of two pounds or greater per day of ROC or two pounds or greater per day of NOx.

Using Figure 4-1, "Ventura County Growth and Non-growth Areas," determine the growth or non-growth area in which the project is located. If the appropriate growth or non-growth area cannot be determined, contact the APCD Planning Division at 805/645-1427 or 805/645-1439.

If the project is in a growth area, refer to Section 4.2.3.1, "Projects Located in Growth Areas (Except Ojai Growth Area)." If the project is in a non-growth area, refer to Section 4.2.3.2, "Projects Located in Non-growth Areas (Except Ojai Non-growth Area)." If the project is located in the Ojai Growth or Non-growth area, refer to Section 4.2.3.3, "Projects Located in the Ojai Growth and Non-growth Areas."

4.2.3.1 Projects Located in Growth Areas (Except Ojai Growth Area)

1. Determine if the project conforms to the applicable General Plan.

2. Determine the current estimated population of the growth area. This information can be provided by APCD Planning Division staff.

3. Compare the current estimated population of the growth area (obtained in step 2 above) with the growth area population target for the next year. For example, if the current year is 2000, compare the estimated existing population of the growth area with the population target for 2001. Refer to Table 4-1, "1995 AQMP Population Forecasts."

   If the current estimated population of the growth area is below its next year's population target, and the project conforms to the applicable General Plan designation, the project is determined to be consistent with the AQMP.

4. If the current estimated population of the growth area exceeds its next year's population target, the project should be found to be inconsistent with the AQMP. Inconsistency with the AQMP is considered a significant cumulative adverse air quality impact.

4.2.3.2 Projects Located in Non-growth Areas (Except Ojai Non-growth Area)

1. Determine if the project conforms to the applicable General Plan.

2. Determine the current estimated population of the aggregated non-growth areas.

This information can be provided by APCD Planning Division staff.

3. Compare the current estimated population of the aggregated non-growth areas (obtained in step 2 above) with the aggregated non-growth area population target for the next year. For example, if the current year is 2000, compare the estimated existing population of the aggregated non-growth areas with the population target for 2001. Refer to Table 4-1, "1995 AQMP Population Forecasts."

   If the current estimated population of the aggregated non-growth areas is below its next year's population target, and the project conforms to the applicable General Plan designation, the project is determined to be consistent with the AQMP.

4. If the current estimated population of the aggregated non-growth areas exceeds its next year's population target, the project should be found to be inconsistent with the AQMP. Inconsistency with the AQMP is considered a significant cumulative adverse air quality impact.

4.2.3.3 Projects Located in the Ojai Growth and Non-growth Areas

Consistency with the population forecasts for the Ojai Growth and Non-growth Areas (also known as the Ojai Valley) is assured due to Article 12 of the Ventura County Non-Coastal Zoning Ordinance. Article 12, which was adopted in July 1982, established a residential building permit allocation program to ensure consistency with the adopted AQMP population projections.

4.3 INCONSISTENCY WITH THE AQMP AND CUMULATIVE ADVERSE AIR QUALITY IMPACTS

A project that is determined to be inconsistent with the AQMP is also determined to have a significant cumulative adverse air quality impact. If a project is inconsistent, there are several options:

1. The project could be revised to eliminate the inconsistency. Project revisions might require that the project be phased, reduced in size, or delayed to ensure consistency with the AQMP population forecasts.

2. Mitigation measures could be applied to reduce or eliminate the inconsistency. This could consist of a jurisdiction adopting a residential building permit allocation program to pace population growth with the AQMP population forecasts in such a way as to ensure that population projections contained in the AQMP are not exceeded.

3. The project could be denied.

4. The project could be approved if the lead agency determines and issues a statement

that there are overriding considerations to approve the project. This does not relieve the decision-making body of the requirement to mitigate the impact to the maximum extent feasible, as required by Section 15126(c) of the CEQA Guidelines.

A finding that a project is consistent with the AQMP does not necessarily ensure that a project will not have a significant project-specific adverse impact on air quality. The recommended criteria for determining whether a project will have an adverse impact on air quality can be found in Section 3.3, "Recommended Significance Criteria."

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5. ESTIMATING OZONE PRECURSOR EMISSIONS

5.1 INTRODUCTION

The primary source of air pollutant emissions associated with residential, commercial, institutional, and some industrial land uses, is motor vehicles. These land uses may not result in significant amounts of direct emissions, but they may generate motor vehicle trips, whose emissions may adversely affect air quality. These land uses are therefore often referred to as "indirect" emission sources.

This chapter describes four methods that are recommended for estimating ozone precursor emissions, all based on the URBEMIS computer program. The California Air Resources Board (ARB) originally developed this program in 1982. As of October 2003, the most current version of the URBEMIS program is URBEMIS2002. This computer program is designed to estimate air emissions from land use development projects. URBEMIS2002 uses ARB's most recent motor vehicle emission factor model, EMFAC2002 (hence the nameURBEMIS2002). As stated in Chapter 1, the Guidelines are not applicable to equipment or operations required to have Ventura County APCD permits (Authority to Construct or Permit to Operate). Moreover, the emissions from equipment or operations requiring APCD permits are not counted towards the air quality significance thresholds.

Previous versions of URBEMIS (URBEMIS versions 1 through 5) were designed to estimate only motor vehicle emissions from trips generated by land use development. URBEMIS has been enhanced so that the user also can estimate construction and area source emissions. Area sources are groups of similar emission sources that do not contribute significant amounts of emissions individually, but do contribute significantly in the aggregate. Examples of area sources include fuel combustion from natural gas appliances, utility engines (including landscape maintenance equipment), and consumer products. URBEMIS also now allows the user to select mitigation measures for construction emissions, area source emissions, and project operational emissions (see Sections 7.4, "Construction Mitigation," 7.5.1, "Area Source Mitigation Measures," and 7.5.2, "Operational Mitigation Measures"). URBEMIS2002 contains several additional land uses, major enhancements to the construction emissions and mitigation measures module, and includes a screening analysis option.

Motor vehicle trip rates in URBEMIS are based primarily on the average daily trip data for the various land uses in the Institute of Transportation Engineers' (ITE) publication *Trip Generation*, Sixth Edition (1997). Motor vehicle trip generation rates different than those listed in ITE's *Trip Generation* or URBEMIS can be used if the lead agency is provided justification and documentation to its satisfaction that such changes are warranted. Documentation and justification of any changes to the URBEMIS default values should be included in the environmental document.

URBEMIS requires entry of specific information concerning the number and type of units for each land use. It also requires entry of information specific to Ventura County. Ventura County-specific default inputs are contained in copies of the program obtained from the Ventura County Air Pollution Control District (APCD or District), the ARB (http://www.arb.ca.gov/planning/urbemis/urbemis2002/urbemis2002.htm), or the South Coast Air Quality Management District (http://www.aqmd.gov/ceqa/urbemis.html).

Ventura County-specific default inputs to the URBEMIS computer program are presented in Section 5.3.3.1, "Ventura County-Specific Default Inputs to the URBEMIS Computer Program." Input values other than the Ventura County-specific defaults may be used for calculating emissions. Likewise, modified trip generation rates and percent work trips also may be used. However, as stated earlier, if different values are used, full documentation and justification for the different values should be provided to the satisfaction of the lead agency that such changes are warranted

Appendix E, Definition of Land Use Categories for Trip Generation and Project Emission Calculation Purposes, contains definitions of all of the land uses contained in ITE's *Trip Generation*. The sixth edition of the ITE manual contains nineteen new land use classifications, revisions to several land use descriptions, and updated trip generation factors for various land uses. Not all of the land uses in ITE's *Trip Generation* are in URBEMIS. However, URBEMIS inputs can be easily modified so that emissions from land uses not in URBEMIS can be calculated using URBEMIS.

Appendix F, Project Screening Analysis Tables, contains land uses, organized by project size and year of project completion, listing the size of land use (in terms of dwelling units, square feet, or fueling positions) that will exceed the reactive organic compounds (ROC) and oxides of nitrogen (NOx) significance thresholds described in Chapter 3 (see also Section 5.3.1, "Project Screening Analysis Tables"). Projects smaller than the applicable values in Appendix F will not have a significant adverse impact on air quality with respect to ROC and/or NOx emissions. Although a project may fall below the applicable ROC or NOx threshold values in Appendix F, the project should still be assessed for other potential significant air quality impacts, such as fugitive dust, odors, toxic air contaminants, and project consistency with the AQMP.

APCD recommends that lead agencies use the most recent version of URBEMIS adopted by the ARB and the corresponding version of EMFAC. Trip generation factors should be obtained from the most recent version of ITE's *Trip Generation*, or other sources, as appropriate, with justification and documentation to the satisfaction of the lead agency that such changes are warranted.

5.2 CALCULATING OZONE PRECURSOR EMISSIONS FROM PROJECT CONSTRUCTION

Construction operations generate ROC, NOx, fugitive dust emissions, and possibly air toxics. This section discusses methodologies for calculating ROC and NOx emissions from project construction. The methodology to estimate fugitive dust emissions is presented in Section 6.2, "Fugitive Dust." The methodology to estimate toxic air contaminant emissions is presented in Section 6.5, "Toxic Air Contaminants."

The primary sources of construction-related ROC and NOx emissions are gasoline- and diesel-powered, heavy-duty, mobile construction equipment, such as scrapers and motor graders. ROC and NOx emissions associated with heavy-duty mobile construction equipment should be quantified based on the type of equipment anticipated to be used. Most of such equipment is diesel-powered. URBEMIS can be used to calculate ROC and NOx emissions from heavy-duty mobile construction equipment. URBEMIS divides construction emissions into three phases: demolition (Phase 1), site grading (Phase 2), and building construction (Phase 3). Building construction is further subdivided into building equipment, architectural coating, asphalt paving, and worker trips. If the URBEMIS program is used to calculate ozone precursor emissions from project construction, the program should be run separately for the construction emissions and for the operational emissions, and the results should not be combined for purposes of comparing to applicable thresholds.

The URBEMIS User's Guide presents emission factors, equipment horsepower, load factors, and hours per day of operation that can be used to manually estimate ROC and NOx emissions associated with diesel- and gasoline-powered heavy-duty mobile construction equipment. The emission factors in the table are presented in pounds per hour. The emission equation used by URBEMIS for each piece of equipment is as follows:

Equipment Emissions (pounds per day) = # of pieces of equipment * grams per brake horsepower-hour * equipment horsepower * hours/day * load factor

Grams per brake-horsepower hour is based on the construction year and on the average life expectancy of the equipment type. Grams per brake horsepower hour emissions and average equipment life expectancy are from Appendix B of the California Air Resources Board's (ARB's) off-road model (California Air Resources Board 2000). Emission factors used in URBEMIS are found in Appendix H of the URBEMIS User's Guide.

Construction-related emissions (including portable engines and portable engine-driven equipment subject to the ARB's Statewide Portable Equipment Registration Program, and used for construction operations or repair and maintenance activities) of ROC and NOx are not counted towards the two significance thresholds, since these emissions are temporary. However, construction-related emissions should be mitigated if estimates of

ROC and NOx emissions from the heavy-duty construction equipment anticipated to be used for a particular project exceed the 5 pounds per day threshold in the Ojai Planning Area, or the 25 pounds per day threshold in the remainder of the county. Mitigation measures to reduce such emissions are listed in Section 7.4.3, "ROC and NOx Construction Mitigation Measures" and in the mitigation module of URBEMIS.

5.3 CALCULATING OPERATIONAL EMISSIONS

This section presents three methods for assessing whether project emissions will be significant: a screening analysis (Section 5.3.1, "Project Screening Analysis Tables"), a minimal run screening analysis using URBEMIS (Section 5.3.2, "URBEMIS Computer Program -Screening Analysis Mode"), or a detailed run (Section 5.3.3, "URBEMIS Computer Program - Detailed Run"). Lead agencies need not perform the detailed run unless the screening analysis tables or screening analysis URBEMIS run indicates that the project will exceed the 5 pounds per day threshold for ROC and NOx in the Ojai Planning Area, or the 25 pounds per day threshold for ROC and NOx in the remainder of the county as described in Chapter 3, Air Quality Significance Thresholds.

For purposes of determining whether or not the project will have a significant adverse impact on air quality, those project-related ROC and NOx emissions from equipment that is required to have a Ventura County APCD Permit to Operate need not be considered. Such emissions should be subtracted from total project emissions before making a determination as to whether or not the project will have an adverse impact on air quality. Emissions that should be counted toward the ROC and NOx significance threshold include any emissions that will occur as a result of approval of some type of discretionary use permit.

The project screening analysis mode in the URBEMIS program and the project screening analysis tables in Appendix F of this Guidelines use the default vehicle fleet mix for calculating estimated project emissions. Therefore, for projects where the fleet mix includes a greater percentage of heavy-duty vehicle trips than the default fleet mix, project emissions may be significantly underestimated in the screening analysis mode and the screening analysis tables. An example of this situation might be a warehouse facility where the vehicle trips are predominantly heavy-duty diesel trips. The District recommends that if a lead agency determines that the expected vehicle fleet mix for a project will include more heavy duty vehicles than the default fleet mix, project screening analyses are not appropriate.

5.3.1 Project Screening Analysis Tables

Appendix F identifies project sizes (by project type and year of project completion) that will exceed the ROC or NOx significance thresholds. The tables in Appendix F were generated using the default values for Ventura County, and the default trip generation rates in URBEMIS. These trip generation rates are from the ITE's *Trip Generation*, Sixth

Edition, and other sources, as documented in the User's Guide for URBEMIS. The "pass-by trip" option was selected for all land use categories. Emissions from area sources (e.g., natural gas usage, landscaping equipment, and consumer products) have also been included in the tables. The screening analysis in Appendix F does not account for any air quality mitigation measures. For each land use, the applicable unit numbers and/or project size was increased until the resultant ROC emissions or NOx emissions exceeded the 5 and 25 pounds per day significance thresholds.

Generally, NOx emissions exceed the significance thresholds before ROC emissions, and therefore usually indicate the project size that will exceed the applicable significance threshold. The years of project completion in Appendix F are those for which there are EMFAC2002 emission factors.

Projects smaller than the applicable threshold values in Appendix F will not have a significant adverse impact on air quality with respect to the one-hour ozone standard. Although a project may fall below the applicable ROC or NOx threshold values in Appendix F, the project should still be assessed for other potential significant air quality impacts, including, but not limited to, fugitive dust, odors, toxic air contaminants, and project consistency with the AQMP.

If a project is a single land use type (e.g., single family detached housing), Appendix F can be used to determine whether the project is likely to exceed the significance thresholds. If the project is near the size necessary to exceed the significance thresholds, the URBEMIS program should be run, using either the screening analysis mode (see Section 5.3.2, "URBEMIS Computer Program - Screening Analysis Mode"), or a detailed run (see Section 5.3.3, "URBEMIS Computer Program - Detailed Run"). Also, if a project has unique conditions that deviate from the Ventura County default values (see Section 5.3.3.1), the screening analysis is not appropriate, and a detailed run should be performed.

APCD recommends that lead agencies use the most recent version of URBEMIS adopted by the ARB and the corresponding version of EMFAC. Therefore, if a more current version of URBEMIS is available, the District recommends using the more current version of URBEMIS instead of the tables in Appendix F.

5.3.2 URBEMIS Computer Program - Screening Analysis Mode

The URBEMIS screening analysis mode is appropriate if the project contains more than one land use, or if the lead agency has trip generation data from other sources (e.g., traffic studies). Completing a run as described in this section will provide emission estimates that do not account for any air quality mitigation measures, pass-by trips, internal trips, or double-counting adjustments. It relies on the default inputs for Ventura County, and requires only the most basic information about the project. The Summary output lists project area and operational emissions separately, and then adds the emissions together

for an estimate of total project emissions. The Detailed output lists project area and operational emissions. Therefore, project area and operational emissions must be added together to estimate total project emissions. If output from an URBEMIS screening analysis run produces ROC and/or NOx emissions estimates at, near, or over the applicable significance threshold, a detailed URBEMIS run should be conducted.

Although an URBEMIS screening analysis run may produce ROC and/or NOx emission estimates less than the applicable significance threshold, the subject project still should be assessed for other potential significant air quality impacts, such as fugitive dust, odors, toxic air contaminants, and project consistency with the AQMP.

5.3.3 URBEMIS Computer Program - Detailed Run

A detailed URBEMIS run is appropriate if any of the following apply: 1) the screening analysis tables indicate that the proposed project will likely exceed ROC or NOx significance thresholds; 2) the URBEMIS screening analysis mode shows project emissions at, near, or over the applicable ROC or NOx significance threshold; 3) mitigation measures will be included in the project; or 4) a more detailed analysis of the project is desired. See Section III, "Using URBEMIS2002," Appendix B, "Area Source Emissions," and Appendix C, "Operational (Motor Vehicle) Emissions," of the URBEMIS7G manual for further details. The Summary output lists project area and operational emissions separately, and then adds the emissions together for an estimate of total project emissions. The Detailed output lists project area and operational emissions separately. Therefore, for an estimate of total project emissions from the Detailed output, project area and operational emissions should be added together.

As with the Appendix F screening analysis tables and the URBEMIS screening analysis mode, if a detailed URBEMIS run indicates that project ROC and NOx emissions will be below the applicable significance threshold, the project still should be assessed for other potential significant air quality impacts, including, but not limited to, fugitive dust, odors, toxic air contaminants, and project consistency with the AQMP.

5.3.3.1 Ventura County-Specific Default Inputs to the URBEMIS Computer Program

The following default values should be used for projects located in Ventura County. These default values may be replaced with more specific project data. However, justification and documentation for the changes should be provided to the satisfaction of the lead agency that such changes are warranted. Documentation and justification of any changes to the URBEMIS default values should be included in the environmental document. If a more current version of the URBEMIS program is available and has updated Ventura County default values, those values should be used instead.

Project Area: Ventura County.

Target Year: Year of project occupancy, or, if not an available choice in the program, the year of project occupancy rounded to the nearest five-year increment.

Ambient Temperature: Use 75^{o} for the summer ambient temperature. Use 50^{o} for the winter ambient temperature.

Trip Characteristics:

Average Speed		Trip Percentages	Trip Lengths Urban	Rural
40	Home-based work	27.4	12.0	15.0
40	Home-based shop	17.7	7.8	10.0
40	Home-based other	54.9	10.0	10.0
40	Commercial-based commute		10.0	15.0
40	Commercial-based non-work		10.0	15.0

Note: Trip percentages for "home-based" trips must add to 100 percent.

5.3.3.2 Area Emissions Estimates

Area sources are sources that individually emit fairly small quantities of air pollutants, but cumulatively may generate significant quantities of emissions. Area source emissions include fuel combustion from natural gas appliances, utility engines (including landscape maintenance equipment), and consumer products. APCD recommends that area source emissions be estimated for all projects that have these types of emission sources. The Summary output lists project area and operational emissions separately, and then adds these emissions together for an estimate of total project emissions. The Detailed output lists project area and operational emissions separately. Therefore, for an estimate of total project emissions from the Detailed output, project area and operational emissions should be added together.

5.3.3.3 Adjustment for Double Counting of Pass-by and Diverted-linked Trips

Traffic generation rates for certain land uses can be overestimated by double counting vehicle trips. This occurs when an establishment attracts some of its trips from traffic passing the site while on the way to another location. Not accounting for the pass-by and diverted-linked trips can substantially overstate indirect source emissions associated with a proposed land use project. By quantifying pass-by and diverted-linked rates for projects, a more accurate representation of indirect source emissions can be obtained.

Trip-making can be categorized as:

Primary Trips: Trips made for the specific purpose of visiting the project. A home-to-shopping-to-home combination of trips is a primary trip set.

Pass-by Trips: Trips made as intermediate stops on the way from an origin to a primary trip destination. Pass-by trips are defined as trips from traffic passing the site on an adjacent street that contains direct access to the project. These trips do not require a diversion from another roadway, and do not add additional mileage. An example is a stop at a convenience store on the way home from work.

Diverted-linked Trips: Trips attracted from the traffic on roadways within the vicinity of the project but requiring a diversion from that roadway to another roadway to gain access to the project site. These roadways could include streets or freeways adjacent to the project, but without direct access to the project.

The URBEMIS computer program offers a method to adjust estimates of project emissions to account for pass-by and diverted-linked trips. While in the URBEMIS program, the Operational Emissions main screen provides an option for selecting pass-by trip adjustments. Clicking this box instructs the program to apply the recommended pass-by and diverted-linked rates. Table 3 of the URBEMIS User's Guide shows estimates of pass-by and diverted linked trip percentages used in the URBEMIS program.

The URBEMIS program can be used to adjust for pass-by and diverted-linked trips only when a default land use category is used. Within any of the default land use categories, the trip generation rate may be modified, and the "pass-by trips" option still works properly. However, if a non-default land use option is used (i.e., the "blank" row in the "Select/Edit Land Use" screens), the "pass-by trips" option does not work properly.

For more information about the use of this program feature, see the URBEMIS User's Guide (Section III.8.1, "Specifying Vehicle Emissions," and Appendix C, "Operational (Motor Vehicle) Emissions, Pass-By Trips").

5.3.3.4 Adjustment for Double Counting of Internal Trips in Multi-use Projects

Trip generation rates in URBEMIS include both motor vehicle trip generation and attraction. Vehicle trips that originate within, and stay within, project boundaries are called internal trips. Therefore, URBEMIS may double count trips if a project contains both residential and non-residential components. However, URBEMIS contains a routine that minimizes double counting of internal trips in mixed-use projects and area plans, master plans, community plans, specific plans, and general plans. The routine only applies if at least one residential and one non-residential land use is specified by the URBEMIS user and the user selects the double-counting correction setting. The routine

is described in the URBEMIS User's Guide (Section III.8.1, "Specifying Vehicle Emissions," and Appendix C, "Operational (Motor Vehicle) Emissions, Double Counting of Multiuse Projects").

5.4 CALCULATING EMISSIONS FROM PROJECT-RELATED STATIONARY SOURCES

Air emissions from any project-related stationary air emission sources that do not require permits from the District should be estimated and included in total project emissions.

Stationary sources are non-mobile equipment, devices, operations, or processes that directly emit air pollutants. Most stationary sources are associated with commercial and industrial facilities and operations. Examples of stationary sources are industrial engines and boilers, turbines, spray paint booths, electronic component manufacturing operations, ready-mixed concrete facilities, plating operations, printing operations, plastic products manufacturing, and coffee roasters.

Air emissions from a wide range of stationary sources are controlled through the District's air pollution permit program. The District permit program mitigates emission increases from stationary sources by requiring emission control devices, emission and process limits, and emission offsets. Appendix B, Common Equipment and Processes Requiring a Ventura County APCD Permit to Operate, provides guidance for determining if equipment and processes will require an APCD Permit to Operate. In addition to Appendix B, lead agencies can refer to District Rule 23, Exemptions from Permit, for a detailed list of equipment and processes that do not require a District permit. Rule 23 is available from the ARB's website at http://www.arb.ca.gov/drdb/ven/curhtml/r23.htm. Lead agencies and project applicants also can contact the District's Engineering Division at 805/645-1401 for any questions regarding equipment, operations, and processes that may require a District permit.

Air emissions for equipment, operations, and processes that do not require a District permit may be calculated using emission factors available from the District. Lead agencies and project applicants can contact the District's Permit Section at 805/645-1401 for information regarding appropriate emission factors and emission calculation methodology for a wide range of stationary sources. In addition to District emission factors, emission factors for stationary sources can be obtained from Volume I of the Environmental Protection Agency's *Compilation of Air Pollutant Emission Factors* (AP-42). AP-42, Volume I, contains information on over 200 stationary source categories, and is available at the United States Environmental Protection Agency (U.S. EPA) website at www.epa.gov/ttn/chief/ap42.html.

Emission factor information also may be available from certified environmental documents and from air emissions tests of the subject equipment or very similar equipment. Lead agencies can contact the District at 805/645-1401 to inquire about any

appropriate emission test data that the District may have for a particular stationary source or source type.

6. ASSESSING PROJECT-SPECIFIC, LOCALIZED, NON-OZONE IMPACTS

6.1 INTRODUCTION

The previous chapter presented a methodology for assessing project impacts on regional ozone levels. This chapter presents information on how to assess a project's impacts on pollutant levels other than ozone. These impacts tend to be localized near the area where they are produced.

Project construction and operation activities can result in several air pollutants whose effects are often localized near the area of their origin. Such air quality effects are termed local air quality impacts and include, but are not necessarily limited to, fugitive dust, carbon monoxide (CO), toxic air contaminants (TACs), odors, and entrained fungal spores that cause San Joaquin Valley Fever.

Many of these pollutants can adversely impact the general population, especially those most likely to suffer adverse health effects from air pollution, such as children, the elderly, and those suffering from acute and chronic medical conditions. Land uses where such people are likely to reside or spend a substantial amount of time include residences, schools, playgrounds, day care centers, job sites, retirement homes, convalescent homes, and hospitals.

The project environmental document should identify any land uses near the project site that may have people who are particularly sensitive to localized, non-ozone air quality impacts. Reasonably foreseeable such land uses should be identified as well. This would include potential land uses that could reasonably be sited nearby based on zoning or land use designations.

The location of a development project is a major factor in determining whether it will cause or be impacted by localized, non-ozone air quality impacts. The potential for adverse localized, non-ozone air quality impacts increases as the distance between the source of such emissions and sensitive populations decreases. Localized air pollutants can adversely affect all members of the population, and thus any consideration of potential air quality impacts should include all members of the population. Localized air pollution impacts generally occur in one of two ways: 1) A new source of air pollutants is proposed close to existing populations (An example would be an industrial facility proposed for a site near a residential area or a day-care center); and, 2) A new development proposed near an existing industrial facility.

To minimize localized air pollution impacts, lead agencies should consider limiting or avoiding the following types of potential land use conflicts:

- A development project near a congested intersection or roadway. High traffic volumes and congested conditions can lead to high but localized concentrations of CO, particulate matter (PM), or TACs.
- Development projects close to a source of TACs or high traffic levels.
- Development projects near a source of odorous emissions. Although odors generally do not pose a health risk, they can be a nuisance if they interfere with the use of neighboring land uses.
- Development projects near a source of high levels of dust emissions. Fugitive dust can pose health risks (when it results in elevated PM_{10} and $PM_{2.5}$ levels) and can be a nuisance if it interferes with neighboring land uses.

When evaluating whether a development proposal has the potential to result in localized impacts, lead agency staff should consider the nature of the proposed development and its potential to produce air pollutant emissions, the distance between the emitting facility and the potentially affected population, the direction of prevailing winds, and local topography. Often, providing a buffer zone between the source of emissions and the subject population will alleviate the problem.

6.2 FUGITIVE DUST

The Ventura County Air Pollution Control District (APCD or District) recommends minimizing fugitive dust, especially during grading and excavation operations, rather than quantifying fugitive dust emissions. Therefore, the mitigation measures described in Section 7.4.1, "Fugitive Dust Mitigation Measures," should be applied to all project-related dust-generating operations and activities. Occasionally, the District may recommend that a project's potential to affect ambient particulate concentrations be analyzed with an appropriate air pollutant dispersion computer model. The purpose of such an analysis is to help determine if the amount of dust that will be generated by project-related activities will cause an exceedance of an ambient particulate air quality standard.

If the analysis indicates a possible violation of an ambient particulate air quality standard, a finding of significant impact should be made and appropriate mitigating measures identified. The District will recommend that PM modeling be conducted if, in its opinion, project-related activities and operations may generate airborne PM in such quantities as to cause an exceedance of a particulate ambient air quality standard in an area where people live and work, including, but not limited to, residential areas, schools, day care centers, office complexes, and hospitals. Examples of projects that may require supplemental modeling include mining and quarrying operations, landfills, and excavation and grading operations for large development projects. If the District recommends a particulate modeling analysis, it will provide guidance as to appropriate models and modeling protocols.

6.3 SAN JOAQUIN VALLEY FEVER

There is no recommended threshold for a significant San Joaquin Valley Fever impact. However, listed below are factors that may indicate a project's potential to create significant Valley Fever impacts:

- Disturbance of the top soil of undeveloped land (to a depth of about 12 inches)
- Dry, alkaline, sandy soils.
- Virgin, undisturbed, non-urban areas.
- Windy areas.
- Archaeological resources probable or known to exist in the area (Native American midden sites).
- Special events (fairs, concerts) and motorized activities (motocross track, All Terrain Vehicle activities) on unvegetated soil (non-grass).
- Non-native population (i.e., out-of-area construction workers).

The lead agency should consider the factors above that are applicable to the project or the project site. The likelihood that the Valley Fever fungus may be present and impact nearby land uses (or the project itself) increases with the number of the above factors applicable to the project or the project site. Based on these or other factors, if a lead agency determines that project activities may create a significant Valley Fever impact, the District recommends that the lead agency consider the Valley Fever mitigation measures listed in Section 7.4.2, "Valley Fever Mitigation Measures." These mitigation measures focus on fugitive dust control to minimize fungal spore entrainment, as well as minimizing worker exposure.

6.4 CARBON MONOXIDE

The District recommends use of the CALINE4 computer model to determine if a project may create or contribute to an existing CO hotspot. CALINE4 is the latest in a series of line source air quality models developed by the California Department of Transportation (Caltrans). Given the magnitude of the CO source, site geometry, and local meteorology, CALINE4 can predict pollutant concentrations for receptors located within 500 meters of a roadway. In addition to predicting concentrations of relatively inert pollutants such as CO, the model can predict nitrogen dioxide (NO_2) and suspended particle concentrations. It also has special options for modeling air quality near intersections, street canyons, and parking facilities.

Historically, the CALINE series of models required relatively minimal input from the user. Spatial and temporal arrays of wind direction, wind speed, and diffusivity were not needed by the models. While CALINE4 uses more input parameters than its predecessors, it is still considered a very easy model to implement. For most

applications, optional inputs can be bypassed and many other inputs can be assigned assumed worst-case values.

In addition to CALINE4, Caltrans has developed a CO hotspot screening procedure. This procedure can be used to provide a quick "worst-case" estimate of ambient CO concentrations near a roadway intersection. The screening procedure is contained in Caltrans' *Transportation Project-Level Carbon Monoxide Protocol* (CO Protocol). Both CALINE4 and the CO Protocol, including the CO screening procedure, can be downloaded from the Caltrans Environmental Division's webpage, located at http://www.dot.ca.gov/hq/env/air/index.htm.

6.4.1 Screening Procedure for Carbon Monoxide Analysis

A CO hotspot screening analysis using the screening procedure in Caltrans' CO Protocol should be conducted for any project with indirect emissions greater than the applicable ozone project significance thresholds in Section 3.3.1 that may significantly impact roadway intersections that are currently operating at, or are expected to operate at, Levels of Service E, or F. A CO hotspot screening analysis should also be conducted for any project-impacted roadway intersection at which a CO hotspot might occur. It is especially important to conduct such an analysis if a proposed project will either create or contribute to a CO hotspot that may adversely affect the public, especially the young, the elderly, and those with medical conditions that could be exacerbated by elevated CO concentrations. If the screening analysis indicates that there may be a CO hotspot, the CALINE4 model should be run as outlined in Appendix B, "Detailed Analysis," of the Caltrans CO Protocol.

The screening analysis was designed to estimate 1-hour and 8-hour CO concentrations for projects involving signalized intersections. The methodology estimates 1-hour CO levels, which then can be converted to estimates of 8-hour CO levels. Screening procedures for additional types of projects were under development at the time the Caltrans CO Protocol was being developed and will be released as supplements to the protocol.

Using the screening methodology to calculate an 8-hour average CO concentration as presented in the Caltrans CO Protocol, it is not possible for a project to result in a modeled 1-hour exceedance of the 1-hour CO standard without also causing a violation of the corresponding 8-hour standard. This is a consequence of using a "persistence factor" to convert the modeled 1-hour concentration to an 8-hour concentration.

The purpose of the screening procedure is to obtain conservative estimates of CO concentrations without having to run CALINE4. Step-by-step instructions on how to use the screening procedure are given in Appendix A, "Screening Procedure," of the Caltrans CO Protocol.

The screening procedure is not applicable to all projects. If the screening procedure assumptions are not appropriate for the subject project, the screening procedure is not applicable, and the CALINE4 model should be used. The main limitations of the screening procedure are presented in Table 6-1, "Scenarios That Should Not Be Modeled Using the Screening Procedure."

TABLE 6-1
SCENARIOS THAT SHOULD NOT BE MODELED USING THE SCREENING PROCEDURE

Vehicles in cold start mode greater than 50%
Percentage of heavy-duty gasoline trucks greater than 1.2%
Traffic volumes greater than 1,000 vehicles/hour/lane
January mean minimum temperature less than 35^{o} F

The screening analysis requires the user to input certain information, such as intersection type, traffic volume, analysis year, background CO concentration, and average cruise speed. All of the needed information is outlined in the screening protocol. Most of the information is project-specific and must be supplied. The APCD recommends that the highest CO concentration reported over the last three years for either the El Rio or Simi Valley air monitoring stations (whichever is nearest the project site) be used for the background CO concentrations. Table 6-2 gives the highest 1-hour and 8-hour CO concentrations for both the El Rio and Simi Valley monitoring stations for 2000 - 2002. Contact the District at 805/645-1427 for updated information on carbon monoxide levels. The average speed should be the same as that used in the URBEMIS emissions analysis. Typically, that will be 40 miles per hour.

TABLE 6-2
HIGHEST BACKGROUND CARBON MONOXIDE CONCENTRATIONS FOR – 2000 - 2002 AT THE EL RIO AND SIMI VALLEY MONITORING STATIONS
(parts per million)

	1-hour	8-hour
El Rio	2.3	1.6
Simi Valley	6.2	4.3

6.4.2 Detailed Procedure for Carbon Monoxide Analysis

If the screening procedure is not applicable for the subject project, or if the screening procedure indicates a potential CO hotspot, the CALINE4 model should be run as outlined in Appendix B, "Detailed Analysis," of the Caltrans CO Protocol.

CALINE4 also requires the user to supply certain input parameters. The inputs should be as recommended in the CO Protocol, except that the background CO concentrations should be the highest 1-hour and 8-hour CO concentration reported over the last three years for either the El Rio or Simi Valley air monitoring stations (whichever is nearest the project site, see Table 6-2). If inputs other than those recommended in the Caltrans CO Protocol or these Guidelines are used, they should be justified and documented to the satisfaction of the lead agency that such changes are warranted. Documentation and justification of any changes to the CO Protocol default values should be included in the environmental document.

If the CALINE4 model indicates that the project may cause a CO hotspot (or contribute to an existing hotspot), a finding of significant impact should be made, unless mitigation measures can be implemented that reduce the hotspot concentration to less than the applicable CO standard. Mitigation measures to reduce significant CO impacts are discussed in Section 7.5.5, "Carbon Monoxide Mitigation."

6.5 TOXIC AIR CONTAMINANTS

All projects that may emit TACs should be assessed to determine whether those TAC emissions may adversely impact nearby populations. When considering potential TAC impacts, lead agencies should consider both of the following situations: 1) a proposed new or modified facility that may emit TACs near existing land uses; and, 2) a new land use proposed near an existing facility that emits TACs.

6.5.1 Determining Whether the Project Will Emit Toxic Air Contaminants

The first step in deteriming whether a proposed project may adversely impact nearby populations with TACs is for the lead agency to determine whether the subject project will emit toxic substances. This information may be obtained from the project applicant as part of the permit review process. The lead agency should inquire about the types and amounts of toxic substances the facility may use and emit to the atmosphere. Lead agencies also can refer to Appendix D, Major Toxic Air Contaminant Regulations and Common Toxic Air Contaminant Sources and Substances, for a list of common TAC sources and substances that may be encountered at facilities in Ventura County. Moreover, many types of equipment and processes that require a District Permit to Operate also emit TACs. Therefore, lead agencies can refer to Appendix B, Common Equipment and Processes Requiring a Ventura County APCD Permit to Operate.

In addition to the TAC sources and substances listed in Appendix D, the lead agency also should refer to the extensive list of toxic chemicals called the *Title III List of Lists, Consolidated List of Chemicals Subject to the Emergency Planning and Community Right-to-know Act (EPCRA) and Section 112(r) of the Clean Air Act, as Amended.* This list can be downloaded from http://www.epa.gov/ceppo/pubs/title3.pdf. This consolidated chemical list includes chemicals subject to reporting requirements under Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA), also known as the Emergency Planning and Community Right-to-Know Act (EPCRA), and chemicals listed under Section 112(r) of Title III of the Clean Air Act (CAA) of 1990, as amended. Lead agencies also can refer to State of California's Office of Environmental Health Hazard Assessment (OEHHA) website at http://www.oehha.ca.gov/home.html. This page provides access to OEHHA's Toxicity Criteria Database, the Proposition 65 list of chemicals known to the State of California to cause cancer, birth defects or other reproductive harm, and information regarding TAC health risk assessments.

Finally, lead agencies can contact the District's Air Toxics Section at 805/645-1405 or 805/645-1478 to obtain information regarding whether a facility, facility type, or operation emits or will emit TACs. This can be particularly important and useful because health risk assessments have been conducted for many such facilities in Ventura County under the District's Air Toxics "Hotspots" Program. These health risk assessments are on file with the District and are available for public review.

6.5.2 Assessing the Impact of Toxic Air Contaminant Emissions

If a lead agency determines that a project it is considering will emit TACs, the next step is to assess the potential of those toxic emissions to adversely impact nearby populations. This determination can be made by conducting an appropriate TAC health risk assessment.

The California Air Pollution Control Officers Association (CAPCOA) has developed TAC health risk assessment guidelines to provide consistent, statewide procedures for preparing the health risk assessments required under the Air Toxics "Hot Spots" Act. The title of these guidelines is *CAPCOA Air Toxics "Hot Spots" Program Revised 1992 Risk Assessment Guidelines*. The current version of the CAPCOA guidelines is dated October 1993. The CAPCOA guidelines can be downloaded from the California Air Resource Board's (ARB) website at http://www.arb.ca.gov/ab2588/riskassess.htm.

The District has prepared a supplement to the CAPCOA guidelines for preparing health risk assessments in Ventura County. The District's supplemental guidelines is titled *Supplement to the CAPCOA Air Toxics "Hot Spots" Program Risk Assessment Guidelines*. The current version of this document is dated March 23, 1995, and can be downloaded from the District's website at http://www.vcapcd.org/air_toxics.htm. The District recommends that lead agencies conduct TAC risk assessments in accordance with

the CAPCOA Risk Assessment Guidelines, as supplemented by the District's supplemental guidelines.

The CAPCOA Risk Assessment Guidelines contain procedures for both screening level and formal health risk assessments. Because formal TAC health risk assessments can be complex and time consuming, a screening health risk analysis is useful for quickly defining a worst-case estimate of risk and for determining if further analysis using a formal health risk assessment is needed. However, a screening health risk assessment for a project is not appropriate if the assumptions and parameters on which the screening risk analysis is based are not suitable for the subject project. In such a case, the screening analysis may not be accurate and a formal risk assessment should be conducted.

If the results of the screening analysis show that the lifetime excess cancer risk to the maximum exposed individual is less than one in one-million and the hazard indices for acute and chronic noncancer health effects are less than 0.1, no further analysis for TAC impacts is needed. If the results are greater than these values, then a formal health risk assessment should be conducted. The results of both the screening health risk assessment and the formal health risk assessment should be included and documented in the environmental document for the project.

Lead agencies also should consult with the District's Engineering and Permit Division at 805/645-1421 or 805/645-1405 as early as possible in their respective project review and approval process for projects that will emit TACs. Such projects also may require a Permit to Operate from the District. All projects that require a District Permit to Operate are evaluated by the District for potential TAC impacts. Moreover, California Health and Safety Code §42301.6 and Public Resources Code §21151.8 (a)(2), require that any new school, or proposed industrial or commercial project site located within 1,000 feet of a school, must be referred to the District for review.

6.5.3 Projects Near Existing Sources of Toxic Air Contaminants

Proposed new land uses that will be located within one-quarter mile of an existing source (or sources) of TACs should be evaluated for the potential to be impacted by those TACs. A lead agency processing a land use entitlement for a project near an existing source of toxic air emissions should consult with the District's Air Toxics Section to review any toxic air emissions information, especially health risk assessments, the District may have regarding that source of toxic air emissions. Such information may have been gathered by the District pursuant to the District's AB 2588 Air Toxics "Hot Spots" Program and as part of the air pollution permit process for facilities that require air pollution permits.

If the District has required a health risk assessment for the existing TAC source, the lead agency should, in consultation with the District, review that health risk assessment to determine an area around the source within which people in the proposed project would be exposed to either a cancer or noncancer risk in excess of the significance thresholds for

TACs presented in Section 3.3.2, "Other Pollutants of Concern." If there is more than one source of toxic air emissions within one-quarter mile of the proposed project, the lead agency should develop an individual health risk for the proposed project based on the health risk assessments for all of the identifed toxic air emissions sources.

If a health risk assessment has not been done for the nearby source of TACs, the lead agency should make a reasonable attempt to gather toxic air emissions information from that source. No proprietary information should be needed to perform the health risk assessments. A health risk assessment then should be conducted for that source if the lead agency has obtained sufficient information on which to base the assessment. The lead agency should consult with the District's Air Toxics Section to determine whether the location of the proposed project relative to the TAC source has the potential to subject people in the proposed project to TAC risks in excess of the TAC significance thresholds presented in Section 3.3.2, "Other Pollutants of Concern." Pursuant to CEQA §15151, the sufficiency of the air toxics analysis should be reviewed in light of what is reasonably feasible.

Based on the results of the preceding analyses, a determination should be made by the lead agency as to whether the subject project, as proposed, would subject the population of the project to significant TAC impacts. If it is determined that the population would be subjected to a significant TAC impact, appropriate mitigation measures should be proposed to reduce that impact to acceptable levels. TAC mitigation measures are discussed in Section 7.5.6, "Toxic Air Contaminant Mitigation."

6.5.4 Asbestos

Asbestos is listed as a TAC by both the State of California and by the U.S. EPA. It is discussed in these Guidelines as a separate TAC issue because of its widespread presence in the environment, its human health implications, and its concern among the public.

Construction projects sometimes require the demolition of existing buildings at the project site. Depending upon the types of building materials that were used and the year in which the building was constructed, many different areas and fixtures in a building may contain asbestos. Exposure to asbestos may cause serious health effects. For example, asbestos exposure can increase the risk of lung cancer by five times. Cancer of the stomach and internal organs such as the mouth, esophagus, larynx, kidneys, and colon can also be caused by asbestos exposure. Asbestos is likely to be found in buildings constructed before 1979 and almost certain to be present in those built before 1950.

Demolition or renovation activities involving asbestos materials are subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) regulations as listed in the Code of Federal Regulations (40 CFR Part 61, Subpart M). These regulations apply to commercial projects as well as some types of residential projects, and require a thorough inspection (or survey) of the site that is to be demolished or renovated

to determine whether asbestos materials are present. These regulations also contain notification and remediation requirements.

Demolition or renovation activities involving asbestos materials also are subject to APCD Rule 62.7, Asbestos, Demolition and Renovation. The District's Compliance Division should be contacted at 805/645-1443 to determine any asbestos inspection and compliance requirements before commencing demolition or renovation of any building. Compliance with APCD Rule 62.7 is adequate to ensure that asbestos entrainment will not cause a significant adverse impact.

Additional information regarding asbestos materials and regulation of activities involving asbestos can be found at the District's website located at http://www.vcapcd.org/asbestos.htm.

6.6 ODORS

The environmental document for a proposed project should include an assessment of the potential for a proposed project to cause a public nuisance by subjecting surrounding land uses to objectionable odors. A public nuisance is defined by APCD Rule 51, Nuisance, as "...such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or to the public, or which cause, or have a natural tendency to cause, injury or damage to business or property." The assessment also should evaluate the potential for a proposed project to be impacted by objectionable odors from nearby existing or proposed land uses. Potential odor impacts on residential areas, schools, day care centers, playgrounds, retirement homes, convalescent homes, hospitals, and job sites warrant the closest examination. Any project that has the potential to create a public nuisance by subjecting members of the public to objectionable odors should be deemed to have a significant odor impact.

The first step in an odor analysis is to determine whether the proposed project (or nearby source) could generate odorous emissions in such quantities as to be a nuisance to nearby land uses (or to the proposed project). This should be based on information submitted by the project applicant and on the lead agency's and the District's knowledge and experience with the same or similar facility type. For example, new housing developments generally do not cause odor nuisances to nearby land uses. However, a proposed fiberglass manufacturing facility near an existing or proposed residential development may pose a nuisance to the residents of that development because of odors. Table 6-3, "Project Screening Distances for Odorous Land Uses," lists facility types known to emit objectionable odors and thus may be sources of nuisance odors to nearby land uses. The list is a guide and, as such, is not all-inclusive. Other types of facilities not on the list also may generate objectionable odors. Lead agencies should consider the odor potential of each new project based on its type and its location with respect to other land uses that may be adversely affected by any odors the proposed project may generate.

For projects that may generate odorous emissions, or may be impacted by odorous emissions, the next step is to determine if the potential source of the odors, or the potential receptor of the odors, is closer than the screening distances in Table 6-3.

If the source (or a similar type) is listed on Table 6-3, and the distance between the source and the receptor of the subject odors is closer than the distances in Table 6-3, a more thorough evaluation should be conducted. The evaluation should be based on possible objectionable odors associated with the same or similar facilities, the type and potential severity of the odorous emissions, the probability of process operations (including possible short-term process upsets) releasing odorous emissions, complaint history associated with those projects (contact the District's Compliance Division at 805/645-1445 for information regarding a facility's complaint history), the distance between the potential odorous source, prevailing wind direction and speed, the percentage of time that a potential affected population will be located downwind of the proposed project, and any other information that the lead agency finds applicable.

For a project locating near an existing source of odorous emissions, a significant odor impact may occur if the odor source has:

- More than one confirmed odor complaint per year with the District, averaged over a three-year period.
- Three unconfirmed odor complaints per year with the District, averaged over a three-year period.

Any odor complaints should be mapped in relation to the odor source to establish a general boundary for any possible odor impacts. It should be noted that, due to confidentiality requirements regarding citizen nuisance complaints to the District, only the block number of any such complaints will be given. The name and address of the complainants, and the date of the complaints, will not be given.

For new projects that may emit odorous emissions, the analysis should consider the distance and frequency of odor complaints that have occurred in the vicinity of similar facilities.

If it is determined that a proposed project may either cause a significant odor impact, or be significantly impacted by odors from an existing facility, all feasible mitigation measures should be applied to minimize or eliminate the odors. Mitigation measures to reduce significant odor impacts are discussed in Section 7.5.7, "Odor Mitigation."

TABLE 6-3
PROJECT SCREENING DISTANCES
FOR ODOROUS LAND USES

Land Use	Screening Distance
Wastewater Treatment Facilities*	2 miles
Sanitary Landfills*	1 mile
Solid Waste Transfer Station*	1 mile
Composting Facilities*	1 mile
Asphalt Batch Plants*	1 mile
Painting and Coating Operations*	1 mile
Fiberglass Operations*	1 mile
Food Processing Facilities*	1 mile
Coffee Roasters**	1 mile
Commercial Charbroiling**	1 mile
Feed Lots/Dairies*	1 mile
Petroleum Refineries*	2 miles
Chemical Manufacturing Facilities*	1 mile
Green Waste and Recycling Operations**	2 miles
Wastewater Pumping Facilities**	1 mile
Mushroom Farms**	2 miles
Petroleum Extraction, Processing, Storage, and Non-retail Marketing Facilities**	1 mile
Rendering Plants*	1 mile
Metal Smelting Plants**	1 mile

*Guide for Assessing and Mitigating Air Quality Impacts, Table 4-2, "Project Screening Trigger Levels for Potential Odor Sources," San Joaquin Valley Unified Air Pollution Control District, August 1998.

**Ventura County APCD staff, August 2000.

7. MITIGATION MEASURES

7.1 INTRODUCTION

This chapter provides guidance on selecting mitigation measures for projects that may have a significant impact on air quality. The chapter also includes guidance for evaluating mitigation measure effectiveness, implementation, and monitoring. The mitigation measure tables in the chapter contain measures, organized by type, that project proponents and public agencies can consider to mitigate a project's air quality impacts. The tables of mitigation measures are not intended to be exhaustive, and lead agencies and project proponents are encouraged to identify and quantify additional appropriate mitigation measures for specific projects. Mitigation measures to reduce emissions from project construction are presented in Section 7.4, "Construction Mitigation." Section 7.5, "Project Mitigation" presents measures that can be used to reduce emissions during the "operational" period of the project, after project construction has been completed.

7.2 CEQA REQUIREMENTS FOR MITIGATION MEASURES

The California Environmental Quality Act (CEQA) Guidelines require that Environmental Impact Reports (EIRs) "describe measures which could minimize significant adverse impacts" (California Code of Regulations (CCR) §15126(c)). In addition, the CCR states that "a public agency should not approve a project as proposed if there are feasible alternatives or mitigation measures that would substantially lessen any significant effects that the project would have on the environment" (CCR §15021(a)(2)).

"Feasible" means "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors" (CCR §15364). Lead agencies are responsible for determining the feasibility of mitigation measures. If impacts identified in the environmental analysis cannot be mitigated below the significance threshold, they must, nevertheless, be reduced as much as feasible. Air quality thresholds of significance are discussed in Chapter 3, Air Quality Significance Thresholds.

In making a finding concerning the feasibility of mitigation measures, the CCR allows public agencies to find that "specific economic, legal, social, technological, or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives in the final EIR" (CCR §15091(a)(3)). However, in making such a finding, CCR §15091(b) states that the findings "shall be supported by substantial evidence in the record." Furthermore, the courts have ruled that the agency must present some explanation to supply the logical step between the ultimate finding and the facts in the record.

It is possible that project emissions will still be significant after inclusion of all feasible mitigation measures. A public agency may approve a project with a significant

environmental impact. According to the CEQA Guidelines, "if the specific economic, legal, social, technological, or other benefits of a proposed project outweigh the unavoidable adverse environmental effects, the adverse environmental effects may be considered 'acceptable'" (CCR §15093(a)). In doing so, "the agency shall state in writing the specific reasons to support its action based on the final EIR and/or other information in the record" (CCR §15093(b)). The decision-making agency must make a statement in the record of its views on the ultimate balancing of the merits of approving the project despite the environmental impact. If an agency makes a statement of overriding consideration, the statement should be included in the record of the project approval and should be mentioned in the notice of determination.

An air quality section of an environmental document must identify all potential effects of a project on the environment and examine available alternatives to avoid, minimize, reduce, eliminate, or compensate for significant impacts. For each potential adverse impact, mitigation measures should be identified to reduce impacts below the air quality threshold of significance (see Section 3.3, "Significance Criteria"). Design modifications that could reduce impacts also should be considered. The control effectiveness of each measure should be quantified to the extent possible. If a measure cannot be quantified, a qualitative discussion should be provided explaining the benefits of the proposed mitigation measure. If a proposed mitigation measure has the potential to cause a significant effect, the effects of the mitigation measure should be discussed, though in less detail than the proposed project (CCR §15126.4(D)).

7.2.1 Effectiveness Estimates

Mitigation measure effectiveness estimates should be based on reasonable assumptions about the project. When developing mitigation measures for environmental documents, the lead agency should document all assumptions and sources used in determining the measure's effectiveness. This includes what emissions will be affected by the measure, how the measure will affect the targeted emissions, the source of the effectiveness estimate for the measure, and any circumstances that warrant effectiveness beyond the minimum effectiveness estimates contained in URBEMIS, these Guidelines, or other sources.

7.2.2 Implementation, Monitoring, and Enforceability

The lead agency should identify the method of measure implementation, monitoring, and enforceability at the time of measure development, including:

- Who is responsible for implementation.
- What must be done, and for how long.
- Where it is to be carried out.

- An implementation schedule, including interim implementation targets if the project is to be phased.
- What additional measures, if any, must be done and by whom if: 1) the measure is implemented but does not achieve the anticipated emission reductions, or 2) the entity responsible for implementation fails to implement the measure.
- Who is responsible for monitoring measure implementation.
- Criteria for assessing whether the measure has been implemented.
- Enforcement mechanisms to ensure implementation.

Implementation

CEQA provides that mitigation includes "reducing or eliminating the impact over time by preservation or maintenance operations during the life of the action" (CCR §15370(d)). However, for many projects, the life of the action may be difficult to determine. Residential projects may have a life span of 50 years or more. Commercial and industrial projects may have a life span of 10 years or less. Frequently, jurisdictions will issue conditional use permits for commercial and industrial projects for only 5 or 10 years, after which the project must reapply for an extension or modification of the existing conditional use permit, at which time additional conditions may be imposed.

Monitoring

CEQA requires that a public agency that incorporates changes or alterations to a project to mitigate significant effects must also adopt monitoring or reporting requirements for the mitigation measures that it imposes. Monitoring or reporting requirements must be adopted for mitigation measures required through EIRs and for Mitigated Negative Declarations (MNDs). The monitoring or reporting requirements must be adopted when the agency makes findings required by CEQA for project approval (Public Resources Code (PRC) §21081.6(a)). Each lead agency should determine how long monitoring or reporting requirements are necessary given that the motor vehicle fleet is becoming cleaner over time and that new technology will be available in the future that will substantially lessen the emissions thereafter.

Enforceability

The lead agency should structure mitigation measure implementation and enforcement in such a way as to maximize the likelihood that the measure will be fully implemented, as required by Public Resources Code §21081.6(b), which states:

> A public agency shall provide that measures to mitigate or avoid significant effects on the environment are fully enforceable through permit conditions, agreements, or other measures. Conditions of project approval may be set forth in referenced documents which address required mitigation measures or, in the case of the adoption of a plan, policy, regulation, or other public project, by incorporating the mitigation measures into the plan, policy, regulation, or project design.

A lead agency can implement mitigation measures through such mechanisms as land use entitlement conditions, recording the conditions on the property title, incorporating the mitigation measures in a development agreement, incorporating the mitigation measures into the project description or specific plan, or by drawing up a mitigation agreement between the project proponent and the lead agency.

7.3 PLAN-LEVEL MITIGATION

This section describes Ventura County Air Pollution Control District (APCD or District) recommendations for lead agencies preparing environmental documents for large-scale plans and policy documents including (but not limited to): general, community, master, area, specific, and local coastal plans. Since these plans and policy documents are intended to guide development patterns, they are an ideal mechanism to encourage land use design and development that minimizes air quality impacts. The most appropriate stage to address issues, such as allowable land use densities, mixing of land uses, street standards, and parking requirements, is at the plan level. Many of the specific mitigation measures discussed in Section 7.5.2, "Operational Mitigation Measures," can be promoted at the plan level through zoning ordinances, parking standards, and design guidelines. Additionally, both the California Air Resources Board website at http://www.arb.ca.gov and the U.S. Environmental Protection Agency website at http://epa.gov have recommendations for designing projects to reduce air quality impacts. Incorporating air quality strategies into plan and policy documents can minimize the need for mitigation of individual development proposals.

Cities and the County should consider the following strategies when developing or revising plan and policy documents:

- A commitment to determine and mitigate project level and cumulative air quality impacts under CEQA (including implementation of the transportation control measures in the *Ventura County Air Quality Management Plan* (AQMP), such as the Transportation Demand Management (TDM) Facilities Ordinance (TCM B), Non-motorized Strategies (TCM D), and Regional Transit Programs (TCM E)).
- A commitment to integrate land use plans, transportation plans, and air quality plans.
- A commitment to plan land uses in ways that support a multi-modal transportation system.

- A commitment to take local action to support programs that reduce congestion and vehicle trips.

7.4 CONSTRUCTION MITIGATION

The mitigation measures described in this section are designed to control emissions caused by project construction activities - grading, clearing, excavation, earth moving, and mobile equipment necessary to perform these activities. Measures to control fugitive dust caused by project construction are presented in Section 7.4.1, "Fugitive Dust Mitigation Measures." Measures to control Valley Fever fungal spore entrainment are presented in Section 7.4.2, "Valley Fever Mitigation Measures." Measures to control reactive organic compounds (ROC) and oxides of nitrogen (NOx) emissions from project construction are presented in Section 7.4.3, "ROC and NOx Construction Mitigation Measures."

As discussed in Section 5.2, "Calculating Ozone Precursor Emissions from Project Construction," construction-related ROC and NOx emissions are not counted toward the ROC and NOx significance thresholds, since these emissions are only temporary. Therefore, when calculating project emissions using URBEMIS, construction emissions should not be included in the analysis; only area source emissions and operational emissions boxes should be included. However, after project emissions have been calculated, the user may want to access the construction mitigation measures component of the program. If so, in the "Load an Existing Project" screen, select "Edit These Project Settings," then check the construction box in the "Project Emission Sources" panel. This will enable you to access the construction module of the URBEMIS program, including the mitigation measure screens. Additional mitigation measures not quantified by URBEMIS can be included in the construction emissions analysis by choosing the user defined mitigation tabs for each of the three construction phases.

Since the air pollutant levels in Ventura County exceed the state and federal ozone standards and the state PM_{10} standard, APCD recommends that lead agencies include measures in Sections 7.4.1, "Fugitive Dust Mitigation Measures," and 7.4.3, "ROC and NOx Construction Mitigation Measures," in all projects that include construction activities, with special attention given to projects that require a grading permit. If the project poses a risk for Valley Fever (see Section 6.3, "San Joaquin Valley Fever"), APCD recommends that the measures in Section 7.4.2, "Valley Fever Mitigation Measures," be included (in addition to the measures in Section 7.4.1, "Fugitive Dust Mitigation Measures," to minimize Valley Fever fungal spore entrainment.

7.4.1 Fugitive Dust Mitigation Measures

Control techniques for fugitive dust generally involve watering, chemical dust control agents for soil stabilization, scheduling of activities, and vehicle speed control. Watering, the most common and generally least expensive method, provides only temporary dust

control. Watering also usually requires the use of diesel-powered watering trucks or pumps. The effectiveness of water for fugitive dust control depends greatly on the prevailing weather conditions and frequency of application. Chemical dust control agents provide longer dust suppression, but are not effective in reducing the large portion of construction dust emissions caused by grading, excavation, and cut-and-fill operations. Dust control agents for soil stabilization are useful primarily for application on completed cuts, fills, and unpaved roadways. Fugitive dust emissions from inactive portions of a construction site can be reduced up to 80 percent with chemical stabilizers. Chemical stabilizers, however, may be costly and should be limited to environmentally-safe materials to avoid adverse effects on plant and animal life.

Scheduling activities during periods of low wind speed will also reduce fugitive dust emissions. Low wind speeds typically occur during morning hours. Highest wind speeds are observed during Santa Ana wind conditions, which commonly occur between October and February with December having the highest frequency of events. Additionally, vehicle speed control can reduce fugitive dust emissions from unpaved roads and areas at construction sites by up to 60 percent, assuming compliance with a 15 miles per hour (mph) on-site speed limit.

Fugitive dust mitigation measures are presented below, as a model Fugitive Dust Mitigation Plan. This model plan is intended to be a starting point for lead agencies to use for fugitive dust mitigation. As new measures become available or known, lead agencies should add them to their standard list of fugitive dust mitigation measures. The model fugitive dust plan can be incorporated into a project in a variety of ways, including (but not limited to): part of a project description, developer agreement, as project conditions, or as part of a larger air quality or project mitigation plan.

7.4.1.1 Model Fugitive Dust Mitigation Plan

1. The area disturbed by clearing, grading, earth moving, or excavation operations shall be minimized to prevent excessive amounts of dust.
2. Pre-grading/excavation activities shall include watering the area to be graded or excavated before commencement of grading or excavation operations. Application of water (preferably reclaimed, if available) should penetrate sufficiently to minimize fugitive dust during grading activities.
3. Fugitive dust produced during grading, excavation, and construction activities shall be controlled by the following activities:
    a) All trucks shall be required to cover their loads as required by California Vehicle Code §23114.
    b) All graded and excavated material, exposed soil areas, and active portions of the construction site, including unpaved on-site roadways, shall be treated to prevent fugitive dust. Treatment shall include, but not necessarily be limited to, periodic

watering, application of environmentally-safe soil stabilization materials, and/or roll-compaction as appropriate. Watering shall be done as often as necessary and reclaimed water shall be used whenever possible.

4. Graded and/or excavated inactive areas of the construction site shall be monitored by (indicate by whom) at least weekly for dust stabilization. Soil stabilization methods, such as water and roll-compaction, and environmentally-safe dust control materials, shall be periodically applied to portions of the construction site that are inactive for over four days. If no further grading or excavation operations are planned for the area, the area should be seeded and watered until grass growth is evident, or periodically treated with environmentally-safe dust suppressants, to prevent excessive fugitive dust.
5. Signs shall be posted on-site limiting traffic to 15 miles per hour or less.
6. During periods of high winds (i.e., wind speed sufficient to cause fugitive dust to impact adjacent properties), all clearing, grading, earth moving, and excavation operations shall be curtailed to the degree necessary to prevent fugitive dust created by on-site activities and operations from being a nuisance or hazard, either off-site or on-site. The site superintendent/supervisor shall use his/her discretion in conjunction with the APCD in determining when winds are excessive.
7. Adjacent streets and roads shall be swept at least once per day, preferably at the end of the day, if visible soil material is carried over to adjacent streets and roads.
8. Personnel involved in grading operations, including contractors and subcontractors, should be advised to wear respiratory protection in accordance with California Division of Occupational Safety and Health regulations.

7.4.2 Valley Fever Mitigation Measures

As discussed in Section 6.3, "San Joaquin Valley Fever," if the project site poses a risk for Valley Fever, APCD recommends that the lead agency include appropriate Valley Fever mitigation measures in the environmental document for the project. These measures should be considered, in addition to the fugitive dust mitigation measures listed in Section 7.4.1, "Fugitive Dust Mitigation Measures," to minimize Valley Fever risk during project construction:

1. Restrict employment to persons with positive coccidioidin skin tests (since those with positive tests can be considered immune to reinfection).
2. Hire crews from local populations where possible, since it is more likely that they have been previously exposed to the fungus and are therefore immune.
3. Require crews to use respirators during project clearing, grading, and excavation operations in accordance with California Division of Occupational Safety and Health regulations.

4. Require that the cabs of grading and construction equipment be air-conditioned.
5. Require crews to work upwind from excavation sites.
6. Pave construction roads.
7. Where acceptable to the fire department, control weed growth by mowing instead of discing, thereby leaving the ground undisturbed and with a mulch covering.
8. During rough grading and construction, the access way into the project site from adjoining paved roadways should be paved or treated with environmentally-safe dust control agents.

7.4.3 ROC and NOx Construction Mitigation Measures

As discussed in Chapter 5, Estimating Ozone Precursor Emissions, ozone precursor emissions from construction vehicles can be substantial. However, there are very few feasible measures available to reduce these emissions. APCD recommends the following measures to mitigate ozone precursor emissions from construction motor vehicles:

1. Minimize equipment idling time.
2. Maintain equipment engines in good condition and in proper tune as per manufacturers' specifications.
3. Lengthen the construction period during smog season (May through October), to minimize the number of vehicles and equipment operating at the same time.
4. Use alternatively fueled construction equipment, such as compressed natural gas (CNG), liquefied natural gas (LNG), or electric, if feasible.

7.5 PROJECT MITIGATION

The mitigation measures described in this section are designed to control emissions caused by activities at the project site after construction is completed and the project is operational. Mitigation measures to control area source emissions from the project are presented in Section 7.5.1, "Area Source Mitigation Measures." Mitigation measures to control operational emissions are presented in Section 7.5.2, "Operational Mitigation Measures." Mitigation measures that can be applied to a project, but which may take place at a location other than the project site, are presented in Section 7.5.3, "Off-Site TDM Fund."

URBEMIS contains project mitigation measure options. When running the program, checking the "Mitigation Measures" boxes in the main screens for area source emissions and operational emissions can access those options, respectively. Additional mitigation measures not quantified by URBEMIS can be included in the project emissions analysis by choosing "New Area Source Mitigation Measures" in the Area Emissions main screen

(see Section III.7 of the URBEMIS User's Guide), and by choosing "User Measure" in the Operational Emissions main screen (see Section III.8 of the URBEMIS User's Guide).

7.5.1 Area Source Mitigation Measures

Area sources are sources that individually emit small quantities of air pollutants, but which cumulatively may generate significant quantities of emissions. Area source emissions include fuel combustion from natural gas appliances, utility engines (including landscape maintenance equipment), and consumer products. Area source mitigation measures include, but are not limited to, energy efficiency measures to reduce air emissions associated with energy generation and use. Such measures include increasing structural energy efficiency beyond the requirements of California's Title 24 energy efficiency standards (Title 24, California Code of Regulations, Part 6 - *California Energy Efficiency Standards for Residential and Nonresidential Buildings*. Title 24, Part 6 can be downloaded from http://www.energy.ca.gov/title24/.

Area source mitigation measures to reduce project emissions are listed in Table 7-1, "Area Source Mitigation Measures."

APCD recommends that area source mitigation measures be included in all projects that have been determined to have a significant air quality impact. If, after including all feasible area source mitigation measures, the project still exceeds the ROC and NOx significance thresholds, operational mitigation measures (Section 7.5.2, "Operational Mitigation Measures") should be applied to the project.

TABLE 7-1
AREA SOURCE MITIGATION MEASURES

Emission Source	Mitigation Measure	Emission Reduction (%) ROC	NOx
Residential Water Heaters	Use solar or low emission water heaters	11	9.5
	Use central water heating systems	9	8
Residential Heating	Orient buildings to the north for natural cooling and heating	14	13
	Increase walls and attic insulation beyond Title 24* requirements	14	13
Residential Landscape Maintenance	Provide electric maintenance equipment	100	100
Commercial Water Heaters	Use solar or low-emission water heaters	0.5	0.5
	Use central water heating systems	0.5	0.5
Commercial Heating	Orient buildings to the north for natural cooling and heating	11	13.5
	Increase walls and attic insulation beyond Title 24* requirements	10	9
Commercial Landscape Maintenance	Provide electric maintenance equipment	100	100
Industrial Heating	Orient buildings to the north for natural cooling and heating	2	3

*Title 24, California Code of Regulations, Part 6 - California Energy Efficiency Standards for Residential and Nonresidential Buildings

Source: URBEMIS User's Guide, Yolo-Solano Air Quality Management District, November 2002.

7.5.2 Operational Mitigation Measures

Operational emissions include emissions associated with motor vehicle trips generated by or attracted to land uses, and from dust generated by motor vehicles associated with the project on paved or unpaved roads. For many land uses, motor vehicle trips are often the primary source of emissions associated with the project. These motor vehicle trip emissions associated with land uses are often referred to as "indirect sources" of emissions. Broadly speaking, mitigation measures to reduce emissions from project operation include strategies that reduce vehicle trips or vehicle miles traveled (VMT), use of low emission vehicles, and measures that improve traffic flow or reduce congestion.

The URBEMIS program categorizes operational mitigation measures by project type - either residential or non-residential (commercial/industrial). The program requires input

of two types of information: 1) information about the environment surrounding the project area (called "Environmental Factors" on the Operational Emission Sources main screen), and 2) information about the mitigation actually being done for the project (called "Vehicle Trip Mitigation"). URBEMIS applies the environmental factors created by the project environment screens to the project specific mitigation measures. This results in percent reduction in trips and reductions in VMT. Correction factors are then applied to account for differences in measure effectiveness by trip type and trip distance. Emission factors are then applied to the trips and VMT reductions to yield mitigation measure emission reductions.

Environmental Factors

Environmental factors describe conditions that exist or are planned around the project area with regard to the pedestrian, bicycle, and transit environment. These screens require a qualitative assessment of conditions surrounding the project areas. The user has two options: selecting the default settings, which is the level achievable by a standard suburban-oriented subdivision or commercial development; or, developing environmental factors by going through a series of screens describing the pedestrian, transit, and bicycle environment surrounding the project.

One factor that lead agencies should consider in evaluating the project environment is each jurisdiction's locally-adopted Transportation Demand Management (TDM) Facilities Ordinance. These ordinances were adopted by all of the cities and the County of Ventura as required by state law related to the Congestion Management Plan (CMP) requirements. The Ventura County Transportation Commission adopted a model ordinance which contains the following seven basic elements, which were to be included in all local ordinances in Ventura County:

1. Standards for the number, size, and location of preferential carpool and vanpool parking spaces.
2. Standards for the number and location of bicycle racks and/or lockers.
3. Requirements for the provision, where feasible and appropriate, of transit stop improvements (i.e., bus pullouts, bus pads, shelters, etc.)
4. Requirement for the provision of a transportation information center at non-residential developments serving 50 or more employees.
5. Safe and convenient access for pedestrians and bicyclists from the external circulation system to on-site buildings or internal streets/sidewalks.
6. A formal role for transit operators in the local jurisdiction's environmental and developmental review processes.
7. Requirements for large developments to address the provision of needed services in close proximity to either jobs or housing.

Vehicle Trip Mitigation

The Vehicle Trip Mitigation screens describe measures associated with the specific project being implemented. URBEMIS categorizes these project measures as follows: regional and non-regional transit measures, residential measures, and non-residential measures. Operational mitigation measures to reduce project emissions are listed in Table 7-2, "Operational Mitigation Measures." APCD recommends that the mitigation measures selected for a project be developed and implemented within a comprehensive on-site program, where possible, to enhance the effectiveness of the individual measures. Appendix R-94, Transportation Control Measure Documentation, of the *Ventura County Air Quality Management Plan* can also be used for information about transportation control measures.

As stated in Section 5.3, "Calculating Emissions from Residential, Commercial, Industrial, and Institutional Development Projects," emissions from stationary sources, including industrial equipment, are controlled through the Ventura County APCD permit, inspection, and enforcement programs and procedures, and, therefore, are not addressed in these Guidelines.

APCD recommends that operational mitigation measures be included in projects that have been determined to have a significant air quality impact, even after including all feasible area source mitigation measures (Section 7.5.1, "Area Source Mitigation Measures"). If the project exceeds the ROC and NOx significance thresholds after inclusion of area and operational mitigation measures (Sections 7.5.1, "Area Source Mitigation Measures," and 7.5.2, "Operational Mitigation Measures"), off-site TDM fund mitigation measures (Section 7.5.3, "Off-site TDM Fund") should be applied to the project.

Project applicants may propose other mitigation measures not included in these Guidelines. Project applicants and lead agencies should consult with the Ventura County APCD before including miscellaneous mitigation measures in an environmental document.

TABLE 7-2
OPERATIONAL MITIGATION MEASURES

Measure Type	Mitigation Measure	Max. Trip Reduction (%)*
Residential		
Transit Infrastructure	Project density meets transit level of service requirements	6
	Provide transit shelters, benches, etc.	2
	Provide street lighting	0.5
	Provide route signs and displays	0.5
	Provide bus turnouts/bulbs	1
Pedestrian Infrastructure	Mixed use project (residential oriented)	3
	Provide sidewalks and/or pedestrian paths	1
	Provide direct pedestrian connections	1
	Provide pedestrian safety design/infrastructure	0.5
	Provide street furniture and artwork	0.5
	Provide street lighting	0.5
	Provide pedestrian signalization and signage	0.5
Bicycle Infrastructure	Provide bike lanes/paths connecting to bikeway system	2
Trip Reduction/VMT	Park-and-ride lots	**
	Satellite telecommuting center	***
Commercial/Industrial		
Transit Infrastructure	Project density meets transit level of service requirements	6
	Provide transit shelters, benches, etc.	2
	Provide street lighting	0.5
	Provide route signs and displays	0.5
	Provide bus turnouts/bulbs	1
Pedestrian Infrastructure	Mixed use project (commercial oriented)	1
	Floor area ratio 0.75 or greater	1
	Provide wide sidewalks and onsite pedestrian facilities	1
	Project uses parking structure(s)/small dispersed lots	1

TABLE 7-2 (CONTINUED)

Measure Type	Mitigation Measure	Max. Trip Reduction (%)*
Commercial/Industrial		
Pedestrian	Provide street lighting	0.5
Infrastructure (cont'd)	Project provides shade trees to shade sidewalks	0.5
	Project provides street art and/or street furniture	0.5
	Project uses zero building setback with entrance on street	0.5
	Provide pedestrian safety designs/infrastructure at crossings	0.5
	Articulated storefront display windows for visual interest	0.25
	No long uninterrupted walls along pedestrian access routes	0.25
Bicycle Infrastructure	Provide bike lanes/paths connecting to bikeway system	2
	Provide secure bicycle parking	1
	Provide employee lockers and showers	1
Trip Reduction	Charge for employee parking	
	- more than $5/day	10
	- $3-$5/day	4
	- less than $3/day	2
	Shuttle/minibus service to transit/multi-modal center	2
	Preferential carpool/vanpool parking	1.5
	Parking limited (below minimum)	1
	Employee rideshare incentive program	1
	Day care center on-site or within ½ mile	1
	Employee telecommuting program	40
	Compressed work schedule	
	- 3/36	40
	- 4/40	20
	- 9/80	10
	Charge for customer parking	
	- $1/hour	11
	- $0.60/hour	5
	- $0.25/hour	2

TABLE 7-2 (CONTINUED)

Measure Type	Mitigation Measure	Max. Trip Reduction (%)*
Commercial/Industrial VMT	Lunch/shopping shuttle service	1.5
	Provide on-site shops and services	
	- many frequently needed services	5
	- some frequently needed services	3
	- minor services	1
Trip Reduction/VMT	Park-and-ride lots	**
	Satellite telecommuting center	***

*URBEMIS Program Screens, Yolo-Solano Air Quality Management District, November 2002.

**number of spaces x 89% x miles/trip = miles reduced.

***number of workstations x 89% x miles/trip = miles reduced.

7.5.3 Contribution to an Off-Site TDM Fund

The Off-Site TDM Fund is a mitigation measure than can be used by project proponents for projects and programs that exceed the ROC and NOx significance thresholds. This measure applies to commercial, industrial, institutional, and residential projects, and calls for contributing to a city or county mobile source emission reduction fund established specifically to reduce emissions from transportation sources. The amount of funding is commensurate with the amount of emissions that need to be mitigated. Mitigation programs that could be funded through such an off-site TDM fund include (but are not limited to) public transit service, vanpool programs/subsidies, rideshare assistance programs, and off-site TDM facilities.

APCD recommends that this mitigation measure be implemented only after all feasible area and operational mitigation measures (Sections 7.5.1, "Area Source Mitigation Measures," and 7.5.2, "Operational Mitigation Measures") have been applied to the development project, and project emissions are still considered significant. The amount of funding should be commensurate with the quantity of emissions left to be mitigated after application of all other feasible area and operational source mitigation measures. The following conditions should apply to the use of the funds collected (including accumulated interest) under an Off-site TDM Fund:

1. The lead agency should determine the basis for collection and how the funds are to be spent. The funds should be spent or committed to a mitigation project within five years of receipt of the funds.

2. Funds should be used for mitigation projects or programs in areas that are either directly or indirectly impacted by the development project and are within Ventura County. Ridesharing arrangements or public transit services that originate outside the area but serve the area directly or indirectly impacted by the development project are also eligible uses of the funds.
3. The lead agency should establish an off-site TDM fund to receive and hold the funds until the funds are spent on an approved mitigation project or program.
4. Funds should not be used for traffic engineering projects, including signal synchronization, intersection improvements, and channelization, as these projects are related to improving traffic congestion and not air quality.
5. Any on-site or off-site TDM facilities provided by a development project to mitigate its emissions before determining the funding should not be credited toward the funds paid by the development project as a mitigation measure. Doing so would be taking credit for the mitigation twice.
6. A development project that is to be developed in phases should calculate the pro-rata share of funding from each phase of development based on emissions for the year of complete buildout. Such pro-rata share of funding should be paid in one lump sum or spread out evenly over three years in order to minimize the initial cost and provide a stable funding source.
7. The lead agency should report annually to its respective governing board on collection, expenditure, and use of collected funds.
8. The calculation and use of funding to a mobile source emission reduction fund must be in accordance with all applicable statutory requirements.

The cost of reducing emissions through funding an off-site TDM fund can be determined using the equation shown below. The cost should be calculated separately for ROC and NOx. The amount is based on only the higher of the two costs, since funding will result in mitigation programs that reduce both pollutants. Usually, the cost to mitigate NOx emissions will be greater than the cost to mitigate ROC emissions because the NOx emissions for most projects are greater than ROC emissions.

$$TC_{(ROC\ or\ NOx)} = EE_{(ROC\ or\ NOx)} \times UC_{(ROC\ or\ NOx)} \times D \times 3\ years$$

where:

$TC_{(ROC\ or\ NOx)}$ = Total cost for TDM fund mitigation program

$EE_{(ROC\ or\ NOx)}$ = Excess emissions; pounds per day of ROC or NOx over the applicable significance threshold

$UC_{(ROC\ or\ NOx)}$ = Unit cost per lb. of ROC or NOx reduced

ROC = $5.18 (for projects completed in 2000)

NOx = $7.54 (for projects completed in 2000)

D = Days of operation per year

The unit cost is $5.18 per pound of ROC reduced, and $7.54 per pound of NOx reduced, for development projects that will be completed in 2000. These amounts are based on the cost-effectiveness of ridesharing programs as calculated using the 2000 - 2001 fiscal year budget for Southern California Rideshare's (SCR) Ventura Office, the expected number of rideshare arrangements that SCR expected to form in Ventura County during 2000 - 2001, a Ventura County-specific light-duty vehicle fleet, and home-work commute trip emissions estimated by URBEMIS7G. The TDM funding unit cost (ROC or NOx) should be indexed to inflation for development projects that will be completed in future years. The recommended inflation factor can be calculated by dividing the most recent January Consumer Price Index (CPI) (All Urban Consumers (All Items 1982-84 = 100)) value for the Los Angeles-Riverside-Orange County, California region by the January 2000 CPI index value, which was 167.9. Consumer Price Index information is developed by the U. S. Department of Labor Statistics and can be found on their web site at http://stats.bls.gov/. The Consumer Price Index CPI information also can be found at the Department of Industrial Relations web site located at http://www.dir.ca.gov/dlsr/PresentCCPI.html#Bookmark1.

At a minimum, the Ventura County APCD recommends that all development projects with significant air quality impacts fully mitigate the excess emissions through funding measures for at least three years. This method of determining the amount results in an annual cost to fully mitigate both ROC and NOx emissions associated with a development project below the 5 pounds per day threshold in the Ojai Planning Area, or below the 25 pounds per day threshold in the remainder of the county.

Funding of this kind is considered to have lessened or reduced the significant environmental impact of the subject development project (see Section 7.2, "CEQA Requirements for Mitigation Measures"). A jurisdiction may allow a development project to spread the amount over the three-year period in order to minimize the initial cost to the project proponent. In most cases, the emissions from a development project will still exceed the 5 pounds per day threshold in the Ojai Planning Area, or 25 pounds per day threshold in the remainder of the county after the three-year funding. Therefore, each lead agency should determine if overriding considerations are necessary to approve the development project due to these emissions.

7.5.4 Fugitive Dust Mitigation

Mitigation measures should be identified for a project if operation of the project will cause significant fugitive dust impacts. Mitigation measures identified as construction mitigation in the Model Fugitive Dust Mitigation Plan in Section 7.4.1, "Fugitive Dust Mitigation Measures," are also applicable to fugitive dust generated by project operation.

7.5.5 Carbon Monoxide Mitigation

Mitigation measures, including changes in the project, should be identified that will eliminate, or at least reduce, any modeled CO hotspots as much as feasible. Such mitigation measures will typically involve reducing traffic congestion and improving traffic flow and/or reducing idling time on roadways impacted by the project. Examples of such mitigation measures include roadway widening, adding new turn and through lanes, and changing signal light timing. The effectiveness of any proposed CO mitigation measures should be quantified by estimating the effects of the measures on traffic volumes, congestion, and/or speeds, and then remodeling the CO concentrations with CALINE4.

7.5.6 Toxic Air Contaminant Mitigation

Specific mitigation measures should be identified and considered for those projects that may release toxic or hazardous air contaminants to the atmosphere in amounts that may be injurious to nearby populations. Such mitigation measures should consider both routine and non-routine toxic air pollutant releases. Mitigation measures may involve handling, storage, and disposal methods that minimize release of the subject substances to the atmosphere. In some cases, air pollution control devices or process operation modifications can be employed. Furthermore, new facilities that may release toxic or hazardous substances to the atmosphere should not be located adjacent to residences, schools, day care centers, hospitals or similar land uses where people live or frequent. Conversely, such land uses should not be located near existing facilities that emit toxic and/or hazardous air contaminants.

7.5.7 Odor Mitigation

Specific mitigation measures should be identified and considered for those projects that may release odorous emissions in such quantities as to cause a public nuisance to nearby populations.

For some projects, operational changes, add-on controls, or process changes, such as carbon adsorption, incineration, or relocation of stacks/vents, can minimize odorous emissions. The lead agency may contact the District for further information regarding appropriate add-on emission controls and other technological methods to minimize odorous emissions. In many cases, however, the most effective mitigation strategy is to provide a sufficient distance, or buffer zone, between the odor source and the receptor(s) to ensure that the public will not be subjected to nuisance levels of odorous emissions. Odor mitigation measures placed on projects that are odor receptors (e.g., residential areas) that rely on sealing buildings, filtering air, or disclosure statements are not appropriate in place of technological control or buffer zones.

In establishing the size of the buffer zone, the lead agency should assess such factors as the severity of the potential odors, the length of time that potentially affected populations will be affected by the odors, prevailing wind direction and speed, and actions taken (or that will be taken) at the facility to control odorous emissions. A safety margin should also be considered in establishing the buffer zone to allow for possible future expansions of operations at the source of the odors. Lead agencies can consult the District regarding the appropriate buffer zone size for particular projects that may create significant odor impacts.

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8. GENERAL CONFORMITY

8.1 INTRODUCTION

Section 176(c) of the federal Clean Air Act (CAA) states that federal agencies cannot carry out, fund, or approve any project unless the project conforms to the applicable State Implementation Plan's (SIP) purpose of eliminating or reducing the severity and number of violations of the national ambient air quality standards and achieving expeditious attainment of these standards. A SIP is a compilation of all of a state's air quality plans and rules that have been approved by the U.S. Environmental Protection Agency (U.S. EPA). The applicable SIP in Ventura County is the most recent *Ventura County Air Quality Management Plan* (AQMP) approved by the U.S. EPA plus all Ventura County Air Pollution Control District (APCD) rules and regulations approved by the U.S. EPA.

There are two types of federal conformity actions: general (non-transportation) and transportation. Pursuant to CAA requirements, the U.S. EPA developed general and transportation conformity regulations that implement Section 176(c). U.S. EPA promulgated the general conformity criteria and procedures (Title 40 of the Code of Federal Regulations (CFR) Part 6; Part 51, Subpart W; and Part 93, Subpart B) on November 30, 1993. U.S. EPA promulgated the transportation conformity criteria and procedures (Title 40 of the CFR, Part 51, Subpart T; and Part 93, Subpart A) on November 24, 1993, and last revised them August 15, 1997. Transportation conformity, which is not discussed in these Guidelines, applies to federal actions related to transportation plans, programs, and projects under Title 23 U.S. Code or the Federal Transit Act.

The criteria and procedures required the District to adopt a general conformity rule and submit it to the U.S. EPA by November 30, 1994. The Ventura County Air Pollution Control Board adopted Rule 220, General Conformity, on May 9, 1995. Rule 220 incorporates U.S. EPA's general conformity criteria and procedures by reference. The U.S. EPA approved Rule 220 on April 23, 1999, and the rule became effective June 22, 1999.

8.2 RESPONSIBILITY FOR CONFORMITY DETERMINATIONS

Federal agencies are responsible for making conformity determinations for projects that require a federal action, as described below. The federal agency responsible for issuing the permit, approval, or funding should be contacted if an individual, group, or local agency thinks that a project might be subject to the general conformity regulation. The individual, group, or local agency can contact the District if the federal agency is unfamiliar with the federal general conformity requirement.

The APCD recommends that conformity analyses be conducted concurrently with any environmental review for the project required pursuant to CEQA.

8.3 APPLICABILITY

The CAA defines a federal action as any activity engaged in by a department, agency, or instrumentality of the federal government; or any activity that a department, agency or instrumentality of the federal government supports in any way, provides financial assistance for, licenses, permits, or approves. For general conformity, this definition excludes activities related to transportation plans, programs, and projects (including highway and transit actions) developed, funded or approved under Title 23 U.S.C. or the Federal Transit Act, which are subject to the transportation conformity rule. The federal transportation conformity rule is incorporated largely by reference into District Rule 221, Transportation Conformity.

The federal general conformity criteria and procedures contain provisions for making conformity determinations for federal health-based air quality standards for ozone, carbon monoxide, sulfur dioxide, nitrogen dioxide, particulate matter 10 microns or less in diameter, and lead. The criteria and procedures apply in areas designated nonattainment for any federal air quality standard and to all air quality maintenance areas. Since Ventura County is nonattainment only for the federal one-hour ozone standard, conformity determinations apply only to reactive organic compounds (ROC) and oxides of nitrogen (NOx) emissions.

The rule specifies *de minimis* thresholds, based on the severity of the nonattainment problem, under which conformity determinations are not needed. If the total of direct and indirect emissions from an activity are projected to equal or exceed the *de minimis* thresholds, and if it is not an exempt activity or an activity that is presumed to conform under the federal rule, then the federal agency must conduct a general conformity analysis. Since Ventura County is designated a federal severe ozone nonattainment area, the applicable *de minimis* threshold is 25 tons per year of ROC or NOx.

Calculation of emissions from a federal activity includes direct and indirect emissions. Direct emissions are emissions of a criteria pollutant or its precursors that are caused or initiated by the federal action and occur at the same time and place as the action. Indirect emissions are emissions of a criteria pollutant or its precursors that: 1) are caused by the federal action, but may occur later in time and/or may be further removed in distance from the action itself, but are still reasonably foreseeable; and 2) the federal agency can practicably control and will maintain a control over due to a continuing program responsibility. The federal general conformity rule does not specify examples of indirect emissions, as it is up to the federal agency to make that determination.

The general preamble to the federal general conformity rule states that the following types of federal actions, among others, are likely to be subject to conformity review:

- Prescribed burning activities by federal agencies or on federal lands.

- Private actions taking place on federal land under an approval, permit, or leasing agreement, such as mineral extraction, timber harvesting, or ski resort construction.
- Direct emissions from Corps of Engineers (COE) permit actions.
- Wastewater treatment plant construction or expansion actions.
- Federal construction projects such as buildings, laboratories, and reservoirs on federal land.
- Project-level minerals management leasing activities.
- New airports or airport expansion actions.
- Actions taking place on federal lands or in federal facilities.

The general preamble to the federal general conformity rule states that the following types of federal actions are not covered by the conformity rule:

- Activities associated with property disposal at military closure and realignment bases through sale or other transfer of title.
- Leasing agreements associated with military base closure and realignment, where transfer of title is required to be conveyed upon satisfaction of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) requirements, and where the military service leases the property without retaining continuing authority to control the property except as necessary to assure satisfaction of CERCLA requirements.
- Certain indirect emissions related to COE permits for discharging dredged or fill material.
- National Pollutant Discharge Elimination System (NPDES) permit actions since many of these actions are taken under State rules and, as such, are not federal actions.

8.4 SUMMARY OF CRITERIA FOR MAKING A POSITIVE CONFORMITY DETERMINATION

A federal agency can make a positive conformity determination by meeting any of several criteria in the rule. Criteria that relate to ozone conformity analyses are summarized below. For specific information about the requirements of the general conformity rule, see Title 40 of the CFR, Part 51, Subpart W; and Part 93, Subpart B.

- Emissions from the action are fully offset within the same area through a revision to the applicable SIP or a similarly enforceable measure that creates emissions reductions so that there is no net increase in emissions of that pollutant.
- Emissions for the project are specifically identified and accounted for in the applicable SIP attainment or maintenance demonstration (1995 Ventura County Air Quality Management Plan, Appendix E-95, *Emission Forecast Documentation*).

- The action (or portion thereof) is specifically included in a current transportation plan and transportation improvement program that have been found to conform to the applicable SIP under the transportation conformity regulation.
- Where a SIP has not been approved since 1990, the baseline emissions reflect historic activity levels that occurred in the geographic area.
- Regional water and/or wastewater projects are sized to meet only the needs of population projections that are in the applicable SIP.

8.5 REPORTING REQUIREMENTS AND PUBLIC PARTICIPATION

A federal agency conducting a conformity analysis must provide a 30-day notice describing the proposed action and a copy of the federal agency's draft conformity determination to the appropriate U.S. EPA Regional Office (Region IX), Land Managers, State and local air quality agencies (California Air Resource Board and the APCD), and the Metropolitan Planning Organization (i.e., Southern California Association of Governments (SCAG) and the Ventura Council of Governments (VCOG) or otherwise designated agency).

After making a final conformity determination, a federal agency must notify, within 30 days, the appropriate U.S. EPA Regional Office (Region IX), Land Managers, State and local air quality agencies (ARB and the APCD), and the Metropolitan Planning Organization (i.e., SCAG, VCOG, or otherwise designated agency).

Additionally, a federal agency must:

- Make draft conformity determinations and supporting materials available for public review.
- Place an advertisement in a daily newspaper in the area that would be affected by a proposed action before acting on a draft conformity determination.
- Provide opportunity for written public comments.
- Respond to comments received, making comments and responses available upon request.
- Place an advertisement in a daily newspaper in the area that would be affected by the action after making a final conformity determination.

BIBLIOGRAPHY

Bay Area Air Quality Management District, *CEQA Guidelines*, April 1996.

Benson, P., *CALINE4 - A Dispersion Model for Predicting Air Pollutant Concentrations Near Roadways*, Report No. FHWA/CA/TL-84/15, 1989.

California Air Resources Board, *Facts about Smog and California Crops*, California Air Resources Board Public Information Office, 1991.

California Air Resources Board, *Mobile Source Emission Reduction Credits*, February 1996.

County of San Luis Obispo Air Pollution Control District, *A Guide for Assessing The Air Quality Impacts for Projects Subject to CEQA Review*, August 1995.

Graves, Scott, The Trouble with Trash, *Broadcaster Magazine*, Spring 1996, page 17.

Howitt, R. E., and Goodman, C., An Economic Assessment of Crop Losses Due to Air Pollution, *Research Notes*, California Air Resources Board, No. 90-5, February 1990.

Institute of Transportation Engineers, *Trip Generation*, 5th Edition, 1991.

_____, *Trip Generation*, February 1995 Update to the 5th Edition, 1995.

_____, *Trip Generation*, 6th Edition, 1997.

Kern County Health Department, *Valley Fever Task Force Report on the Control of Coccidioides immitis*, August 1995.

Middleton, John T., Kendrick, J.B. Jr., and Schwalm, H.W., Smog in the South Coastal Area of California, *California Agriculture* 11 (4):7, Page 5.

Peterson, Donald C., Jr., Ozone Risks to California Forests (A Data Base and Ranking of Forest Sensitivity) *Research Notes*, California Air Resources Board, May 1989.

Pittenger, Thomas A., *On the Air*, National Park Service Brochure, California Air Resources Board.

Research Group Says Damage to Trees, Crops from Acid Rain, Ozone, is Greater Than

Suspected, *Environment Reporter*, Bureau of National Affairs, Washington D. C., September 16, 1988, Page 988.

_____, *Guidelines for Assessing and Mitigating Air Quality Impacts*, August 1998.

South Coast Air Quality Management District, *CEQA Air Quality Handbook*, April 1993.

State of California, Department of Finance, *Updated Revision of Historical County Population Estimates and Components of Change, July 1, 1970-1989.* Sacramento, California, September 2002.

State of California, Department of Finance, *Updated Revised Historical County Population Estimates and Components of Change, July 1, 1990-1999.* Sacramento, California, January 2003.

State of California, Department of Finance, *County Population Estimates and Detailed Components of Change, July 1, 2000-2002, with Historical 1999 Estimates and Census 2000 Counts.* Sacramento, California, January 2003.

Take a Deep Breath: That's Smog, *Sunset Magazine*, May 1992, Page 109.

United States Environmental Protection Agency, *EPA Health Effects Notebook for Hazardous Air Pollutants – Draft*, EPA-452/D-95-00, December 1994.

University of California, Davis, Prepared for the California Department of Transportation, Environmental Program, *Transportation Project-Level Carbon Monoxide Protocol*, Report No. UCD-ITS-RR-97-21, December 1997.

Ventura County Air Pollution Control District, et al., Agreement for Settlement of Pending Litigation (*City of Ojai and Citizens to Preserve the Ojai v. Ventura County Air Pollution Control District and Ventura County Air Pollution Control Board*, Ventura County Superior Court Case No. CIV 178925), August 1998.

Ventura County Air Pollution Control District, *Ventura County 1994 Air Quality Management Plan*, November 1994.

_____, *Ventura County 1995 Air Quality Management Plan Revision*, December 1995.

_____, *Ventura County 1997 Update to the 1995 Air Quality Management Plan Revision*, October 1997.

Ventura County Public Health, *Health Status Report, Volume 3. Morbidity & Mortality*, October 1996.

Ventura County Transportation Commission, *1998 Ventura County Congestion Management Program*, November 1997.

Yolo-Solano Air Quality Management District, *Software User's Guide: URBEMIS2002 for Windows with Enhanced Construction Module*, November 2002.

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APPENDIX A
GLOSSARY AND ACRONYMS

This appendix defines terms and acronyms used in these Guidelines.

Glossary

Aerosol - a particle of solid or liquid matter that can remain suspended in the air because of its small size (generally under one micron).

Air Basin - an area of the state designated by the ARB pursuant to Subdivision (a) of Section 39606 of the California Health and Safety Code (CH&SC).

Air Monitoring - the periodic or continuous sampling and analysis of air pollutants in ambient air or from individual pollutant sources.

Air Pollutants - substances that are foreign to the atmosphere or are present in the natural atmosphere to the extent that they may result in adverse effects on humans, animals, vegetation, and materials. Common air pollutants are ozone, nitrogen dioxide, particulate matter, sulfur dioxide, and carbon monoxide. Air pollution is defined in the CH&SC as any discharge, release, or other propagation into the atmosphere, and includes, but is not limited to, smoke, charred paper, dust, soot, grime, carbon, fumes, gases, odors, particulate matter, acids, or any combination thereof.

Air Pollution Control District (APCD) - a local agency with authority to regulate stationary sources of air pollution (such as refineries, manufacturing facilities, and power plants) within a given county, and governed by a District Air Pollution Control Board composed of the elected county supervisors and city representatives.

Air Pollution Control Officer (APCO) - the executive officer of the Air Pollution Control District appointed by the Air Pollution Control Board.

Air Quality Management Plan (AQMP) - a plan prepared by an air pollution control district or agency to comply with either the federal Clean Air Act or the California Clean Air Act. An AQMP contains measures that will be taken to attain and maintain federal and state ambient air quality standards. In California, air districts prepare air quality management plans that are included in the state's SIP that is required by the federal Clean Air Act. Such plans are also referred to as Clean Air Plans or Clean Air Attainment Plans.

Alternative Fuels - fuels such as methanol, ethanol, natural gas, and liquid petroleum gas that are cleaner burning with lower air emissions.

Ambient Air - air present at a particular time and place outside of structures. Often used interchangeably with outdoor air.

Anthropogenic - of, relating to, influenced, or caused by humans.

Area Sources - also known as "area-wide" sources, these include multiple stationary emission sources such as water heaters, gas furnaces, fireplaces, and woodstoves. The CCAA requires districts to include these area sources in AQMPs.

Attainment - achieving and maintaining the air quality standards (both state and federal) for a given air pollutant.

Attainment Area - an area that is in compliance with the National and/or California Ambient Air Quality Standards.

California Ambient Air Quality Standards (CAAQS) - specified concentrations of air pollutants, recommended by the California Department of Health Services and adopted into regulation by the Air Resources Board, which relate the intensity and composition of air pollution to undesirable effects. CAAQS are the standards that must be met per the requirements of the California Clean Air Act.

California Clean Air Act (CCAA) - a California law passed in 1988 that provides the basis for air quality planning and regulation independent of federal regulations, and which establishes new authority for attaining and maintaining California's air quality standards by the earliest practicable date. A major element of the Act is the requirement that local APCDs in violation of the CAAQS must prepare attainment plans that identify air quality problems, causes, trends, and actions to be taken for attainment.

California Air Resources Board (ARB) - California's lead air quality agency, consisting of a nine-member Governor-appointed board, responsible for motor vehicle air pollution control, and having oversight authority over California's air pollution management program.

California Department of Transportation (Caltrans) - a state department that oversees the state's transportation intrastructure.

California Environmental Quality Act (CEQA) - a state law intended to protect the environment of California. It is also known as the CEQA statutes, and is codified in Sections 21000 through 21177 of the Public Resources Code. CEQA establishes mandatory ways by which governmental (public agency) decision makers are informed about the potential significant environmental effects of proposed projects. CEQA also mandates the identification of ways to avoid or significantly reduce damage to the environment. After preliminary review or the completion of an Initial Study, the Lead Agency may decide to prepare an Environmental Impact Report (EIR) for a project.

CEQA Guidelines - regulations prescribed by the Secretary for Resources to be followed by all state and local agencies in California in the implementation of CEQA, beginning at Sec. 15000, California Code of Regulations (CCR).

CALINE4 - a California Department of Transportation air quality model for estimating pollutant concentrations (primarily carbon monoxide, nitrogen dioxide, and particulates) near a roadway.

Carbon Monoxide (CO) - a colorless, odorless gas resulting from the incomplete combustion of fossil fuels. Over 80 percent of the CO emitted in urban areas is contributed by motor vehicles. CO interferes with the blood's ability to carry oxygen to the body's tissues and results in numerous adverse health effects. CO is a criteria air pollutant.

CO Hot Spots - an area, usually an intersection or congested segment of a highway, that exceeds the federal or state carbon monoxide standard.

Clean Air Act (CAA) - federal law passed in 1970 and amended in 1977 and 1990 that sets primary and secondary National Ambient Air Quality Standards for major air pollutants and thus forms the basis for the national air pollution control effort.

Concentration - the amount of an air pollutant present in a unit sample, usually measured in parts per million (ppm) or micrograms per cubic meter.

Conformity - a requirement in the federal Clean Air Act that no department, agency, or instrumentality of the federal government shall engage in, support in any way, or provide financial assistance for, license, permit, or approve any activity that does not conform with the State Implementation Plan (SIP) by causing or contributing to an increase in air pollutant emissions, or violation of an air pollutant standard, or frequency of violating that standard.

Consistency - a term used in CEQA to determine if a project is consistent by furthering the goals and objectives of, and will not interfere with the implementation of, applicable regional plans.

Criteria Air Pollutant - an air pollutant for which acceptable levels of exposure can be determined and for which a federal or state Ambient Air Quality Standard has been set. Examples include: ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, and PM_{10} (see individual pollutant definitions).

District - the Ventura County Air Pollution Control District is an air pollution control district as defined by the CH&SC Section 40150. The District encompasses all of Ventura County.

EMFAC - an ARB program of emission factors used for most California motor vehicle emissions models.

Emission Factor - the amount of a specific pollutant emitted from a specified polluting source per unit quantity of material handled, processed, or burned.

Emission - an air contaminant released to the atmosphere.

Emissions Inventory - an estimate of the quantity of pollutants emitted into the atmosphere over a specific period such as a day or a year. Considerations that go into an inventory include type and location of sources, the processes involved, and the level of activity.

Emission Standards - as used in these Guidelines, means United States Federal (EPA), State of California (ARB), or Ventura County Air Pollution Control District standards or limits for air contaminant emissions.

Environmental Impact Report (EIR) - a detailed report prepared under CEQA describing and analyzing the significant effects of a project and discussing ways to mitigate or avoid the effects [CCR §15362].

Environmental Protection Agency (EPA) - the federal agency charged with setting policy and guidelines, and carrying out legal mandates, for the protection of national environmental resources in the United States.

Exceedance - a monitored level of concentration of any air contaminant higher than the national or state ambient air quality standards.

Growth Area - a geographic subarea used in Ventura County population forecasts to refer to an area where urban development has already taken place or is expected to take place.

Indirect Source - facilities, buildings, structures, properties, and/or roads which, through their construction to their operation, indirectly contribute to air pollution. This includes projects and facilities that attract or generate mobile sources activity (autos and trucks) such as shopping centers, employment sites, schools, and housing developments, that result in emissions of any regulated air pollutant.

Level of Service (LOS) - a scale that is used to rate the service (i.e., speed and maneuverability) on roadways. An LOS of "A" means that traffic is flowing freely, while "F" refers to severely congested conditions.

Mitigated Negative Declaration (MND) - a type of negative declaration prepared for a project when the initial study has identified potentially significant effects on the environment, but (1) revisions in the project plans or proposals made by, or agreed to

by, the applicant before the proposed negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effect on the environment would occur, and (2) there is no substantial evidence in light of the whole record before the public agency that the project, as revised, may have a significant effect on the environment [Public Resources Code §21064.5].

Mitigation - measures taken to avoid or reduce a significant effect including:

- Avoiding the impact altogether by not taking a certain action or parts of an action.
- Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment.
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- Compensating for the impact by replacing or providing substitute resources or environments [California Code of Regulations §15370].

National Ambient Air Quality Standards (NAAQS) - standards set by the EPA for the maximum levels of air pollutants that can exist in the ambient air without unacceptable effects on human health or public welfare.

New Source Review (NSR) - the mechanism to assure that new and modified stationary sources will not interfere with the attainment or maintenance of any ambient air quality standard, or prevent reasonable further progress towards the attainment or maintenance of any ambient air quality standard. A program used in a nonattainment area to permit or site new industrial facilities, or modifications to existing industrial facilities, that emit nonattainrnent criteria air pollutants. The two major requirements of NSR are best available control technology and emission offsets.

Negative Declaration - a written statement briefly describing the reasons that a proposed project will not have a significant effect on the environment and does not require the preparation of an environmental impact report [Public Resources Code §21064].

Nonattainment Area - an area identified by the EPA or ARB as not meeting the NAAQS or CAAQS for a given pollutant.

Non-growth Area - a geographic subarea used in Ventura County population forecasts to refer to an area where urban development is not expected to occur.

Ojai Planning Area - an area defined as the "Ojai Valley" in the Ventura County Non-Coastal Zoning Ordinance, Article 12, Section 8112-2 (Ojai Growth and Non-growth areas) plus the Ventura (Ojai) NGA.

Ojai Valley - an area defined as the "Ojai Valley" in the Ventura County Non-Coastal Zoning Ordinance, Article 12, Section 8112-2 (Ojai Growth and Non-growth Areas).

Oxides of Nitrogen - a reddish-brown gas with an odor similar to bleach. The major source of this pollutant is the high temperature combustion of fossil fuels. Health effects include irritation and damage to the lungs and lower resistance to respiratory infections.

Ozone - a pungent, pale blue (but often invisible), reactive, toxic gas consisting of three oxygen atoms. In the atmosphere, it is a product of the photochemical processes involving the solar radiation. Ozone exists in the stratosphere, as well as at the earth's surface. Ozone in the stratosphere protects living organisms near the earth's surface from ultraviolet rays from the Sun. Ozone at the earth's surface is a criteria air pollutant and causes numerous adverse health effects.

Ozone Precursors - compounds such as reactive organic compounds and oxides of nitrogen, occurring either naturally or as a result of human activities, which contribute to the formation of ozone, the principal component of smog.

Particulate Matter - Fine ($PM_{2.5}$) - $PM_{2.5}$ is a mixture of very small particles with an aerodynamic diameter equal to or less than 2.5 microns. $PM_{2.5}$ consists of particles directly emitted into the air and particles formed in the air from the chemical transformation of gaseous pollutants. $PM_{2.5}$ particles are emitted from activities such as industrial and residential combustion, and from vehicle exhaust. Particles 2.5 microns or smaller infiltrate deepest portions of the lungs, increasing the risks of long-term disease, including chronic respiratory disease, cancer, and increased and premature death.

Particulate Matter - Respirable (PM_{10}) - any particulate matter with an aerodynamic diameter equal to or less than 10 microns. PM_{10} consists of particles directly emitted into the air and particles formed in the air from chemical transformations of gaseous pollutants. PM_{10} particles are emitted from activities such as industrial and residential combustion, and from vehicle exhaust. PM_{10} causes adverse health effects, atmospheric visibility reduction, and is a criteria air pollutant.

Pedestrian Oriented Development (POD) - any of a number of design strategies that emphasize pedestrian access over automobile access. They typically provide pedestrian amenities such as sidewalks, street trees, commercial at-street frontage, safe street crossings, etc.

Permit - written authorization from the Air Pollution Control District for the construction or operation of equipment that may create or control regulated air emissions.

Project - an activity that may cause either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment, and that is any of the following:

- An activity directly undertaken by a public agency.
- An activity undertaken by a person that is supported, in whole or in part, through contracts, grants, subsidies, loans, or other forms of assistance from one or more public agencies.
- An activity that involves the issuance to a person of a lease, permit, license, certificate, or other entitlement for use by one or more public agencies [Public Resources Code §21065].

Reactive Organic Compounds (ROC) - any organic compound containing at least one carbon atom except for specific exempt compounds (see District Rule 2) found to be non-photochemically reactive and thus not participating in smog formation. Sometimes referred to as reactive organic gases, non-methane organic compounds, or volatile organic compounds.

Sensitive Receptors - facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples include schools, hospitals, and daycare centers.

Significant Effect on the Environment - a phrase used to indicate that an environmental effect of a project is at a level requiring the detailed analysis of an EIR and that the effect is severe enough to consider disapproving or changing the project to avoid the effect. The terms "significant effect" and "significant impact" are interchangeable under CEQA [CCR §15382].

Soil stabilizers - chemical or other agents that are applied to soil surfaces to stabilize and mitigate PM_{10} fugitive dust emissions by creating a wind-resistant crust. Typically applied to disturbed surface areas next to roadways, base ground areas, dirt parking lots and roadway shoulders, and exposed construction areas.

Southern California Association of Governments (SCAG) - the organization, known in federal law as the Council of Governments and Metropolitan Planning Organization, representing Los Angeles, Ventura, San Bernardino, Riverside, Orange, and Imperial Counties and the cities within those six counties. As the designated Metropolitan Planning Organization, the Association of Governments is mandated by the federal government to research and draw up plans for transportation, growth management, hazardous waste management, and air quality. Additional mandates exist at the state level.

Statement of Overriding Considerations - a written statement by a lead agency giving reasons for approving a project having environmental impacts that have not been mitigated to a level of insignificance.

State Implementation Plan (SIP) - a document prepared by each state, and subject to EPA approval, describing existing air quality conditions and measures that will be taken to attain and maintain National Ambient Air Quality Standards. A SIP is a compilation of all of a state's air quality plans and rules that have been approved by the U.S. Environmental Protection Agency (EPA). In California, air districts prepare nonattainment area plans that are included in the state's SIP. The applicable SIP in Ventura County is the most recent Ventura County Air Quality Management Plan (AQMP) approved by the U.S. EPA plus all Ventura County Air Pollution Control District (APCD) rules and regulations approved by the EPA.

Sulfur Dioxide - a colorless, extremely irritating gas or liquid whose chemical formula is SO_2. Sulfur dioxide enters the atmosphere as a pollutant mainly as a result of burning high sulfur-content fuel oils and coal, and from chemical processes occurring at chemical plants and refineries. National Ambient Air Quality Standards and California State Air Quality Standards have been established for sulfur dioxide.

Telecommute - a work mode where individuals perform job requirements for part or all of the work week at off-site facilities, such as private residences or satellite work centers (rather than commuting to the primary worksite). This reduces vehicle trips (if telecommuting from a residence) or vehicle miles traveled (if telecommuting from a satellite center) and associated air emissions.

Toxic Air Contaminant - air pollutants (excluding ozone, carbon monoxide, PM_{10}, sulfur dioxide, nitrogen dioxide) that may reasonably be anticipated to cause cancer, developmental effects, reproductive dysfunctions, neurological disorders, heritable gene mutations or other serious or irreversible acute or chronic health effects in humans. Toxic air pollutants are regulated under different federal and state regulatory processes than ozone and the other criteria air pollutants. Health effects from exposure to toxic air pollutants may occur at extremely low levels.

Transit Oriented Development (TOD) - mixed-use neighborhoods, up to 160 acres in size, which are developed around a transit stop and core commercial area. The entire TOD must be within an average of a 2,000 foot walking distance of a transit stop. Secondary areas of lower density housing, schools, parks, and commercial and employment uses, surround TODs for up to one mile.

Transportation Control Measures (TCM) - air pollutant control measures in the AQMP that are directed at reducing air emissions by reducing vehicle travel. Both the federal and state law specify requirements for TCMs.

URBEMIS - a computer program used to estimate indirect source emissions from new and modified land uses (e.g., shopping centers, housing developments, and offices).

Ventura Council of Governments (VCOG) - a governmental organization comprised of the County of Ventura, and the ten cities in Ventura County. The purpose of VCOG is to provide a vehicle for the member entities and other interested persons, public and private, to engage in regional, cooperative, and comprehensive planning. VCOG has historically been under contract to the Southern California Association of Governments to idenfity and refine regionally significant transportation problems, needs, investments, and programs related to the development of the Regional Transportation Plan.

Volatile Organic Compounds (VOCs) - any organic compound containing at least one carbon atom except for specific exempt compounds (see District Rule 2) found to be non-photochemically reactive and thus not participating in smog formation. In this document, VOC is synonymous with reactive organic gases and reactive organic compounts.

Acronyms

ADT	average daily (motor vehicle) trips
APCB	Air Pollution Control Board
APCO	Air Pollution Control Officer
APCD	Air Pollution Control District
AQMP	Air Quality Management Plan
ARB	California Air Resources Board
CAA	federal Clean Air Act
CAAQS	California Ambient Air Quality Standard(s)
CCAA	California Clean Air Act
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFC	chlorofluorocarbons
CFR	Code of Federal Regulations
CH&SC	California Health and Safety Code
CO	carbon monoxide
District	Ventura County Air Pollution Control District
DTIM	Direct Travel Impact Model
EIR	Environmental Impact Report
EMFAC	ARB's On-Road Motor Vehicle Emissions Model
EPA	United States Environmental Protection Agency
GUIDELINES	Ventura County Air Quality Assessment Guidelines
ISR	indirect source review
ITE	Institution of Transportation Engineers
LOS	level of service

MND	Mitigated Negative Declaration
ND	Negative Declaration
NAAQS	National Ambient Air Quality Standard
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO	nitrogen oxide
NO_2	nitrogen dioxide
NOP	Notice of Preparation
NOx	oxides of nitrogen
O_3	ozone
$PM_{2.5}$	fine particulate matter of 2.5 microns in diameter or smaller
PM_{10}	particulate matter of 10 microns in diameter or smaller
Pb	lead
Plan	Air Quality Management Plan
PPM	parts per million
PRC	Public Resources Code
ROC	reactive organic compounds
ROG	reactive organic gases
SCAG	Southern California Association of Government
SIP	State Implementation Plan
SO_2	sulfur dioxide
SOx	oxides of sulfur
TAC	toxic air pollutant
TCM	transportation control measures
$\mu g/m^3$	microgram per cubic meter
URBEMIS	Urban Emissions Model
VCOG	Ventura Council of Governments
VMT	vehicle miles traveled
VOC	volatile organic compounds (see ROC)

APPENDIX B
COMMON EQUIPMENT AND PROCESSES REQUIRING A VENTURA COUNTY APCD PERMIT TO OPERATE

This appendix contains a document available through the APCD Engineering and Enforcement Divisions of the Ventura County APCD that provides guidance for determining whether or not equipment and processes will require an APCD Permit to Operate.

COMMON EQUIPMENT AND PROCESSES REQUIRING A VENTURA COUNTY APCD PERMIT TO OPERATE

Disclaimer: This list is intended to be used only as general guidance in determining equipment that requires an APCD Permit to Operate. For more detailed information, refer to APCD Rule 10, "Permits Required", and APCD Rule 23, "Exemptions from Permit", or call the APCD Engineering Section at 805/645-1401.

Combustion Equipment

- Boilers or process heaters with a maximum rated heat input of 1.0 MMBTU/Hr or greater
- Engines which are 50 HP or greater including but not limited to the following:
  -Oil well and water well drilling rigs
  -Portable electrical generators
  -Portable wood chippers
  -Portable air compressors
  Note: Vehicle engines for autos, trucks, bulldozers, forklifts, etc. are exempt. Emergency electrical generators and emergency water pumps are exempt. Portable engines registered with the state PERP are exempt.
- Gas turbines
- Incinerators, including crematories
- Ovens and furnaces
  Note: Restaurant barbecue equipment is exempt. Ovens or furnaces used in residential units are exempt.
- Burn-off ovens for auto engine parts
- Waste gas flares

Equipment Which Emits Dust or Other Particulate Matter

- Concrete batch plants
- Asphalt concrete plants
- Rock, sand, and aggregate plants
- Abrasive blasting and sand blasting operations
  Note: Water blasting equipment using engines less than 50 HP is exempt.
- Metal melting furnaces

Equipment and Processes Which Emit Solvents or Other Reactive Organic Compounds

- Drycleaning machines using organic solvents
- Gasoline tanks and dispensing facilities
  Note: Diesel tanks and waste oil tanks are exempt. Gasoline tanks less than 250 gallons in capacity are exempt.
- Contaminated soil or groundwater remediation systems including air stripping towers
- General painting and coating equipment if more than 200 pounds of solvents are emitted in a year (roughly 25 gallons)
- Any painting of automobiles, trucks, or mobile equipment
- Printing operations if more than 200 pounds of solvents are emitted in a year
- Use of adhesives or sealants if more than 200 pounds of solvents are emitted in a year
- Cold degreasers and vapor degreasers
- Cleaning operations if more than 200 pounds of solvents are emitted in a year
- Oil wells and oilfield storage and process tanks
- Other organic liquid storage tanks with a capacity of more than 5,000 gallons
- Semiconductor or electronic component manufacturing
- Expandable polystyrene foam manufacturing

Equipment and Processes Which Emit Air Toxics or May Cause a Nuisance

- Chrome plating operations
- Operations such as spa, bathtub or counter-top manufacturing which use polyester resins
- Wood stripping operations using methylene chloride
- Agricultural produce fumigation chambers using organic gases
- Ethylene oxide sterilizers (used in hospitals or food processing)

COMMON EQUIPMENT FOR WHICH AN APCD PERMIT TO OPERATE IS NOT REQUIRED IS LISTED BELOW:

- *Heating, air conditioning and ventilation (HVAC) equipment that is not used for air pollution control. The boilers or engines used with HVAC equipment must be evaluated separately using the combustion equipment information listed above.*
- *Vacuum cleaning systems for housekeeping purposes*
- *Refrigeration units not used for air pollution control*
- *Equipment for cutting, grinding or drilling metals or plastics*
- *Equipment for sawing, sanding or drilling wood*

IMPORTANT: Equipment and processes exempt from obtaining an APCD Permit to Operate may still need to be considered in an environmental document prepared pursuant to CEQA.

(Revised 03/00)

APPENDIX C
SECTIONS OF CEQA AND THE CEQA GUIDELINES RELEVANT TO AIR QUALITY IMPACT ANALYSIS

This appendix contains sections of CEQA and the CEQA Guidelines that are relevant to air quality impact analysis. The complete text of CEQA and the CEQA Guidelines can be found on the CERES website at: http://ceres.ca.gov/topic/env_law/ceqq/.

Section 21000 - State agencies shall regulate to prevent environmental damage

Declares that the maintenance of a quality environment for the people of California now and in the future is a matter of statewide concern. Further declares that all agencies of the state government which regulate activities of private individuals, corporations, and public agencies which are found to affect the quality of the environment, shall regulate such activities so that major consideration is given to preventing environmental damage, while providing a decent home and satisfying living environment for every Californian.

Section 15063 - Initial Study

(1) If the agency determines that there is substantial evidence that any aspect of the project, either individually or cumulatively, may cause a significant effect on the environment, regardless of whether the overall effect is adverse or beneficial, the lead agency shall do one of the following:

(A) Prepare an EIR, or

(B) Use a previously prepared EIR that the lead agency determines would adequately analyze the project at hand.

(2) The lead agency shall prepare a Negative Declaration if there is no substantial evidence that the project or any of its aspects may cause a significant effect on the environment.

Section 15064 - Determining the Significance of the Environmental Effects Caused by a Project and Section 15358 - Effects

Provides guidance as to whether an effect is significant or not. In evaluating the significance of the environmental effect of a project, the lead agency shall consider the direct physical changes in the environment which may be caused by the project and reasonably foreseeable indirect physical changes in the environment caused by the project. Effects analyzed under CEQA must be related to a physical change.

Section 15065 - Mandatory Findings of Significance

Establishes criteria for the lead agency in determining whether a project may have a significant effect on the environment. If a project meets the criteria set forth in this section, an EIR should be prepared.

Section 15070 - Decision to Prepare a Negative Declaration or Mitigated Negative Declaration

Provides discussion of under what circumstances a public agency shall prepare or have prepared a ND or an MND. If an applicant can modify the project in such a manner that would avoid significant effects identified after submitting the application, an EIR may be avoided by preparation of an MND.

Section 15091 - Findings

(a) No public agency shall approve or carry out a project for which an EIR has been certified which identifies one or more significant environmental effects of the project unless the public agency makes one or more written findings for each of those significant effects, accompanied by a brief explanation of the rationale for each finding. The possible findings are:

(1) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the final EIR.

(2) Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.

(3) Specific economic, legal, social, technological, or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR.

(b) The findings required by subsection (a) shall be supported by substantial evidence in the record.

(c) The finding in subsection (a)(2) shall not be made if the agency making the finding has concurrent jurisdiction with another agency to deal with identified feasible mitigation measures or alternatives. The finding in subsection (a)(3) shall describe the specific reasons for rejecting identified mitigation measures and project alternatives.

(d) When making the findings required in subsection (a)(1), the agency shall also adopt a program for reporting on or monitoring the changes which it has either required in the project or made a condition of approval to avoid or substantially lessen significant environmental effects. These measures must be fully enforceable through permit conditions, agreements, or other measures.

(e) The public agency shall specify the location and custodian of the documents or other material which constitute the record of the proceedings upon which its decision is based.

(f) A statement made pursuant to Section 15093 does not substitute for the findings required by this section.

Section 15092 - Approval

(a) After considering the final EIR and in conjunction with making findings under Section 15091, the lead agency may decide whether or how to approve or carry out the project.

(b) A public agency shall not decide to approve or carry out a project for which an EIR was prepared unless either:

(1) The project as approved will not have a significant effect on the environment, or

(2) The agency has:

(A) Eliminated or substantially lessened all significant effects on the environment where feasible as shown in findings under Section 15091, and

(B) Determined that any remaining significant effects on the environment found to be unavoidable under Section 15091 are acceptable due to overriding concerns as described in Section 15093.

(c) With respect to a project which includes housing development, the public agency shall not reduce the proposed number of housing units as a mitigation measure if it determines that there is another feasible specific mitigation measure available that will provide a comparable level of mitigation.

Section 15093 - Statement of Overriding Considerations

The Statement of Overriding Considerations requires the decision-making agency to balance, as applicable, the economic, legal, social, technological, or other benefits of a proposed project against its unavoidable environmental risks when determining whether to approve the project. If the specific economic, legal, social, technological, or other benefits of a proposed project outweigh the unavoidable adverse environmental effects, the adverse environmental effects may be considered "acceptable." The statement of overriding considerations shall be supported by substantial evidence in the record.

Section 15097 - Mitigation Monitoring or Reporting

This section applies when a public agency has made the findings required under paragraph (1) of subdivision (a) of Section 15091 relative to an EIR or adopted a MND in conjunction with approving a project. The public agency shall adopt a program for monitoring or reporting on the revisions which it has required in the project and the measures it has imposed to mitigate or avoid significant environmental effects.

Section 15125 - Environmental Setting

States that, "An EIR must include a description of the physical environmental conditions in the vicinity of the project as they exist at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, from both a local and regional perspective." An EIR "shall discuss any inconsistencies between the proposed project and applicable general plans and regional plans," such as the applicable air quality attainment or maintenance plan or State Implementation Plan.

Section 15126 - Consideration and Discussion of Environmental Impacts

Requires that, "All phases of a project must be considered when evaluating its impact on the environment: planning, acquisition, development, and operation." Also requires that the following subjects be discussed in the EIR:

(a) Significant environmental effects of the proposed project.

(b) Significant environmental effects which cannot be avoided if the proposed project is implemented.

(c) Significant irreversible environmental changes which would be involved in the proposed project should it be implemented.

(d) Growth-inducing impact of the proposed project.

(e) The mitigation measures proposed to minimize the significant effects.

(f) Alternatives to the proposed project.

Section 15130 - Discussion of Cumulative Impacts

Cumulative impacts shall be discussed in an EIR when the project's incremental effect is cumulatively considerable, as defined in Section 15065(c). The elements necessary to provide an adequate discussion of cumulative impacts include:

(1) Either:

(A) A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency, or

(B) A summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or areawide conditions contributing to the cumulative impact. Any such planning document shall be referenced and made available to the public at a location specified by the lead agency;

(2) A summary of the expected environmental effects to be produced by those projects with specific reference to additional information stating where that information is available, and

(3) A reasonable analysis of the cumulative impacts of the relevant projects. An EIR shall examine reasonable, feasible options for mitigating or avoiding the project's contribution to any significant cumulative effects. Previously approved land-use documents such as general plans, specific plans, and local coastal plans may be used in cumulative impact analysis.

Section 15355 - Cumulative Impacts

Defines "cumulative impacts" as "two or more individual impacts which, when considered together, are considerable or which compound or increase other environmental impacts." States that the individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects.

Section 15370 - Mitigation

"Mitigation" includes:

(a) Avoiding the impact altogether by not taking a certain action or parts of an action.

(b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.

(c) Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment.

(d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.

(e) Compensating for the impact by replacing or providing substitute resources or environment.

Section 15382 - Significant Effect on the Environment

'Significant effect on the environment' means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. A social or economic change related to a physical change may be considered in determining whether the physical change is significant.

Appendix G - Environmental Checklist Form

With respect to air quality, a project may be deemed to have a significant effect on the environment if it will:

(a) Conflict with or obstruct implementation of the applicable air quality plan.

(b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation.

(c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

(d) Expose sensitive receptors to substantial pollutant concentrations.

(e) Create objectionable odors affecting a substantial number of people.

According to Appendix G, a "potentially significant impact" finding is appropriate if there is substantial evidence that an effect may be significant.

APPENDIX D
MAJOR TOXIC AIR CONTAMINANT REGULATIONS AND COMMON TOXIC AIR CONTAMINANT SOURCES AND SUBSTANCES

Appendix D presents the major federal and state programs and regulations to reduce toxic air contaminant (TAC) emissions. Appendix D also presents a list of common TAC sources and substances that may be encountered in Ventura County.

Table D-1, Common Sources of Toxic Air Contaminants, lists common land uses that may emit TACs. Table D-1 also lists the most common TACs associated with each listed land use. It should be noted that, because of the large number of land uses that may emit TACs, and the large number of TACs, Table D-1 is only a guide and, as such, is not all-inclusive. It does not list all land uses that may emit TACs. Moreover, not all listed land uses emit all of the listed toxic substances. Conversely, the listed land uses may emit TACs that are not included in Table D-1.

Table D-2, Toxic Air Contaminants, lists substances that the California Air Resources Board (ARB) has found to present a chronic or acute threat to public health when found in the ambient air.

Further information regarding TACs and the State of California's Air Toxics Program is available at the ARB's website (http://www.arb.ca.gov/html/brochure/airtoxic.htm). Further information about the District's Air Toxics Program can be found at the District website (http://www.vcapcd.org/air_toxics.htm). The District also publishes annual reports that summarize the District's TAC program. These reports rank facilities according to the cancer risk posed, identify the facilities posing non-cancer health risks, and describe the status of the development of control measures. These reports are available from the District's Air Toxics section. The District's 1999 TAC program report also can be downloaded from the District webpage.

Federal Clean Air Act Amendments of 1990

The federal Clean Air Act Amendments of 1990 (Title III, Section 112) mandate that the United States Environmental Protection Agency (U.S. EPA) issue emission standards on a specified schedule for certain categories of sources that emit one or more of the 188 TACs listed in Title III. The emission standards are being issued in two phases. In the first phase (1992 - 2000), the U.S. EPA is required to develop technology-based emission standards, called Maximum Achievable Control Technology (MACT). In the second phase, (2001 - 2008) the U.S. EPA is required to issue health risk-based emission standards to address risks remaining after implementation of the MACT standards.

The Tanner Toxic Act (Assembly Bill 1807)

The Tanner Act (Health & Safety Code §39650 et seq.) is a California law that established the framework for California's TAC identification and control program. The Tanner Act became effective in 1984 and requires the ARB to identify TACs and the appropriate measures to limit emissions of those substances. The ARB then adopts the appropriate degree of regulation and adopts Air Toxics Control Measures (ATCMs). The control measures are the minimum regulations that must be imposed by each air district in the state. The air districts must adopt rules that are at least as stringent as the ATCMs.

Air Toxics "Hot Spots" Information and Assessment Act (Assembly Bill 2588)

The Air Toxics "Hot Spots" Information and Assessment Act (Health & Safety Code §44300 et seq.) was adopted by the California Legislature in 1987 in response to increasing public concern about emissions of toxic chemicals in the air. It was known at that time that the majority of the United States population lived near at least one facility that released toxic chemicals into the air on a routine basis. Existing federal, state, and local air toxics programs looked at new sources only, or looked at existing sources one industry and one chemical at a time. Under AB 2588, stationary sources must submit a comprehensive inventory of routine releases of over 600 toxic compounds to the air from their facilities to the District. Based on the results of the inventories, the District requires facility owners to perform health risk assessments for the subject toxic emissions. If the emissions from a facility are determined through the risk assessment to pose a significant risk, the District requires the facility to notify people who are exposed of the results of the health risk assessment. Owners of facilities that pose a significant health risk also have to develop and implement a plan to reduce the risks to below significance levels. Further information regarding TACs and the State of California's AB 2588 Air Toxics Program is available at the ARB's website (http://www.arb.ca.gov/html/brochure/airtoxic.htm). Further information about the District's AB 2588 air toxics program can be found at the District website (http://www.vcapcd.org/air_toxics.htm). The District also publishes annual reports that summarize the District's AB 2588 TAC program. These reports rank facilities according to the cancer risk posed, identify the facilities posing non-cancer health risks, and describe the status of the development of control measures. These reports are available from the District's Air Toxics section. The Districts' 1999 AB 2588 program report also can be downloaded from the above District webpage.

Facility Toxic Air Contaminant Risk Reduction Audit and Plan (Senate Bill 1731)

Senate Bill 1731 (Health & Safety Code, §44390, et seq.) requires local air districts to establish a program to reduce risks from existing facilities in the AB 2588 air toxics program that are deemed by the District to pose a significant health risk.

Waters Bill (Assembly Bill 3205)

The Waters Bill (Health & Safety Code §§42301.6 - 42301.9) requires that an air district considering an application for a proposed new or modified source of TACs located within 1,000 feet of a school to prepare a public notice that fully describes the proposed project or modification. The air district must then distribute or mail the public notice to the parents or guardians of students enrolled in any school located within one-quarter mile of the proposed project and to each address within a 1,000 foot radius of the proposed project.

Air Monitoring of Disposal Sites (Assembly Bill 3374)

Assembly Bill 3374 (Health & Safety Code §41805.5, et seq.) requires owners of solid waste disposal sites, including inactive sites, to submit to local air pollution control districts a solid waste air quality assessment test report.

Ventura County Air Pollution Control District Toxic Air Contaminant Rules

In addition to the preceding federal and state air toxic programs, the District regulates TACs through several District rules: Rule 36, New Source Review - Hazardous Air Pollutants; Rule 62, Hazardous Materials and Airborne Toxics; Rule 62.1, Hazardous Materials; Rule 62.3, Hexavalent Chromium; Rule 62.5, Dioxins - Medical Waste Incinerators; Rule 62.6, Ethylene Oxide - Sterilization and Aeration; and Rule 62.7, Asbestos - Demolition and Renovation.

TABLE D-1

COMMON SOURCES OF TOXIC AIR CONTAMINANTS

Product, Process, or Facility	Substance
Acoustic Ceiling, Asbestos Products, Caulk, and Gasket Manufacturing	Asbestos
Aerospace Manufacturing	Hexavalent Chromium
Autobody Shop	Benzene, Toluene, Xylene
Auto Machine Shop	Asbestos
Biomedical Research Laboratory	Benzene, Carbon Tetrachloride, Chloroform, Formaldehyde, Methylene Chloride, Phenol, Xylenes
Boat Yard	Epoxy Resins, Toluene, Xylenes
Brake Realignment & Manufacturing	Asbestos
Brake Shoe Rebuilders and Recyclers	Asbestos
Chemical Manufacturing	Various
Chrome Plating	Hexavalent Chromium, Cadmium
College/University	Cadmium, Hexavalent Chromium, Ethylene Oxide
Electrical Equipment Manufacturing	Cadmium, Chromium, Nickel, PCBs, Trichloroethylene, 1,4-Dioxane
Electronic Equipment Manufacturing	1,4-Dioxane, Cadmium, Chromium, Nickel, Trichloroethylene
Fiberglass Manufacturing	Styrene
Gasoline Station	Benzene, Methyl-tertiary butyl ether, Toluene, Xylene
Graphite Manufacturing	Dioxins, Dibenzofurans
Groundwater Clean-up	Benzene, Percholorethylene, Trichloroethylene
Hospital	Dioxins, Debenzofurans, Cadmium, Ethylene Oxide
Industrial Heating and Steam Needs	Cadmium, Hexavalent Chromium
Landfill	Benzene, Vinyl Choride
Medical Clinic & Laboratory	Ethylene Oxide
Medical Equipment Sterilization	Ethylene Oxide
Natural Gas Plant	Acetaldehyde, Benzene, Formaldehyde, Propylene, Toluene, Xylene
Medical Equipment Sterilization	Ethylene Oxide
Natural Gas Plant	Acetaldehyde, Benzene, Formaldehyde, Propylene, Toluene, Xylene
Petroleum Refinery	Benzene, Cadmium
Oil Production Facility	Acetaldehyde, Benzene, Formaldehyde, Propylene
Petroleum Tank	Benzene
Printing Services	1,2,4-Tri-methylbenzene, Ethyl Benzene, Ethylene glycol monobutyl ether, Methylene chloride, Propylene, Xylenes
Wastewater Treatment	Benzene, Carbon Tetrachloride, Ethylene Dichloride, Ethylene Dibromide, Chloroform, Perchloroethylene, Trichloroethylene,

TABLE D-2

COMMON TOXIC AIR CONTAMINANTS

Substance	CAS Number**
Acenaphthene [PAH,POM]	83329
Acenaphthylene [PAH,POM]	208968
Acetaldehyde	75070
Acetamide	60355
Acetonitrile	75058
Acetophenone	98862
2-Acetylaminofluorene [PAH-Derivative, POM]	53963
Acrolein	107028
Acrylamide	79061
Acrylic Acid	79107
Acrylonitrile	107131
Allyl chloride	107051
Aluminum	7429905
Aluminum oxide (fibrous forms)	1344281
2-Aminoanthraquinone [PAH-Derivative, POM]	117793
4-Aminobiphenyl [POM]	92671
Amitrole	61825
Ammonia	7664417
Ammonium nitrate	6484522
Ammonium sulfate	7783202
Aniline	62533
o-Anisidine	90040
Anthracene [PAH, POM]	120127
Antimony	7440360
Antimony Compounds, not elsewhere listed.	-----
Antimony trioxide	1309644
Arsenic	7440382
Arsenic Compounds (inorganic)	1016
Arsenic Compounds (other than inorganic)	1017
Arsine	7784421
Asbestos	1332214
Barium	7440393
Barium chromate	10294403
Barium Compounds	-----
Benz[a]anthracene [PAH, POM]	56553

Substance	CAS Number**
Benzene	71432
Benzidine (and its salts) [POM]	92875
Benzidene-based dyes	1020
Benzo[a]pyrene [PAH, POM]	50328
Benzo[b]fluoranthene [PAH, POM]	205992
Benzo[e]pyrene [PAH,POM]	192972
Benzo[g,h,i]perylene	191242
Benzo[j]fluoranthene [PAH, POM]	205823
Benzo[k]fluoranthene [PAH, POM]	207089
Benzofuran	271896
Benzoic trichloride {Benzotrichloride}	98077
Benzoyl chloride	98884
Benzoyl peroxide	94360
Benzyl chloride	100447
Beryllium	7440417
Beryllium Compounds	-----
Biphenyl [POM]	92524
Bis(2-chloroethyl)ether {DCEE}	111444
Bis (chloromethyl) ether	542881
Bis(2-ethlyhexyl) adipate	103231
Bromine	7726956
Bromine Compounds (inorganic)	-----
Bromine pentaflourid	7789302
Bromoform	75252
1,3-Butadiene	106990
Butyl acrylate	141322
n-Butyl alcohol	71363
sec-Butyl alcohol	78922
tert-Butyl alcohol	75650
Butyl benzyl phthalate	85687
Cadmium	7440439
Cadmium Compounds	-----
Calcium chromate	13765190
Calcium cyanamide	156627
Caprolactam	105602

Substance	CAS Number**
Captafol	2425061
Captan	133062
Carbaryl [PAH-Derivative, POM]	63252
Carbon black extracts	1050
Carbon disulfide	75150
Carbon monoxide (A-II)	630080
Carbon tetrachloride	56235
Carbonyl sulfide	463581
Carrageenan (degraded)	1055
Catechol	120809
Chloramben	133904
Chlordane	57749
Chlorinated fluorocarbon 113 {CFC 113}	76131
Chlorinated paraffins (avg chain length C12)	108171262
Chlorine	7782505
Chlorine dioxide	10049044
Chloroacetic acid	79118
2-Chloroacetophenone	532274
p-Chloroaniline	106478
Chlorobenzene	108907
Chlorobenzenes, not elsewhere listed:	1058
Chlorobenzilate {Ethyl-4,4'-dichlorobenzilate}	510156
Chlorodifluoromethane {Freon 22}	75456
Chloroform	67663
Chloromethyl methyl ether (technical grade)	107302
Chlorophenols, not elsewhere listed.	1060
4-Chloro-o-phenylenediamine	95830
2-Chlorophenol	-----
Chloropicrin	76062
Chloroprene	126998
p-Chloro-o-toluidine	95692
Chromium	7440473
Chromium (hexavalent)	18540299
Chromium Compds. (other than hexavalent)	-----
Chromium trioxide	1333820
Chrysene [PAH, POM]	218019
Cobalt	7440484

Substance	CAS Number**
Cobalt Compounds	-----
Coke oven emissions	1066
Copper	7440508
Copper Compounds	-----
Creosotes	1070
p-Cresidine	120718
Cresols (mixtures of) {Cresylic acid}	1319773
m-Cresol	108394
o-Cresol	95487
p-Cresol	106445
Crotonaldehyde	4170303
Cumene	98828
Cumene hydroperoxide	80159
Cupferron	135206
Cyanide compounds, not elsewhere listed.	1073
Cyclohexane	110827
Cyclohexanol	108930
Cycloheximide	66819
Decabromodiphenyl oxide [POM]	1163195
Dialkylnitrosamines	1075
2,4-Diaminoanisole	615054
Diaminotoluenes (mixed isomers)	1078
2,4-Diaminotoluene {2,4-Toluenediamine}	95807
Diazomethane	334883
Dibenz[a,h]acridine [POM]	226368
Dibenz[a,h]anthracene [PAH, PAM]	53703
Dibenz[a,j]acridine [POM]	224420
7H-Dibenzo[c,g]carbazole	194592
Dibenzo[a,e]pyrene [PAH, POM]	192654
Dibenzo[a,h]pyrene [PAH, POM]	189640
Dibenzo[a,i]pyrene [PAH, POM]	189559
Dibenzo[a,l]pyrene [PAH, POM]	191300
Dibenzofuran [POM]	132649
1,2-Dibromo-3-chloropropane	96128
2,3-Dibromo-1-propanol	96139
Dibutyl phthalate	84742
1,2-Dichlorobenzene	95501

Substance	CAS Number**
1,3-Dichlorobenzene	541731
p-Dichlorobenzene {1,4-Dichlorobenzene}	106467
Dichlorobenzenes (mixed isomers)	25321226
3,3'-Dichlorobenzidine	91941
Dichlorodiphenyldichloroethylene {DDE} [POM]	72559
1,1-Dichloroethane {Ethylidene dichloride}	75343
Dichlorofluoromethane {Freon 12}	75434
2,4-Dichlorophenol	120832
Dichlorophenoxyacetic acid, salts and esters	94757
1,2-Dichloropropane {Propylene dichloride}	78875
1,3-Dichloropropene	542756
Dichlorovos {DDVP}	62737
Dicofol [POM]	115322
Diesel engine exhaust, particulate matter	9901
Diesel engine exhaust, total organic gas	9902
Diesel fuel (marine)	-----
Diethanolamine	111422
Di (2-ethylhexyl) phthalate	117817
Diethyl sulfate	64675
Diethylene glycol	111466
Diethylene glycol dimethyl ether	111966
Diethylene glycol monobutyl ether	112345
Diethylene glycol monoethyl ether	111900
Diethylene glycol monomethyl ether	111773
3,3'-Dimethoxybenzidine [POM]	119904
4-Dimethylaminoazobenzene [POM]	60117
N,N-Dimethylaniline	121697
7,12-Dimethylbenz[a]anthracene	57976
3,3'-Dimethylbenzidine {o-Tolidine} [POM]	119937
Dimethyl carbamoyl chloride	79447
N,N-Dimethyl formamide	68122
1,1-Dimethylhydrazine	57147
Dimethyl phthalate	131113
Dimethyl sulfate	77781
Dimethylamine	124403
4,6-Dinitro-o-cresol and salts	534521
2,4-Dinitrophenol	51285

Substance	CAS Number**
1,6-Dinitropyrene [PAH-Derivative, POM]	42397648
1,8-Dinitropyrene [PAH-Derivative, POM]	42397659
Dinitrotoluenes (mixed isomers)	25321146
2,4-Dinitrotoluene	121142
2,6-Dinitrotoluene	606202
1,4-Dioxane	123911
Dioxins/Dibenzofuran	-----
Diphenylhydantoin [POM]	630933
1,2-Diphenylhydrazine {Hydrazobenzene}	122667
Dipropylene glycol	25265718
Dipropylene glycol monomethyl ether	34590948
Direct Black 38 [PAH-Derivative, POM]	1937377
Direct Blue 6 [PAH-Derivative, POM]	2602462
Direct Brown 95 (technical grade) [POM]	16071866
Environmental tobacco smoke	1090
Epichlorohydrin	106898
1,2-Epoxybutane	106887
Epoxy Resins	1091
Erionite	12510428
Ethyl acrylate	140885
Ethyl benzene	100414
Ethyl chloride {Chloroethane}	75003
Ethylene	74851
Ethylene dibromide {1,2-Dibromoethane}	106934
Ethylene dichloride {1,2-Dichloroethane}	107062
Ethylene glycol	107211
Ethylene glycol diethyl ether	629141
Ethylene glycol dimethyl ether	110714
Ethylene glycol monobutyl ether	111762
Ethylene glycol monoethyl ether	110805
Ethylene glycol monoethyl ether acetate	111159
Ethylene glycol monomethyl ether	109864
Ethylene glycol monomethyl ether acetate	110496
Ethylene glycol monopropyl ether	2807309
Ethylene oxide	75218
Ethylene thiourea	96457
Ethyleneimine {Aziridine}	151564

Substance	CAS Number**
Fluoranthene [PAH, POM]	206440
Fluorene [PAH, POM]	86737
Fluorides and compounds	1101
Fluorocarbons (brominated/chlorinated)	1104/1103
Formaldehyde	50000
Furan	110009
Gasoline Engine exhaust, particulate matter	9910
Gasoline Engine exhaust, total organic gas	9911
Gasoline vapors	1110
Glasswool fibers	1111
Glutaraldehyde	111308
Glycol ethers and their acetates	1115
Heptachlor	76448
Hexachlorobenzene	118741
Hexachlorobutadiene	87683
Hexachlorocyclohexane	1120
alpha-Hexachlorocyclohexane	319846
beta-Hexachlorocyclohexane	319857
Hexachlorocyclopentadiene	77474
Hexachloroethane	67721
Hexamethylene-1,6,-diisocyanate	822060
Hexamethylphosphoramide	680319
Hexane	110543
Hydrazine	302012
Hydrochloric acid	7647010
Hydrocyanic acid	74908
Hydrogen bromide	10035106
Hydrogen fluoride	7664393
Hydrogen Selenide	7783075
Hydrogen sulfide	7783064
Hydroquinone	123319
Indeno[1,2,3,-cd]pyrene [PAH, POM]	193395
Iodine-131	24267569
Iron pentacarbonyl	13463406
Isocyanates	1125
Isophorone	78591
Isoprene, ex. from vegetative emission sources	78795

Substance	CAS Number**
Isopropyl Alcohol	67630
4,4'-Isopropylidenediphenol [POM]	80057
Lead	7439921
Lead compounds (inorganic)	1128
Lead acetate	301042
Lead chromate	7758976
Lead phosphate	7446277
Lead subacetate	1335326
Lead compounds (other than inorganic)	1129
Lindane (gamma-Hexachlorocyclohexane)	58899
Maleic anhydride	108316
Manganese	7439965
Manganese compounds	-----
Mercuric chloride	7487947
Mercury	7439976
Mercury compounds, not elsewhere listed:	-----
Methanol	67561
Methoxychlor [POM]	72435
Methyl bromide {Bromomethane}	74839
Methyl chloride {Chloromethane}	74873
Methyl chloroform {1,1,1-Trichloroethane}	71556
Methyl ethyl ketone {2-Butanone}	78933
Methyl hydrazine	60344
Methyl iodide {Iodomethane}	74884
Methyl isobutyl ketone {Hexone}	108101
Methyl isocyanate	624839
Methyl mercury {Dimethylmercury}	593748
Methyl methacrylate	80626
2-Methyl naphthalene [PAH, POM]	91576
Methyl tert-butyl ether	1634044
2-Methylaziridine {1,2-Propyleneimine}	75558
3-Methylcholanthrene [PAH-Derivative, POM]	56495
5-Methylchrysene [PAH-Derivative, POM]	3697243
4,4-Methylene bis (2-Chloroaniline)	101144
Methylene chloride {Dichloromethane}	75092
Methylene diphenyl isocyanate	101688
4,4-Methylenedianiline	101779

Substance	CAS Number**
2-Methyllactonitrile {Acetone cyanohydrin}	75865
2-Methylpyridine	109068
Michler's ketone [POM]	90948
Mineral fibers (manmade/non-manmade)	1136/1135
Molybdenum trioxide	1313275
Naphthalene	91203
Nickel	7440020
Nickel compounds, not elsewhere listed:	-----
Nickel acetate	373024
Nickel carbonate	3333393
Nickel carbonyl	13463393
Nickel hydroxide	12054487
Nickel Oxide	1313991
Nickel refinery dust from the pyrometallurgical	1146
Nickel subsulfide	12035722
Nickelocene	1271289
Nitric Acid	7697372
Nitrilotriacetic acid	139139
Nitrobenzene	98953
4-Nitrobiphenyl [POM]	92933
6-Nitrochrysene [PAH-Derivative, POM]	7496028
2-Nitrofluorene [PAH-Derivative, POM]	607578
Nitrogen dioxide	10102440
Nitrogen mustard N-oxide	302705
4-Nitrophenol	100027
2-Nitropropane	79469
1-Nitropyrene [PAH-Derivative, POM]	5522430
p-Nitrosodiphenylamine [POM]	156105
N-Nitroso-N-methylurea	684935
N-Nitrosodi-n-butylamine	924163
N-Nitrosodi-n-propylamine	621647
N-Nitrosodiethanolamine	1116547
N-Nitrosodiethylamine	55185
N-Nitrosodimethylamine	62759
N-Nitrosomethylethylamine	10595956
N-Nitrosomorpholine	59892
N-Nitrosopiperidine	100754

Substance	CAS Number**
N-Nitrosopyrrolidine	930552
Ozone	10028156
PAHs, total, w/ind components reported	1150
PAHs, total, w/o ind components reported	1151
Parathion	56382
Particulate matter	-----
PCBs (Polychlorinated biphenyls) [POM]	1336363
Pentachloronitrobenzene {Quintobenzene}	82688
Pentachlorophenol	87865
Peracetic acid	79210
Perchloroethylene {Tetrachloroethene}	127184
Perylene [PAH,POM]	198550
Phenanthrene [PAH, POM]	85018
Phenol	108952
p-Phenylenediamine	106503
2-Phenylphenol [POM]	90437
Phosgene	75445
Phosphine	7803512
Phosphoric Acid	7664382
Phosphorus	7723140
Phosphorus oxychloride	10025873
Phosphorus pentachloride	10026138
Phosphorus pentoxide	1314563
Phosphorus trichloride	7719122
Phthalic anhydride	85449
Polychlorinated dibenzo-p-dioxins	1085/1086
2,3,7,8-Tetrachlorodibenzo-p-dioxin {TCDD}	1746016
1,2,3,7,8-Pentachlorodibenzo-p-dioxin [POM]	40321764
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin [POM]	39227286
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin [POM]	57653857
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin [POM]	19408743
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	35822469
1,2,3,4,5,6,7,8-Octachlorodibenzo-p-dioxin	3268879
Total Heptachlorodibenzo-p-dioxin [POM]	37871004
Total Hexachlorodibenzo-p-dioxin [POM]	34465468
Total Pentachlorodibenzo-p-dioxin [POM]	36088229
Total Tetrachlorodibenzo-p-dioxin [POM]	41903575

Substance	CAS Number**
Polychlorinated dibenzofurans {PCDF)	1080
2,3,7,8-Tetrachlorodibenzofuran [POM]	51207319
1,2,3,7,8-Pentachlorodibenzofuran [POM]	57117416
2,3,4,7,8-Pentachlorodibenzofuran [POM]	57117314
1,2,3,4,7,8-Hexachlorodibenzofuran [POM]	70648269
1,2,3,6,7,8-Hexachlorodibenzofuran [POM]	57117449
1,2,3,7,8,9-Hexachlorodibenzofuran [POM]	72918219
2,3,4,6,7,8-Hexachlorodibenzofuran [POM]	60851345
1,2,3,4,6,7,8-Heptachlorodibenzofuran [POM]	67562394
1,2,3,4,7,8,9-Heptachlorodibenzofuran [POM]	55673897
1,2,3,4,5,6,7,8-Octachlorodibenzofuran [POM]	39001020
Total Heptachlorodibenzofuran [POM]	38998753
Total Hexachlorodibenzofuran [POM]	55684941
Total Pentachlorodibenzofuran [POM]	30402154
Total Tetrachlorodibenzofuran [POM]	55722275
Polycyclic aromatic hydrocarbons	-----
Polycyclic organic matter	-----
Potassium bromate	7758012
1,3-Propane sultone	1120714
beta-Propiolactone	57578
Propionaldehyde	123386
Propoxur {Baygon}	114261
Propylene	115071
Propylene glycol monomethy ether	107982
Propylene glycol monomethyl ether acetate	108656
Propylene oxide	75569
Pyrene [PAH, POM]	129000
Pyridine	110861
Quinoline	91225
Quinone	106514
Radionuclides	1165
Radon and its decay products	1166
Reserpine [POM]	50555
Residual (heavy) fuel oils	-----
Rockwool fibers	1168
Selenium	7782492
Selenium compounds, not elsewhere listed:	-----

Substance	CAS Number**
Selenium sulfide	7446346
Silica, crystalline	1175
Silver	7440224
Silver compounds	-----
Slagwool fibers	1181
Sodium dichromate	10588019
Sodium hydroxide	1310732
Strontium chromate	7789062
Styrene	100425
Styrene oxide	96093
Sulfates	-----
Sulfur dioxide	7446095
Sulfuric Acid	7664939
Talc containing asbestiform fibers	1190
Terephthalic acid	100210
1,1,2,2-Tetrachloroethane	79345
2,3,4,6-Tetrachlorophenol	58902
Tetrachlorophenols	-----
Thallium	7440280
Thallium Compounds	-----
Thioacetamide	62555
Thiourea	62566
Titanium tetrachloride	7550450
Toluene	108883
Toluene diisocyanates, not elsewhere listed:	1204
Toluene-2,4-diisocyanate	584849
Toluene-2,6-diisocyantes	91087
o-Toluidine	95534
Toxaphene {Polychlorinated camphenes}	8001352
Tributyl phosphate	126738
1,2,4-Trichlorobenzene	120821
1,1,2-Trichloroethane {Vinyl trichloride}	79005
Trichloroethylene	79016
Trichlorofluoromethane {Freon 11}	75694
2,4,5-Trichlorophenol	95954
2,4,6-Trichlorophenol	88062
1,2,3-Trichloropropane	96184

Substance	CAS Number**
Triethyl phosphine	78400
Triethylamine	121448
Triethylene glycol dimethyl ether	112492
Trifluralin	1582098
Trimethyl phosphate	512561
1,2,4-Trimethylbenzene	95636
2,2,4-Trimethylpentane	540841
Triorthocresyl phosphate [POM]	78308
Triphenyl phosphate [POM]	115866
Triphenyl phosphite [POM]	101020
Urethane {Ethyl carbamate}	51796
Vanadium (fume or dust)	7440622
Vanadium Pentoxide	1314621
Vinyl acetate	108054
Vinyl bromide	593602
Vinyl chloride	75014
Vinyl fluoride	75025
4-Vinylcyclohexene	100403
Vinylidene chloride	75354
Wood preservatives (arsenic and chromate)	1206
Xylene	1210
m-Xylene	108383
o-Xylene	95476
p-Xylene	106423
Zinc	7440666
Zinc compounds, not elsewhere listed:	-----
Zinc oxide	1314132

**CAS Registry Number: The Chemical Abstracts Service Registry Number (CAS) is designation assigned by the American Chemical Society's Chemical Abstract Service and uniquely identifies a specific compound regardless of the name or naming system used.

Source: Engineering Division, Ventura County APCD, May 2000.

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APPENDIX E
DEFINITION OF LAND USE CATEGORIES FOR TRIP GENERATION AND PROJECT EMISSION CALCULATION PURPOSES

Appendix E contains the land use codes and definitions of all of the land uses contained in ITE's *Trip Generation* (Sixth Edition - 1997). Not all of the land uses in ITE's *Trip Generation* are in URBEMIS. However, URBEMIS inputs can be modified so that emissions from land uses not in URBEMIS can be calculated using URBEMIS.

LAND USE: 010 - Waterport/Marine Terminal

A waterport, or marine terminal, is an area for the transfer of materials between land and sea and possibly for the storage of these materials.

LAND USE: 021 - Commercial Airport

A commercial airport accommodates commercial passenger service. The commercial airports surveyed also accommodated general aviation activities. Commercial airports are characterized by long runways for serving large jets, and extensive terminal facilities. However, some commercial airports have shorter runways and serve exclusively intrastate and commuter airlines.

LAND USE: 022 - General Aviation Airport

A general aviation airport is primarily designed for the use of small private and corporate aircraft, not for commercial passenger service. It is usually characterized by short runways, few or no terminal facilities, and many small aircraft.

LAND USE: 030 - Truck Terminal

Truck terminals are facilities where goods are transferred between trucks, trucks and railroads, or trucks and ports.

LAND USE: 090 - Park-and-Ride Lot with Bus Service

A bus park and ride station is a site used for the transfer of people between private vehicles and buses. It typically contains a bus passenger shelter, a parking lot, and circulation facilities for buses, as well as private motor vehicles. A significant number of passengers are dropped off.

LAND USE: 093 - Light Rail Transit Station with Parking

Light rail transit stations are transportation stations that provide park-and-ride activity. These stations are areas for the transfer of people between private vehicles and light rail transportation. They usually contain automobile parking areas; a transfer station; a passenger shelter; ticketing facilities; and ancillary amenities, such as rest rooms, vending machines, and coffee/newspaper stands. Drop off/pick-up and carpool areas may also be provided.

LAND USE: 110 - General Light Industrial

Light industrial facilities usually employ fewer than 500 persons and have an emphasis on activities other than manufacturing. Nevertheless, the distinction between light industrial and manufacturing is sometimes vague. Typical light industrial activities include printing plants, material testing laboratories, assemblers of data processing equipment, and power stations. All of the facilities surveyed were free-standing and devoted to a single use.

LAND USE: 120 - General Heavy Industrial

Heavy industrial facilities usually have a high number of employees per industrial plant and could also be categorized as manufacturing facilities. The distinction between heavy industrial and manufacturing is vague. However, heavy industrial uses would be limited to the manufacturing of large items.

LAND USE: 130 - Industrial Park

Industrial parks contain many industrial or related facilities. They are characterized by a mix of manufacturing, service, and warehouse facilities with a wide variation in the proportion of each type of use from one location to another. Many industrial parks contain highly diversified facilities, some with a large number of small businesses and others with one or two dominant industries.

LAND USE: 140 - Manufacturing

Manufacturing facilities are sites where the primary activity is the conversion of raw materials or parts into finished products. Size and type of activity may vary substantially from one facility to another. In addition to production of goods, manufacturing facilities generally also have office, warehouse, research, and associated functions.

LAND USE: 150 - Warehousing

Warehouses are facilities that are primarily devoted to storage of materials. They may also include office and maintenance areas.

LAND USE: 151 - Mini-Warehouse

A mini-warehouse is a building in which a storage unit or vault is rented for the storage of goods. Each unit is physically separated from other units and access is usually provided through an overhead door or other common access point.

LAND USE: 152 - High-Cube Warehouse

High-cube warehouses are a new type of warehouse used for the storage of manufactured goods prior to their distribution to retail outlets. These facilities consist of large shells of steel buildings and large halls, often sub-divided for individual tenants, with a typical ceiling height of 24 to 26 feet. They are also characterized by a small employment count due to a high level of mechanization, truck activities frequently outside of the peak hour of the adjacent street system, and good freeway access.

LAND USE: 170 - Utilities
Utilities generally include offices space, electromechanical or industrial space, or parts and equipment storage areas.

LAND USE: 210 - Single Family Detached Housing
Any single family detached home on an individual lot is included in this category. A typical example is a home in a modern subdivision.

LAND USE: 220 - Apartment
An apartment is defined as a rental dwelling unit that is located within the same building as at least three other dwelling units. Examples of this category are quadruplexes and all types of apartment buildings. The apartments in this land use include both low-rise or 'walk-up' dwellings and high-rise multi-family dwellings.

LAND USE: 221 - Low-Rise Apartment
This land use includes apartments (rental dwelling units) in rental buildings that have one or two levels (floors), such as garden apartments.

LAND USE: 222 - High-Rise Apartment
This land use includes apartments (rental dwelling units) in rental buildings that have more than ten levels (floors), and most likely have one or more elevators.

LAND USE: 223 - Mid-Rise Apartment
This land use includes apartments (rental dwelling units) in rental buildings that have more than two levels (floors) and less than nine levels.

LAND USE: 224 - Rental Townhouse
This land use includes townhouse communities with rented rather than owned units, and a minimum of two attached units per building structure.

LAND USE: 230 - Residential Condominium/Townhouse
Residential condominiums are defined as single-family ownership units that have at least one other single family owned unit within the same building structure. Both condominiums and townhouses are included in this category.

LAND USE: 231 - Low-Rise Residential Condominium/Townhouse
This land use includes condominiums and townhouses in buildings that have one or two levels (floors).

LAND USE: 232 - High-Rise Residential Condominium/Townhouse
This land use includes condominiums and townhouses in buildings that have three or more levels (floors).

LAND USE: 233 - Luxury Condominium/Townhouse

This land use includes condominiums and townhouses in buildings with luxury facilities or services.

LAND USE: 240 - Mobile Home Park

Mobile home parks generally consist of trailers shipped, sited, and installed on permanent foundations. Typically, they have community facilities such as recreation rooms, swimming pools, and laundry facilities. Many such parks restrict occupancy to adults.

LAND USE: 250 - Retirement Community

Retirement communities - restricted to adults or senior citizens - contain residential units similar to apartments or condominiums and are usually self-contained villages. They may also contain special services such as medical services, dining facilities, and some limited supporting retail facilities.

LAND USE: 251 - Elderly Housing - Detached

Elderly housing (detached) - restricted to senior citizens - contain residential units similar to single family housing, and are sometimes self-contained villages. They may also contain special services such as medical facilities, dining facilities, and some limited supporting retail facilities.

LAND USE: 252 - Congregate Care Facility

A congregate care facility typically consists of one or more multi-unit buildings designed for elderly living. These facilities might also contain dining rooms, medical facilities, and recreational facilities.

LAND USE: 253 - Elderly Housing - Attached

Elderly housing (attached) - restricted to senior citizens - contain residential units similar to apartments and condominiums, and are sometimes self-contained villages. They may also contain special services such as medical facilities, dining facilities, and some limited supporting retail facilities.

LAND USE: 260 - Recreational Homes

Recreational homes are usually located in a resort containing local services and complete recreational facilities. These dwellings are often second homes used by the owner periodically or rented on a seasonal basis.

LAND USE: 270 - Residential Planned Unit Development

Residential planned unit developments, for the purposes of trip generation, are defined as containing any combination of residential land uses, and might also contain supporting services such as limited retail and recreational facilities. The description of a PUD is general in nature since these developments vary by density and type of dwelling. It is therefore recommended that when information on the number and type of dwellings is

known, the trip generation should be calculated on the basis of the known type of dwellings rather than on the basis of land use 270.

LAND USE: 310 - Hotel

A hotel is a place of lodging that provides sleeping accommodations, restaurants, cocktail lounges, meeting and banquet rooms or convention facilities, and other retail and service shops. Some of the sites included in this land use category are actually large motels providing the facilities of a hotel noted above.

LAND USE: 311 - All Suites Hotel

All suites hotels are places of lodging that provide sleeping accommodations, a small restaurant and lounge, and a small amount of meeting space. Each suite includes a sitting room and separate bedroom; often, limited kitchen facilities are provided within the suite. These hotels are located primarily in suburban areas.

LAND USE: 312 - Business Hotel

Business hotels are places of lodging aimed toward the business traveler. They provide sleeping accommodations and other limited facilities, such as a breakfast buffet bar and an afternoon beverage bar (no lunch or dinner is served, and no meeting facilities are provided). Each unit is a large single room. All locations nationwide are in suburban areas.

LAND USE: 320 - Motel

A motel is a place of lodging providing sleeping accommodations and often, a restaurant. Motels generally offer free on-site parking and provide little or no meeting space.

LAND USE: 330 - Resort Hotel

Resort hotels are similar to hotels (land use 310) in that they provide sleeping accommodations, restaurants, cocktail lounges, retail shops, and guest services. The primary difference is that resort hotels cater to the tourist and vacation business, often providing a variety of recreational facilities, rather than convention and meeting business. Resort hotels are normally located in suburban or outlying locations on larger sites than conventional hotels.

LAND USE: 411 - City Park

City parks are owned and operated by a city. The city parks surveyed varied widely as to location, type, and number of facilities, including boating or swimming facilities, ball fields, camp sites, and picnic facilities. Because of the variety of facilities as well as local conditions such as weather, seasonal use of the individual sites is quite different. For example, some of the sites are used primarily for boating or swimming, while others are used for softball games.

LAND USE: 412 - County Park

County parks are owned and operated by a county. The county parks surveyed varied widely as to location, type, and number of facilities, including boating or swimming facilities, ball fields, camp sites, picnic facilities, and general open space. Because of the variety of facilities as well as local conditions such as weather, seasonal use of the individual sites is quite different. For example, some of the sites are used primarily for boating or swimming, while others are used for softball games.

LAND USE: 413 - State Park

State parks are owned and operated by a state. The state parks surveyed varied widely as to location and type and amount of facilities, including hiking trails, boating or swimming facilities, ball fields, camp sites, picnic facilities, and general open space. Because of the variety of facilities as well as local conditions such as weather, seasonal use of the individual sites is quite different. For example, some of the sites are used primarily for boating or swimming, while others are used for hiking or camping.

LAND USE: 414 - Water Slide Park

A water slide park contains water slides, wading pools, refreshment stands, and picnic areas.

LAND USE: 415 - Beach Park

A beach park contains a beach, and possibly other facilities such as changing rooms, rest rooms, picnic facilities, hiking, fishing, and camp sites. Often, in 'season' lifeguards are provided.

LAND USE: 416 - Campground/Recreational Vehicle Park

Campgrounds and recreational vehicle parks are recreational sites that accommodate campers, trailers, tents, and recreational vehicles. They are found in a variety of locations and provide a variety of facilities, often including restrooms with showers, recreational facilities such as a swimming pool, a convenience store, and a laundromat.

LAND USE: 417 - Regional Park

Regional parks are owned and operated by a regional park authority. The regional parks surveyed varied widely as to location and type and amount of facilities, including hiking trails, lakes, pools, ball fields, camp sites, picnic facilities and general open space. Because of the variety of facilities as well as local conditions such as weather, seasonal use of the individual sites is quite different. For example, some of the sites are used primarily for boating or swimming, while others are used for hiking or camping, etc.

LAND USE: 418 - National Monument

National monuments vary widely as to type of facilities and location. Many house scenic observation points or towers, or are historical monuments.

LAND USE: 420 - Marina

Marinas can include both public and private facilities. In addition to docks and berths for boats, some of the sites surveyed also had social and club activities, limited retail, and restaurants.

LAND USE: 430 - Golf Course

The golf courses included in this analysis were 9, 18, and 27 hole municipal courses and private country clubs. Some sites have driving ranges and clubhouses with a pro shop, and/or restaurant, lounge, and banquet facilities. Many of the municipal courses do not have any of these facilities.

LAND USE: 431 - Miniature Golf Course

Miniature golf courses are free-standing and consist of one or more individual putting courses, and may or may not include limited game rooms or refreshment services.

LAND USE: 432 - Golf Driving Range

Golf driving ranges are outdoor facilities containing driving tees for golfers to practice. These facilities may also provide individual or small group lessons; some sites have pro shops and/or small refreshments facilities.

LAND USE: 435 - Multipurpose Recreational Facility

Multipurpose recreational facilities contain two or more of the following land uses combined at one site: miniature golf, batting cages, video arcade, bumper boats, go-carts, and golf driving ranges.

LAND USE: 441 - Live Theater

Live theater is in a building or open air setting and includes a stage, a backstage area, dressing rooms, seats for the audience, and a lobby area.

LAND USE: 443 - Movie Theater without matinee

A movie theater consists of audience seating, single or multiple screens and auditoriums, and a lobby and refreshment stand. Movie theaters without matinees show movies on weekday evenings and weekends only; there are no weekday daytime showings.

LAND USE: 444 - Movie Theater with matinee

A movie theater consists of audience seating, single or multiple screens and auditoriums, and a lobby and refreshment stand. Movie theaters with matinees show movies on weekday afternoons and evenings, as well as on weekends.

LAND USE: 452 - Horse Racetrack

The horse racetrack where data was collected includes a spectator stadium, parking, track, stables, and housing for workers.

LAND USE: 453 - Automobile Racetrack

Automobile racetracks are facilities that contain a racetrack, spectator seating, parking, and restaurant/refreshment areas.

LAND USE: 454 - Dog Racetrack

Dog racetracks include a spectator stadium, parking, track, and possibly stables and housing for workers.

LAND USE: 460 - Arena

An arena is a large indoor structure in which spectator events are held. These events vary from professional ice hockey and basketball to non-sporting events such as concerts, shows, or religious services. Arenas are generally provided with large parking facilities, except when located in or around the downtown of a large city.

LAND USE: 465 - Ice Rink

Ice rinks are facilities used for ice-skating oriented sports and entertainment activities. They may contain spectator seating, refreshment areas, and amenities.

LAND USE: 473 - Casino/Video Lottery Establishment

Casino/video lottery establishments are businesses that provide electronic or manually controlled slot machines. Full food service is generally not provided at these facilities; however, refreshments and alcoholic beverages may be served.

LAND USE: 480 - Amusement Park

An amusement park contains rides, entertainment, refreshment stands, and picnic areas.

LAND USE: 481 - Zoo

A zoo contains wild animals, refreshment stands, and picnic areas.

LAND USE: 491 - Tennis Courts

Tennis courts are indoor or outdoor facilities specifically designed for playing tennis. Other on-site facilities may include limited spectator seating and a parking lot. Tennis courts can either be public or private facilities.

LAND USE: 492 - Racquet Club

Racquet clubs are privately-owned facilities with tennis courts, and other facilities often including swimming pools and whirlpools, saunas, racquetball and handball courts, exercise classes, and weightlifting equipment.

LAND USE: 493 - Health Club

Health clubs are privately-owned facilities that may include swimming pools, whirlpools, saunas, tennis, racquetball and handball courts, exercise classes, weightlifting and gymnastics equipment, locker rooms, and a restaurant or snack bar.

LAND USE: 494 - Bowling Alley

Bowling alleys are recreational facilities that include bowling lanes. A small lounge, restaurant and/or snack bar, video games and pool tables, may also be available.

LAND USE: 495 - Recreational Community Center

Recreational community centers are facilities similar to and including YMCAs, often including classes and clubs for adults and children, day care or a nursery school, meeting rooms, swimming pools and whirlpools, saunas, tennis, racquetball, and handball courts, exercise classes, weightlifting and gymnastics equipment, locker rooms, and a restaurant or snack bar.

LAND USE: 501 - Military Base

Most of the military bases surveyed were air force bases, containing offices, training facilities, housing facilities, dining facilities, and recreational facilities.

LAND USE: 520 - Elementary School

Elementary schools serve students between the kindergarten and middle school or junior high school levels. Usually, they are centrally located in residential communities in order to facilitate student access and have no student drivers.

LAND USE: 521 - Private School (K-12)

Private schools serve students between kindergarten and high school, students may travel a long distance to get to private schools.

LAND USE: 522 - Middle School/Junior High School

Middle schools or junior high schools serve students who have completed elementary school and have not yet entered high school.

LAND USE: 530 - High School

High schools are for students who have completed middle school or junior high school. The high schools analyzed were generally separated from other land uses and had exclusive access points and parking facilities. Acreage and floor space varied widely with populations served and the social and economic characteristics of the area.

LAND USE: 540 - Junior/Community College

This land use includes two-year junior colleges or community colleges. A number of two year institutions have sizable evening programs. The two year colleges analyzed were generally separated from other land uses and had exclusive access points, and parking facilities. Acreage, floor space, staff, and parking accommodations vary widely with populations served and the social and economic characteristics of the area; thus, the student enrollment seems to be the most consistent basis for establishing trip generation rates.

LAND USE: 550 - University/College

This land use includes four-year and graduate educational institutions. Acreage, floor space, staff, and parking accommodations vary widely with populations served and the social and economic characteristics of the area; thus, the student enrollment seems to be the most consistent basis for establishing trip generation rates.

LAND USE: 560 - Church

A church is a building providing public worship facilities, and generally houses an assembly hall or sanctuary, meeting rooms, classrooms, and occasionally dining, catering, or party facilities.

LAND USE: 561 - Synagogue

A synagogue is a building providing public worship facilities, and generally houses an assembly hall or sanctuary, meeting rooms, classrooms, and occasionally dining, catering, or party facilities. The Sabbath is celebrated on Friday evenings and all day Saturday. Reform, conservative, and orthodox synagogues each have different trip characteristics.

LAND USE: 565 - Day Care Center

A day care center is a facility where care for pre-school age children is provided, normally during the daytime hours. Day care facilities generally include classrooms, offices, eating areas, and playgrounds. Some centers also provide after-school care for older children.

LAND USE: 566 - Cemetery

A cemetery is a place for burying the dead, possibly including buildings used for funeral services, a mausoleum, and a crematorium.

LAND USE: 571 - Prison

A prison is a place for housing persons convicted of committing a crime or awaiting trial, usually including cells, dining and food preparation facilities, limited recreational facilities, work areas, and offices.

LAND USE: 590 - Library

A library can be either a public or private facility, and houses shelves containing books, reading rooms, or areas, and possibly, meeting rooms.

LAND USE: 591 - Lodge/Fraternal Organization

A lodge/fraternal organization typically includes a club house with dining and drinking facilities, recreational and entertainment facilities, and meeting rooms.

LAND USE: 610 - Hospital

The term hospital refers to an institution where medical or surgical care is given to non-ambulatory and ambulatory patients, and overnight accommodations are provided. The term does not, however, refer to medical clinics (facilities that provide diagnoses and

outpatient care only) or to nursing homes (facilities devoted to the care of persons unable to care for themselves).

LAND USE: 620 - Nursing Home

A nursing home is defined as any facility whose primary function is to care for persons unable to care for themselves. The term is applicable not only to rest homes, which are primarily for the aged, but also to chronic and convalescent homes. This type of facility is characterized by residents who do little or no driving. Traffic is primarily generated by employees, visitors, and deliveries.

LAND USE: 630 - Clinic

A clinic is defined as any facility that provides limited diagnostic and outpatient medical care, but is unable to provide prolonged in-house medical/surgical care.

LAND USE: 710 - General Office Building

A general office building houses multiple tenants; it is a location where affairs of businesses, commercial or industrial organization, or professional persons or firms are conducted. An office building or buildings may contain a mixture of tenants including professional services, insurance companies, investment brokers, and tenant services such as a bank or savings and loan, a restaurant or cafeteria, and service retail facilities.

LAND USE: 714 - Corporate Headquarters Building

A corporate headquarters building is a single tenant office building housing the corporate headquarters of a company or organization, and generally containing offices, meeting rooms, space for file storage and data processing, a restaurant or cafeteria, and other service functions.

LAND USE: 715 - Single Tenant Office Building

A single tenant office building generally contains the offices, meeting rooms, and space for file storage and data processing of a single business or company, and possible other service functions including a restaurant or cafeteria.

LAND USE: 720 - Medical-Dental Office Building

A medical office is a facility that provides diagnoses and outpatient care on a routine basis but is unable to provide prolonged in-house medical/surgical care. A medical office is generally operated by one or more private physicians or dentists.

LAND USE: 730 - Government Office Building

A government office building is an individual building containing the entire function or simply one agency of a city, county, state, federal government or other governmental unit. It differs from a government office complex - land use 733 (formerly called a civic center) in that it is not a group of several buildings that are interconnected with pedestrian walkways.

LAND USE: 731 - State Motor Vehicles Department

The State Motor Vehicles Department is typically an office-type building housing driver license testing, vehicle registration, and related functions.

LAND USE: 732 - U.S. Post Office

A U.S. Post Office is a federal building housing service windows for mailing packages and letters, post office boxes, offices, and sorting and distributing facilities for mail, and vehicle storage areas.

LAND USE: 733 - Government Office Complex

A government office complex is a complex of buildings housing a variety of functions of a city, county, state, federal government or other governmental unit, or multiple governmental units. It differs from a government office building (land use 730) in that it is a group of buildings that are interconnected with pedestrian walkways. This land use was formerly called a civic center.

LAND USE: 750 - Office Park

Office parks are generally suburban subdivisions or planned unit developments containing general office buildings and support services such as banks, savings and loan institutions, restaurants, and service stations arranged in a park-like or campus-like atmosphere.

LAND USE: 760 - Research and Development Center

Research centers are facilities or groups of facilities devoted nearly exclusively to research and development activities. They may also contain offices and light fabrication areas.

LAND USE: 770 - Business Park

Business parks consist of a group of flex-type or incubator one-or two-story buildings served by a common roadway system. The tenant space is flexible to house a variety of uses; the rear side of the building is usually served by a garage door. Tenants may be start-up companies or small mature companies that require a variety of space.

LAND USE: 812 - Building Materials and Lumber Store

A building materials/lumber store is a small free-standing building that sells hardware, building materials, and lumber. The lumber may be in the main building or in a yard or storage shed. The storage areas are not included in the total gross floor areas reported. The buildings contained in this land use are less than 25,000 gross square feet in size.

LAND USE: 813 - Free-Standing Discount Superstore

The discount superstores in this category are similar to the free-standing discount stores described in land use 815 with the exception that they also contain a full service grocery department under the same roof that shares entrances and exits with the discount store area. They are free-standing stores with off-street parking. The stores usually offer a

variety of customer services, centralized cashiering, and a wide range of products. They typically maintain long store hours seven days a week. The stores included in this data are often the only store on a site, but can also be found in mutual operation with a related or unrelated garden center and/or service station. They also are sometimes found as separate parcels within a retail complex with their own dedicated parking area.

LAND USE: 814 - Specialty Retail Center

Specialty retail centers are generally small strip shopping centers containing a variety of retail shops, specializing in quality apparel, hard goods, services such as real estate office, dance studios, or florists, and small restaurants.

LAND USE: 815 - Free-Standing Discount Store

The discount stores in this category are free-standing with off-street parking. They usually offer a variety of customer services, centralized cashiering, and a wide range of products. They typically maintain long store hours seven days a week. The stores included in this data are often the only store on a site, but can also be found in mutual operation with a related or unrelated garden center or service station. They also are sometimes found as separate parcels within a retail complex with their own dedicated parking.

LAND USE: 816 - Hardware/Paint Store

Hardware and paint stores are generally free-standing buildings with off-street parking.

LAND USE: 817 - Nursery (Garden Center)

A nursery or garden center is a free-standing building with a yard of planting or landscape stock. The nurseries surveyed primarily serve the general public. Some have large greenhouses; some offer landscaping services. Most have office, storage, and shipping facilities. This type of business is characterized by seasonal variations in trip characteristics.

LAND USE: 818 - Nursery (Wholesale)

A wholesale nursery is a free-standing building with a yard of planting or landscape stock. The nurseries surveyed primarily serve contractors and suppliers. Some have large greenhouses; some offer landscaping services. Most have office, storage, and shipping facilities. This type of business is characterized by seasonal variations in trip characteristics.

LAND USE: 820 - Shopping Center

A shopping center is an integrated group of commercial establishments that is planned, developed, owned, and managed as a unit. Its composition is related to its market area in terms of size, location, and type of store. Shopping centers provide on-site parking facilities. Surveys for this land use included neighborhood centers, community centers, regional centers, and super regional centers. They ranged in size from 1,700 to 2,200,000 square feet of gross leasable area. Some of the centers included non-merchandising uses

such as office buildings, movie theaters, post offices, banks, health clubs, and recreational facilities such as ice skating rinks or indoor miniature golf courses.

LAND USE: 823 - Factory Outlet Center

A factory outlet center is a type of shopping center that primarily houses factory outlet stores, attracting customers from a wide geographic area, very often even from a larger area than a regional shopping center.

LAND USE: 831 - Quality Restaurant

This land use consists of eating establishments of high quality and with turnover rates generally of at least one hour or longer. Generally, quality restaurants do not serve breakfast, some do not serve lunch; all serve dinner. Typically, the restaurants included in this land use are not a chain, and reservations are required.

LAND USE: 832 – High-Turnover (Sit-Down) Restaurant

This land use consists of sit-down eating establishments with turnover rates generally of one hour or less. This type of restaurant is usually moderately priced and frequently belongs to a restaurant chain. Generally, these restaurants serve lunch and dinner; they may also be open for breakfast and are sometimes open 24 hours per day. Some facilities contained within this land use may also contain a bar area for serving food and alcoholic drinks.

LAND USE: 833 - Fast-Food Restaurant without Drive-Through Window

This land use includes fast-food restaurants without drive-through windows. This type of restaurant is characterized by a large carryout clientele; long hours of service (some are open for breakfast, all are open for lunch and dinner, some are open late at night or 24 hours); and high turnover rates for eat-in customers.

LAND USE: 834 - Fast-Food Restaurant with Drive-Through Window

This land use includes fast-food restaurants with drive-through windows. This type of restaurant is characterized by a large carryout clientele; long hours of service (some are open for breakfast, all are open for lunch and dinner, some are open late at night or 24 hours); and high turnover rates for eat-in customers.

LAND USE: 835 - Fast-Food Restaurant with Drive-Through Window and No Indoor Seating

This category includes fast-food restaurants with drive-through service only. These facilities typically have very small building areas and may provide a limited amount of outside seating.

LAND USE: 836 - Drinking Place

A drinking place contains a bar where alcoholic beverages and snacks are served and possibly some type of entertainment such as music, television screens, video games, or pool tables.

LAND USE: 837 - Quick Lubrication Vehicle Shop

A quick lubrication vehicle shop is a business where the primary activity is to perform oil change services for vehicles. Other ancillary services provided may include preventative maintenance, such as fluid and filter changes. Automobile repair service is generally not provided.

LAND USE: 840 - Automobile Care Center

An automobile care center houses numerous tenants providing automobile related services, including a mix of repair and servicing facilities, automobile stereo installation, seat cover upholstering, etc.

LAND USE: 841 - New Car Sales

New car sales facilities are generally located as strip development along major arterial streets that already have a preponderance of commercial development. Generally included are automobile services and parts sales along with a sometimes substantial used-car sales operation. Some dealerships also include leasing activities and truck sales and servicing.

LAND USE: 843 - Automobile Parts Sales

Automobile parts facilities specialize in the sale of automobile parts for do-it-yourself maintenance and repair. Items sold at these facilities include items such as spark plugs, distributor caps, and batteries. These facilities are not equipped for on-site vehicle repair.

LAND USE: 844 - Gasoline/Service Station

Service stations generally are located at intersections or freeway interchanges and have facilities for fueling motor vehicles. They may also include facilities for servicing and repairing motor vehicles. This land use includes service stations without convenience stores or car washes. The independent variable "vehicle fueling position" is defined as the maximum number of vehicles that can be fueled simultaneously.

LAND USE: 845 - Gasoline/Service Station with Convenience Market

Service stations generally are located at intersections or freeway interchanges. This land use includes service stations with convenience markets where the primary business is the fueling of motor vehicles, although they may also have facilities for servicing and repairing motor vehicles. Some commonly sold convenience items are newspapers, coffee or other beverages, and snack items that are generally consumed in the car. This land use does not include stations with car washes. The independent variable "vehicle fueling position" is defined as the maximum number of vehicles that can be fueled simultaneously.

LAND USE: 846 - Gasoline/Service Station with Convenience Market and Car Wash

Service stations generally are located at intersections or freeway interchanges. This land use includes service stations with convenience markets and car washes where the primary

business is the fueling of motor vehicles, although they may also include facilities for servicing and repairing motor vehicles. The independent variable "vehicle fueling position" is defined as the maximum number of vehicles that can be fueled simultaneously.

LAND USE: 847 - Self Service Car Wash

The facilities surveyed are manual operations where the driver parks and washes a vehicle in a stall.

LAND USE: 848 - Tire Store

The tire stores surveyed sell tires, and provide installation and possibly other automobile maintenance functions and customer services. These stores generally do not contain large storage or warehouse areas.

LAND USE: 849 - Wholesale Tire Store

Wholesale tire stores are warehouse type facilities with the primary function of selling and installing tires for automobiles and small trucks. Other services provided may include automotive maintenance functions such as wheel alignment or shock and brake service, and customer services. A tire display, customer waiting lounge and restroom facilities, staff office space, and significant storage area are also provided. General mechanical repairs and body work are usually not conducted at these facilities.

LAND USE: 850 - Supermarket

Supermarkets are typically free-standing retail stores selling a complete assortment of food, food preparation and wrapping material, and household cleaning and servicing items. Supermarkets may also contain facilities such as money machines, photo centers, pharmacies, and video rental areas.

LAND USE: 851 - Convenience Market (Open 24 hours)

Convenience markets in this classification are usually open 24 hours per day, depending on the management and possibly the location. These markets sell convenience foods, newspapers, magazines, and often beer and wine, but do not have gasoline pumps.

LAND USE: 852 - Convenience Market (Open 15-16 hours)

Convenience markets are usually open 15 to 16 hours per day. These markets sell convenience foods, newspapers, magazines, and often beer and wine, but do not have gasoline pumps.

LAND USE: 853 - Convenience Market with Gasoline Pumps

The convenience markets surveyed sell gasoline, convenience foods, newspapers, magazines, and often beer and wine. This land use includes convenience markets with gasoline pumps where the primary business is the selling of convenience items, not the fueling of motor vehicles.

LAND USE: 854 - Discount Supermarket

Discount supermarkets are typically free-standing retail stores selling a complete assortment of food (often in bulk), food preparation and wrapping materials, and household cleaning and servicing items, at discounted prices.

LAND USE: 860 - Wholesale Market

Wholesale markets generally include large storage and distribution areas for receiving goods (such as produce) and shipping these goods to places such as grocery stores and restaurants. Generally, these markets are characterized by little drive-in business, and truck deliveries and pick-ups at all hours of the day.

LAND USE: 861 - Discount Club

A discount club is a discount store/warehouse whose shoppers pay a membership fee in order to take advantage of discounted prices on a wide variety of items including food, clothing, tires, appliances, etc. Many items are sold in bulk.

LAND USE: 862 - Home Improvement Superstore

Home improvement superstores are free-standing warehouse type facilities with off-street parking. Home improvement superstores generally offer a variety of customer services and centralized cashiering, and they specialize in the sale of home improvement merchandise. They typically maintain long store hours seven days a week. Examples of items sold in these stores include lumber, tools, paint, lighting, wallpaper and paneling, kitchen and bathroom fixtures, lawn equipment, and garden plants and accessories. The stores included in this data are often the only ones on the site, but they can also be found in mutual operation with a related or unrelated garden center. The buildings contained in this land use usually range in size from 25,000 to 150,000 square feet of gross floor area.

LAND USE: 863 - Electronics Superstore

Electronics superstores are free-standing warehouse type facilities with off-street parking. Electronics superstores generally offer a variety of customer services and centralized cashiering, and they specialize in the sale of home and vehicle electronic merchandise. They typically maintain long store hours seven days a week. Examples of items sold in these stores include televisions, compact disc and cassette tape players, compact discs and tapes, cameras, radios, videos, and general electronic accessories. Major home appliances may also be sold at these facilities. The stores included in this data may or may not be the only ones on the site.

LAND USE: 864 - Toy/Children's Superstore

Toy/children's superstores are free-standing warehouse type facilities with off-street parking. Toy/children's superstores generally offer a variety of customer services and centralized cashiering, and they specialize in the sale of child-oriented merchandise. They typically maintain long store hours seven days a week. Examples of items sold in these stores include board and video game systems, toys, bicycles/tricycles, wagons,

outdoor play equipment, and school supplies. Some may also carry children's clothing. The stores included in this data may or may not be the only ones on the site.

LAND USE: 870 - Apparel Store

An apparel store is an individual store specializing in the sale of clothing.

LAND USE: 880 - Pharmacy/Drugstore without Drive-Through Window

Pharmacies/drugstores are retail facilities that primarily sell prescription and non-prescription drugs. These facilities may also sell cosmetics, toiletries, medications, stationery, personal care products, limited food products, and general merchandise. The drugstores in this category do not contain drive-through windows.

LAND USE: 881 - Pharmacy/Drugstore with Drive-Through Window

Pharmacies/drugstores are retail facilities that primarily sell prescription and non-prescription drugs. These facilities may also sell cosmetics, toiletries, medications, stationery, personal care products, limited food products, and general merchandise. The drugstores in this category contain drive-through windows.

LAND USE: 890 - Furniture Store

A furniture store specializes in the sale of furniture, and often carpeting. Furniture stores are generally large, and include storage areas. The sites surveyed include both traditional furniture stores and warehouse stores with showrooms.

LAND USE: 895 - Video Arcade

A video arcade is a building or space in which video game units are played for a fee. Arcades generally contain 20 to 100 individual game units.

LAND USE: 896 - Video Rental Store

Video rental stores are businesses specializing in the rental of home movies and video games. Movies and video games may also be available for purchase. They typically maintain long store hours and are usually open seven days a week.

LAND USE: 911 - Walk-in Bank

Walk-in banks are generally freestanding buildings with their own parking lots. These banks do not have drive-in windows.

LAND USE: 912 - Drive-in Bank

Drive-in banks provide banking facilities for the motorist while in a vehicle; many also serve patrons who walk into the building.

Source: *Trip Generation*, Sixth Edition, Institute of Transportation Engineers, 1997.

APPENDIX F
PROJECT SCREENING ANALYSIS TABLES

Appendix F contains a series of tables of land uses, by project size and year of project completion, that will exceed at least one of the reactive organic compounds (ROC) and oxides of nitrogen (NOx) significance thresholds described in Chapter 3, Air Quality Significance Thresholds (see also Section 5.3.1, "Project Screening Analysis Tables"). Projects smaller than the applicable threshold values in Appendix F will not have a significant adverse impact on air quality with respect to ROC and/or NOx emissions. Although a project may fall below the applicable ROC or NOx threshold values in Appendix F, the project should still be assessed for other potential significant air quality impacts, such as fugitive dust, odors, toxic air contaminants, and consistency with the *Ventura County Air Quality Management Plan*.

If a project is a single land use type (e.g., single family detached housing), Appendix F can be used to determine whether the project is likely to exceed the significance thresholds. If the project size is near the size necessary to exceed the significance thresholds, the URBEMIS program should be run, using either the screening analysis mode (see Section 5.3.2, "URBEMIS Computer Program -Screening Analysis Mode"), or a detailed run (see Section 5.3.3, "URBEMIS Computer Program - Detailed Run"). Also, if there are unique conditions about a project that deviate from the Ventura County default values (see Section 5.3.3.1), the screening analysis tables are not appropriate, and either an URBEMIS screening analysis run or detailed run should be performed.

The information presented in the following tables is based on URBEMIS2002 for Windows and EMFAC2002, since these are the most recent versions of the computer programs at the current time. APCD recommends that lead agencies use the most recent version of URBEMIS adopted by the California Air Resources Board and the corresponding version of EMFAC. Therefore, if a more current version of URBEMIS is available, the District recommends using the more current version of URBEMIS instead of these tables.

The tables in this appendix were generated using the default values for Ventura County, and the default trip generation rates in URBEMIS. These trip generation rates are from the Institute of Transportation Engineers *Trip Generation*, Sixth edition, and other sources, as documented in the User's Guide for URBEMIS. The "pass-by trip" option was selected for all land use categories. Emissions from area sources (e.g., natural gas usage, landscaping equipment, and consumer products) have also been included in the tables.

The project screening analysis mode in the URBEMIS program and the project screening analysis tables in Appendix F of this Guidelines use the default vehicle fleet mix for calculating estimated project emissions. Therefore, for projects where the fleet mix includes a greater percentage of heavy-duty vehicle trips than the default fleet mix, project emissions may be significantly underestimated in the screening analysis mode and the screening analysis tables. An example of this situation might be a warehouse facility

where the vehicle trips are predominantly heavy-duty diesel trips. The District recommends that if a lead agency determines that the expected vehicle fleet mix for a project will include more heavy duty vehicles than the default fleet mix, project screening analyses are not appropriate.

APPENDIX F
PROJECT SCREEENING ANALYSIS TABLES

Analysis Year: 2003
Significance Threshold: 25 lbs/day

Code*	Land Use	Project Size That Will Exceed ROC or NOx Significance Threshold
210	Single Family Detached Housing	99 dwelling units
211	Low-Rise Apartment	127 dwelling units
230	Condominium/Townhouse, General	171 dwelling units
270	Residential Planned Unit Development	199 dwelling units
---	Nursing Home	338 dwelling units
565	Day-Care Center	25,900 sq. ft.
831	Quality Restaurant	23,800 sq. ft.
832	High Turnover (Sit-Down) Restaurant	15,800 sq. ft.
833	Fast-food Restaurant without Drive-through Window	2,900 sq. ft.
834	Fast-food Restaurant with Drive-through Window	4,200 sq. ft.
863	Electronics Superstore	46,500 sq. ft.
862	Home Improvement Superstore	61,900 sq. ft.
---	Strip Mall	52,500 sq. ft.
816	Hardware/Paint Store	40,900 sq. ft.
850	Supermarket	19,000 sq. ft.
851	Convenience Market (Open 24 hours)	2,900 sq. ft.
853	Convenience Market with Gasoline Pumps	2,520 sq. ft.
844	Service Station	13 fueling positions
710	General Office Building	123,000 sq. ft.
750	Office Park	97,900 sq. ft.
720	Medical Office Building	54,200 sq. ft.
110	General Light Industrial	201,400 sq. ft.
130	Industrial Park	148,700 sq. ft.

* Institute of Transportation Engineers, *Trip Generation*, Fifth Edition, 1991, and 1995 Update, and Sixth Edition, 1997.

Analysis Year: 2003
Significance Threshold: 5 lbs/day

Code*	Land Use	Project Size That Will Exceed ROC or NOx Significance Threshold
210	Single Family Detached Housing	18 dwelling units
211	Low-Rise Apartment	15 dwelling units
230	Condominium/Townhouse, General	26 dwelling units
270	Residential Planned Unit Development	35 dwelling units
---	Nursing Home	67 dwelling units
565	Day-Care Center	5,200 sq. ft.
831	Quality Restaurant	4,000 sq. ft.
832	High Turnover (Sit-Down) Restaurant	3,200 sq. ft.
833	Fast-food Restaurant without Drive-through Window	600 sq. ft.
834	Fast-food Restaurant with Drive-through Window	900 sq. ft.
863	Electronics Superstore	9,300 sq. ft.
862	Home Improvement Superstore	17,300 sq. ft.
---	Strip Mall	10,500 sq. ft.
816	Hardware/Paint Store	8,200 sq. ft.
850	Supermarket	3,800 sq. ft.
851	Convenience Market (Open 24 hours)	580 sq. ft.
853	Convenience Market with Gasoline Pumps	510 sq. ft.
844	Service Station	3 fueling positions
710	General Office Building	15,400 sq. ft.
750	Office Park	9,400 sq. ft.
720	Medical Office Building	15,000 sq. ft.
110	General Light Industrial	46,100sq. ft.
130	Industrial Park	7,900 sq. ft.

* Institute of Transportation Engineers, *Trip Generation*, Fifth Edition, 1991, and 1995 Update, and Sixth Edition, 1997.

APPENDIX F
PROJECT SCREEENING ANALYSIS TABLES

Analysis Year: 2004
Significance Threshold: 25 lbs/day

Code*	Land Use	Project Size That Will Exceed ROC or NOx Significance Threshold
210	Single Family Detached Housing	108 dwelling units
211	Low-Rise Apartment	144 dwelling units
230	Condominium/Townhouse, General	187 dwelling units
270	Residential Planned Unit Development	239 dwelling units
---	Nursing Home	345 dwelling units
565	Day-Care Center	28,000 sq. ft.
831	Quality Restaurant	26,000 sq. ft.
832	High Turnover (Sit-Down) Restaurant	17,100 sq. ft.
833	Fast-food Restaurant without Drive-through Window	3,130 sq. ft.
834	Fast-food Restaurant with Drive-through Window	4,510 sq. ft.
863	Electronics Superstore	50,500 sq. ft.
862	Home Improvement Superstore	66,500 sq. ft.
---	Strip Mall	56,500 sq. ft.
816	Hardware/Paint Store	44,200 sq. ft.
850	Supermarket	20,600 sq. ft.
851	Convenience Market (Open 24 hours)	3,130 sq. ft.
853	Convenience Market with Gasoline Pumps	2,730 sq. ft.
844	Service Station	14 fueling positions
710	General Office Building	137,000 sq. ft.
750	Office Park	110,000 sq. ft.
720	Medical Office Building	58,300 sq. ft.
110	General Light Industrial	218,000 sq. ft.
130	Industrial Park	175,000 sq. ft.

* Institute of Transportation Engineers, *Trip Generation*, Fifth Edition, 1991, and 1995 Update, and Sixth Edition, 1997.

Analysis Year: 2004
Significance Threshold: 5 lbs/day

Code*	Land Use	Project Size That Will Exceed ROC or NOx Significance Threshold
210	Single Family Detached Housing	19 dwelling units
211	Low-Rise Apartment	16 dwelling units
230	Condominium/Townhouse, General	29 dwelling units
270	Residential Planned Unit Development	37 dwelling units
---	Nursing Home	69 dwelling units
565	Day-Care Center	5,600 sq. ft.
831	Quality Restaurant	4,400 sq. ft.
832	High Turnover (Sit-Down) Restaurant	3,500 sq. ft.
833	Fast-food Restaurant without Drive-through Window	630 sq. ft.
834	Fast-food Restaurant with Drive-through Window	910 sq. ft.
863	Electronics Superstore	10,100 sq. ft.
862	Home Improvement Superstore	18,200 sq. ft.
---	Strip Mall	11,300 sq. ft.
816	Hardware/Paint Store	8,900 sq. ft.
850	Supermarket	4,100 sq. ft.
851	Convenience Market (Open 24 hours)	630 sq. ft.
853	Convenience Market with Gasoline Pumps	550 sq. ft.
844	Service Station	3 fueling positions
710	General Office Building	17,100 sq. ft.
750	Office Park	10,200 sq. ft.
720	Medical Office Building	15,800 sq. ft.
110	General Light Industrial	49,000 sq. ft.
130	Industrial Park	8,600 sq. ft.

* Institute of Transportation Engineers, *Trip Generation*, Fifth Edition, 1991, and 1995 Update, and Sixth Edition, 1997.

APPENDIX F
PROJECT SCREEENING ANALYSIS TABLES

Analysis Year: 2005
Significance Threshold: 25 lbs/day

Code*	Land Use	Project Size That Will Exceed ROC or NOx Significance Threshold
210	Single Family Detached Housing	117 dwelling units
211	Low-Rise Apartment	160 dwelling units
230	Condominium/Townhouse, General	203 dwelling units
270	Residential Planned Unit Development	256 dwelling units
---	Nursing Home	354 dwelling units
565	Day-Care Center	30,100 sq. ft.
831	Quality Restaurant	28,200 sq. ft.
832	High Turnover (Sit-Down) Restaurant	18,400 sq. ft.
833	Fast-food Restaurant without Drive-through Window	3,370 sq. ft.
834	Fast-food Restaurant with Drive-through Window	4,860 sq. ft.
863	Electronics Superstore	54,000 sq. ft.
862	Home Improvement Superstore	70,900 sq. ft.
---	Strip Mall	60,600 sq. ft.
816	Hardware/Paint Store	47,500 sq. ft.
850	Supermarket	22,100 sq. ft.
851	Convenience Market (Open 24 hours)	3,360 sq. ft.
853	Convenience Market with Gasoline Pumps	2,940 sq. ft.
844	Service Station	15 fueling positions
710	General Office Building	150,000 sq. ft.
750	Office Park	120,500 sq. ft.
720	Medical Office Building	62,200 sq. ft.
110	General Light Industrial	233,500 sq. ft.
130	Industrial Park	199,500 sq. ft.

* Institute of Transportation Engineers, *Trip Generation*, Fifth Edition, 1991, and 1995 Update, and Sixth Edition, 1997.

Analysis Year: 2005
Significance Threshold: 5 lbs/day

Code*	Land Use	Project Size That Will Exceed ROC or NOx Significance Threshold
210	Single Family Detached Housing	21 dwelling units
211	Low-Rise Apartment	17 dwelling units
230	Condominium/Townhouse, General	31 dwelling units
270	Residential Planned Unit Development	39 dwelling units
---	Nursing Home	70 dwelling units
565	Day-Care Center	6,100 sq. ft.
831	Quality Restaurant	4,800 sq. ft.
832	High Turnover (Sit-Down) Restaurant	3,700 sq. ft.
833	Fast-food Restaurant without Drive-through Window	671 sq. ft.
834	Fast-food Restaurant with Drive-through Window	970 sq. ft.
863	Electronics Superstore	10,800 sq. ft.
862	Home Improvement Superstore	19,100 sq. ft.
---	Strip Mall	12,100 sq. ft.
816	Hardware/Paint Store	9,500 sq. ft.
850	Supermarket	4,500 sq. ft.
851	Convenience Market (Open 24 hours)	680 sq. ft.
853	Convenience Market with Gasoline Pumps	590 sq. ft.
844	Service Station	3 fueling positions
710	General Office Building	18,700 sq. ft.
750	Office Park	11,000 sq. ft.
720	Medical Office Building	16,600 sq. ft.
110	General Light Industrial	52,000 sq. ft.
130	Industrial Park	9,200 sq. ft.

* Institute of Transportation Engineers, *Trip Generation*, Fifth Edition, 1991, and 1995 Update, and Sixth Edition, 1997.

APPENDIX F
PROJECT SCREEENING ANALYSIS TABLES

Analysis Year: 2006
Significance Threshold: 25 lbs/day

Code*	Land Use	Project Size That Will Exceed ROC or NOx Significance Threshold
210	Single Family Detached Housing	126 dwelling units
211	Low-Rise Apartment	176 dwelling units
230	Condominium/Townhouse, General	220 dwelling units
270	Residential Planned Unit Development	225 dwelling units
---	Nursing Home	358 dwelling units
565	Day-Care Center	32,300 sq. ft.
831	Quality Restaurant	30,400 sq. ft.
832	High Turnover (Sit-Down) Restaurant	19,700 sq. ft.
833	Fast-food Restaurant without Drive-through Window	3,610 sq. ft.
834	Fast-food Restaurant with Drive-through Window	5,210 sq. ft.
863	Electronics Superstore	57,900 sq. ft.
862	Home Improvement Superstore	75,400 sq. ft.
---	Strip Mall	64,900 sq. ft.
816	Hardware/Paint Store	50,900 sq. ft.
850	Supermarket	23,700 sq. ft.
851	Convenience Market (Open 24 hours)	3,610 sq. ft.
853	Convenience Market with Gasoline Pumps	3,150 sq. ft.
844	Service Station	16 fueling positions
710	General Office Building	163,000 sq. ft.
750	Office Park	131,600 sq. ft.
720	Medical Office Building	66,300 sq. ft.
110	General Light Industrial	249,500 sq. ft.
130	Industrial Park	226,000 sq. ft.

* Institute of Transportation Engineers, *Trip Generation*, Fifth Edition, 1991, and 1995 Update, and Sixth Edition, 1997.

Analysis Year: 2006
Significance Threshold: 5 lbs/day

Code*	Land Use	Project Size That Will Exceed ROC or NOx Significance Threshold
210	Single Family Detached Housing	22 dwelling units
211	Low-Rise Apartment	18 dwelling units
230	Condominium/Townhouse, General	34 dwelling units
270	Residential Planned Unit Development	41 dwelling units
---	Nursing Home	71 dwelling units
565	Day-Care Center	6,500 sq. ft.
831	Quality Restaurant	5,100 sq. ft.
832	High Turnover (Sit-Down) Restaurant	4,000 sq. ft.
833	Fast-food Restaurant without Drive-through Window	730 sq. ft.
834	Fast-food Restaurant with Drive-through Window	1,050 sq. ft.
863	Electronics Superstore	11,600 sq. ft.
862	Home Improvement Superstore	20,000 sq. ft.
---	Strip Mall	13,000 sq. ft.
816	Hardware/Paint Store	10,200 sq. ft.
850	Supermarket	4,800 sq. ft.
851	Convenience Market (Open 24 hours)	720 sq. ft.
853	Convenience Market with Gasoline Pumps	630 sq. ft.
844	Service Station	4 fueling positions
710	General Office Building	20,500 sq. ft.
750	Office Park	11,800 sq. ft.
720	Medical Office Building	17,400 sq. ft.
110	General Light Industrial	54,500 sq. ft.
130	Industrial Park	9,900 sq. ft.

* Institute of Transportation Engineers, *Trip Generation*, Fifth Edition, 1991, and 1995 Update, and Sixth Edition, 1997.

APPENDIX F
PROJECT SCREEENING ANALYSIS TABLES

Analysis Year: 2007
Significance Threshold: 25 lbs/day

Code*	Land Use	Project Size That Will Exceed ROC or NOx Significance Threshold
210	Single Family Detached Housing	134 dwelling units
211	Low-Rise Apartment	192 dwelling units
230	Condominium/Townhouse, General	222 dwelling units
270	Residential Planned Unit Development	235 dwelling units
---	Nursing Home	365 dwelling units
565	Day-Care Center	34,400 sq. ft.
831	Quality Restaurant	32,600 sq. ft.
832	High Turnover (Sit-Down) Restaurant	21,000 sq. ft.
833	Fast-food Restaurant without Drive-through Window	3,850 sq. ft.
834	Fast-food Restaurant with Drive-through Window	5,550 sq. ft.
863	Electronics Superstore	61,600 sq. ft.
862	Home Improvement Superstore	79,800 sq. ft.
---	Strip Mall	69,100 sq. ft.
816	Hardware/Paint Store	54,200 sq. ft.
850	Supermarket	25,200 sq. ft.
851	Convenience Market (Open 24 hours)	3,850 sq. ft.
853	Convenience Market with Gasoline Pumps	3,360 sq. ft.
844	Service Station	17 fueling positions
710	General Office Building	176,500 sq. ft.
750	Office Park	142,400 sq. ft.
720	Medical Office Building	70,300 sq. ft.
110	General Light Industrial	265,500 sq. ft.
130	Industrial Park	251,000 sq. ft.

* Institute of Transportation Engineers, *Trip Generation*, Fifth Edition, 1991, and 1995 Update, and Sixth Edition, 1997.

Analysis Year: 2007
Significance Threshold: 5 lbs/day

Code*	Land Use	Project Size That Will Exceed ROC or NOx Significance Threshold
210	Single Family Detached Housing	24 dwelling units
211	Low-Rise Apartment	19 dwelling units
230	Condominium/Townhouse, General	37 dwelling units
270	Residential Planned Unit Development	42 dwelling units
---	Nursing Home	72 dwelling units
565	Day-Care Center	6,860 sq. ft.
831	Quality Restaurant	5,500 sq. ft.
832	High Turnover (Sit-Down) Restaurant	4,200 sq. ft.
833	Fast-food Restaurant without Drive-through Window	770 sq. ft.
834	Fast-food Restaurant with Drive-through Window	1,110 sq. ft.
863	Electronics Superstore	12,300 sq. ft.
862	Home Improvement Superstore	20,900 sq. ft.
---	Strip Mall	13,800 sq. ft.
816	Hardware/Paint Store	10,850 sq. ft.
850	Supermarket	5,050 sq. ft.
851	Convenience Market (Open 24 hours)	770 sq. ft.
853	Convenience Market with Gasoline Pumps	670 sq. ft.
844	Service Station	4 fueling positions
710	General Office Building	22,200 sq. ft.
750	Office Park	12,600 sq. ft.
720	Medical Office Building	18,200 sq. ft.
110	General Light Industrial	57,500 sq. ft.
130	Industrial Park	10,600 sq. ft.

* Institute of Transportation Engineers, *Trip Generation*, Fifth Edition, 1991, and 1995 Update, and Sixth Edition, 1997.

APPENDIX F
PROJECT SCREEENING ANALYSIS TABLES

Analysis Year: 2008
Significance Threshold: 25 lbs/day

Code*	Land Use	Project Size That Will Exceed ROC or NOx Significance Threshold
210	Single Family Detached Housing	145 dwelling units
211	Low-Rise Apartment	211 dwelling units
230	Condominium/Townhouse, General	257 dwelling units
270	Residential Planned Unit Development	244 dwelling units
---	Nursing Home	371 dwelling units
565	Day-Care Center	37,000 sq. ft.
831	Quality Restaurant	35,500 sq. ft.
832	High Turnover (Sit-Down) Restaurant	22,700 sq. ft.
833	Fast-food Restaurant without Drive-through Window	4,150 sq. ft.
834	Fast-food Restaurant with Drive-through Window	5,990 sq. ft.
863	Electronics Superstore	66,500 sq. ft.
862	Home Improvement Superstore	85,400 sq. ft.
---	Strip Mall	74,300 sq. ft.
816	Hardware/Paint Store	58,300 sq. ft.
850	Supermarket	27,200 sq. ft.
851	Convenience Market (Open 24 hours)	4,140 sq. ft.
853	Convenience Market with Gasoline Pumps	3,620 sq. ft.
844	Service Station	19 fueling positions
710	General Office Building	194,000 sq. ft.
750	Office Park	156,500 sq. ft.
720	Medical Office Building	75,300 sq. ft.
110	General Light Industrial	285,500 sq. ft.
130	Industrial Park	282,500 sq. ft.

* Institute of Transportation Engineers, *Trip Generation*, Fifth Edition, 1991, and 1995 Update, and Sixth Edition, 1997.

Analysis Year: 2008
Significance Threshold: 5 lbs/day

Code*	Land Use	Project Size That Will Exceed ROC or NOx Significance Threshold
210	Single Family Detached Housing	26 dwelling units
211	Low-Rise Apartment	21 dwelling units
230	Condominium/Townhouse, General	40 dwelling units
270	Residential Planned Unit Development	44 dwelling units
---	Nursing Home	74 dwelling units
565	Day-Care Center	7,400 sq. ft.
831	Quality Restaurant	5,950 sq. ft.
832	High Turnover (Sit-Down) Restaurant	4,520 sq. ft.
833	Fast-food Restaurant without Drive-through Window	830 sq. ft.
834	Fast-food Restaurant with Drive-through Window	1,200 sq. ft.
863	Electronics Superstore	13,250 sq. ft.
862	Home Improvement Superstore	22,000 sq. ft.
---	Strip Mall	14,850 sq. ft.
816	Hardware/Paint Store	11,650 sq. ft.
850	Supermarket	5,450 sq. ft.
851	Convenience Market (Open 24 hours)	830 sq. ft.
853	Convenience Market with Gasoline Pumps	725 sq. ft.
844	Service Station	4 fueling positions
710	General Office Building	24,400 sq. ft.
750	Office Park	13,500 sq. ft.
720	Medical Office Building	19,170 sq. ft.
110	General Light Industrial	60,700 sq. ft.
130	Industrial Park	11,400 sq. ft.

* Institute of Transportation Engineers, *Trip Generation*, Fifth Edition, 1991, and 1995 Update, and Sixth Edition, 1997.

APPENDIX F
PROJECT SCREEENING ANALYSIS TABLES

Analysis Year: 2009
Significance Threshold: 25 lbs/day

Code*	Land Use	Project Size That Will Exceed ROC or NOx Significance Threshold
210	Single Family Detached Housing	158 dwelling units
211	Low-Rise Apartment	224 dwelling units
230	Condominium/Townhouse, General	244 dwelling units
270	Residential Planned Unit Development	252 dwelling units
---	Nursing Home	377 dwelling units
565	Day-Care Center	40,150 sq. ft.
831	Quality Restaurant	38,850 sq. ft.
832	High Turnover (Sit-Down) Restaurant	24,600 sq. ft.
833	Fast-food Restaurant without Drive-through Window	4,510 sq. ft.
834	Fast-food Restaurant with Drive-through Window	6,510 sq. ft.
863	Electronics Superstore	71,900 sq. ft.
862	Home Improvement Superstore	92,050 sq. ft.
---	Strip Mall	80,560 sq. ft.
816	Hardware/Paint Store	63,250 sq. ft.
850	Supermarket	29,500 sq. ft.
851	Convenience Market (Open 24 hours)	4,500 sq. ft.
853	Convenience Market with Gasoline Pumps	3,930 sq. ft.
844	Service Station	20 fueling positions
710	General Office Building	214,700 sq. ft.
750	Office Park	172,600 sq. ft.
720	Medical Office Building	81,250 sq. ft.
110	General Light Industrial	309,600 sq. ft.
130	Industrial Park	320,600 sq. ft.

* Institute of Transportation Engineers, *Trip Generation*, Fifth Edition, 1991, and 1995 Update, and Sixth Edition, 1997.

Analysis Year: 2009
Significance Threshold: 5 lbs/day

Code*	Land Use	Project Size That Will Exceed ROC or NOx Significance Threshold
210	Single Family Detached Housing	28 dwelling units
211	Low-Rise Apartment	23 dwelling units
230	Condominium/Townhouse, General	43 dwelling units
270	Residential Planned Unit Development	46 dwelling units
---	Nursing Home	75 dwelling units
565	Day-Care Center	8,020 sq. ft.
831	Quality Restaurant	6,500 sq. ft.
832	High Turnover (Sit-Down) Restaurant	4,910 sq. ft.
833	Fast-food Restaurant without Drive-through Window	910 sq. ft.
834	Fast-food Restaurant with Drive-through Window	1,300 sq. ft.
863	Electronics Superstore	14,350 sq. ft.
862	Home Improvement Superstore	23,240 sq. ft.
---	Strip Mall	16,090 sq. ft.
816	Hardware/Paint Store	12,630 sq. ft.
850	Supermarket	5,900 sq. ft.
851	Convenience Market (Open 24 hours)	900 sq. ft.
853	Convenience Market with Gasoline Pumps	785 sq. ft.
844	Service Station	4 fueling positions
710	General Office Building	27,150 sq. ft.
750	Office Park	14,700 sq. ft.
720	Medical Office Building	20,400 sq. ft.
110	General Light Industrial	64,900 sq. ft.
130	Industrial Park	12,400 sq. ft.

* Institute of Transportation Engineers, *Trip Generation*, Fifth Edition, 1991, and 1995 Update, and Sixth Edition, 1997.

APPENDIX F
PROJECT SCREEENING ANALYSIS TABLES

Analysis Year: 2010
Significance Threshold: 25 lbs/day

Code*	Land Use	Project Size That Will Exceed ROC or NOx Significance Threshold
210	Single Family Detached Housing	173 dwelling units
211	Low-Rise Apartment	236 dwelling units
230	Condominium/Townhouse, General	255 dwelling units
270	Residential Planned Unit Development	262 dwelling units
---	Nursing Home	383 dwelling units
565	Day-Care Center	43,900 sq. ft.
831	Quality Restaurant	42,900 sq. ft.
832	High Turnover (Sit-Down) Restaurant	26,900 sq. ft.
833	Fast-food Restaurant without Drive-through Window	4,950 sq. ft.
834	Fast-food Restaurant with Drive-through Window	7,120 sq. ft.
863	Electronics Superstore	78,500 sq. ft.
862	Home Improvement Superstore	99,900 sq. ft.
---	Strip Mall	88,000 sq. ft.
816	Hardware/Paint Store	69,100 sq. ft.
850	Supermarket	32,250 sq. ft.
851	Convenience Market (Open 24 hours)	4,930 sq. ft.
853	Convenience Market with Gasoline Pumps	4,300 sq. ft.
844	Service Station	22 fueling positions
710	General Office Building	239,600 sq. ft.
750	Office Park	191,700 sq. ft.
720	Medical Office Building	88,300 sq. ft.
110	General Light Industrial	338,000 sq. ft.
130	Industrial Park	366,500 sq. ft.

* Institute of Transportation Engineers, *Trip Generation*, Fifth Edition, 1991, and 1995 Update, and Sixth Edition, 1997.

Analysis Year: 2010
Significance Threshold: 5 lbs/day

Code*	Land Use	Project Size That Will Exceed ROC or NOx Significance Threshold
210	Single Family Detached Housing	31 dwelling units
211	Low-Rise Apartment	25 dwelling units
230	Condominium/Townhouse, General	45 dwelling units
270	Residential Planned Unit Development	48 dwelling units
---	Nursing Home	76 dwelling units
565	Day-Care Center	8,770 sq. ft.
831	Quality Restaurant	7,200 sq. ft.
832	High Turnover (Sit-Down) Restaurant	5,370 sq. ft.
833	Fast-food Restaurant without Drive-through Window	990 sq. ft.
834	Fast-food Restaurant with Drive-through Window	1,430 sq. ft.
863	Electronics Superstore	15,700 sq. ft.
862	Home Improvement Superstore	24,820 sq. ft.
---	Strip Mall	17,600 sq. ft.
816	Hardware/Paint Store	13,800 sq. ft.
850	Supermarket	6,450 sq. ft.
851	Convenience Market (Open 24 hours)	990 sq. ft.
853	Convenience Market with Gasoline Pumps	860 sq. ft.
844	Service Station	5 fueling positions
710	General Office Building	30,400 sq. ft.
750	Office Park	16,100 sq. ft.
720	Medical Office Building	21,800 sq. ft.
110	General Light Industrial	70,000 sq. ft.
130	Industrial Park	13,600 sq. ft.

* Institute of Transportation Engineers, *Trip Generation*, Fifth Edition, 1991, and 1995 Update, and Sixth Edition, 1997.

APPENDIX F
PROJECT SCREEENING ANALYSIS TABLES

Analysis Year: 2015
Significance Threshold: 25 lbs/day

Code*	Land Use	Project Size That Will Exceed ROC or NOx Significance Threshold
210	Single Family Detached Housing	247 dwelling units
211	Low-Rise Apartment	294 dwelling units
230	Condominium/Townhouse, General	310 dwelling units
270	Residential Planned Unit Development	308 dwelling units
---	Nursing Home	410 dwelling units
565	Day-Care Center	71,500 sq. ft.
831	Quality Restaurant	73,700 sq. ft.
832	High Turnover (Sit-Down) Restaurant	44,000 sq. ft.
833	Fast-food Restaurant without Drive-through Window	8,150 sq. ft.
834	Fast-food Restaurant with Drive-through Window	11,700 sq. ft.
863	Electronics Superstore	126,700 sq. ft.
862	Home Improvement Superstore	156,800 sq. ft.
---	Strip Mall	141,600 sq. ft.
816	Hardware/Paint Store	111,800 sq. ft.
850	Supermarket	52,700sq. ft.
851	Convenience Market (Open 24 hours)	8,100 sq. ft.
853	Convenience Market with Gasoline Pumps	7,070 sq. ft.
844	Service Station	36 fueling positions
710	General Office Building	429,000 sq. ft.
750	Office Park	328,500 sq. ft.
720	Medical Office Building	140,100 sq. ft.
110	General Light Industrial	551,000 sq. ft.
130	Industrial Park	704,000 sq. ft.

* Institute of Transportation Engineers, *Trip Generation*, Fifth Edition, 1991, and 1995 Update, and Sixth Edition, 1997.

Analysis Year: 2015
Significance Threshold: 5 lbs/day

Code*	Land Use	Project Size That Will Exceed ROC or NOx Significance Threshold
210	Single Family Detached Housing	47 dwelling units
211	Low-Rise Apartment	40 dwelling units
230	Condominium/Townhouse, General	56 dwelling units
270	Residential Planned Unit Development	57 dwelling units
---	Nursing Home	81 dwelling units
565	Day-Care Center	14,300 sq. ft.
831	Quality Restaurant	12,400 sq. ft.
832	High Turnover (Sit-Down) Restaurant	8,780 sq. ft.
833	Fast-food Restaurant without Drive-through Window	1,650 sq. ft.
834	Fast-food Restaurant with Drive-through Window	2,340 sq. ft.
863	Electronics Superstore	25,300 sq. ft.
862	Home Improvement Superstore	36,100 sq. ft.
---	Strip Mall	28,300 sq. ft.
816	Hardware/Paint Store	22,350 sq. ft.
850	Supermarket	10,600 sq. ft.
851	Convenience Market (Open 24 hours)	1,620 sq. ft.
853	Convenience Market with Gasoline Pumps	1,420 sq. ft.
844	Service Station	8 fueling positions
710	General Office Building	55,800 sq. ft.
750	Office Park	37,200 sq. ft.
720	Medical Office Building	32,100 sq. ft.
110	General Light Industrial	106,600 sq. ft.
130	Industrial Park	22,500 sq. ft.

* Institute of Transportation Engineers, *Trip Generation*, Fifth Edition, 1991, and 1995 Update, and Sixth Edition, 1997.

APPENDIX F
PROJECT SCREEENING ANALYSIS TABLES

Analysis Year: 2020
Significance Threshold: 25 lbs/day

Code*	Land Use	Project Size That Will Exceed ROC or NOx Significance Threshold
210	Single Family Detached Housing	284 dwelling units
211	Low-Rise Apartment	331 dwelling units
230	Condominium/Townhouse, General	345 dwelling units
270	Residential Planned Unit Development	339 dwelling units
---	Nursing Home	428 dwelling units
565	Day-Care Center	103,200 sq. ft.
831	Quality Restaurant	110,500 sq. ft.
832	High Turnover (Sit-Down) Restaurant	63,770 sq. ft.
833	Fast-food Restaurant without Drive-through Window	11,850 sq. ft.
834	Fast-food Restaurant with Drive-through Window	17,100 sq. ft.
863	Electronics Superstore	181,000 sq. ft.
862	Home Improvement Superstore	220,500 sq. ft.
---	Strip Mall	202,000 sq. ft.
816	Hardware/Paint Store	160,200 sq. ft.
850	Supermarket	76, 300sq. ft.
851	Convenience Market (Open 24 hours)	11,820 sq. ft.
853	Convenience Market with Gasoline Pumps	10,320 sq. ft.
844	Service Station	52 fueling positions
710	General Office Building	644,000 sq. ft.
750	Office Park	475,000 sq. ft.
720	Medical Office Building	199,100 sq. ft.
110	General Light Industrial	798,000 sq. ft.
130	Industrial Park	1,099,000 sq. ft.

* Institute of Transportation Engineers, *Trip Generation*, Fifth Edition, 1991, and 1995 Update, and Sixth Edition, 1997.

Analysis Year: 2020
Significance Threshold: 5 lbs/day

Code*	Land Use	Project Size That Will Exceed ROC or NOx Significance Threshold
210	Single Family Detached Housing	54 dwelling units
211	Low-Rise Apartment	51 dwelling units
230	Condominium/Townhouse, General	64 dwelling units
270	Residential Planned Unit Development	64 dwelling units
---	Nursing Home	85 dwelling units
565	Day-Care Center	20,600 sq. ft.
831	Quality Restaurant	18,600 sq. ft.
832	High Turnover (Sit-Down) Restaurant	12,750 sq. ft.
833	Fast-food Restaurant without Drive-through Window	2,370 sq. ft.
834	Fast-food Restaurant with Drive-through Window	3,410 sq. ft.
863	Electronics Superstore	36,200 sq. ft.
862	Home Improvement Superstore	48,700 sq. ft.
---	Strip Mall	40,300 sq. ft.
816	Hardware/Paint Store	32,000 sq. ft.
850	Supermarket	15,220 sq. ft.
851	Convenience Market (Open 24 hours)	2,360 sq. ft.
853	Convenience Market with Gasoline Pumps	2,060 sq. ft.
844	Service Station	11 fueling positions
710	General Office Building	86,200 sq. ft.
750	Office Park	67,700 sq. ft.
720	Medical Office Building	43,800 sq. ft.
110	General Light Industrial	149,500 sq. ft.
130	Industrial Park	65,400 sq. ft.

* Institute of Transportation Engineers, *Trip Generation*, Fifth Edition, 1991, and 1995 Update, and Sixth Edition, 1997.

APPENDIX F
PROJECT SCREEENING ANALYSIS TABLES

Analysis Year: 2025
Significance Threshold: 25 lbs/day

Code*	Land Use	Project Size That Will Exceed ROC or NOx Significance Threshold
210	Single Family Detached Housing	322 dwelling units
211	Low-Rise Apartment	367 dwelling units
230	Condominium/Townhouse, General	378 dwelling units
270	Residential Planned Unit Development	369 dwelling units
---	Nursing Home	445 dwelling units
565	Day-Care Center	150,000 sq. ft.
831	Quality Restaurant	166,600 sq. ft.
832	High Turnover (Sit-Down) Restaurant	93,400 sq. ft.
833	Fast-food Restaurant without Drive-through Window	17,520 sq. ft.
834	Fast-food Restaurant with Drive-through Window	25,200 sq. ft.
863	Electronics Superstore	259,400 sq. ft.
862	Home Improvement Superstore	311,400 sq. ft.
---	Strip Mall	288,200 sq. ft.
816	Hardware/Paint Store	230,400 sq. ft.
850	Supermarket	111,400 sq. ft.
851	Convenience Market (Open 24 hours)	17,500 sq. ft.
853	Convenience Market with Gasoline Pumps	15,260 sq. ft.
844	Service Station	77 fueling positions
710	General Office Building	944,500 sq. ft.
750	Office Park	677,000 sq. ft.
720	Medical Office Building	285,500 sq. ft.
110	General Light Industrial	1,180,000 sq. ft.
130	Industrial Park	1,705,000 sq. ft.

* Institute of Transportation Engineers, *Trip Generation*, Fifth Edition, 1991, and 1995 Update, and Sixth Edition, 1997.

Analysis Year: 2025
Significance Threshold: 5 lbs/day

Code*	Land Use	Project Size That Will Exceed ROC or NOx Significance Threshold
210	Single Family Detached Housing	62 dwelling units
211	Low-Rise Apartment	61 dwelling units
230	Condominium/Townhouse, General	71 dwelling units
270	Residential Planned Unit Development	70 dwelling units
---	Nursing Home	88 dwelling units
565	Day-Care Center	30,000 sq. ft.
831	Quality Restaurant	28,200 sq. ft.
832	High Turnover (Sit-Down) Restaurant	18,640 sq. ft.
833	Fast-food Restaurant without Drive-through Window	3,500 sq. ft.
834	Fast-food Restaurant with Drive-through Window	5,040 sq. ft.
863	Electronics Superstore	51,800 sq. ft.
862	Home Improvement Superstore	66,700 sq. ft.
---	Strip Mall	57,600 sq. ft.
816	Hardware/Paint Store	46,000 sq. ft.
850	Supermarket	22,250 sq. ft.
851	Convenience Market (Open 24 hours)	3,490 sq. ft.
853	Convenience Market with Gasoline Pumps	3,050 sq. ft.
844	Service Station	16 fueling positions
710	General Office Building	131,500 sq. ft.
750	Office Park	110,000 sq. ft.
720	Medical Office Building	61,000 sq. ft.
110	General Light Industrial	215,500 sq. ft.
130	Industrial Park	170,100 sq. ft.

* Institute of Transportation Engineers, *Trip Generation*, Fifth Edition, 1991, and 1995 Update, and Sixth Edition, 1997.

APPENDIX F
PROJECT SCREEENING ANALYSIS TABLES

Analysis Year: 2030
Significance Threshold: 25 lbs/day

Code*	Land Use	Project Size That Will Exceed ROC or NOx Significance Threshold
210	Single Family Detached Housing	343 dwelling units
211	Low-Rise Apartment	386 dwelling units
230	Condominium/Townhouse, General	397 dwelling units
270	Residential Planned Unit Development	388 dwelling units
---	Nursing Home	457 dwelling units
565	Day-Care Center	193,100 sq. ft.
831	Quality Restaurant	219,700 sq. ft.
832	High Turnover (Sit-Down) Restaurant	121,100 sq. ft.
833	Fast-food Restaurant without Drive-through Window	23,000 sq. ft.
834	Fast-food Restaurant with Drive-through Window	33,000 sq. ft.
863	Electronics Superstore	329,700 sq. ft.
862	Home Improvement Superstore	392,000 sq. ft.
---	Strip Mall	365,000 sq. ft.
816	Hardware/Paint Store	293,800 sq. ft.
850	Supermarket	144,000 sq. ft.
851	Convenience Market (Open 24 hours)	22,900 sq. ft.
853	Convenience Market with Gasoline Pumps	20,000 sq. ft.
844	Service Station	101 fueling positions
710	General Office Building	1,193,000 sq. ft.
750	Office Park	850,000 sq. ft.
720	Medical Office Building	364,500 sq. ft.
110	General Light Industrial	1,547,000 sq. ft.
130	Industrial Park	2,290,000 sq. ft.

* Institute of Transportation Engineers, *Trip Generation*, Fifth Edition, 1991, and 1995 Update, and Sixth Edition, 1997.

Analysis Year: 2030
Significance Threshold: 5 lbs/day

Code*	Land Use	Project Size That Will Exceed ROC or NOx Significance Threshold
210	Single Family Detached Housing	66 dwelling units
211	Low-Rise Apartment	66 dwelling units
230	Condominium/Townhouse, General	75 dwelling units
270	Residential Planned Unit Development	74 dwelling units
---	Nursing Home	90 dwelling units
565	Day-Care Center	38,600 sq. ft.
831	Quality Restaurant	37,300 sq. ft.
832	High Turnover (Sit-Down) Restaurant	24,200 sq. ft.
833	Fast-food Restaurant without Drive-through Window	4,580 sq. ft.
834	Fast-food Restaurant with Drive-through Window	6,600 sq. ft.
863	Electronics Superstore	65,900 sq. ft.
862	Home Improvement Superstore	82,600 sq. ft.
---	Strip Mall	72,900 sq. ft.
816	Hardware/Paint Store	58,700 sq. ft.
850	Supermarket	28,800 sq. ft.
851	Convenience Market (Open 24 hours)	4,600 sq. ft.
853	Convenience Market with Gasoline Pumps	3,990 sq. ft.
844	Service Station	21 fueling positions
710	General Office Building	172,000 sq. ft.
750	Office Park	146,000 sq. ft.
720	Medical Office Building	76,600 sq. ft.
110	General Light Industrial	279,000 sq. ft.
130	Industrial Park	271,500 sq. ft.

* Institute of Transportation Engineers, *Trip Generation*, Fifth Edition, 1991, and 1995 Update, and Sixth Edition, 1997.

APPENDIX F
PROJECT SCREEENING ANALYSIS TABLES

Analysis Year: 2035
Significance Threshold: 25 lbs/day

Code*	Land Use	Project Size That Will Exceed ROC or NOx Significance Threshold
210	Single Family Detached Housing	351 dwelling units
211	Low-Rise Apartment	395 dwelling units
230	Condominium/Townhouse, General	405 dwelling units
270	Residential Planned Unit Development	399 dwelling units
---	Nursing Home	465 dwelling units
565	Day-Care Center	226,700 sq. ft.
831	Quality Restaurant	261,600 sq. ft.
832	High Turnover (Sit-Down) Restaurant	142,900 sq. ft.
833	Fast-food Restaurant without Drive-through Window	27,300 sq. ft.
834	Fast-food Restaurant with Drive-through Window	39,200 sq. ft.
863	Electronics Superstore	383,100 sq. ft.
862	Home Improvement Superstore	452,800 sq. ft.
---	Strip Mall	423,200 sq. ft.
816	Hardware/Paint Store	342,300 sq. ft.
850	Supermarket	169,600 sq. ft.
851	Convenience Market (Open 24 hours)	27,200 sq. ft.
853	Convenience Market with Gasoline Pumps	23,800 sq. ft.
844	Service Station	121 fueling positions
710	General Office Building	1,369,000 sq. ft.
750	Office Park	976,000 sq. ft.
720	Medical Office Building	425,200 sq. ft.
110	General Light Industrial	1,844,500 sq. ft.
130	Industrial Park	2,565,000 sq. ft.

* Institute of Transportation Engineers, *Trip Generation*, Fifth Edition, 1991, and 1995 Update, and Sixth Edition, 1997.

Analysis Year: 2035
Significance Threshold: 5 lbs/day

Code*	Land Use	Project Size That Will Exceed ROC or NOx Significance Threshold
210	Single Family Detached Housing	68 dwelling units
211	Low-Rise Apartment	68 dwelling units
230	Condominium/Townhouse, General	77 dwelling units
270	Residential Planned Unit Development	77 dwelling units
---	Nursing Home	92 dwelling units
565	Day-Care Center	45,300 sq. ft.
831	Quality Restaurant	44,500 sq. ft.
832	High Turnover (Sit-Down) Restaurant	28,600 sq. ft.
833	Fast-food Restaurant without Drive-through Window	5,440 sq. ft.
834	Fast-food Restaurant with Drive-through Window	7,820 sq. ft.
863	Electronics Superstore	76,500 sq. ft.
862	Home Improvement Superstore	94,700 sq. ft.
---	Strip Mall	84,500 sq. ft.
816	Hardware/Paint Store	68,400 sq. ft.
850	Supermarket	33,900 sq. ft.
851	Convenience Market (Open 24 hours)	5,420 sq. ft.
853	Convenience Market with Gasoline Pumps	4,740 sq. ft.
844	Service Station	24 fueling positions
710	General Office Building	201,700 sq. ft.
750	Office Park	172,000 sq. ft.
720	Medical Office Building	88,600 sq. ft.
110	General Light Industrial	330,500 sq. ft.
130	Industrial Park	353,000 sq. ft.

* Institute of Transportation Engineers, *Trip Generation*, Fifth Edition, 1991, and 1995 Update, and Sixth Edition, 1997.

APPENDIX F
PROJECT SCREEENING ANALYSIS TABLES

Analysis Year: 2040
Significance Threshold: 25 lbs/day

Code*	Land Use	Project Size That Will Exceed ROC or NOx Significance Threshold
210	Single Family Detached Housing	351 dwelling units
211	Low-Rise Apartment	395 dwelling units
230	Condominium/Townhouse, General	406 dwelling units
270	Residential Planned Unit Development	401 dwelling units
---	Nursing Home	467 dwelling units
565	Day-Care Center	250,600 sq. ft.
831	Quality Restaurant	291,500 sq. ft.
832	High Turnover (Sit-Down) Restaurant	158,500 sq. ft.
833	Fast-food Restaurant without Drive-through Window	29,400 sq. ft.
834	Fast-food Restaurant with Drive-through Window	42,400 sq. ft.
863	Electronics Superstore	420,500 sq. ft.
862	Home Improvement Superstore	494,900 sq. ft.
---	Strip Mall	463,700 sq. ft.
816	Hardware/Paint Store	376,500 sq. ft.
850	Supermarket	190,000 sq. ft.
851	Convenience Market (Open 24 hours)	29,150 sq. ft.
853	Convenience Market with Gasoline Pumps	25,450 sq. ft.
844	Service Station	127 fueling positions
710	General Office Building	1,483,400 sq. ft.
750	Office Park	1,061,000 sq. ft.
720	Medical Office Building	468,500 sq. ft.
110	General Light Industrial	1,877,000 sq. ft.
130	Industrial Park	2,630,000 sq. ft.

* Institute of Transportation Engineers, *Trip Generation*, Fifth Edition, 1991, and 1995 Update, and Sixth Edition, 1997.

Analysis Year: 2040
Significance Threshold: 5 lbs/day

Code*	Land Use	Project Size That Will Exceed ROC or NOx Significance Threshold
210	Single Family Detached Housing	68 dwelling units
211	Low-Rise Apartment	68 dwelling units
230	Condominium/Townhouse, General	77 dwelling units
270	Residential Planned Unit Development	77 dwelling units
---	Nursing Home	93 dwelling units
565	Day-Care Center	50,100 sq. ft.
831	Quality Restaurant	49,700 sq. ft.
832	High Turnover (Sit-Down) Restaurant	31,500 sq. ft.
833	Fast-food Restaurant without Drive-through Window	5,800 sq. ft.
834	Fast-food Restaurant with Drive-through Window	8,350 sq. ft.
863	Electronics Superstore	84,100 sq. ft.
862	Home Improvement Superstore	103,000 sq. ft.
---	Strip Mall	92,600 sq. ft.
816	Hardware/Paint Store	75,200 sq. ft.
850	Supermarket	37,500 sq. ft.
851	Convenience Market (Open 24 hours)	5,750 sq. ft.
853	Convenience Market with Gasoline Pumps	5,290 sq. ft.
844	Service Station	27 fueling positions
710	General Office Building	288,500 sq. ft.
750	Office Park	189,500 sq. ft.
720	Medical Office Building	97,200 sq. ft.
110	General Light Industrial	368,000 sq. ft.
130	Industrial Park	414,000 sq. ft.

* Institute of Transportation Engineers, *Trip Generation*, Fifth Edition, 1991, and 1995 Update, and Sixth Edition, 1997.