



San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT



FINAL DRAFT

**Guidance for
Assessing and Mitigating
Air Quality Impacts**

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Contributors

The following staff of the San Joaquin Valley Air Pollution Control District contributed to various aspects of developing this document.

Document Prepared by:

Arnaud Marjollet – Permit Services Director
Mark Montelongo – Senior Air Quality Specialist
Patia Siong – Supervising Air Quality Specialist
Chay Thao – Program Manager
David Warner – Deputy Air Pollution Control Officer

Technical Contributions by:

Glenn Reed – Senior Air Quality Specialist
Leland Villalvazo – Supervising Air Quality Specialist
Jessica Willis – Air Quality Specialist
Sharla Yang – Air Quality Specialist

Other Contributions:

Annette Ballatore-Williamson – District Counsel
Jessica Hafer Fierro – Assistant Counsel
David Lighthall, Ph.D. – Health Science Advisor
Jerry Sandhu – Senior Air Quality Engineer
Georgia Stewart – Air Quality Specialist
Johnathan Yoshimura – Air Quality Engineer



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LIST OF ACRONYMS AND ABBREVIATIONS

ACM	Asbestos Containing Material
ADT	Average Daily Trips
APCD	San Joaquin Valley Air Pollution Control District
APS	Auxiliary Power System
ARB	California Air Resources Board
ATCM	Air Toxics Control Measure
BACT	Best Available Control Technology for Construction Equipment
CAAA	1990 Clean Air Act Amendments
CAAQS	California Ambient Air Quality Standards
CAMP	Construction Activity Management Plan
CAP	Clean Air Plan for San Luis Obispo County
CAPCOA	California Air Pollution Control officers Associations
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CNG	Compressed Natural Gas
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
DEIR	Draft Environmental Impact Report
DOC	Diesel Oxidation Catalyst
DPM	Diesel Particulate Matter
EIR	Environmental Impact Report
EPA	United States Environmental Protection Agency
GAMAQI	Guidance for Assessing and Mitigating Air Quality Impacts
GHG	Greenhouse Gases
HRA	Health Risk Assessment
ISR	Indirect Source Review
ITE	Institute of Transportation Engineers
LNG	Liquid Natural Gas
µ/m ³	Micrograms per Cubic Meter
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standard for Hazardous Air Pollutants
NO	Nitrogen Oxide
NOA	Naturally Occurring Asbestos
NOP	Notice of Preparation
NO _x	Oxides of Nitrogen
PM	Particulate Matter
PM _{2.5}	Particulate Matter (2.5µm and smaller)
PM ₁₀	Particulate Matter (10µm in size and smaller)
ROG	Reactive Organic Gases
SJVAPCD	San Joaquin Valley Air Pollution Control District
tpy	Tons per Year
TAC	Toxic Air Contaminant
Mm	Micrometer [micron]
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compounds



GLOSSARY

Area Sources: A collection of similar emission units within a geographic area (i.e., a County) that are small and numerous and may not have been inventoried as specific point, mobile, or biogenic sources. The California Air Resources Board (CARB) has grouped these individual sources with other like sources into area source categories. These source categories are grouped in such a way that they can be estimated collectively using one methodology.

Area-Wide Sources: Sources of pollution where the emissions are spread over a wide area, such as consumer products, fireplaces, road dust and farming operations. Area-wide sources do not include mobile sources or stationary sources.

Climate Change: Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to greenhouse gases (GHGs), particularly those generated from the human production and use of fossil fuels.

Commenting Agency: See "Trustee Agency".

Criteria Pollutant: The EPA has identified ozone, particulate matter, carbon monoxide, nitrogen oxides, sulfur oxides, and lead as criteria pollutants. The EPA calls these pollutants "criteria" air pollutants because it regulates them by developing human health-based and/or environmentally-based guidelines (criteria) for setting permissible levels.

Cumulative Impacts: Refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. (a) The individual effects may be changes resulting from a single project or a number of separate projects. (b) 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.

Development Project: Refers generally to a land use development project such as a residential project, a commercial project, an industrial project, or a transportation project.

Discretionary Approval: A governmental decision in which an agency can use its judgment in deciding whether and how to carry out or approve a project.

Discretionary Project: A project which requires the exercise of judgment or deliberation when the public agency or body decides to approve or disapprove a particular activity, as distinguished from situations where the public agency or body merely has to determine whether there has been conformity with applicable statutes, ordinances, or regulations.



Effects: Direct or primary environmental changes that are caused by the project and occur at the same time and place, and indirect or secondary environmental changes that are caused by the project and are later in time or farther removed in distance, but are still reasonably foreseeable.

Fugitive Dust: Small particles which are entrained and suspended into the air by the wind or external disturbances. Fugitive dust typically originates over an area and not a specific point. Typical sources include unpaved or paved roads, construction sites, mining operations, disturbed soil and tilled agricultural areas.

Hazardous Air Pollutants (HAPs): HAPs are those pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects, or birth defects, or adverse environmental effects. The EPA, in the Clean Air Act lists 189 HAPs.

Impacts: See “Effects”.

Lead Agency: The public agency with the principal responsibility for carrying out or approving a project subject to CEQA.

Ministerial Approval: A governmental decision involving little or no personal judgment by the public official as to the wisdom or manner of carrying out the project. The public official merely applies the law to the facts as presented but uses no special discretion or judgment in reaching a decision.

Mitigation: Feasible alternatives or measures that would substantially lessen any significant effects that the project would have on the environment. Mitigation measures must be fully enforceable through permit conditions, agreements, or other legally binding instruments [CCR §15126.4(a)(2)]. Mitigation includes:

- 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; and
- Compensating for the impact by replacing or providing substitute resources or environments.

Mobile Sources: Sources of air pollution such as automobiles, motorcycles, trucks, off-road vehicles, boats, and airplanes. (See also stationary sources).

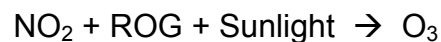
Offsets: Emission reductions recognized by the District in the form of Emission Reduction Credits that are used in accordance with the provisions of District Rule 2301 (Emission



Reduction Credit Banking), or other actual emission reductions that may be used to mitigate an emission increase.

See District Rule 2301 at
www.valleyair.org/rules/1ruleslist.htm

Ozone Precursors: Gaseous compounds needed to form ozone by the process of photochemistry. Photochemical air pollution (primarily ozone) is produced by the atmospheric reaction of organic substances, such as reactive organic gases (ROG) and nitrogen dioxide (NO₂) under the influence of sunlight.



During the summer, in areas with high emissions and high ozone concentrations, ozone concentrations are very dependent on the amount of solar radiation. Ozone levels typically peak in the late afternoon, at the end of the longest period of daily solar radiation. After the sun goes down, the chemical reaction between nitrous oxide and ozone begins to dominate and ozone usually decreases.



In some remote rural locations away from emission sources, ozone concentrations can remain high overnight because there are no nitrogen oxide (NO) sources to react with the existing ozone. Ozone precursors are typically considered to be the combination of ROG and NO_x.

Particulate Matter: Small particles that become airborne and have the potential to cause adverse health impacts. There are three general size components: 1) PM or Total Suspended Particulate (TSP) which includes all airborne particles regardless of size or source; 2) PM₁₀ which includes airborne particles 10µm [micrometers] in size and smaller; and 3) PM_{2.5} or fine airborne particles 2.5µm [micrometers] and smaller.

Project: The whole of an action, which has a potential for resulting in 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:

- (1) An activity directly undertaken by any public agency including but not limited to public works construction and related activities clearing or grading of land, improvements to existing public structures, enactment and amendment of zoning ordinances, and the adoption and amendment of local General Plans or elements thereof pursuant to Government Code Sections 65100–65700.
- (2) An activity undertaken by a person which is supported in whole or in part through public agency contacts, grants, subsidies, loans, or other forms of assistance from one or more public agencies.
- (3) An activity involving the issuance to a person of a lease, permit, license, certificate, or other entitlement for use by one or more public agencies.



Responsible Agency: A public agency, other than the Lead Agency, that has responsibility for carrying out or approving a project subject to CEQA.

Sensitive Receptors: People that have an increased sensitivity to air pollution or environmental contaminants. Sensitive receptor locations include schools, parks and playgrounds, day care centers, nursing homes, hospitals, and residential dwelling unit(s). The location of sensitive receptors is needed to assess toxic impacts on public health.

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.

Stationary Sources: Non-mobile sources such as power plants, refineries, and manufacturing facilities which emit air pollutants. (See also Mobile Sources).

Threshold of Significance: An identifiable quantitative, qualitative or performance level of a particular environmental effect. Non-compliance with a threshold of significance means the effect will normally be determined to be significant by the Lead Agency. Compliance with a threshold of significance means the effect normally will be determined to be less than significant (CCR §15064.7).

Toxic Air Contaminants (TACs): Toxic pollutants in California are identified as toxic air contaminants (TACs) and are listed in the AB2588 Air Toxic “Hot Spots” and Assessment Act’s “Emissions Inventory Criteria and Guideline Regulation“. A subset of these pollutants has been listed by the Office of Environmental Health Hazard Assessment (OEHHA) as having acute, chronic, and/or carcinogenic effects, as defined by California Health and Safety Code (CH&SC) §39655. Toxic pollutants used for modeling should not be confused with the 189 Hazardous Air Pollutants (HAP) listed by EPA in the Clean Air Act. The California TAC list has ~700 plus pollutants listed.

Trustee Agency: An agency that has “jurisdiction by law” over a particular natural resource, but does not have discretionary approval power over a project subject to CEQA.



CHAPTER 1

INTRODUCTION



1.1 Purpose of this Guide

The California Environmental Quality Act (CEQA) requires environmental impacts of a proposed project be identified, assessed, and avoided or mitigated as feasible, if these impacts are significant. This document, *Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI)*, provides technical guidance for the review of air quality impacts from proposed projects within the boundaries of the San Joaquin Valley Unified Air Pollution Control District (District). The guide provides District staff uniform procedures for assessing potential air quality impacts of proposed projects and for preparing the air quality section of environmental documents. The guide is intended to be a user friendly advisory document for use by other agencies, consultants, and project proponents.



1.2 Using This Guide

One purpose of CEQA is to publicly disclose all environmental effects of a project, so the public is informed, and decision-makers make decisions based on a thorough understanding of a project's impacts. Information such as environmental setting, existing air quality conditions, regulatory setting, etc. is important in fulfilling this "spirit" of CEQA. The public deserves to understand the air quality implications of all projects approved in this air basin. This guide presents information which is not subject to frequent revision, such as general guidance for assessing and mitigating project-related impacts on air quality, information on air quality conditions within the San Joaquin Valley Air Basin, District attainment status, and District recommended procedures relating to CEQA.

The structure of this document has been established according to the logical process steps to be addressed when preparing a project-specific environmental document and the information provided in this document can be used as narrative by a third party when preparing an environmental review document.

Information which is subject to more frequent revision, such as methodologies and models to assess project-related impacts on air quality, is contained in separate technical guidance documents available on the District's website at www.valleyair.org/transportation/ceqa_guidance_documents.htm



The District will prepare additional technical guidance and update existing documents as approaches and methodologies for characterizing project-related impacts on air quality become available. Users of this Guide are responsible for ensuring that they are using the most current technical guides when preparing environmental assessments. Technical guides and resources are available on the District's website at www.valleyair.org/ceqa or can be obtained by contacting the District's Central Region office at:

Phone: (559) 230-6000

e-mail: CEQA: ceqa@valleyair.org

Modeling: hramodeler@valleyair.org

Mail: San Joaquin Valley Air Pollution Control District
1990 E. Gettysburg Avenue
Fresno, CA 93726



CHAPTER 2

SAN JOAQUIN VALLEY AIR BASIN



2.1 Introduction

The San Joaquin Valley Air Basin (SJVAB) consists of eight counties: Fresno, Kern (western and central), Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare (*Figure 1 – San Joaquin Valley Air Pollution Control District Boundaries*). Cumulatively, these counties represent approximately 16 percent of California’s geographic area, making the SJVAB the second largest air quality basin (based on area) as delineated by the California Air Resources Board (ARB). Air pollution in the SJVAB can be attributed to both human-related (anthropogenic) and natural (non-anthropogenic) activities that produce emissions. Air pollution from significant anthropogenic activities in the SJVAB includes a variety of industrial-based sources as well as on- and off-road mobile sources. Activities that tend to increase mobile activity include increases in population, increases in general traffic activity (including automobiles, trucks, aircraft, and rail), urban sprawl (which will increase commuter driving distances), and general local land management practices as they pertain to modes of commuter transportation. These sources, coupled with geographical and meteorological conditions unique to the area, stimulate the formation of unhealthy air.

Figure 1: San Joaquin Valley Air Pollution Control District Boundaries



The San Joaquin Valley’s (SJV) topography and meteorology provide ideal conditions for trapping air pollution for long periods of time and producing harmful levels of air pollutants, including ozone and particulate matter. Low precipitation levels, cloudless days, high temperatures, and light winds during the summer in the SJV are conducive to high ozone levels resulting from the photochemical reaction of nitrogen oxides (NO_x) and volatile organic compounds (VOC). Inversion layers in the atmosphere during the winter can trap emissions of directly emitted PM_{2.5} (particulate matter that is 2.5 microns or less in diameter) and PM_{2.5} precursors (such as NO_x and sulfur dioxide (SO₂)) within the SJV for several days, accumulating to unhealthy levels.

The region also houses the State’s major arteries for goods and people movement, I-5 to the west and CA Highway 99 through the Central Valley (Valley), thereby attracting a large volume of vehicular traffic. Another compounding factor is the region’s historically high rate of population growth compared to other regions of California. Increased population



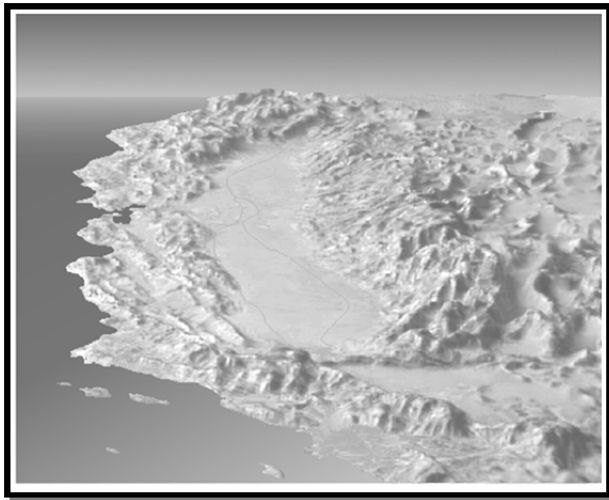
typically results in an even greater increase in vehicle activity and more consumer product use, leading to increased emissions of air pollution, including NO_x. In fact, mobile sources account for about 80% of the Valley's total NO_x emissions inventory. Since NO_x is a significant precursor for both ozone and PM_{2.5}, reducing NO_x from mobile sources is critical for progressing the Valley towards attainment of ozone and PM_{2.5} standards.

The geography of mountainous areas to the east, west and south, in combination with long summers and relatively short winters, contributes to local climate episodes that prevent the dispersion of pollutants. Transport, as affected by wind flows and inversions, also plays a role in the creation of air pollution.

2.2 Topography

The climate of the SJV is modified by topography. This creates climatic conditions that are particularly conducive to air pollution formation. Figure 2 (*Aerial View of the San Joaquin Valley Air Basin*) provides an aerial view of the SJV illustrating its bowl shape. As shown, the SJV is surrounded by mountains on three sides and open to the Sacramento Valley and the San Francisco Bay Area to the north.

Figure 2: *Aerial View of the San Joaquin Valley Air Basin*



The SJVAB is the southern half of California's Central Valley and is approximately 250 miles long and averages 35 miles wide. The SJV is bordered by the Sierra Nevada Mountains in the east (8,000 to 14,491 feet in elevation), the Coast Ranges in the west (averaging 3,000 feet in elevation), and the Tehachapi mountains in the south (6,000 to 7,981 feet in elevation). There is a slight downward elevation gradient from Bakersfield in the southeast end (elevation 408 feet) to sea level at the northwest end where the valley opens to the San Francisco Bay at the Carquinez

Straits. At its northern end is the Sacramento Valley, which comprises the northern half of California's Central Valley. The bowl shaped topography inhibits movement of pollutants out of the valley.



2.3 Climate

The SJV is in a Mediterranean Climate Zone. Mediterranean Climate Zones occur on the west coast of continents at 30 to 40 degrees latitude and are influenced by a subtropical high-pressure cell most of the year. Mediterranean Climates are characterized by sparse rainfall, which occurs mainly in winter. Summers are hot and dry. Summertime maximum temperatures often exceed 100 degrees F in the Valley.



The subtropical high-pressure cell is strongest during spring, summer and fall and produces subsiding air, which can result in temperature inversions in the Valley. A temperature inversion can act like a lid, inhibiting vertical mixing of the air mass at the surface. Any emissions of pollutants can be trapped below the inversion. Most of the surrounding mountains are above the normal height of summer inversions (1,500-3,000 feet).

Winter-time high pressure events can often last many weeks with surface temperatures often lowering into the thirties degree Fahrenheit. During these events, fog can be present and inversions are extremely strong. These wintertime inversions can inhibit vertical mixing of pollutants to a few hundred feet.

2.4 Wind Patterns

Wind speed and direction play an important role in dispersion and transport of air pollutants. Wind at the surface and aloft can disperse pollution by mixing and by transporting the pollution to other locations.



Especially in summer, winds in the Valley most frequently blow from the northwesterly direction. The region's topographic features restrict air movement and channel the air mass towards the southeastern end of the Valley. Marine air can flow into the basin from the San Joaquin River Delta and over Altamont Pass and Pacheco Pass, where it can flow along the axis of the valley, over the Tehachapi pass, into the Southeast Desert Air Basin. The Coastal Range is a barrier to air movement to the west and the high Sierra Nevada range is a significant barrier to the east (the highest peaks in the southern Sierra Nevada reach



almost halfway through the Earth's atmosphere). Many days in the winter are marked by stagnation events where winds are very weak. Transport of pollutants during winter can be very limited. A secondary but significant summer wind pattern is from the southeasterly direction and can be associated with nighttime drainage winds, prefrontal conditions and summer monsoons.

Two significant diurnal wind cycles that occur frequently in the Valley are the sea breeze and mountain-valley upslope and drainage flows. The sea breeze can accentuate the northwest wind flow, especially on summer afternoons. Nighttime drainage flows can accentuate the southeast movement of air down the valley. In the mountains during periods of weak synoptic scale winds, winds tend to be upslope during the day and downslope at night. Nighttime and drainage flows are especially pronounced during the winter when flow from the easterly direction is enhanced by nighttime cooling in the Sierra Nevada. Eddies can form in the valley wind flow and can re-circulate a polluted air mass for an extended period. Such an eddy occurs in the Fresno area during both winter and summer.

2.5 Temperature, Sunlight and Ozone Production

Solar radiation and temperature are particularly important in the chemistry of ozone formation. The SJVAB averages over 260 sunny days per year. Photochemical air pollution (primarily ozone) is produced by the atmospheric reaction of organic substances (such as volatile organic compounds) and nitrogen dioxide under the influence of sunlight. Ozone concentrations are very dependent on the amount of solar radiation, especially during late spring, summer and early fall. Ozone levels typically peak in the afternoon. After the sun goes down, the chemical reaction between nitrous oxide and ozone begins to dominate. This reaction tends to scavenge the ozone in the metropolitan areas through the early morning hours, resulting in the lowest ozone levels, possibly reaching zero at sunrise in areas with high nitrogen oxides emissions. At sunrise, nitrogen oxides tend to peak, partly due to low levels of ozone at this time and also due to the morning commuter vehicle emissions of nitrogen oxides.

Generally, the higher the temperature, the more ozone formed, since reaction rates increase with temperature. However, extremely hot temperatures can “lift” or “break” the inversion layer. Typically, if the inversion layer doesn’t lift to allow the buildup of contaminants to be dispersed, the ozone levels will peak in the late afternoon. If the inversion layer breaks and the resultant afternoon winds occur, the ozone will peak in the early afternoon and decrease in the late afternoon as the contaminants are dispersed or transported out of the SJVAB.

Ozone levels are low during winter periods when there is much less sunlight to drive the photochemical reaction.



2.6 Temperature Inversions

The vertical dispersion of air pollutants in the SJV can be limited by persistent temperature inversions. Air temperature in the lowest layer of the atmosphere typically decreases with altitude. A reversal of this atmospheric state, where the air temperature increases with height, is termed an inversion. The height of the base of the inversion is known as the “mixing height”. This is the level to which pollutants can mix vertically. Mixing of air is minimized above and below the inversion base. The inversion base represents an abrupt density change where little air movement occurs.

Inversion layers are significant in determining pollutant concentrations. Concentration levels can be related to the amount of mixing space below the inversion. Temperature inversions that occur on the summer days are usually encountered 2,000 to 2,500 feet above the valley floor. In winter months, overnight inversions occur 500 to 1,500 feet above the valley floor.

2.7 Precipitation, Humidity and Fog

Precipitation and fog may reduce or limit some pollutant concentrations. Ozone needs sunlight for its formation, and clouds and fog can block the required solar radiation.

Wet fogs can cleanse the air during winter as moisture collects on particles and deposits them on the ground. Atmospheric moisture can also increase pollution levels. In fogs with less water content, the moisture acts to form secondary ammonium nitrate particulate matter. This ammonium nitrate is part of the Valleys PM_{2.5} and PM₁₀ problem.



The winds and unstable air conditions experienced during the passage of winter storms result in periods of low pollutant concentrations and excellent visibility. Between winter storms, high pressure and light winds allow cold moist air to pool on the SJV floor. This creates strong low-level temperature inversions and very stable air conditions, which can lead to Tule fog. Wintertime conditions favorable to fog formation are also conditions favorable to high concentrations of PM_{2.5} and PM₁₀.

2.8 Ambient Air Quality Monitoring Sites

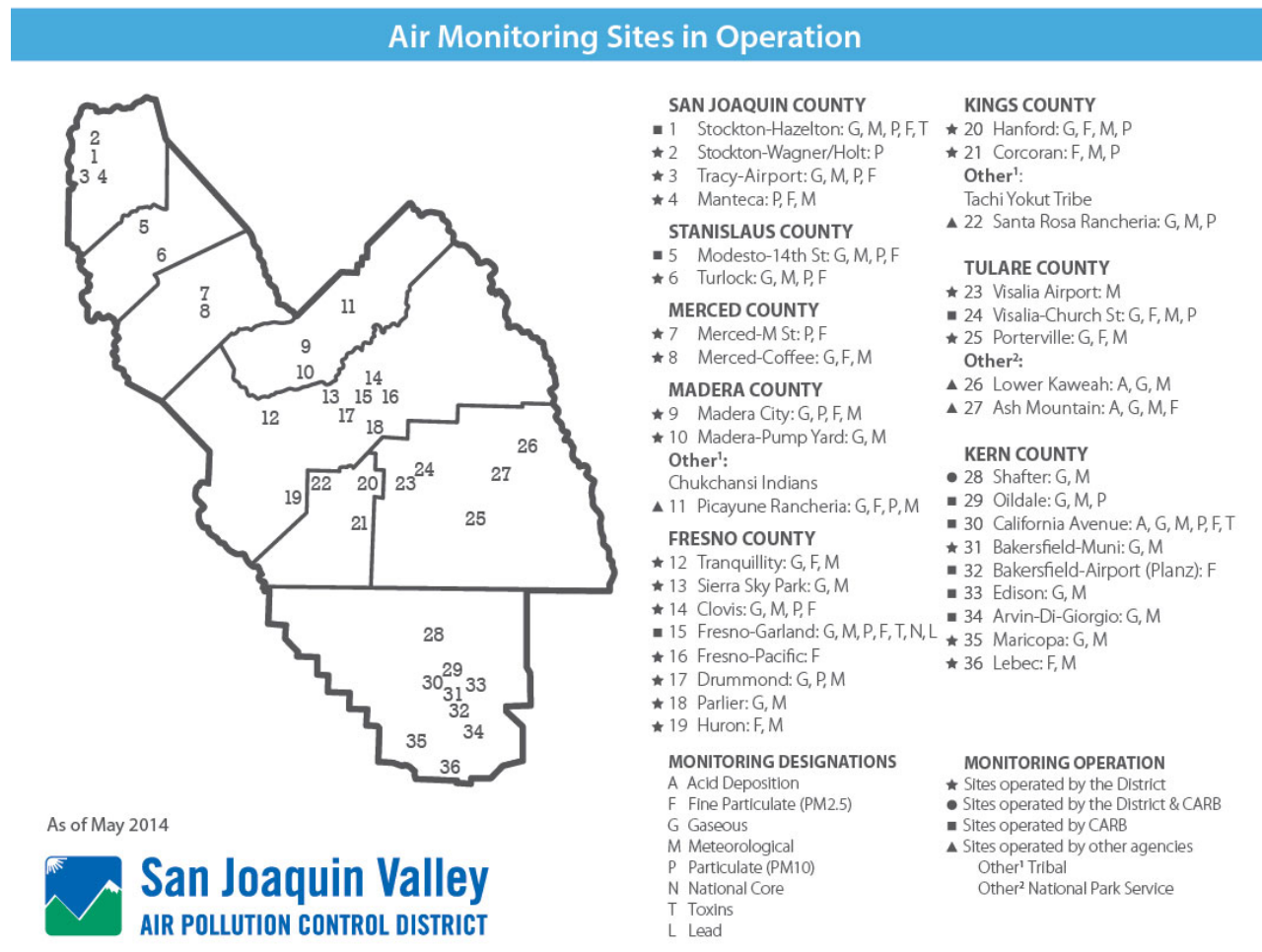
The District, the ARB, the U.S. National Park Service, and the Santa Rosa Rancheria in Lemoore operate an extensive air monitoring network to measure progress toward attainment of the NAAQS. Air quality monitoring networks are designed to monitor areas



with: high population densities, areas with high pollutant concentrations, areas impacted by major pollutant sources, and areas representative of background concentrations. Some monitors are operated specifically for use in determining attainment status, while others are operated for other purposes, such as for generating daily air quality forecasts. In total, the District utilizes ozone and PM data from over 60 monitors operated at 29 sites in the Valley. All monitors must comply with the pollutant standard for the San Joaquin Valley to be considered as attainment for that standard. Figure 3 (*District Ambient Air Quality Monitoring Sites*) identifies District air monitoring sites and the pollutants monitored at each site, as of this writing.

The District periodically updates this map at
www.valleyair.org/aqinfo/MonitoringSites.htm

Figure 3: District Ambient Air Quality Monitoring Sites





An Environmental Impact Report prepared for projects with the potential to have a significant impact on air quality within the San Joaquin Valley should include a discussion of local air quality conditions. To assist Lead Agencies, the District has developed the technical guide (*Emissions Inventory Data Guide*), which provides a step-by-step process for identifying and compiling relevant ambient air monitoring data.

The Emissions Inventory Data Guide is available on the District's website at http://www.valleyair.org/transportation/Guidelines_for_General_Plans.htm



CHAPTER 3

AIR POLLUTANTS AND ATTAINMENT STATUS



3.1 Introduction

A substance in the air that can cause harm to humans and the environment is known as an air pollutant. Pollutants can be in the form of solid particles, liquid droplets, or gases. In addition, they may be natural or man-made. Pollutants can be classified as primary or secondary. Usually, primary pollutants are directly emitted from a process, such as ash from a volcanic eruption, carbon monoxide gas from a motor vehicle exhaust, or sulfur dioxide released from factories. Secondary pollutants are not emitted directly. Rather, they form in the air when primary pollutants react or interact. An important example of a secondary pollutant is ground level ozone — one of the many secondary pollutants that make up photochemical smog. Some pollutants may be both primary and secondary: that is, they are both emitted directly and formed from other primary pollutants.

3.2 Federal and State Ambient Air Quality Standards

The Clean Air Act (CAA) requires the Federal Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) for six (6) air pollutants commonly found all over the United States. These pollutants can be detrimental to human health and the environment.



The EPA designates areas with air quality not meeting Federal standards as “nonattainment”. The Federal CAA further classifies nonattainment areas based on the severity of the nonattainment problem, with marginal, moderate, serious, severe, and extreme nonattainment classifications for ozone. Nonattainment classifications for PM range from marginal to serious.

The Federal CAA requires areas with air quality violating the NAAQS to prepare an air quality control plan referred to as the State Implementation Plan (SIP). The SIP contains the strategies and control measures that states will use to attain the NAAQS. The Federal CAA amendments of 1990 require states containing areas that violate the NAAQS to revise their SIP to incorporate additional control measures to reduce air pollution. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, rules, and regulations of Air Basins as reported by the agencies with jurisdiction over them. The EPA reviews SIPs to determine if they conform to the mandates of the Federal CAA amendments and will achieve air quality goals when implemented. If the EPA determines a SIP to be inadequate, it may prepare a Federal Implementation Plan (FIP) for the nonattainment area and impose additional control measures.

States may also establish their own ambient air quality standards, provided the State standards are at least as stringent as the NAAQS. California has established California Ambient Air Quality Standards (CAAQS) pursuant to Health and Safety Code Section 39606(b) and its predecessor statutes. The ARB is the agency responsible for



coordination and oversight of State and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA) of 1988. The CCAA classifies ozone nonattainment areas as moderate, serious, severe, and extreme based on severity of violations of State ambient air quality standards. For each class, the CCAA specifies air quality management strategies that must be adopted. For all nonattainment categories, attainment plans are required to demonstrate a five-percent-per-year reduction in nonattainment air pollutants or their precursors, averaged every consecutive three-year period, unless an approved alternative measure of progress is developed. Air Districts with air quality that is in violation of CAAQS are required to prepare an air quality attainment plan that lays out a program to attain the CCAA mandates.

3.3 Criteria Pollutants

The Clean Air Act requires EPA to set National Ambient Air Quality Standards for six common air pollutants. These commonly found air pollutants (also known as "criteria pollutants") are found all over the United States. They are particle pollution (often referred to as particulate matter), ground-level ozone, carbon monoxide, sulfur oxides, nitrogen oxides, and lead. These pollutants can harm individual health and the environment, and cause property damage. Of the six pollutants, particle pollution and ground-level ozone are the most widespread health threats. EPA calls these pollutants "criteria" air pollutants because it regulates them by developing human health-based and/or environmentally-based criteria (science-based guidelines) for setting permissible levels. The set of limits based on human health is called primary standards. Another set of limits intended to prevent environmental and property damage is called secondary standards.

The following section summarizes the pollutants of greatest importance in the San Joaquin Valley. For each air pollutant it provides a description of the physical properties, health and other effects, sources, and the extent of the problems. These pollutants are identified in District Rule 1020 (Definitions) and District Rule 2201 (New and Modified Stationary Source Review Rule) as "Affected Pollutants".

In general, primary pollutants are directly emitted into the atmosphere, and secondary pollutants are formed by chemical reactions in the atmosphere. Air pollution in the Valley results from emissions generated in the Valley as well as from emissions and secondary pollutants transported into the Valley. It is thought that the bulk of the Valley's summer and winter air pollution is caused by locally generated emissions. Due to the Valley's meteorology, topography, and the chemical composition of the air pollutants, oxides of nitrogen (NO_x) is the primary culprit in the formation of both ozone and PM_{2.5}.

Ozone: (O₃), a reactive gas consisting of three atoms of oxygen. In the troposphere, it is a product of the photochemical process involving the sun's energy. It is a secondary pollutant that is formed when nitrogen oxides (NO_x) and volatile organic compounds (VOC) react in the presence of sunlight. Ozone at the earth's surface causes numerous adverse health effects and is a criteria pollutant. It is a major component of smog. In the



stratosphere, ozone exists naturally and shields Earth from harmful incoming ultraviolet radiation.

High concentrations of ground level ozone can adversely affect the human respiratory system and aggravate cardiovascular disease and many respiratory ailments. Ozone also damages natural ecosystems such as forests and foothill communities, agricultural crops, and some man-made materials, such as rubber, paint, and plastics.

Reactive Organic Gas: (ROG) is a reactive chemical gas, composed of hydrocarbon compounds that may contribute to the formation of smog by their involvement in atmospheric chemical reactions. No separate health standards exist for ROG as a group. Because some compounds that make up ROG are also toxic, like the carcinogen benzene, they are often evaluated as part of a toxic risk assessment.

Total Organic Gases: (TOG) includes all of the ROGs, in addition to low reactivity organic compounds like methane and acetone. ROGs and volatile organic compounds (VOC) are subsets of TOG.

Volatile Organic Compounds: (VOC) are hydrocarbon compounds that exist in the ambient air. VOCs contribute to the formation of smog and/or may themselves be toxic. VOC emissions are a major precursor to the formation of ozone. VOCs often have an odor, and some examples include gasoline, alcohol, and the solvents used in paints.

Oxides of Nitrogen: (NO_x) is a family of gaseous nitrogen compounds and is a precursor to the formation of ozone and particulate matter. The major component of NO_x, nitrogen dioxide (NO₂), is a reddish-brown gas that is toxic at high concentrations. NO_x results primarily from the combustion of fossil fuels under high temperature and pressure. On-road and off-road motor vehicles and fuel combustion are the major sources of this air pollutant.

Particulate Matter: (PM), also known as particle pollution, is a complex mixture of extremely small particles and liquid droplets. Particle pollution is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. The size of particles is directly linked to their potential for causing health problems. EPA is concerned about particles that are 10 micrometers in diameter or smaller because those are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. EPA groups particle pollution into three categories based on their size and where they are deposited:

- "Inhalable coarse particles (PM_{2.5-10})," such as those found near roadways and dusty industries, are between 2.5 and 10 micrometers in diameter. PM_{2.5-10} is deposited in the thoracic region of the lungs.
- "Fine particles (PM_{2.5})," such as those found in smoke and haze, are 2.5 micrometers in diameter and smaller. These particles can be directly emitted from



sources such as forest fires, or they can form when gases emitted from power plants, industries and automobiles react in the air. They penetrate deeply into the thoracic and alveolar regions of the lungs.

- “Ultrafine particles (UFP),” are very small particles less than 0.1 micrometers in diameter largely resulting from the combustion of fossil fuels, meat, wood and other hydrocarbons. While UFP mass is a small portion of $PM_{2.5}$, its high surface area, deep lung penetration, and transfer into the bloodstream can result in disproportionate health impacts relative to their mass.

PM_{10} , $PM_{2.5}$, and UFP include primary pollutants (emitted directly to the atmosphere) as well as secondary pollutants (formed in the atmosphere by chemical reactions among precursors). Generally speaking, $PM_{2.5}$ and UFP are emitted by combustion sources like vehicles, power generation, industrial processes, and wood burning, while PM_{10} sources include these same sources plus roads and farming activities. Fugitive windblown dust and other area sources also represent a source of airborne dust in the Valley.

Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, coughing, bronchitis, and respiratory illnesses in children.

Carbon Monoxide: (CO) is an odorless, colorless gas that is highly toxic. It is formed by the incomplete combustion of fuels and is emitted directly into the air (unlike ozone). The main source of CO in the San Joaquin Valley is on-road motor vehicles. Other CO sources in the Valley include other mobile sources, miscellaneous processes, and fuel combustion from stationary sources.

Because of the local nature of CO problems, ARB and EPA designate urban areas as CO nonattainment areas instead of the entire basin as with ozone and PM_{10} . Motor vehicles are by far the largest source of CO emissions. Emissions from motor vehicles have been declining since 1985, despite increases in vehicle miles traveled (VMT), with the introduction of new automotive emission controls and fleet turnover.

Sulfur Dioxide: (SO_2) is a colorless, irritating gas with a "rotten egg" smell formed primarily by the combustion of sulfur-containing fossil fuels. The SJVAB is in attainment of both the Federal and California standards for SO_2 . However, like airborne NO_x , suspended SO_x particles contribute to the poor visibility that sometimes occurs in the Valley. These SO_x particles can also combine with other pollutants to form $PM_{2.5}$. The prevalence of low-sulfur fuel use in the Valley has minimized problems from this pollutant.

Lead: (Pb) is a metal that is a natural constituent of air, water, and the biosphere. Lead is neither created nor destroyed in the environment, so it essentially persists forever. The health effects of lead poisoning include loss of appetite, weakness, apathy, and miscarriage; it can also cause lesions of the neuromuscular system, circulatory system, brain, and gastrointestinal tract.



Gasoline-powered automobile engines were a major source of airborne lead through the use of leaded fuels. The use of leaded fuel has been mostly phased out, with the result that ambient concentrations of lead have dropped dramatically. Lead concentrations were last systematically measured in the SJVAB in 1989, when the average concentrations were approximately five percent of the State lead standard. Lead levels remain well below applicable standards, and the SJVAB is designated in attainment for lead.

3.4 Other Pollutants

The State of California has established air quality standards for some pollutants not addressed by Federal standards. The California Air Resources Board (ARB) has established State standards for hydrogen sulfide, sulfates, vinyl chloride, and visibility reducing particles. The following section summarizes these pollutants and provides a description of the pollutants' physical properties, health and other effects, sources, and the extent of the problems.

Hydrogen Sulfide: (H_2S) is associated with geothermal activity, oil and gas production, refining, sewage treatment plants, and confined animal feeding operations. Hydrogen sulfide is extremely hazardous in high concentrations; especially in enclosed spaces (800 ppm can cause death). OSHA regulates workplace exposure to H_2S .

Sulfates: (SO_4^{2-}) are the fully oxidized ionic form of sulfur. Sulfates occur in combination with metal and/or hydrogen ions. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized to sulfur dioxide (SO_2) during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO_2 to sulfates takes place comparatively rapidly and completely in urban areas of California due to regional meteorological features.

The ARB sulfates standard is designed to prevent aggravation of respiratory symptoms. Effects of sulfate exposure at levels above the standard include a decrease in ventilatory function, aggravation of asthmatic symptoms, and an increased risk of cardio-pulmonary disease. Sulfates are particularly effective in degrading visibility, and, due to the fact that they are usually acidic, can harm ecosystems and damage materials and property. Data collected in the SJVAB demonstrate levels of sulfates significantly less than the health standards.

Visibility Reducing Particles: Are a mixture of suspended particulate matter consisting of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. The standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.



Vinyl Chloride: (C_2H_3Cl , also known as VCM) is a colorless gas that does not occur naturally. It is formed when other substances such as trichloroethane, trichloroethylene, and tetrachloro-ethylene are broken down. Vinyl chloride is used to make polyvinyl chloride (PVC) which is used to make a variety of plastic products, including pipes, wire and cable coatings, and packaging materials.

3.5 Attainment Status

The California Air Resources Board (ARB) and the Federal Environmental Protection Agency (EPA) have established Ambient Air Quality Standards in an effort to protect human health and welfare. Geographic areas are deemed "attainment" if these standards are met or nonattainment if they are not met. Nonattainment status is classified by the severity of the nonattainment problem, with marginal, moderate, serious, severe, and extreme nonattainment classifications for ozone. Nonattainment classifications for PM range from moderate to serious.



Current Federal and State Ambient Air Quality Standards can be found on ARB's website at www.arb.ca.gov/research/aaqs/aaqs2.pdf or www.arb.ca.gov/desig/desig.htm

At the Federal level, the District is designated as extreme nonattainment for the 8-hour ozone standard, attainment for PM_{10} and CO, and nonattainment for $PM_{2.5}$. At the State level, the District is designated as nonattainment for the 8-hour ozone, PM_{10} , and $PM_{2.5}$ standards. Although the Federal 1-hour ozone standard was revoked in 2005, areas must still attain this standard, and the District recently requested an EPA finding that the Valley has attained the standard based on 2011-2013 data. The District's attainment status, at the time of this writing, is presented in Table 1 (*San Joaquin Valley Attainment Status*). Although infrequent, the District's attainment status does change.

The District's current attainment status can be found on the District's website at www.valleyair.org/aqinfo/attainment.htm



Table 1: San Joaquin Valley Attainment Status

Pollutant	Designation/Classification	
	Federal Standards	State Standards
Ozone - One hour	Revoked in 2005	Nonattainment/Severe
Ozone - Eight hour	Nonattainment/Extreme	Nonattainment
PM 10	Attainment	Nonattainment
PM 2.5	Nonattainment/Moderate	Nonattainment
Carbon Monoxide	Attainment/Unclassified	Attainment/Unclassified
Nitrogen Dioxide	Attainment/Unclassified	Attainment
Sulfur Dioxide	Attainment/Unclassified	Attainment
Lead (Particulate)	No Designation/Classification	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility Reducing Particles	No Federal Standard	Unclassified
Vinyl Chloride	No Federal Standard	Attainment

3.6 Air Quality Plans

The District has developed plans to attain State and Federal standards for ozone and particulate matter. The District's air quality plans include emissions inventories to measure the sources of air pollutants, to evaluate how well different control methods have worked, and to show how air pollution will be reduced. The plans also use computer modeling to estimate future levels of pollution and make sure that the Valley will meet air quality goals. The District's attainment plans are subject to approval by the District's Governing Board.

More information about Federal and State air quality standards and the District's current attainment status can be found at
www.valleyair.org/aqinfo/attainment.htm



At the time of this writing, the following attainment plans are in effect:

1-Hour Ozone

Although EPA revoked its 1979 1-hour ozone standard in June 2005, many planning requirements remain in place, and the Valley must still attain this standard before it can rescind CAA Section 185 fees. The District's most recent 1-hour ozone plan, the *2013 Plan for the Revoked 1-hour Ozone Standard*, demonstrated attainment of the 1-hour ozone standard by 2017. However, the District is in the process of requesting an EPA finding of attainment based on 2011-2013 ozone data. The District will continue working closely with ARB and EPA on this issue.

8-Hour Ozone

The District's far-reaching *2007 Ozone Plan* demonstrates attainment of EPA's 1997 8-hour ozone standard by 2023. EPA approved the *2007 Ozone Plan* effective April 30, 2012. The District is now in the process of developing the *2016 Ozone Plan* to address EPA's 2008 8-hour ozone standard, which the Valley must attain by 2032. This is a very tough standard that is nearing the Valley's naturally-occurring background concentrations. Attainment may not be possible without the virtual elimination of fossil fuel combustion.

PM₁₀

Based on PM₁₀ measurements from 2003-2006, EPA found that the SJVAB has reached Federal PM₁₀ standards. On September 21, 2007, the District's Governing Board adopted the *2007 PM₁₀ Maintenance Plan and Request for Redesignation*. This plan demonstrates that the Valley will continue to meet the PM₁₀ standard. EPA approved the document and on September 25, 2008, the SJVAB was redesignated to attainment/maintenance.

PM_{2.5}

The District's *2008 PM_{2.5} Plan* demonstrated 2014 attainment of EPA's first PM_{2.5} standard, set in 1997. EPA lowered the PM_{2.5} standard in 2006, and the District's *2012 PM_{2.5} Plan* showed attainment of this standard by 2019, with the majority of the Valley seeing attainment much sooner. The District continues to work with EPA on issues surrounding these plans, including EPA implementation updates. EPA lowered the PM_{2.5} standard again in 2012 and is in the process of completing attainment designations.



CHAPTER 4

GREENHOUSE GASES



4.1 Introduction

Greenhouse gases (GHGs) are gases that absorb and emit radiation within the thermal infrared range, trapping heat in the earth's atmosphere. There are no "attainment" concentration standards established by the Federal or State government for greenhouse gases. In fact, GHGs are not generally thought of as traditional air pollutants because greenhouse gases, and their impacts, are global in nature, while air pollutants affect the health of people and other living things at ground level, in the general region of their release to the atmosphere. Some greenhouse gases occur naturally and are emitted into the atmosphere through both natural processes and human activities. Other GHGs are created and emitted solely through human activities. The principal greenhouse gases that enter the atmosphere because of human activities are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and fluorinated carbons.

4.2 Common Greenhouse Gases

Water Vapor: Although not considered a pollutant, water vapor is the most important, abundant, and variable GHG. In the atmosphere, it maintains a climate necessary for life. The main source of water vapor is evaporation from the ocean (approximately 85 percent). Other sources include sublimation (change from solid to gas) from ice and snow, evaporation from other water bodies, and transpiration from plant leaves.



Ozone: Unlike other GHG, ozone is relatively short-lived and therefore is not global in nature. It is difficult to make an accurate determination of the contribution of ozone precursors (nitrogen oxides and volatile organic compounds) to global climate change (AEP 2007).

Aerosols: Are suspensions of particulate matter in a gas emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light. Cloud formation can also be affected by aerosols. Sulfate aerosols are emitted when fuel-containing sulfur is burned. Black carbon (or soot) is emitted during biomass burning or incomplete combustion of fossil fuels. Particulate matter regulation has been lowering aerosol concentrations in the United States; however, global concentrations are likely increasing.



Chlorofluorocarbons: (CFCs) are gases formed synthetically by replacing all hydrogen atoms in methane (CH₄) or ethane (C₂H₆) with chlorine and/or fluorine atoms. CFCs are nonflammable, nontoxic, insoluble, and chemically uncreative in the troposphere (the level of air at the earth's surface). CFCs were first synthesized in 1928 for use as cleaning solvents, refrigerants, and aerosol propellants. They destroy stratospheric ozone; therefore, their production was stopped as required by the Montreal Protocol in 1987 (AEP 2007).

Carbon dioxide: (CO₂) is an odorless, colorless gas, which has both natural and anthropogenic sources. Natural sources include the following: respiration of bacteria, plants, animals, and fungus, evaporation from oceans, volcanic out gassing, and decomposition of dead organic matter. Anthropogenic sources of carbon dioxide are from burning coal, oil, natural gas, and wood. Concentrations of CO₂ were 379 parts per million (ppm) in 2005, which is an increase of 1.4 ppm per year since 1960 (AEP 2007).

Methane: (CH₄) is a flammable gas and is the main component of natural gas. When one molecule of CH₄ is burned in the presence of oxygen, one molecule of carbon dioxide and two molecules of water are released. There are no direct ill health effects from CH₄. A natural source of CH₄ is from the anaerobic decay of organic matter. Geological deposits, known as natural gas fields, also contain CH₄, which is extracted for fuel. Other sources are from cattle, fermentation of manure, and landfills.

Nitrous oxide: (N₂O), also known as laughing gas, is a colorless greenhouse gas. Higher concentrations of N₂O can cause euphoria, dizziness, and slight hallucinations. N₂O is produced by microbial processes in soil and water, including those reactions that occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (nitric acid production, nylon production, fossil fuel-fired power plants, and vehicle emissions) also contribute to its atmospheric load. It is used in racecars, rocket engines, and as an aerosol spray propellant.

Fluorinated Gases: Are gases that are synthetic, powerful GHG that are emitted from a variety of industrial processes.

Hydrofluorocarbons: (HFCs) are synthetic man-made chemicals that are used as a substitute for CFCs (Chlorofluorocarbons) for automobile air conditioners and refrigerants.

Perfluorocarbons: (PFCs) have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet rays, roughly 60 kilometers above the earth's surface are able to destroy the compounds. PFCs have long lifetimes, ranging between 10,000 and 50,000 years. Two common PFCs are



tetrafluoromethane and hexafluoroethane. Concentrations of tetrafluoromethane in the atmosphere are over 70 parts per trillion (ppt) (AEP 2007). The two main sources of PFCs are primary aluminum production and semiconductor manufacturing.

Sulfur hexafluoride: (SF_6) is an inorganic, colorless, odorless, nontoxic, nonflammable gas. Concentrations in the 1990s were roughly 4 ppt (AEP 2007). SF_6 is used for insulation in electric power transmission and distribution equipment, in semiconductor manufacturing, the magnesium industry, and as a tracer gas for leak detection.

Additional information on GHG and global climate change can be found in the staff report titled "Addressing GHG Emissions Impacts under CEQA" at www.valleyair.org/Programs/CCAP/CCAP_idx.htm



CHAPTER 5

AIR POLLUTANT EMISSION SOURCES



5.1 Introduction

In general, primary pollutants are directly emitted into the atmosphere, and secondary pollutants are formed by chemical reactions in the atmosphere. Air pollution in the Valley results from emissions generated in the Valley as well as from emissions and secondary pollutants transported into the Valley. It is thought that the bulk of the Valley's summer and winter air pollution is caused by locally generated emissions.

The types of air pollutant emission sources are commonly characterized as either point or area sources. A point source is a single, identifiable source of air pollutant emissions (for example, the emissions from a combustion furnace flue gas stack). An area source is a source of diffuse air pollutant emissions (for example, the emissions from a forest fire, a landfill or the evaporated vapors from a large spill of volatile liquid).

Sources may be further characterized as either stationary or mobile. Industrial boilers are examples of stationary sources and buses are examples of mobile sources. Sources may also be characterized as either urban or rural because urban areas constitute a so-called heat island and the heat rising from an urban area causes the atmosphere above an urban area to be more turbulent than the atmosphere above a rural area. Sources may be characterized by their elevation relative to the ground as either surface or ground-level, near surface or elevated sources. Sources may also be characterized by their time duration. Short-term sources (for example, accidental emission releases or construction emissions) constitute intermittent emissions. Long-term sources (Stationary Sources and development projects) constitute continuous emissions.

The District uses comprehensive emissions inventories to develop control strategies, determine the effectiveness of permitting and control programs, provide input into ambient dispersion models, fulfill reasonable further progress requirements, and screen sources for compliance investigations. Emissions inventory data, like ambient monitoring data, are also used as indicators for trends in air pollution. Typically, an emissions inventory is also organized by emission source category. Source categories consist of several broad groups:

5.2 Point Sources (Stationary Sources)

Facilities that have valid District permits for specific emissions units are called point sources. Refineries, gas stations, dry cleaners and industrial plants are examples of point sources in the District. Aggregated point sources are sources that are not inventoried individually but are estimated as a group and reported as a single source category.





5.3 Area Sources

Area source emissions are from sources that are not permitted by the District, or are individually so small that they may not be included in the District's emissions survey system. These small sources may not individually emit significant amounts of pollutants, but when aggregated can make an appreciable contribution to the emission inventory. Examples of these area sources are residential water heating and use of paints, varnishes, and consumer products. Emissions from these sources are grouped into categories and calculated based on surrogate variables.



5.4 Mobile Sources

Mobile sources consist of motor vehicles and other portable sources. Mobile sources are classified as being on-road or off-road. On-road motor vehicles consist of passenger cars, trucks, buses and motorcycles. Emissions from on-road motor vehicles are a major portion of the emission inventory, and are estimated by ARB using computer models. Off-road mobile sources generally consist of vehicles in which the primary function is not transportation. Examples of off-road vehicles include construction and farm equipment.



Other mobile sources include boats and ships, trains, and aircraft. The District estimates emissions for ships and aircraft in our area source inventory. The remaining sources are estimated by ARB as part of their off-road inventory

5.5 Natural Sources

Natural Sources are non-anthropogenic, naturally occurring emissions. In addition to man-made air pollution, there are significant quantities of pollutants from natural sources. Natural sources include biological and geological sources, wildfires, windblown dust, and biogenic emissions from plants and trees. Emissions from natural sources are estimated by ARB.





CHAPTER 6

LAND USE AND AIR QUALITY



6.1 Introduction

Nearly all development projects within the San Joaquin Valley Air Basin, from general plans to individual development projects have the potential to generate air pollutants, making it more difficult to attain State and Federal ambient air quality standards. Therefore, it is necessary to evaluate air quality impacts to comply with CEQA. Land use decisions are critical to improving air quality within the San Joaquin Valley Air Basin because land use patterns greatly influence transportation needs and motor vehicle emissions are the largest source of air pollution. Land use decisions and project design elements such as preventing urban sprawl, encouraging mix-use development, and project designs that reduce vehicle miles traveled (VMT) have proven benefit for air quality.

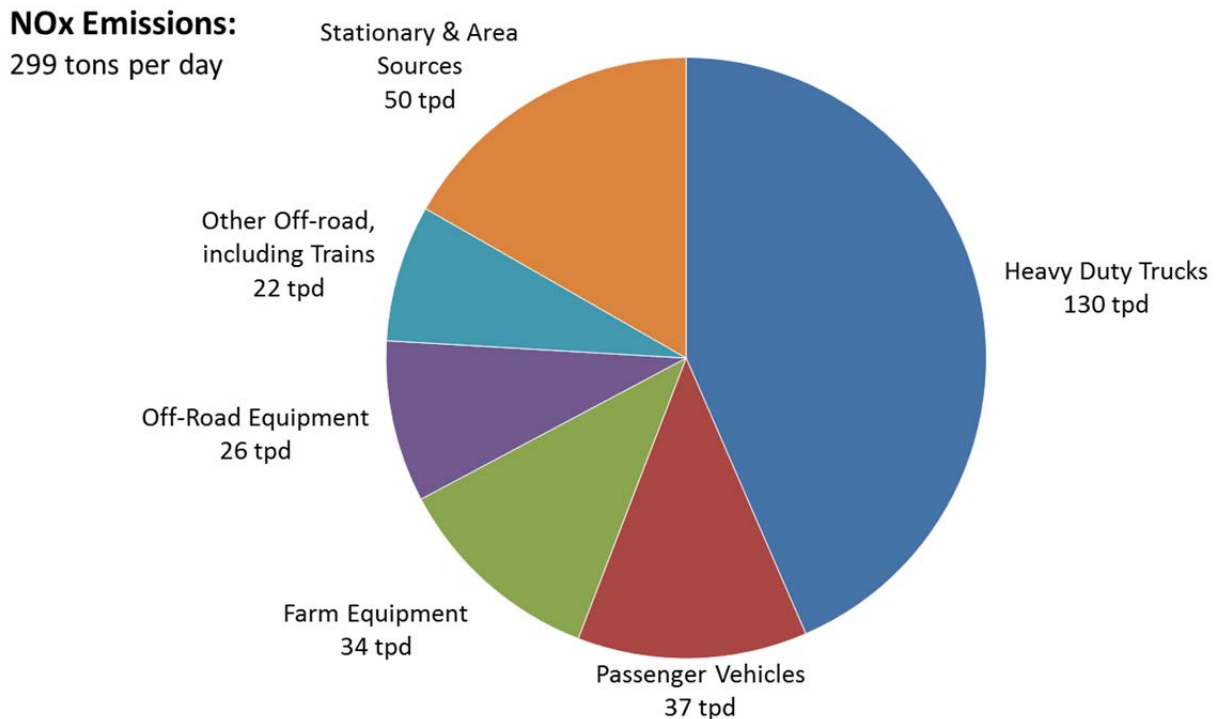
The air quality considerations that warrant particular attention during early consultation between Lead Agencies and project proponents include consistency with applicable District rules and permit requirements; land use and design measures to encourage alternatives to the automobile and to promote energy conservation; and land use conflicts and exposure of sensitive receptors to odors, toxics and criteria pollutants. Sensitive receptors refer to those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems affected by air quality). Hospitals, schools, convalescent facilities, and residential areas are examples of sensitive receptors.

Addressing land use and site design issues while a proposed project is still in the conceptual stage increases opportunities to incorporate project design features to minimize land use compatibility issues and air quality impacts. By the time a project enters the CEQA process, it is usually more costly and time-consuming to redesign the project to incorporate mitigation measures.

The District is continuously improving processes to be more efficient and more effective, in addition to working closely with land use agencies to ensure their needs are met.



Figure 4: Sources of NOx Emissions within the San Joaquin Valley Air Basin



Source: California Emissions Projection Analysis Model – NorCal v1.04 – 2013 Annual Average

6.2 Land Use Planning

Land use decisions are critical to air quality planning because land use patterns greatly influence transportation needs, and motor vehicles are the largest source of air pollution in the San Joaquin Valley Air Basin. The design of development projects significantly influences how people travel.

Since its inception, the District has been active in promoting land use strategies that reduce the amount and distance people drive to accomplish their daily activities. Air districts with severe air pollution were required by the California Clean Air Act to develop "indirect source" control programs in their attainment plans. Indirect sources are defined as any building, facility, activity center, etc. that attracts motor vehicle trips. Land use strategies reduce trips by designing development to be more convenient for walking, bicycling, and transit, thereby allowing people to drive less.



The District's Air Quality Attainment Plans include measures to promote air quality elements in county and city general plans as one of the primary indirect source programs. The general plan is the primary long range planning document used by cities and counties to direct development. Since air districts have no authority over land use decisions, it is up to cities and counties to ensure that their general plans help achieve air quality goals. Section 65302.1 of the California Government Code requires cities and counties in the San Joaquin Valley to amend appropriate elements of their general plans to include data, analysis, comprehensive goals, policies, and feasible implementation strategies to improve air quality in their next housing element revisions.

The District's *Air Quality Guidelines for General Plans* (AQGGP), adopted by the District in 1994 and amended in 2005, is a guidance document containing goals and policy examples that cities and counties can directly incorporate into their General Plans to satisfy Section 65302.1. The document provides policies that directly and indirectly benefit air quality. Its emphasis is on cities and counties developing a comprehensive approach to air quality that targets new growth areas, redevelopment areas, and programs that reach the entire community. The general plan is the "constitution" for local development and, as such, provides a framework for deciding the way development will occur. When adopted in a general plan and implemented, the suggestions in the AQGGP can reduce vehicle trips and miles traveled and improve air quality. The specific suggestions in the AQGGP are voluntary. The District strongly encourages cities and counties to use their land use and transportation planning authority to help achieve air quality goals by incorporating as many air quality policies from the AQGGP as possible into their general plans, community plans, and specific plans to ensure that development occurs in ways that produce fewer air quality impacts. To the extent that cities and counties can implement policies that make their communities more transit-, bicycle-, and pedestrian-friendly, and avoid land use conflicts that lead to toxics and nuisance problems, they can minimize the need to mitigate air quality impacts of individual development proposals. The strategies recommended by the AQGGP are summarized as follows:

- A commitment to determine and mitigate project level and cumulative air quality impacts under the California Environmental Quality Act (CEQA);
- 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;
- A commitment to plan land uses to minimize exposure to toxic air pollutant emissions from industrial and other sources;
- A commitment to reduce particulate emissions from sources under local jurisdiction;



- A commitment of support for Air District and public utility programs to reduce emissions from energy consumption and area sources (water heaters, woodstoves, fireplaces, barbecues, etc.).

Policies promoting land use and design measures are most effective if implemented communitywide, or even at the subregional level. Issues such as allowable land use densities, mixing of land uses, street standards, parking requirements, etc. are most appropriately addressed throughout the entire community or sub-region. Implementing mechanisms such as zoning ordinances, parking standards, and design guidelines, may need to be revised to address these issues. Implementation of these strategies on an individual project basis can still be beneficial, even absent a community-wide strategy, but the benefits will be greater if implemented broadly.

Some examples of policies are:

- All City/County submittals of transportation improvement projects to be included in regional transportation plans shall be consistent with the air quality goals and policies of the General Plan.
- City/County fleet vehicle operators shall replace or convert operational fuel vehicles with clean fuel vehicles as rapidly as feasible.
- The City/County shall encourage the development of pedestrian-oriented shopping areas within walking distance of high-density residential neighborhoods.

The Air Quality Guidelines for General Plans is available on the District's website at www.valleyair.org/transportation/Guidelines_for_General_Plans.htm

6.3 Assembly Bill 170, Reyes (AB 170)

Assembly Bill 170, Reyes (AB 170), was adopted by State lawmakers in 2003 creating Government Code §65302.1 which requires cities and counties in the San Joaquin Valley to amend their general plans to include data and analysis, comprehensive goals, policies and feasible implementation strategies designed to improve air quality. These amendments are due no later than one year from the due date specified for the next revisions of a jurisdiction's housing element. As required in §65302.1.b, cities and counties within the San Joaquin Valley must amend their general plan to include a discussion of the status of air quality and strategies to improve air quality. The elements to be amended include, but are not limited to, those elements dealing with land use, circulation, housing, conservation, and open space. Section 65302.1.c identifies four (4) areas of air quality discussion required in these amendments.



These areas include:

- (1) A report describing local air quality conditions, attainment status, and State and Federal air quality and transportation plans;
- (2) A summary of local, district, State, and Federal policies, programs, and regulations to improve air quality;
- (3) A comprehensive set of goals, policies, and objectives to improve air quality; and
- (4) Feasible implementation measures designed to achieve these goals.

To aid agencies in amending their general plans consistent with AB 170, the District has prepared various guidance documents for addressing air quality issues within general plans. These documents also provide links to websites that may provide additional information and detail.

*These documents are available on the District's website at
www.valleyair.org/transportation/Guidelines_for_General_Plans.htm*

6.4 District Rule 9510 (Indirect Source Review)

The Indirect Source Review (ISR) rule, which went into effect March 1, 2006, requires developers of new residential, commercial and industrial projects to reduce smog-forming and particulate emissions generated by their projects. The ISR rule also applies to transportation and transit projects whose construction exhaust emissions will result in a total of two tons per year of NO_x or PM₁₀. The ISR rule seeks to reduce the growth in NO_x and PM₁₀ emissions associated with construction and operation of new development, transportation and transit projects in the San Joaquin Valley.

The ISR rule requires developers to reduce construction NO_x and PM₁₀ exhaust emissions by 20% and 45%, respectively, and reduce operational NO_x and PM₁₀ emissions by 33.3% and 50%, respectively, as compared to the unmitigated baseline. Developers can achieve the required reductions through any combination of District approved on-site emission reduction measures. When a developer cannot achieve the required reductions through on-site measures, off-site mitigation fees are imposed to mitigate the difference between the required emission reductions and the mitigations achieved on-site. Monies collected from this fee are used by the District to fund emission reduction projects in the San Joaquin Valley on behalf of the project.

*Technical resources for District Rule 9510, including a list of approved on-site emission reduction measures and tools for calculating project specific emissions are available at
www.valleyair.org/ISR/ISRHome.htm*



6.5 Potential Land Use Conflicts and Exposure of Sensitive Receptors

The location of a development project is a major factor in determining whether the project will result in localized air quality impacts. The potential for adverse air quality impacts increases as the distance between the source of emissions and receptors decreases. Receptors include sensitive receptors and worker receptors. Sensitive receptors refer to those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems affected by air quality). Land uses where sensitive individuals are most likely to spend time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities (these sensitive land uses may also be referred to as sensitive receptors). Worker receptors refer to employees and locations where people work. Impacts on sensitive receptors are of particular concern, because they are the people most vulnerable to the effects of air pollution.

From a health risk perspective there are basically two types of land use projects that have the potential to cause long-term public health risk impacts:

- Type A Projects: Land use projects that will place new toxic sources in the vicinity of existing receptors, and
- Type B Projects: Land use projects that will place new receptors in the vicinity of existing toxics sources.

Examples of Type A projects (New project impacts existing receptors):

This category includes sources of air toxic emissions such as:

- Gasoline dispensing facilities,
- Asphalt batch plants,
- Warehouse distribution centers,
- New freeways or high traffic roads, and
- Other stationary sources that emit toxic substances.

Examples of Type B projects (New project impacted by existing toxic sources):

This category includes residential, commercial, and institutional developments proposed to be located in the vicinity of existing toxic emission sources such as:

- Stationary sources,
- Freeways or high traffic roads
- Rail yards, and
- Warehouse distribution centers.



Various tools already exist to perform a screening analysis from stationary sources impacting receptors (Type A projects) as developed for the AB2588 Hot Spots and air district permitting programs. Screening tools may include prioritization charts, AERSCREEN and various spreadsheets. For projects being impacted by existing sources (Type B projects), one screening tool is contained in the ARB Handbook: *Air Quality and Land Use Handbook: A Community Health Perspective*. The document includes a table entitled “*Recommendations on Siting New Sensitive Land Uses Such As Residences, Schools, Daycare Centers, Playgrounds, or Medical Facilities*” with recommended buffer distances associated with various types of common sources. If a proposed project is located within an established buffer distance to any of the listed sources, a health risk screening and/or assessment should be performed to assess risk to potential sensitive receptors. These guidelines are intended only for projects that are impacted by a single source.

Another useful tool is the CAPCOA Guidance Document: Health Risk Assessments for Proposed Land Use Projects. CAPCOA prepared the guidance to assist Lead Agencies in complying with CEQA requirements. The guidance document describes when and how a health risk assessment should be prepared and what to do with the results.

The CAPCOA Guidance document and the ARB Handbook can be found at
www.arb.ca.gov/ch/landuse.htm



CHAPTER 7

CALIFORNIA ENVIRONMENTAL QUALITY ACT

CEQA



7.1 Introduction

The California Environmental Quality Act (CEQA) is a state statute that requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible. The impetus for CEQA can be traced to the passage of the first federal environmental protection statute in



1969, the National Environmental Policy Act (NEPA). In response to this federal law, the California State Assembly created the Assembly Select Committee on Environmental Quality to study the possibility of supplementing NEPA through state law. This legislative committee, in 1970, issued a report entitled *The Environmental Bill of Rights*, which called for a California counterpart to NEPA. Later that same year, acting on the recommendations of the select committee, the legislature passed, and Governor Reagan signed, the CEQA statute.

CEQA applies to certain activities of state and local public agencies. A public agency must comply with CEQA when it undertakes an activity defined by CEQA as a "project". A project is an activity undertaken by a public agency or a private activity which must receive some discretionary approval (meaning that the agency has the authority to deny the requested permit or approval) from a government agency which may cause either a direct physical change in the environment or a reasonably foreseeable indirect change in the environment.

Most proposals for physical projects in California are subject to the provisions of CEQA, as are many governmental decisions which do not immediately result in physical development (such as adoption of a general or community plan). Every project which requires a discretionary governmental approval will require an environmental review pursuant to CEQA, unless an exemption applies.

The CEQA Guidelines are the regulations that explain and interpret the law for both the public agencies required to administer CEQA and for the public generally. They are found in the California Code of Regulations (CCR), in Chapter 3 of Title 14. The Guidelines provide objectives, criteria and procedures for the orderly evaluation of projects and the preparation of environmental impact reports, negative declarations, and mitigated negative declarations by public agencies. The fundamental purpose of the Guidelines is to make the CEQA process comprehensible to those who administer it, to those subject to it, and to those for whose benefit it exists. To that end, the Guidelines are more than mere regulations which implement CEQA as they incorporate and interpret both the statutory mandates of CEQA and the principles advanced by judicial decisions.

The Governor's Office of Planning and Research (OPR) prepares and develops proposed amendments to the Guidelines and transmits them to the Secretary for Resources. The



Secretary for Resources is responsible for certification and adoption of the Guidelines and amendments thereto.

CEQA is intended to address a broad range of environmental issues, including water quality, noise, land use, natural resources, transportation, energy, human health, biological species, and air quality. CEQA has four primary objectives:

1. Inform governmental decision makers and the public about the potential, significant environmental effects of proposed activities.
2. Identify the ways that environmental damage can be avoided or significantly reduced.
3. Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.
4. Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

7.2 Roles in the CEQA Process

As a public agency, the District takes an active part in the intergovernmental review process under CEQA. The District is available to assist governmental agencies and project proponents in understanding how to characterize project-related impacts on air quality and how to reduce or mitigate those impacts. As part of this ongoing effort, the District develops and publishes technical guidance relevant to assessing project specific emissions of criteria pollutants and assessing potential health risks to sensitive receptors.

In carrying out its duties under CEQA, the District may act as a Lead Agency, a Responsible Agency, or a Trustee/“Commenting” Agency. As discussed below, the role the District serves under CEQA is dependent upon the extent of the District’s discretionary approval power over the project.

CEQA applies to discretionary projects. A discretionary project is one that requires the exercise of judgment or deliberation when the public agency or body decides to approve or disapprove a particular activity. Ministerial projects are statutorily exempt from the requirements of CEQA [Public Resources Code (PRC) §21080(b)(1)]. Ministerial projects involve little or no personal judgment by the public official as to the wisdom or manner of carrying out the project. The official merely applies the law to the facts presented but uses no special discretion or judgment in reaching a decision.

“The determination of what is ministerial can most appropriately be made by the particular agency involved based on its analysis of its own laws, and each public agency should make such determinations either as part of its implementing regulations or on a case-by-case basis.” [CCR §15268(a)].



The District has determined that it exercises discretionary judgment when issuing air permits for stationary sources with sufficient emission increases to be subject to Best Available Control Technology (BACT) requirements. For such projects, the District conducts a top-down BACT analysis to determine whether the proposed control technology meets BACT requirements. In making a BACT determination, California Courts (*see, e.g., Security Environmental Systems, Inc. v. South Coast Air Quality Management Dist.*, 229 Cal.App.3d 110, 117-118; 120 (1991)) have found that District staff exercises discretionary judgment in considering the proposed Achieved in Practice control technology, evaluating the feasibility of alternative control technology, and determining whether the alternatives are cost effective. If there is no approved BACT, District staff exercises discretionary judgment in establishing BACT for the particular source category and comparing the newly approved BACT to the proposed control technology.

7.3 Lead Agency

A Lead Agency is the public agency with the principal responsibility for carrying out or approving a project subject to CEQA. Lead Agencies are responsible for complying with CEQA by ensuring that all potential environmental impacts of proposed projects are adequately assessed and environmental damage is avoided or minimized where feasible. When determining whether a project will have a significant environmental effect, the Lead Agency must consider the whole of an action and not simply its constituent parts. The Lead Agency must consult with and solicit comments from Responsible and Trustee agencies. In deciding whether changes in a project are feasible, an agency may consider specific economic, environmental, legal, social, and technological factors.

Under CEQA the Lead Agency is required to:

1. Conduct preliminary reviews to determine if applications are subject to CEQA [CCR §15060];
2. Conduct review to determine if projects are exempt from CEQA [CCR §15061];
3. Prepare Initial Studies for projects that may have adverse environmental impacts [CCR §15063];
4. Determine the significance of the environmental effects caused by the project [CCR §15064];
5. Prepare Negative Declarations or Mitigated Negative Declarations for projects with no significant environmental impacts [CCR §15070];
6. Prepare, or contract to prepare, EIRs for projects with significant environmental impacts [CCR §15081];
7. Adopt reporting or monitoring programs for the changes made to projects or conditions of project approval, adopted in order to mitigate or avoid significant effects on the environment [PRC §21081.6 & CCR §15097];
8. Comply with CEQA noticing and filing requirements.



District Role

The District is always the Lead Agency for projects such as the development of District rules and regulations. The District may be Lead Agency for projects subject to District permit requirements. As discussed above, for projects triggering BACT, the District has discretionary approval in deciding how to permit the project. For projects subject to BACT, the District serves as Lead Agency when no other agency has principal responsibility for approving the project. This commonly occurs when the proposed project is a modification to an existing facility and the project does not require discretionary land use approval, such as issuance of a zone change or conditional use permit.

The District is seldom Lead Agency for projects consisting of construction and operation of a new facility, such as a dairy, glass manufacturing operation, or other stationary sources of pollution. For such projects, the local government agency with jurisdiction over land use, such as a city or county, typically has principal responsibility for approving the project and serves as Lead Agency. An exception is when the land use agency determines that the project is an allowed use and has only ministerial approval power over the project, such as issuance of building permits. This can occur, for example, when the District issues permits for certain oil field projects involving installation of steam generators.

The District is frequently Lead Agency for projects consisting of modifications to existing stationary sources, such as changes in existing procession operations, modifications to existing equipment, or installation of new stationary source equipment. Such projects typically are consistent with existing land uses and are not subject to a discretionary approval by the local land use agency.

7.4 Responsible Agency

A Responsible Agency is a public agency, other than the Lead Agency, that has responsibility for carrying out or approving a project subject to CEQA. The discretionary authority of a Responsible Agency is more limited than a Lead Agency; having responsibility for mitigating or avoiding only the environmental effects of those parts of the project which it decides to approve, carry out, or finance.

Under CEQA a Responsible Agency is required to:

1. Decide on the adequacy of the EIR or Negative Declaration for use by the District [CCR §15096(e)];
2. Consider the environmental effects of the project as shown in the EIR or Negative Declaration [CCR §15096(f)];



3. Adopt feasible alternative or mitigations for the direct or indirect environmental effects of those parts of the project, which it decides to carry out, finance, or approve [CCR §15096(g)];
4. Prepare and submit mitigation monitoring and reporting programs where appropriate [PRC §21081.6 & CCR §15097];
5. Make appropriate findings [CCR §15096(h)]; and
6. File appropriate notices [CCR §15096(i)].

District Role

As a Responsible Agency, the District assists Lead Agencies by providing technical expertise in characterizing project-related impacts on air quality and is available to provide technical assistance in addressing air quality issues in environmental documents. When commenting on a Lead Agency's environmental analysis, the District reviews the air quality section of the analysis and other sections relevant to assessing potential impacts on air quality, i.e. sections assessing public health impacts. At the conclusion of its review the District may submit to the Lead Agency comments regarding the project air quality analysis. Where appropriate, the District will recommend feasible mitigation measures.

As discussed above, for projects triggering BACT, the District has discretionary approval in deciding how to permit the project. As such, District staff reviews the Lead Agency's environmental document and considers the environmental effects of the project. When issuing permits for a project that would have a significant environmental effect, the District prepares written findings and files a Notice of Determination, as required under CEQA.

7.5 Trustee/Commenting Agency

Under CEQA, an agency that has "jurisdiction by law" over a particular natural resource but does not have discretionary approval power over the project is a "Trustee Agency", otherwise known as a "Commenting Agency". CEQA Guidelines §15004(b)(2) require a Lead Agency to consult with *"Any other State, Federal, and local agencies which have jurisdiction by law with respect to the project or which exercise authority over resources which may be affected by the project...."*

District Role

The District has jurisdiction over most air quality matters in the San Joaquin Valley Air Basin and is tasked with implementing certain programs and regulations required by the Federal Clean Air Act and the California Clean Air Act. Although the District has no statutory authority over land-use, nearly all development projects in the District, from general plans to individual development applications, have the potential to generate pollutants that could adversely impact air quality or make it more difficult for the District to achieve national and State air quality attainment standards. Therefore, for most



development projects, it is necessary for the land-use agency to consult with the District in matters related to air quality impacts.

As a Trustee Agency, the District assists Lead Agencies by providing technical expertise or tools in characterizing project-related impacts on air quality and identifying potential mitigation measures, and is available to provide technical assistance in addressing air quality issues in environmental documents. At the conclusion of its review the District may submit to the Lead Agency comments regarding the project air quality analysis. Where appropriate, the District will recommend feasible mitigation measures. The process is subject to change due to the District's continuous improvements efforts.

7.6 Environmental Review Process

The environmental review process imposes both procedural and substantive requirements. At a minimum, an initial review of the project and its environmental effects must be conducted. Depending on the potential effects, a further, and more substantial, review may be conducted in the form of an environmental impact report (EIR). A project may not be approved as submitted if feasible alternatives or mitigation measures are able to substantially lessen the significant environmental effects of the project.



"Project" under CEQA

The CEQA Statutes (PRC §21065) define "project" as the whole of an activity, which may cause either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment, and which is any of the following:

1. An activity directly undertaken by a public agency;
2. An activity undertaken by a person which is supported, in whole or in part, through contracts, grants, subsidies, loans, or other forms of assistance from one or more public agencies;
3. An activity that involves the issuance to a person of a lease, permit, license, certificate;
4. Or other entitlement for use by one or more public agencies.

7.7 CEQA "Steps"

The CEQA procedure involves a number of steps which produce an environmental document examining the Lead Agency's as well as the responsible and/or trustee agencies' permit decisions. An agency will normally take up to three separate steps in deciding which document to prepare for a project subject to CEQA.



7.7.1 CEQA Step 1: CEQA Exemptions

In the first step the Lead Agency examines the project to determine whether the project is subject to CEQA at all. An activity is not subject to CEQA if:

1. The activity does not involve the exercise of discretionary powers by a public agency;
2. The activity will not result in a direct or reasonably foreseeable indirect physical change in the environment; or
3. The activity is not a project as defined in PRC §21065.

Once a Lead Agency has determined that an activity is a project subject to CEQA, a Lead Agency shall determine whether the project is exempt from CEQA. A project is exempt from CEQA if:

1. The project is exempt by statute (See CCR §15260).
2. The project is exempt pursuant to a categorical exemption (See CCR §15300) and the application of that categorical exemption is not barred by one of the exceptions set forth in CCR §15300.2.
3. The activity is covered by the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment. Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA (see CCR §15061 (b)(3))
4. The project will be rejected or disapproved by a public agency (see CCR §15270(b))
5. The project is exempt pursuant to the provisions of Article 12.5 (Exemptions for Agricultural Housing, Affordable Housing, and Residential Infill Projects) of Chapter 3 “Guidelines for Implementation of the California Environmental Quality Act”.

It should be noted that a public agency can also, in the course of establishing its own procedures, list those specific activities which fall within each of the categorical exempt classes (see CCR §15300.4). If the project is exempt, the process does not need to proceed any further. The agency may prepare a Notice of Exemption. [See: CCR §15061 and §15062].



7.7.2 CEQA Step 2: Initial Study

If the project is not exempt, the Lead Agency takes the second step and conducts an Initial Study (See: CCR §15063) to determine whether the project may have a significant effect on the environment. The air quality impact of a project is determined by examining the types and levels of emissions generated by the project, the existing air quality conditions, and neighboring land uses.

The purposes of an Initial Study are to:

1. Provide the Lead Agency with information to use as the basis for deciding whether to prepare an EIR or a Negative Declaration;
2. Enable an applicant or Lead Agency to modify a project, mitigating adverse impacts before an EIR is prepared, thereby enabling the project to qualify for a Negative Declaration;
3. Assist in the preparation of an EIR, if one is required, by:
 - a. Focusing the EIR on the effects determined to be significant,
 - b. Identifying the effects determined not to be significant,
 - c. Explaining the reasons for determining that potentially significant effects would not be significant, and
 - d. Identifying whether a program EIR, tiering, or another appropriate process can be used for analysis of the project's environmental effects;
4. Facilitate environmental assessment early in the design of a project;
5. Provide documentation of the factual basis for the finding in a Negative Declaration that a project will not have a significant effect on the environment;
6. Eliminate unnecessary EIRs; and
7. Determine whether a previously prepared EIR could be used with the project.

Project Analysis

The Initial Study should analyze all phases of project planning, construction and operation, as well as cumulative impacts. When considering a project's impact on air quality, a Lead Agency should provide substantial evidence that supports its conclusions in an explicit, quantitative analysis whenever possible. An initial study may rely upon expert opinion supported by facts, technical studies or other substantial evidence to document its findings. However, an initial study is neither intended nor required to include the level of detail included in a Negative Declaration (ND), a Mitigated Negative Declaration (MND), or an EIR (CCR §15063(a)(3)).

If it is not obvious that a project's air quality impacts are less than significant, Lead Agencies should prepare an analysis report that includes a quantitative air quality assessment to determine the project's impact on air quality. The analysis report should also contain the information described below.



- **Climate and Topography.** Provide a description of the influence of climate and topography on a project's impacts on local and regional air quality.
- **Regulatory Environment.** Describe the regulatory requirements in the District.
- **Prevention of Significant Deterioration (PSD) Consideration.** The analysis should place special emphasis on air quality resources that are rare or unique to the region and would be affected by the project. Regulatory requirements identify areas that are pristine and classified as Class I airsheds. These airsheds are subject to specific standards, e.g. Prevention of Significant Deterioration requirements. Within the District, the Kings Canyon and Sequoia National Parks and Ansel Adams, Kaiser, John Muir, and Domeland Wilderness Areas are Class I areas. Any project proposed in the vicinity of one of these areas should note its proximity to a Class I area in the description of the project setting.
- **Air Quality Standards.** Identify state and federal AAQS for all criteria pollutants. Provide the air quality attainment status for the criteria pollutants.
- **Ambient Air Quality.** Summarize ambient air quality, including data for at least the last three years from the air quality monitoring station(s) closest to the project site. The setting should also include basin-wide data for ozone given its regional characteristics.
- **Existing Emissions.** Describe any existing emissions from the project site, if applicable. Include any District permitted stationary sources of emissions that are being eliminated.
- **Sensitive Receptors.** Identify any sensitive receptors located near the project site. For CEQA purposes, a sensitive receptor is generically defined as a location where human populations, especially children, seniors, and sick persons are found, and there is reasonable expectation of continuous human exposure according to the averaging period for the AAQS (e.g., 24-hour, 8-hour, 1-hour). These typically include residences, hospitals, and schools. Locations of sensitive receptors may or may not correspond with the location of the maximum off-site concentration. The location of sensitive receptors should be explained in terms that demonstrate the relationship between the project site and potential air quality impacts (e.g., proximity, topography, or upwind or downwind location). The analysis should also identify reasonably foreseeable sensitive receptors. This would include future receptors if development is pending, as well as potential receptors that could reasonably be sited nearby based on permitted zoning or land use designations. Land uses in the vicinity of the project site should be extensively described in the



Land Use Section of an EIR. If no sensitive receptors are in the project vicinity, the Land Use Section may be referenced with an appropriate reference to the lack of sensitive receptors. If sensitive receptors are in the project vicinity, the Land Use Section may also be referenced, but the description of any sensitive receptors should be expanded upon as necessary for air quality impact analysis purposes.

- **Sources of Air Pollutants in Project Vicinity.** Identify sources of air pollutants on or near the project site. The description of existing air pollution sources should include criteria pollutants, toxic air contaminants, and nuisance emissions such as odors and dust. More detailed information regarding existing emissions, including emissions of odors and toxic air contaminants, may be obtained by contacting the District.
- **Transportation System.** Describe the transportation system serving the project site. Discuss traffic conditions, including traffic volumes and levels of service; transit service; and other relevant transportation facilities such as bicycle facilities, shuttle services, telecommuting centers, etc. The discussion of the existing transportation system should describe both current conditions and future conditions with the project. Much of this information may be located in the Traffic and Circulation section of the EIR (or Initial Study). Many EIR traffic and circulation sections, however, do not adequately describe bicycle facilities, telecommuting centers, and other alternative transportation forms. The traffic and circulation information may be referenced and/or summarized, but any additional information relative to non-motorized trip reduction alternatives not discussed should be described as necessary and appropriate for the project in the air quality setting.

Project Air Impact Assessment – District Approved Model

When quantifying project emissions, the latest approved models by the District should always be used for air quality analysis. Models are subject to change. At the time of writing, the model available is the California Emissions Estimator Model (CalEEMod). CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and greenhouse gas (GHG) emissions associated with both construction and operations from a variety of land use projects. The model quantifies direct emissions from construction and operations (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use.



*The model is available at www.caleemod.com and at http://www.valleyair.org/transportation/air_quality_models.htm
Assistance with operating the model is available by contacting the District at (559) 230-6000, or hramodeler@valleyair.org*

Initial Study Conclusion

If the Initial Study shows that there is no substantial evidence that the project may have a significant effect or identifies potentially significant effects but the project is revised to avoid or mitigate those significant effects, the Lead Agency prepares a Negative Declaration (ND) or a Mitigated Negative Declaration (MND) (See: CCR §15070 et seq.). If the Initial Study shows that the project may have a significant effect, the Lead Agency takes the third step and prepares an EIR [See: CCR §15080 et seq.].

7.7.3 CEQA Step 3: Environmental Impact Report

This third step consists of preparing the Environmental Impact Report (EIR). (See: CCR §15080 et seq.). This report provides State and local agencies and the general public with detailed information on the potentially significant environmental effects which a proposed project is likely to have and to list ways which the significant environmental effects may be minimized and indicate alternatives to the project.

Information Needed for District Review

In order for the District to properly review a project for which an Initial Study has been conducted, Lead Agencies should send a complete project description and location (preferably including a map), site plans, and tentative tract or parcel maps, if applicable; and data relative to number of vehicles or trips associated with the project. At minimum, Lead Agencies should allow ten working days for the District to respond.

Environmental Impact Report: For all EIRs prepared for projects in the District, the District requests that it be sent the Notice of Preparation (NOP). The CEQA Guidelines require that the NOP include, at minimum, a description of the project, project location, and the probable environmental effects of the project. The CEQA Guidelines provides for a 30-day consultation period for NOPs.

Where an air quality study is prepared for a project, it should be summarized and the results reported in the Draft EIR and the entire air quality study should be included as an appendix or as a separate report. The air quality report should include a brief air quality setting, the



emissions analysis results, results of other air analyses, and a description of mitigation measures used to reduce the project's emissions. Provide either full documentation of calculations with justification of mitigation measures used when using manual method of quantification or using a model approved by the District. All assumptions used in the modeling analysis for any project should be clearly stated. When the Draft EIR includes air quality mitigation measures, the required mitigation monitoring and reporting should be included in or with the Draft EIR. The District recommends that the modeling outputs be provided as appendices to the EIR. The District further recommends that the District be provided with an electronic copy of all input and output files for all modeling.

Negative Declaration/Mitigated Negative Declaration: The District needs all of the basic information required by CEQA Guidelines in order to provide a thorough review. This includes a brief description of the project, including a commonly used name for the project, if any; the location of the project, preferably shown on a map; and the name of the project proponent. To help the District identify previously reviewed projects, this information should correspond to, or reference, the same information provided during the Initial Study consultation process. The Lead Agency should include a copy of the Initial Study that documents reasons to support the Negative Declaration. Finally, any mitigation measures included in the project to avoid potentially significant effects should be in the consultation packet. If an air quality study is prepared for a project at the Initial Study level, it should be summarized and the results reported in the Initial Study and the entire air quality study should be provided to the District. All assumptions used in the modeling analysis for any project should be clearly stated.

Where an air quality study is prepared for a project, it should be summarized and the results reported in the Draft Negative Declaration/Mitigated Negative Declaration and the entire air quality study should be included as an appendix or as a separate report. The air quality report should include a brief air quality setting, the emissions analysis results, results of other air analyses, and a description of mitigation measures used to reduce the project's emissions. Provide either full documentation of calculations with justification of mitigation measures used when using manual method of quantification or using a model approved by the District. All assumptions used in the modeling analysis for any project should be clearly stated. When the Draft Negative Declaration/Mitigated includes air quality mitigation measures, the required mitigation monitoring and reporting should be included in or with the Draft Negative Declaration/Mitigated. The District recommends that the modeling outputs be provided as appendices to the Draft Negative Declaration/Mitigated. The District further recommends that the District be

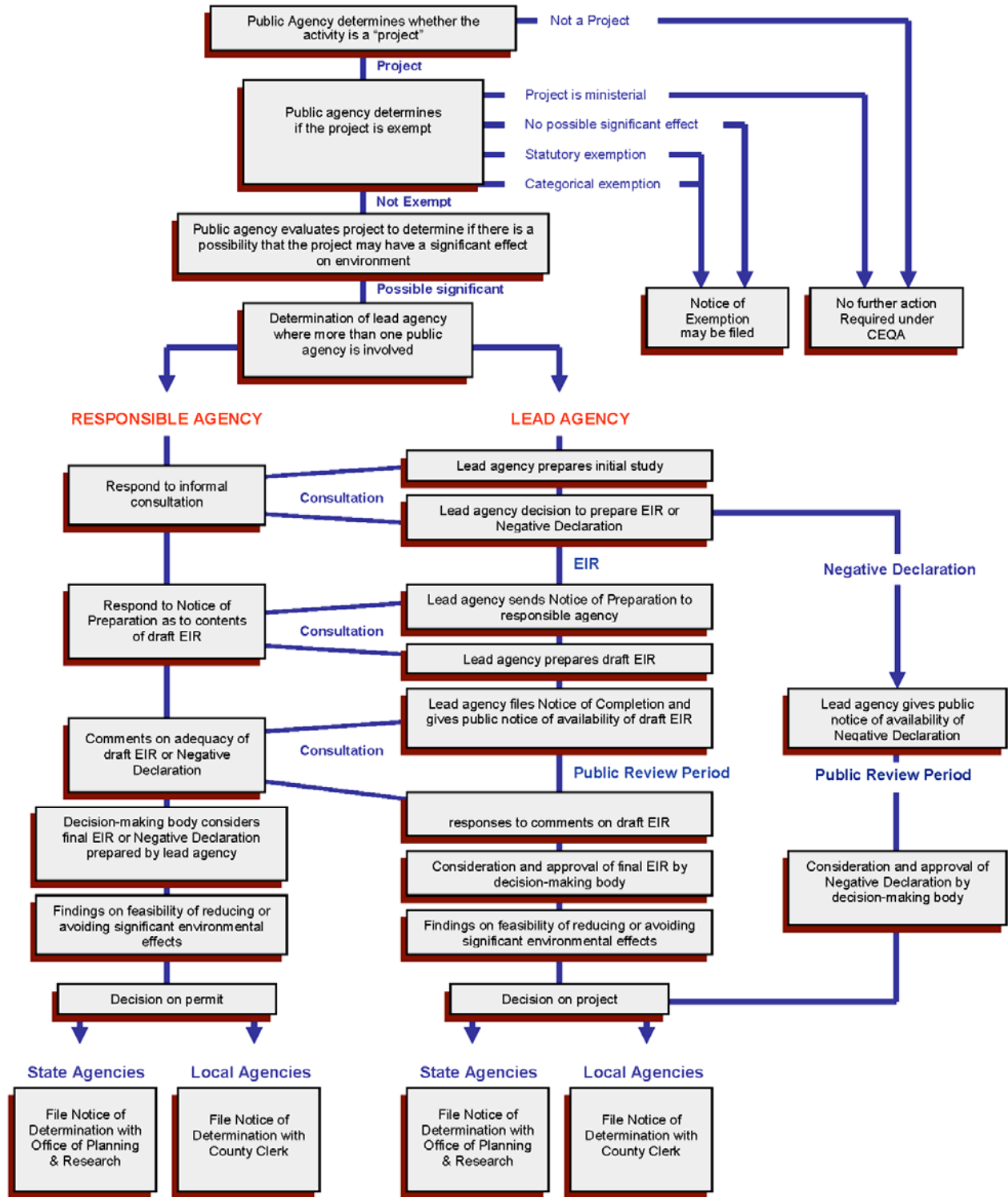


provided with an electronic copy of all input and output files for all modeling.

Response to Comments: A Lead Agency's response to the District's comments on a Draft EIR may be in the form of the final EIR or may be a separate letter. The response should include the date, time, and location for when the Lead Agency proposes to certify the EIR.



Figure 5: *CEQA Process Flowchart*





7.8 Consultation with the District

CEQA provides that if a project may have a significant environmental effect the Lead Agency shall either prepare an Initial Study or proceed directly with preparation of an EIR [CCR §15063(a)]. As soon as a Lead Agency has determined that an Initial Study will be required, the Lead Agency shall consult informally with all Responsible Agencies and all Trustee Agencies responsible for resources affected by the project to



obtain recommendations as to whether an EIR or a Negative Declaration should be prepared [CCR §15063(g)]. The District is available for consultation at any time in the project review process, but there are certain times when consultation is required. When the District has discretionary approval authority over a project for which another public agency is serving as Lead Agency, it is to be consulted as a Responsible Agency. When the District does not have any approval authority over a project, the District may be consulted as a commenting agency. CEQA requires or provides opportunities for consultation at various times during the environmental review process. These include opportunities for review prior to the preparation of the environmental document and during public review of the completed document. CEQA guidelines do not specify a time period for the informal consultation period; however, the District recommends Lead Agencies allow a minimum of ten working days.

In addition to satisfying CEQA requirements, identifying significant air quality impacts and mitigation measures early in the development of a project will allow fundamental design changes for the benefit of air quality at the lowest possible cost. The District invites project proponents, Lead Agencies, and interested parties to contact District staff or visit the District's Central Region office for consultation on the use of this guidance document or project review.

In addition to total annual emissions of criteria pollutants, the significance of project specific impacts on air quality is influenced by proximity of emission sources to sensitive receptors, frequency and duration of exposure, and the type of pollutant being emitted. Thus, not all projects require the same level of air quality assessment. When consulting with the District, it is imperative that all relevant emission sources be disclosed; permitted sources (e.g.: stationary sources) and non-permitted sources (e.g., construction related activities sources, and mobile sources), as well as proximity to sensitive receptors.

When provided sufficient project details, District staff's review of potential environmental impacts on air quality include the following determinations:



- Accuracy of the air quality setting data;
- Appropriate modeling assumptions;
- Whether air quality impacts are adequately described;
- Whether feasible mitigation measures are identified; and
- Whether the District agrees with the overall conclusions regarding impacts on air quality.

To facilitate District review of the proposed project, the District recommends that a Lead Agency's consultation request includes the following information:

- Complete and accurate project description, including project proponent contact information
- Identification of potential emission sources and potential magnitude including air pollutant emissions resulting from:
 - Construction related activities;
 - Operational activities; and
 - Mobile source activities
- Land use designation
- Project size
- Proximity to sensitive receptors
- Conformance with ARB's *Recommendations on Siting New Sensitive Land Uses*
- A copy of the Lead Agency's Initial Study, if prepared
- Identification of project design elements or potential mitigation measures that would reduce project-related impacts on air quality

The consultation process can be further expedited when the Lead Agency or project proponent has conducted a screening level analysis to identify potential impacts on air quality. Lead Agencies are encouraged to use the screening tool presented in section 6.5 (Potential Land Use Conflicts and Exposure of Sensitive Receptors) to identify potential conflicts between land use and sensitive receptors and include the result of their analysis in the referral document.

The most current screening tools are available on the District's website:
www.valleyair.org/ceqa

7.9 Determining Significance

The determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data. An ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting (See:



CCR §15064 et seq.). When evaluating environmental impacts of a project, all project phases must be considered: planning, acquisition, development, and operation.

The decision as to whether a project may have one or more significant effects shall be based on substantial evidence in the record. Substantial evidence shall include facts, reasonable assumptions predicated upon facts and expert opinion supported by facts. Argument, speculation, unsubstantiated opinion or narrative, or evidence that is clearly inaccurate or erroneous, or evidence that is not credible, shall not constitute substantial evidence (CCR §15064(f)(5)). In determining whether a project would have an adverse environmental impact both direct physical changes in the environment and reasonably foreseeable indirect physical changes in the environment, which may be caused by the project shall be considered (CCR §15064(d)).

CEQA Guidelines establish the required content in environmental review documents. However, standards of adequacy for environmental assessments are not precise. Readers should be aware that the adequacy of an assessing significance is influenced by changes in statutes, guidelines, and case law.

“Substantial evidence”, as used in the CEQA guidelines, means enough relevant information and reasonable inferences from this information that a fair argument can be made to support a conclusion, even though other conclusions might also be reached. Whether a fair argument can be made that the project may have a significant effect on the environment is to be determined by examining the whole record before the Lead Agency. Argument, speculation, unsubstantiated opinion or narrative, evidence which is clearly erroneous or inaccurate, or evidence of social or economic impacts, which do not contribute to or are not caused by physical impacts on the environment does not constitute substantial evidence. Substantial evidence shall include facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts.

7.10 Thresholds of Significance

A threshold of significance is an identifiable quantitative, qualitative or performance level of a particular environmental effect. Non-compliance with a threshold of significance means the effect will normally be determined to be significant. Compliance with a threshold of significance means the effect normally will be determined to be less than significant (CCR §15064.7).

Under CEQA, each public agency is encouraged to develop and publish thresholds of significance that the agency uses in the determination of the significance of environmental effects. Thresholds of significance to be adopted for general use as part of the Lead Agency’s environmental review process must be adopted by ordinance, resolution, rule, or regulation, and developed through a public review process and be supported by substantial evidence. When adopting thresholds of significance, a Lead Agency may consider thresholds of significance previously adopted or recommended by other public



agencies or recommended by experts, provided the decision of the Lead Agency to adopt such thresholds is supported by substantial evidence (CCR §15064.7).

As discussed further in Chapter 8 of this document, the District has established thresholds of significance for assessing potential air quality impacts.

Specific information for assessing significance of project specific impacts on air quality, including screening tools and modeling guidance is available online at www.valleyair.org/ceqa

Furthermore, the District maintains a staff of air quality specialists, highly trained in assessing air quality impacts. For large, unusual, or complex projects, the District recommends that Lead Agencies and project proponents contact the District to discuss project specific details.

The District recommends that other agencies apply the adopted air quality significance thresholds when evaluating project specific impacts on air quality within the San Joaquin Valley. However, it is recognized that the final determination of whether a project would have a significant effect on air quality is ultimately within the purview of the Lead Agency (CCR §15064(c)).

7.11 Environmental Checklist – Air Quality Impacts

The Environmental Checklist Form (Appendix G) of the CEQA Guidelines provides that the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to determine if a project would:

- 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, or
- e. Create objectionable odors affecting a substantial number of people.



7.12 Conflict With or Obstruct Implementation of the Applicable Air Quality Plan?

The District is tasked with implementing programs and regulations required by the Federal Clean Air Act and the California Clean Air Act. In that capacity, the District has prepared plans to attain Federal and State ambient air quality standards.

As presented in Chapter 8, the District has established thresholds of significance for criteria pollutant emissions, which are based on District New Source Review (NSR) offset requirements for stationary sources. Stationary sources in the District are subject to some of the toughest regulatory requirements in the nation. Emission reductions achieved through implementation of District offset requirements are a major component of the District's air quality plans. Thus, projects with emissions below the thresholds of significance for criteria pollutants would be determined to "Not conflict or obstruct implementation of the District's air quality plan".

7.13 Violate any Air Quality Standard or Contribute Substantially to an Existing or Projected Air Quality Violation?

Determination of whether project emissions would violate any ambient air quality standard is largely a function of air quality dispersion modeling. If project emissions would not exceed State and Federal ambient air quality standards at the project's property boundaries, the project would be considered to not violate any air quality standard or contribute substantially to an existing or projected air quality violation.

The need to perform an air quality dispersion modeling analysis for any project (urban development, commercial, or industrial projects) is determined on a case-by-case basis depending on the level of emissions associated with the proposed project. If such modeling is found necessary, the project consultant should check with the District to determine the appropriate model and input data to use in the analysis. Specific information for assessing significance, including screening tools and modeling guidance is available on-line at the District's website www.valleyair.org.

7.14 Result in a Cumulatively Considerable Net Increase of any Criteria Pollutant?

CEQA defines cumulative impacts as two or more individual effects which, when considered together, are either significant or "cumulatively considerable", meaning they add considerably to a significant environmental impact. An adequate cumulative impact analysis considers a project over time and in conjunction with other past, present, and reasonably foreseeable future projects whose impacts might compound those of the project being assessed.

By its very nature, air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development. Future attainment of



State and Federal ambient air quality standards is a function of successful implementation of the District's attainment plans. Consequently, the District's application of thresholds of significance for criteria pollutants is relevant to the determination of whether a project's individual emissions would have a cumulatively significant impact on air quality.

A Lead Agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program, including, but not limited to an air quality attainment or maintenance plan that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located [CCR §15064(h)(3)].

Thus, if project specific emissions exceed the thresholds of significance for criteria pollutants the project would be expected to result in a cumulatively considerable net increase of any criteria pollutant for which the District is in non-attainment under applicable Federal or State ambient air quality standards. This does not imply that if the project is below all such significance thresholds, it cannot be cumulatively significant. The thresholds of significance are presented in Chapter 8.

7.15 Expose Sensitive Receptors to Substantial Pollutant Concentrations?

Determination of whether project emissions would expose sensitive receptors to substantial pollutant concentrations is a function of assessing potential health risks.

Sensitive receptors are facilities that house or attract children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Hospitals, schools, convalescent facilities, and residential areas are examples of sensitive receptors. When evaluating whether a development proposal has the potential to result in localized impacts, Lead Agency staff need to consider the nature of the air pollutant emissions, the proximity between the emitting facility and sensitive receptors, the direction of prevailing winds, and local topography.

Lead Agencies are encouraged to use the screening tools for Toxic Air Contaminant presented in section 6.5 (Potential Land Use Conflicts and Exposure of Sensitive Receptors) to identify potential conflicts between land use and sensitive receptors and include the result of their analysis in the referral document.

7.16 Create Objectionable Odors Affecting a Substantial Number of People?

Due to the subjective nature of odor impacts, the number of variables that can influence the potential for an odor impact, and the variety of odor sources, there are no quantitative or formulaic methodologies to determine the presence of a significant odor impact.



Rather, the District recommends that odor analyses strive to fully disclose all pertinent information.

The intensity of an odor source's operations and its proximity to sensitive receptors influences the potential significance of odor emissions. The District has identified some common types of facilities that have been known to produce odors in the San Joaquin Valley. These are presented in Chapter 8 along with a reasonable distance from the source within which, the degree of odors could possibly be significant.

7.17 Notice of Intent to Adopt a Negative or Mitigated Negative Declaration

A negative declaration (ND) or mitigated negative declaration (MND) for a project subject to CEQA shall be prepared when:

1. There is no substantial evidence, in light of the whole record before the agency, that the project may have a significant effect on the environment, or
2. Revisions in the project plans or proposals made by or agreed to by the applicant would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur, and there is no substantial evidence, in light of the whole record before the agency, that the project as revised may have a significant effect on the environment (CCR §15070).

CEQA Guidelines require the Lead Agency to provide a Notice of Intent to Adopt a negative declaration or mitigated negative declaration to the public, responsible agencies, trustee agencies, and the county clerk of each county within which the proposed project is located (CCR §15072 (a)). At a minimum, the comment period for proposed negative or mitigated negative declarations is 20-days (CCR §15073 (a)). When a proposed negative declaration or mitigated negative declaration and initial study are submitted to the State Clearinghouse for review by State agencies, the public review period shall not be less than 30 days (CCR §15073 (a)).

The basic information required by CEQA Guidelines §15071 consists of:

- A brief description of the project, including a commonly used name for the project, if any;
- The location of the project, preferably shown on a map, and the name of the project proponent;
- A proposed finding that the project will not have a significant effect on the environment;
- An attached copy of the Initial Study documenting reasons to support the finding; and
- Mitigation measures, if any, included in the project to avoid potentially significant effects.



In addition to the basic information required by CEQA, the District recommends that it be provided with copies of all technical analyses that relate to air quality, including but not limited to traffic analyses, growth impact projections, health risk assessments, sensitive receptor locations, characterization of construction related emissions, and characterization of stationary, mobile sources and area source emissions.

To facilitate the District's assessment of the adequacy of the determination that a project would not result in a significant impact on air quality the District recommends that it be provided with copies, in electronic format, of all supporting modeling files for risk assessments and characterization of criteria pollutant emissions.

7.18 Notice of Preparation of Environmental Impact Report

Within established exceptions, a Lead Agency shall prepare an Environmental Impact Report (EIR) if there is substantial evidence that any aspect of a project, either individually or cumulatively, may cause a significant effect on the environment, regardless of whether the overall effect of the project is adverse or beneficial (CCR §15063(b)(1)). Upon determination to prepare an EIR, the Lead Agency shall provide each Responsible and Trustee Agency a Notice of Preparation (NOP) stating that an EIR will be prepared. The Lead Agency may begin work on the draft EIR immediately without awaiting responses to the Notice of Preparation. However, the draft EIR cannot be circulated until after the close of the 30-day comment period for the NOP has closed.

A Notice of Preparation shall provide Responsible and Trustee Agencies with sufficient information describing the project and the potential environmental effects to enable the Responsible Agencies to make a meaningful response. At a minimum, the Notice of Preparation shall include a description of the project, identify the project location, and identify probable environmental effects (CCR §15082).

The District recommends that in addition to the basic information required by CEQA, the Notice of Preparation include relevant information concerning proximity to sensitive receptors, and proximity to existing emission sources.

7.19 Disclosure of Significant Environmental Impacts

Disclosure of environmental impacts should include relevant specifics of the area, resources involved, physical changes, alterations to ecological systems, changes induced in population distribution, population concentration, and the human use of the land (including commercial and residential development). Health and safety problems caused by the physical changes shall also be discussed (CCR §15126.2).

Project specific air pollutant emissions can result from both construction and operational activities. Specific sources of air pollution emissions include on-road and off-road motor



vehicles, off-road equipment, natural gas and electricity usage, architectural coatings and solvents, fugitive emissions, area source emissions, and emissions from various commercial and industrial operations. The environmental assessment should discuss air quality impacts from all identifiable emission sources.

The environmental review should also analyze any significant environmental effects the project might cause by bringing development and people into the area affected. For example, an Environmental Impact Report (EIR) on a subdivision that would locate residences in close proximity to a source of toxic air contaminants (TACs), such as a freeway, should identify the health risk hazard to future occupants of the subdivision. Please consult section 6.5 (Potential Land Use Conflicts and Exposure of Sensitive Receptors) for a detailed discussion regarding assessing both Type A (New project impacts existing receptors) and Type B (New project impacted by existing toxic sources) projects.

To assist Lead Agencies in assessing project specific impacts on air quality, the Air Quality Section of Appendix G of the CEQA Guidelines (*Environmental Checklist Form*) contains a list of air quality effects that may be deemed potentially significant:

1. Conflict with or obstruct implementation of the applicable air quality plan;
2. Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
3. 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 standards (including releasing emissions which exceed quantitative thresholds for ozone precursors);
4. Expose sensitive receptors to substantial pollutant concentrations; or
5. Create objectionable odors affecting a substantial number of people.

For some impacts listed above, the criteria to be applied are straight forward, but for others, interpretation is required. To bring consistency to the process of analyzing project specific impacts on air quality and to assist Lead Agencies in preparing environmental assessments which meet the standards of adequacy as established under CEQA, the District has developed various screening tools to streamline the process of determining if a project has the potential to exceed District adopted thresholds of significance.

The most current screening tools are available on the District's website:
www.valleyair.org/ceqa



7.20 Consideration and Discussion of Mitigation Measures

CEQA establishes a duty for public agencies to avoid or minimize environmental damage where feasible. A public agency should not approve a project as proposed if there are feasible alternatives or mitigation measures available that would substantially lessen any significant effects that the project would have on the environment. Mitigation measures are not required for effects which are not found to be significant (CCR §15126.4(a)(3)). Mitigation measures must be fully enforceable through permit conditions, agreements, or other legally binding instruments. In the case of the adoption of a plan, policy, regulation, or other public project, mitigation measures can be incorporated into the plan, policy, regulation, or project design (CCR §15126.4(a)(2)).

Mitigation includes the following:

1. Avoiding the impact altogether by not taking a certain action or parts of an action;
2. Minimizing impacts by limiting the degree or magnitude of the action and its implementation;
3. Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment;
4. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and
5. Compensating for the impact by replacing or providing substitute resources or environments.

In deciding whether changes in a project are feasible, an agency may consider specific economic, environmental, legal, social, and technological factors (CCR §15021). When considering alternatives and mitigation measures, a Responsible Agency is more limited than a Lead Agency. A Responsible Agency has responsibility for mitigating or avoiding only the direct or indirect environmental effects of those parts of the project which it decides to carry out, finance, or approve (CCR §15096(g)).

7.21 Mitigation Monitoring and Reporting

CEQA requires that when a public agency makes findings that changes or alterations have been incorporated into the project which mitigate or avoid the significant effects identified in an EIR, or an MND, the agency must also adopt a program for reporting and monitoring mitigation measures that were adopted or made conditions of project approval. This requirement is intended to assure that mitigation measures included in a certified EIR or MND are indeed implemented. Monitoring for the measures recommended in this document is best accomplished by the agency with land use approval. A Mitigation Monitoring and Reporting Program should include the following components:



- a description of each mitigation measure adopted by the Lead Agency;
- the party responsible for implementing each mitigation measure;
- a schedule for the implementation of each mitigation measure;
- the agency or entity responsible for monitoring mitigation measure implementation;
- criteria for assessing whether each measure has been implemented;
- enforcement mechanism(s).

7.22 CEQA Streamlining

The District encourages Lead Agencies to use the streamlining opportunities provided within CEQA. The use of master EIRs, tiered EIRs, subsequent EIRs/Negative Declarations, etc. allows Lead Agencies to focus on regional and general air quality impacts early in the planning process. However, project specific impacts, particularly potential risks to sensitive receptors, cannot be fully assessed until later in the process when project specific details are known. A project that is ordinarily insignificant in its impact on the environment may, in a particularly sensitive environment, be significant. CEQA provides that a categorical exemption shall not be used for an activity where there is a reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances (CCR §15300.2(c)). Therefore, the District recommends that projects which would normally be approved, based on a previously approved environmental document, be screened to identify project specific potential impacts to nearby sensitive receptors.

7.23 Relationship between CEQA and NEPA

Some projects subject to CEQA may also require compliance under Federal environmental law, namely the National Environmental Policy Act (NEPA). Both NEPA and CEQA have similar goals. They require agencies to determine whether a proposed action or project may have a significant impact on the environment, and to determine the appropriate level of environmental review.

NEPA and CEQA are similar, both in intent and in the review process (the analyses, public engagement, and document preparation) that they dictate. Importantly, both statutes encourage a joint Federal and state review where a project requires both Federal and state approvals. Indeed, in such cases a joint NEPA-CEQA analysis may be appropriate to avoid redundancy, improve efficiency and interagency cooperation, and be easier for applicants and citizens to navigate.

When NEPA and CEQA apply, agencies must comply by using a Categorical Exclusion/Categorical Exemption, Environmental Assessment and Finding of No Significant Impact (or Mitigated Finding of No Significant Impact)/ Initial Study and



Negative Declaration (or Mitigated Negative Declaration), or an Environmental Impact Statement/Environmental Impact Report. Under certain circumstances, the CEQA Guidelines allow public agencies to use a NEPA document rather than prepare a Negative Declaration, Mitigated Negative Declaration or Environmental Impact Report.

Despite the similarities between NEPA and CEQA, there are several differences that require careful coordination between the Federal and state agencies responsible for complying with NEPA and CEQA. Conflict arising from those differences can create unnecessary delay, confusion, and legal vulnerability. In general, NEPA differs from CEQA in that it does not require a separate discussion of mitigation measures, or growth inducing impacts. These points of analysis need to be added before an Environmental Impact Statement (EIS) required under NEPA can be used as an EIR. If the NEPA and CEQA Lead Agencies will not be combining documents into one, the District recommends that the consultation notices for each document reference the other agency's contact information, including contact name and phone number.

This guidance document can also be used to prepare a NEPA or joint CEQA-NEPA analysis, unless noted otherwise. See PRC §21083.5, 21083.6, and 21083.7 and CCR §15220 - 15228 for more information on combined EIR-EIS projects.



CHAPTER 8

ASSESSING AIR QUALITY IMPACTS



8.1 Introduction

This chapter provides general guidance on assessing significance of project-related impacts on air quality.

Specific information for assessing significance, including screening tools and modeling guidance is available at the District's website: www.valleyair.org/ceqa

The Air Quality Section of Appendix G of the CEQA Guidelines (Environmental Checklist Form) contains a list of effects to be assessed using the significance criteria established by the applicable air quality management or air pollution control district to determine if a project would:

- 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, or
- e. Create objectionable odors affecting a substantial number of people.

To assess the air quality impact using these five effects per CEQA guidelines, the District has established significance thresholds to assist Lead Agencies in determining whether a project may have a significant air quality impact during the initial study. If the project exceeds the significance threshold established for an effect, the project would be considered to have a significant impact on air quality. If, during the preparation of the Initial Study, the Lead Agency finds that any of the following thresholds may be exceeded and cannot be mitigated, then a determination of significant air quality impact must be made and an EIR is required.

While CEQA Guidelines state that an ironclad definition of a significant effect is not possible because the significance of an effect may vary with the setting, the District has determined that the setting, as referred to in CEQA, can be defined for air quality. Under California state law, the SJVAB is defined as a distinct geographic area with a critical air pollution problem for which ambient air quality standards have been promulgated to protect public health. As such, the District resolves that significance thresholds established herein are based on scientific and factual data.

Therefore, the District recommends that the Lead Agencies apply the adopted significance thresholds when evaluating project specific impacts on air quality within the San Joaquin Valley. If the Lead Agency determines the proposed project would exceed



any of the significance thresholds, then an environmental document should be prepared. However, it is recognized that the final determination of whether a project would have a significant effect on air quality is ultimately within the purview of the Lead Agency pursuant to CEQA Guidelines (CCR §15064(c)).

The District identifies thresholds that separate a project's short-term emissions from its long-term emissions. The short-term emissions are mainly related to the construction phase of a project and are recognized to be short in duration. The long-term emissions are mainly related to the activities that will occur indefinitely as a result of project operations. In addition, CEQA states that another condition that could establish a project as having a significant effect on the environment is effects that are considered "cumulatively considerable." Thresholds for project construction impacts, project operations, and cumulative impacts are discussed below.

This chapter along with the thresholds of significance also presents District Rules and Regulation in relation to assessing the project-related impacts. The District recommends that any air quality assessment reflect emission reductions achieved through compliance with District rules and regulations.

8.2 District Rules and Regulations

Project subject to District rules and regulation would reduce its impacts on air quality through compliance with regulatory requirements. In general, a regulation is a collection of rules, each of which deals with a specific topic. For example, Regulation II (Permits) deals with permitting emission sources and includes rules such as District permit requirements (Rule 2010), New and Modified Stationary Source Review (Rule 2201), and implementation of Emission Reduction Credit Banking (Rule 2301). The following is a list of common rules and regulation that can be applicable to a project.

*Current District rules can be found online:
www.valleyair.org/rules/1ruleslist.htm.*

8.2.1 District Regulation II (Permits)

District Regulation II (Permits) applies to permitted emission sources and includes rules such as District permit requirements (Rule 2010), New and Modified Stationary Source Review (Rule 2201), and implementation of Emission Reduction Credit Banking (Rule 2301).

Many industrial projects and some commercial projects require District permits. Rule 2010 states that "any person who plans to or does operate, construct, alter, or replace any source of emission of air contaminants" must obtain approval of the Air



Pollution Control Officer and receive an Authority to Construct and a Permit to Operate.

Examples of air contaminant emitting equipment and processes include (but are not limited to) the following:

- Agricultural products processing
- Bulk material handling
- Chemical blending, mixing, manufacturing, storage, etc.
- Combustion equipment (boilers, engines, heaters, incinerators, etc.)
- Metals etching, melting, plating, refining, etc.
- Plastics & fiberglass forming and manufacturing
- Petroleum production, manufacturing, storage, and distribution
- Rock & mineral mining and processing
- Solvent use (degreasing, dry-cleaning, etc.)
- Surface coating and preparation (painting, blasting, etc.)

District Regulation II ensures that stationary source emissions will be reduced or mitigated to below the District's significance thresholds. However, the Lead Agency can, and should, make an exception to this determination if special circumstances suggest that the emissions from any permitted or exempt source may cause a significant air quality impact. For example, if a source may emit objectionable odors, then odor impacts on nearby receptors should be considered a potentially significant air quality impact.

District implementation of New Source Review (NSR) ensures that there is no net increase in emissions above specified thresholds from New and Modified Stationary Sources for all nonattainment pollutants and their precursors. Furthermore, in general, permitted sources emitting more than the NSR Offset Thresholds for any criteria pollutant must offset all emission increases in excess of the thresholds. However, under certain circumstances, the District may be precluded by state law or other District rule requirements from requiring a stationary source to offset emissions increases.

CEQA also requires that the project description include a list of agencies that are expected to use the environmental document in their decision-making, and a list of the approvals for which the environmental document will be used. If the project will require a permit from the District, this should be cited in the project description section of the CEQA document.



8.2.2 District Regulation IV (Prohibitions)

District Regulation IV (Prohibitions) is comprised of prohibitory rules that are written to achieve emission reductions from specific source categories or from all sources. These rules are applicable to existing sources (retrofit requirements) as well as new sources. Examples of source specific prohibitory rules include Rule 4570 (Confined Animal Facilities), Rule 4623 (Storage of Organic Liquids), and Rule 4901 (Wood burning Fireplaces and Wood Burning Heaters). The above list of rules is neither exhaustive nor exclusive. Within the environmental assessment, it is not necessary to identify all prohibitory rules that would apply to a specific project. However, applicants are encouraged to contact the District's Small Business Assistance Office to identify District rules or regulations that apply to the project or to obtain information about District permit requirements. By phone at: Fresno (559) 230-5888; Bakersfield (661) 392-5665; Modesto (209) 557-6446.

8.2.3 District Regulation VIII (Fugitive PM₁₀ Prohibition)

The purpose of Regulation VIII (Reg. VIII) is to reduce ambient concentrations of fine particulate matter (PM₁₀) by requiring actions to prevent, reduce or mitigate anthropogenic fugitive dust emissions. Reg. VIII requires property owners, contractors, developers, equipment operators, farmers and public agencies to control fugitive dust emissions from specified outdoor fugitive dust sources, including:



- Construction sites
- Excavation, Demolition, and other earthmoving activities
- Bulk material handling, storage and transport
- Carryout and Trackout
- Vacant land
- Paved and unpaved roads
- Unpaved vehicle traffic areas



Regulation VIII specifies the following measures to control fugitive dust:

- Apply water to unpaved surfaces and areas
- Use non-toxic chemical or organic dust suppressants on unpaved roads and traffic areas
- Limit or reduce vehicle speed on unpaved roads and traffic areas
- Maintain areas in a stabilized condition by restricting vehicle access



- Install wind barriers
- During high winds, cease outdoor activities that disturb the soil.
- Keep bulk materials sufficiently wet when handling
- Store and handle materials in a three-sided structure
- When storing bulk materials, apply water to the surface or cover the storage pile with a tarp
- Don't overload haul trucks. Overloaded trucks are likely to spill bulk materials
- Cover haul trucks with a tarp or other suitable cover. Or, wet the top of the load enough to limit visible dust emissions
- Clean the interior of cargo compartments on emptied haul trucks prior to leaving a site
- Prevent trackout by installing a trackout control device
- Clean up trackout at least once a day. If along a busy road or highway, clean up trackout immediately
- Monitor dust-generating activities and implement appropriate measures for maximum dust control

For projects in which construction related activities would disturb equal to or greater than 1-acre of surface area, the District recommends that demonstration of receipt of a District approved Dust Control Plan or Construction Notification form, before issuance of the first grading permit, be made a condition of project approval.

It should be noted that although compliance with District Regulation VIII substantially reduces project specific fugitive dust emissions, it may not be sufficient to reduce project specific emissions to less than significant levels. Furthermore, District Regulation VIII does not reduce construction exhaust emissions.

8.2.4 District Rule 9510 (Indirect Source Review)

District Rule 9510 (ISR) is intended to reduce a project's impact on air quality through project design elements or mitigation by payments of applicable off-site mitigation fees. Compliance with Rule 9510 will reduce construction exhaust NO_x and PM₁₀ emissions by 20 percent and 45 percent respectively. Compliance with Rule 9510 will reduce operational emissions of NO_x and PM₁₀ emissions by 33.3 percent and 50 percent respectively.

Individual development projects would be subject to ISR requirements if upon full build-out the project would include or exceed any one of the following:

- 50 dwelling units;
- 2,000 square feet of commercial space;
- 25,000 square feet of light industrial space;
- 100,000 square feet of heavy industrial space;



- 20,000 square feet of medical office space;
- 39,000 square feet of general office space;
- 9,000 square feet of educational space;
- 10,000 square feet of government space;
- 20,000 square feet of recreational space; or
- 9,000 square feet of space not identified above

The ISR rule also applies to any transportation or transit project where construction exhaust emissions equal or exceed two (2.0) tons NO_x or two (2.0) tons of PM₁₀.

For projects subject to District Rule 9510, the District recommends that demonstration of compliance with District Rule 9510, including payment of all applicable fees before issuance of the first building permit, be made a condition of project approval.

*Information on District Rule 9510 can be found on the District's website:
www.valleyair.org/ISR/ISRHome.htm*

It should be noted that although compliance with District Rule 9510 substantially reduces project specific impacts on air quality, it may not be sufficient to reduce project specific emissions to less than significant levels.

8.2.5 District Rule 9410 (Employer Based Trip Reduction)

The eTRIP Rule (Rule 9410, Employer Based Trip Reduction), requires larger employers to establish an Employer Trip Reduction Implementation Plan (eTRIP). An eTRIP is a set of measures that encourages employees to use alternative transportation and ridesharing for their morning and evening commutes. Each measure contributes to a workplace where it is easier for employees to choose to use ridesharing or alternative transportation. Through this rule, single-occupancy vehicle trips are reduced, thus reducing emissions of oxides of nitrogen (NO_x), volatile organic compounds (VOC) and particulate matter (PM).



*Detailed information regarding the eTrip rule can be found at
www.valleyair.org/Programs/Rule9410TripReduction/eTRIP_main.htm*



8.3 Thresholds of Significance – Criteria Pollutant Emissions

As of the date of this document, the District’s current adopted thresholds of significance for criteria pollutant emissions and their application is presented in the following table.

Table 2: Air Quality Thresholds of Significance – Criteria Pollutants

Pollutant/Precursor	Construction Emissions	Operational Emissions	
		Permitted Equipment and Activities	Non-Permitted Equipment and Activities
	<i>Emissions (tpy)</i>	<i>Emissions (tpy)</i>	<i>Emissions (tpy)</i>
CO	100	100	100
NOx	10	10	10
ROG	10	10	10
SOx	27	27	27
PM ₁₀	15	15	15
PM _{2.5}	15	15	15

Check for updated thresholds of significance at www.valleyair.org/ceqa

The significance of the impacts of the emissions from construction, operational non-permitted equipment and activities, and operational permitted equipment and activities are evaluated separately. The thresholds of significance are based on a calendar year basis. For construction emissions, the annual emissions are evaluated on a rolling 12-month period.

A project evaluation should characterize emissions associated with the following:

Construction related emissions

- Grading, excavation, road building, and other earth moving activities
- Travel by construction equipment, especially on unpaved surfaces
- Exhaust from construction equipment
- Architectural coatings
- Asphalt paving
- Demolition and renovation of buildings
- Off-road construction equipment



Operational related emissions

- Permitted equipment and activities (Stationary Source Equipment)
- Non-permitted equipment and activities
- Mobile sources (on-site and on-road)
- Non-permitted activities

8.3.1 Basis for Air Quality Thresholds of Significance

The District has determined that use of District Rule 2201 (New Source Review - NSR) Offset thresholds as the District thresholds of significance for criteria pollutants under CCR §15064.7 is an appropriate and effective means of promoting consistency in significance determinations within the environmental review process and is applicable to both stationary and non-stationary emissions sources. The general term, “stationary sources,” refers to facilities that are subject to Air District air quality permitting. “Stationary source projects” are proposals that include, at least in part, equipment or activities that are subject to District air quality permitting. Board-adopted revisions to criteria pollutant offset thresholds in the District NSR Rule serve as board-adopted revisions to the District CEQA significance thresholds for criteria pollutants.

As presented in Chapter 3, at the Federal level, the District is designated as extreme nonattainment for the 8-hour ozone standard and is designated nonattainment for Federal PM_{2.5} standards. Consistent with Clean Air Act requirements, the District has adopted attainment plans that demonstrate how the District will attain and maintain the National Ambient Air Quality Standards. These plans are developed through a public process, formally adopted by the State, and submitted by the Governor’s designee to the US EPA. The Clean Air Act requires EPA to review each plan and any plan revisions and to approve the plan or plan revisions if consistent with the Clean Air Act.

NSR is a major component of the District’s attainment strategy as it relates to growth. It applies to new and modified stationary sources of air pollution. NSR provides mechanisms, including emission trade-offs, by which Authorities to Construct such sources may be granted, without interfering with the attainment or maintenance of Ambient Air Quality Standards. District implementation of NSR ensures that there is no net increase in emissions above specified thresholds from new and modified Stationary Sources for all nonattainment pollutants and their precursors.

Under NSR, all new permitted sources (emission units) with emission increases exceeding two (2) pounds per day, for any criteria pollutant is required to implement best available control technology (BACT). As defined in District Rule 2201, BACT is:



The most stringent emission limitation or control technique of the following:

1. Achieved in practice for such category and class of source;
2. Contained in any State Implementation Plan approved by the Environmental Protection Agency for such category and class of source. A specific limitation or control technique shall not apply if the owner of the proposed emissions unit demonstrates to the satisfaction of the APCO that such a limitation or control technique is not presently achievable; or
3. Contained in an applicable federal New Source Performance Standard; or
4. Any other emission limitation or control technique, including process and equipment changes of basic or control equipment, found by the APCO to be cost effective and technologically feasible for such class or category of sources or for a specific source.

Furthermore, all permitted sources emitting more than the New Source Review Offset Thresholds for any criteria pollutant must offset all emission increases in excess of the thresholds.

The District's thresholds of significance for criteria pollutants are applied to evaluate regional impacts of project specific emissions of air pollutants. Regional impacts of a project can be characterized in terms of total annual emissions of criteria pollutants and their impact on the District's ability to reach attainment.

The District's attainment plans demonstrate that project specific emissions below the District's offset thresholds will have a less than significant impact on air quality. Thus, the District concludes that use of District NSR Offset thresholds as the District thresholds of significance for criteria pollutants under CCR §15064.7 is an appropriate and effective means of promoting consistency in significance determinations within the environmental review process and are applicable to both stationary and non-stationary emissions sources. Board-adopted revisions to criteria pollutant offset thresholds in the District NSR Rule serve as board-adopted revisions to the District CEQA thresholds of significance for criteria pollutants.

As of this writing, the current NSR offset threshold for $PM_{2.5}$ is greater than the PM_{10} offset threshold. Since the thresholds of significance are based on the NSR offset thresholds, this would result in a $PM_{2.5}$ threshold that is higher than the PM_{10} threshold. In practice this is not possible since $PM_{2.5}$ is a subset of PM_{10} . Therefore, the $PM_{2.5}$ threshold of significance is based on the PM_{10} NSR offset threshold rather than the $PM_{2.5}$ NSR offset threshold.



8.3.2 Basis for Separate Construction and Operational Emission Thresholds

Emissions occurring in the construction phase of a project are evaluated separately from emissions occurring in the operational phase. The reason for this separation is that construction produces only temporary impacts while the operational phase will produce emissions indefinitely into the future. Although construction activities can produce substantial emissions and can represent a significant air quality impact, the effect is not permanent. In addition, construction emissions and operational emissions generally do not occur at the same time.

Also, measures to reduce and mitigate impacts from short-term activities differ from those applicable to long-term activities.

8.3.3 Basis for Separate Permitted and Non-Permitted Operational Emission Thresholds

Operational emissions from permitted equipment and activities are evaluated separately from non-permitted equipment and activities.

The District considered several options for assessing significance of operational emission impacts from permitted and non-permitted equipment and activities. Using emissions of NO_x as an example, the optional paths can be described as follows:

- Option 1:* Establish a single threshold equal to the sum of the individual threshold of significance for permitted and non-permitted equipment and activities. For example, for NO_x, the threshold of significance would be 20 tons year.

- Option 2:* Establish a single threshold of significance equal to the individual threshold of significance for permitted and non-permitted equipment and activities. For example, for NO_x, the threshold of significance would be 10 tons per year applied to the sum of permitted and non-permitted equipment and activities

- Option 3:* Establish separate thresholds of significance for permitted and non-permitted equipment and activities, equal to its respective individual threshold of significance. For example, for NO_x, the threshold of significance would be respectively 10 tons per year each for permitted and for non-permitted equipment and activities.



Option 4: Establish separate thresholds of significance for permitted and non-permitted equipment and activities, at some level below its respective individual threshold of significance. For example, for NO_x, the threshold of significance would be less than 10 tons per year each for permitted and for non-permitted equipment and activities.

Option 1 is rejected because projects having only non-permitted emissions would be allowed 20 tons per year of NO_x emissions before being determined to have a significant impact and required to implement all feasible mitigations. Option 1 was further rejected for projects having only permitted emissions because allowing 20 tons per year of NO_x emissions before being found to have a significant impact and required to implement all feasible mitigations is contrary to the rationale that arrived at the establishment of the 10 ton per year NO_x significance level for permitted sources: namely, district ozone and particulate attainment plans that demonstrate the expectation of attaining clean air standards while requiring mitigation for project increases above 10 tons per year of NO_x emissions from a stationary source.

Option 2 is similar to Option 1, but establishes a threshold of 10 tons per year of NO_x which is applied to the sum of permitted and non-permitted emissions. This approach is more environmentally protective than Option 1, because of the lower threshold. Option 2 would be acceptable for projects with emissions limited to permitted sources only. Only 10 tons of NO_x emissions would be allowed before triggering a finding of significance and requirement of all feasible mitigations. That level of emissions increase is consistent with emissions accounted for in District attainment plans.

Similarly, Option 2 would be acceptable for projects with emissions limited to non-permitted sources only. Only 10 tons of NO_x emissions would be allowed before triggering a finding of significance and requirement of all feasible mitigation. That level of emissions increase is consistent with emissions accounted for in District attainment plans.

However, Option 2 is not acceptable for projects that involve both permitted and non-permitted sources. For example, if project-specific emissions include 2 tons per year mobile source emissions, a combined threshold of 10 tons per year would limit stationary source impacts to no more than 8 tons per year before triggering a finding of significance and requirement of all feasible mitigations. However, the District's attainment plans demonstrate that project specific-emissions of 10 tons per year of NO_x from a permitted source, without mitigation, will not prevent the District from achieving attainment of ambient air quality standards. Because District's attainment plans do not justify a finding of significance at emissions levels lower than 10 tons of NO_x emissions per year of unmitigated emissions, a lower threshold cannot be established. Because a combined threshold of 10 tons per



year effectively reduces the threshold for permitted sources to some level below the demonstrated 10 ton level, Option 2 is rejected.

Option 3 is the method of determining significance that the District has been implementing for a number of years. As demonstrated, Option 3 is a more environmental and health protective threshold than a combined 20 ton per year threshold, maintains consistency with the basis of the District's 10 ton threshold for permitted sources, and is consistent with District attainment plans.

Option 4, establishing separate thresholds for permitted emissions and for non-permitted emissions at some level lower than 10 tons of NO_x per year, is rejected for the same reason as Option 2. District attainment plans provide the basis for thresholds of significance, and the attainment plans allow 10 tons of emissions from stationary permitted sources before requiring mitigation.

For the reasons discussed above, the District implements Option 3 when determining significance impact.

Furthermore, measures taken to reduce and mitigate impacts from permitted equipment and activities differ from those applicable to non-permitted equipment and activities.

8.3.4 Screening Tools: Small Project Analysis Level (SPAL)

Determination of whether a project would exceed the applicable thresholds of significance for criteria pollutants requires quantification of project specific emissions. To streamline the process of assessing significance of criteria pollutant emissions from commonly encountered projects, the District has developed the screening tool, Small Project Analysis Level (SPAL). Using project type and size, the District has pre-quantified emissions and determined a size below which it is reasonable to conclude that a project would not exceed applicable thresholds of significance for criteria pollutants.

The District pre-calculated the emissions on a large number and types of projects to identify the level at which they have no possibility of exceeding the emissions thresholds. The information is provided in terms of vehicle trips required to exceed the SPAL threshold for five general land use categories. Sizes of various specific development types meeting SPAL are also provided. For a multi-use project, if its combined trip generation rate exceeds the lowest applicable trip threshold from, an air quality analysis should be prepared.

Note that even if a project is on the SPAL list, it does not relieve the Lead Agency from assessing a project for other potential significant air quality impacts. Some industrial and commercial projects may have impacts related to toxic air contaminants, hazardous materials, or odors. Projects containing sensitive



receptors such as residential subdivisions, schools, hospitals, and so on must be assessed for exposure to pollutants from existing or planned industrial and commercial development. Any project that includes demolition or renovation of existing buildings needs to contact the District. When a project falls under the SPAL, the Lead Agency should use the information in the initial study checklist, or whatever format used, to justify a finding of less than significant air quality impacts. The initial study should also verify that no sensitive receptors would be exposed to substantial pollutant concentrations as a result of the project.

Project size, as identified in the SPAL, is not a threshold of significance. SPAL is a screening tool. The Lead Agency has the responsibility to identify and avoid potential land use conflicts, such as potential exposure of sensitive receptors to sources of toxic air contaminants, sources of hazardous materials, and potential odors.

The District concludes that use of the screening tool as an appropriate and effective means of promoting consistency in significance determinations within the environmental review process.

*The most current SPAL is available at
www.valleyair.org/ceqa*

8.3.5 Construction Emissions

Emissions from construction activities are relatively short-term. However, on a regional level, even short-term activities can have significant impacts on air quality. Construction emissions consist mainly of exhaust emissions (NO_x and PM) from construction equipment and other mobile sources, and fugitive dust (PM) emissions from earth moving activities. Construction activities also result in area source emissions such as emissions from paving and architectural coatings.

An Initial Study should evaluate emissions from construction activities. When considering the impact of construction emissions on air quality, on-site and on-road (off-site) mobile source emissions should also be assessed in the evaluation of construction related emissions. In addition, a Lead Agency should consider the extent to which compliance with District Regulation VIII and District Rule 9510 (see section 8.2 - District Rules and Regulations) will reduce fugitive dust and construction exhaust emissions.

The quantity of criteria pollutant emissions is proportionate to the size of the construction project. For large construction projects, compliance with District Regulation VIII and Rule 9510 may not reduce project specific construction emissions to below the District's thresholds of significance. As presented in



section 8.3.4 (Screening Tools: Small Project Analysis Level (SPAL)), to streamline the process of assessing the significance of the impact of criteria pollutant emissions from common projects, the District has developed the screening tool, *Small Project Analysis Level* (SPAL). Using project type and size, the District has pre-quantified emissions and determined a size below which it is reasonable to conclude that a project would not exceed applicable thresholds of significance for criteria pollutants.

If the initial study demonstrates that construction emissions would be less than significant based on SPAL screening levels, quantification of construction emissions is not necessary. However, to meet the standards of adequacy for disclosure of potential environmental impacts and mitigation, the District recommends that the Lead Agency's environmental document include a narrative that identifies the main sources of construction emissions and include sufficient discussion of applicable District rules and regulation and SPAL values to support the conclusion that criteria pollutant emissions from construction activities would have a less than significant impact on air quality.

If the initial study does not demonstrate that construction emissions would be less than significant, quantification of construction emissions is recommended. Because mitigation measures differ for mobile source and fugitive dust emissions, the District recommends that construction exhaust emissions and fugitive dust emissions be quantified separately. However, when determining significance of PM emissions, construction exhaust PM and fugitive dust PM is summed. A project would be determined to have a significant, short-term impact on air quality if any criteria pollutant exceeds its respective threshold of significance.

Demolition and Renovations

Demolition and renovation of buildings also generate PM₁₀ emissions, and is of particular concern if the building(s) contain any asbestos-bearing materials. Buildings often include building materials containing asbestos. Airborne asbestos fibers pose a serious health threat if adequate control techniques are not carried out when the material is disturbed. The potential for asbestos emissions must also be considered. The demolition or renovation of asbestos containing building materials is subject to the limitations of the National Emissions Standards for Hazardous Air Pollutants (NESHAP) regulations as listed in the Code of Federal Regulations requiring notification and inspection. Most demolitions and many renovations are subject to a CAL-OSHA Certified asbestos inspection prior to start of activity. For asbestos, size or complexity of the project does not matter. However, the Lead Agency can also manually quantify PM₁₀ emissions from demolition using the following emission factor: 0.00042 lb-PM₁₀ per cubic feet of building volume. Project proponents needs to contact the District if their project includes demolition or renovation of existing buildings.



8.3.6 Operational Emissions – Permitted Equipment and Activities

The District's permitting process typically ensures that emissions of criteria pollutants from permitted equipment and activities at stationary sources are reduced or mitigated to below the District's thresholds of significance. District implementation of New Source Review (NSR) generally ensures that there is no net increase in emissions above specified thresholds from new and modified Stationary Sources for all nonattainment pollutants and their precursors. Permitted sources emitting more than the NSR Offset Thresholds for any criteria pollutant must, in general, offset all emission increases in excess of the thresholds. However, under certain circumstances, the District may be precluded by state law or other District rule requirements from requiring a stationary source to offset emissions increases.

Although permitted equipment or activities located at stationary sources will generally have a less than significant impact on air quality, to meet the standards of adequacy for disclosure of potential environmental impacts and mitigation, the Lead Agency's environmental document (Negative Declarations, Mitigated Negative Declarations, and Environmental Impact Reports) should include quantification and analysis of criteria pollutant emissions from permitted sources and activities for the purposes of determining significance.

8.3.7 Operational Emissions – Non-Permitted Equipment and Activities

Permit Exempt Equipment

Equipment at stationary sources that is exempt from District permit requirements because they fall below the District's emission thresholds for requiring permits is considered to have a less than significant impact on air quality. As such, there is no need to quantify emissions from these sources.

Mobile Sources

The majority of non-stationary source operational emissions results from mobile source activities, including both on-site and on-road motor vehicle use. For industrial projects, onsite mobile sources commonly include off-road vehicles, such as forklifts and tractors and on-road passenger vehicle use. Off-site mobile sources commonly include heavy-duty vehicles used to transport raw material and ship finished goods and light-duty vehicle use associated with employee trips. For commercial projects, mobile source activities include receipt of goods, and customer and employee trips. For development projects, mobile source activities commonly include vehicular travel from home to work, home to shop, and deliveries.



Other Non-Permitted Equipment and Activities

In addition to mobile source emissions, operational emissions from other non-permitted equipment and activities commonly include emissions from energy use, such as space heating, use of consumer products, and landscape maintenance. Although uncommon, there are source specific non-permitted activities, such as mining operations, that could have a significant impact on air quality.

Quantification

An Initial Study should evaluate emissions from all non-permitted equipment and activities, including all on-site and on-road (off-site) mobile source emissions. Emission levels from non-permitted equipment and activities are a function of project type and size. For example non-permitted equipment and activities would be different for a regional distribution versus a residential development project. As presented in Chapter 7, to streamline the process of assessing significance of criteria pollutant emissions from common projects, the District has developed the screening tool, *Small Project Analysis Level* (SPAL). Using project type and size, the District has pre-quantified emissions and determined a size below which it is reasonable to conclude that operational emissions from a project would not exceed applicable thresholds of significance for criteria pollutants.

If the initial study demonstrates that operational emissions from non-permitted equipment (excluding emissions from permit-exempt equipment) and activities would be less than significant based on SPAL screening levels, quantification of emissions from these sources may not be necessary. However, to meet the standards of adequacy for disclosure of potential environmental impacts and mitigation, the District recommends that the Lead Agency's environmental document include a narrative that identifies the main sources of non-permitted emissions and include sufficient discussion of District SPAL values to support the conclusion that criteria pollutant emissions from non-permitted emission sources would have a less than significant impact on air quality.

If the initial study does not demonstrate that emissions from non-permitted equipment (excluding emissions from permit-exempt equipment) and activities would be less than significant, quantification of those emissions is recommended. Because mitigation measures differ for mobile sources versus other non-permitted operational activities, the District recommends that mobile source (both exhaust emissions and fugitive dust emissions) be quantified separate from other non-permitted sources or activities. However, emissions from all non-permitted equipment and activities are summed by criteria pollutant when determining significance. A project would be determined to have a significant, long-term impact on air quality if any criteria pollutant resulting from non-permitted equipment and activities exceeds its respective threshold of significance.



8.4 Thresholds of Significance – Ambient Air Quality

The thresholds of significance for Ambient Air Quality are based on the California Ambient Air Quality Standard (CAAQS) and National Ambient Air Quality Standard (NAAQS). A project would be considered to have a significant impact if its emissions are predicted to cause or contribute to a violation of an ambient air quality standard by exceeding any California Ambient Air Quality Standard (CAAQS) / National Ambient Air Quality Standard (NAAQS). The standards are listed in the following table.

*The most current standards are available online at
www.arb.ca.gov/research/aaqs/aaqs2.pdf or
www.arb.ca.gov/research/aaqs/aaqs.htm*



Table 3: Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards ¹		National Standards ²			
		Concentration ³	Method ⁴	Primary ^{3,5}	Secondary ^{3,6}	Method ⁷	
Ozone (O ₃)	1 Hour	0.09 ppm (180 µg/m ³)	Ultraviolet Photometry	--	Same as Primary Standard	Ultraviolet Photometry	
	8 Hour	0.070 ppm (137 µg/m ³)		0.075 ppm (147 µg/m ³)			
Respirable Particulate Matter (PM ₁₀)	24 Hour	50 µg/m ³	Gravimetric or Beta Attenuation	150 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis	
	Annual Arithmetic Mean	20 µg/m ³		--			
Fine Particulate Matter (PM _{2.5})	24 Hour	--	Gravimetric or Beta Attenuation	35 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis	
	Annual Arithmetic Mean	12 µg/m ³		15 µg/m ³			
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m ³)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m ³)	--	Non-Dispersive Infrared Photometry (NDIR)	
	8 Hour	9.0 ppm (10 mg/m ³)		9 ppm (10 mg/m ³)	--		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m ³)		--	--		
Nitrogen Dioxide (NO ₂) ⁸	1 Hour	0.18 ppm (339 µg/m ³)	Gas Phase Chemiluminescence	100 ppb (188 µg/m ³)	--	Gas Phase Chemiluminescence	
	Annual Arithmetic Mean	0.030 ppm (57 µg/m ³)		53 ppb (100 µg/m ³)	Same as Primary Standard		
Sulfur Dioxide (SO ₂) ⁹	1 Hour	0.25 ppm (655 µg/m ³)	Ultraviolet Fluorescence	75 ppb (196 µg/m ³)	0.5 ppm (1300 µg/m ³)	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)	
	3 Hour	--		--			
	24 Hour	0.04 ppm (105 µg/m ³)		0.14 ppm (for certain areas) ⁹			--
	Annual Arithmetic Mean	--		0.030 ppm (for certain areas) ⁹			--
Lead ^{10,11}	30 Day Average	1.5 µg/m ³	Atomic Absorption	--	--	High Volume Sampler and Atomic Absorption	
	Calendar Quarter	--		1.5 µg/m ³ (for certain areas) ¹¹	Same as Primary Standard		
	Rolling 3-Month Average	--		0.15 µg/m ³			
Visibility Reducing Particles ¹²	8 Hour	See footnote 12	Beta Attenuation and Transmittance through Filter Tape	No National Standard			
Sulfates	24 Hour	25 µg/m ³	Ion Chromatography				
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m ³)	Ultraviolet Fluorescence				
Vinyl Chloride ¹⁰	24 Hour	0.01 ppm (26 µg/m ³)	Gas Chromatography				

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM₁₀, PM_{2.5}, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equalled 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 arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM₁₀, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than one. 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 the 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°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°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. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.

5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.

8. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national standards are in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national standards to the California standards the units can be converted from ppb to ppm. In this case, the national standards of 53 ppb and 100 ppb are identical to 0.053 ppm and 0.100 ppm, respectively.

9. On June 2, 2010, a new 1-hour SO₂ standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO₂ national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

10. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

11. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 µg/m³ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

12. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.



8.4.1 Basis for Threshold

State and Federal ambient air quality standards have been established to protect public health and welfare from the adverse impacts of air pollution. The District concludes that use of the CAAQS/NAAQS to establish thresholds of significance under CEQA Guidelines §15064.7 is appropriate. In addition, using those standards promotes consistency in assessing significance of project specific impacts within the environmental review process.

Because of scientific advancements and potential changes in attainment status, CAAQS/NAAQS are subject to change. Revisions to CAAQS/NAAQS as adopted upon promulgation by the state of California and/or the Federal government will serve as revisions to the District's CEQA thresholds of significance for ambient air quality.

8.4.2 Ambient Air Quality Screening Tools

Impacts on air quality result from emissions generated during short-term activities (construction) and long-term activities (operations). Construction-related emissions consist mainly of exhaust emissions (NO_x and PM) from construction equipment and other mobile sources, and fugitive dust (PM) emissions from earth moving activities. Operational emissions are source specific and consist of permitted equipment and activities and non-permitted equipment and activities.

When assessing the significance of project-related impacts on air quality, it should be noted that the impacts may be significant when on-site emission increases from construction activities or operational activities exceed the 100 pounds per day screening level of any criteria pollutant after implementation of all enforceable mitigation measures. Under such circumstance, the District recommends that an ambient air quality analysis be performed. An ambient air quality analysis uses air dispersion modeling to determine if emission increases from a project will cause or contribute to a violation of the ambient air quality standards.

More information on ambient air quality and associated modeling can be found online at http://www.valleyair.org/busind/pto/Tox_Resources/AirQualityMonitoring.htm

8.4.3 Ambient Air Quality Analysis - Stationary Source Projects

The general term, "stationary sources," refers to facilities that are subject to District air quality permitting. "Stationary source projects" are proposals that include, at least in part, equipment or activities that are subject to District air quality permitting.



Construction Emissions

The District recommends that an ambient air quality analysis be performed when the increase in on-site emissions from construction activities exceeds the 100 pounds per day screening level of any criteria pollutant, after implementation of all enforceable mitigation measures.

Operational Emissions – Permitted Equipment and Activities

The District recommends that an ambient air quality analysis be performed when the increase in on-site operational emissions from permitted equipment and activities exceeds the 100 pounds per day screening level of any criteria pollutant, after implementation of all enforceable mitigation measures.

Operational Emissions - Non-Permitted Equipment and Activities

The District recommends that an ambient air quality analysis be performed when the increase in on-site operational emissions from non-permitted equipment and activities exceeds the 100 pounds per day screening level of any criteria pollutant, after implementation of all enforceable mitigation measures.

Ambient Air Quality Analysis

If an ambient air quality analysis is performed, the analysis should include emissions from both project specific permitted and non-permitted equipment and activities. The District recommends consultation with District staff to determine the appropriate model and input data to use in the analysis. Specific information for assessing significance, including screening tools and modeling guidance is available on-line at the District's website, www.valleyair.org/ceqa.

8.4.4 Ambient Air Quality Analysis – Development Projects

The general term, “stationary sources,” refers to facilities that are subject to District air quality permitting. “Non-stationary source projects” are proposals that do not include any equipment or activities that are subject to District air quality permitting. An example is development projects.

The District applies the following guidance in determining whether an ambient air quality analysis should be conducted for development projects. For a typical development project, the need to perform an ambient air quality analysis is determined on a case-by-case basis, depending on project size.

The ISR rule is the District's groundbreaking regulation that requires developers to reduce emissions from residential and commercial development projects.



Compliance with ISR reduces criteria pollutant emissions from both construction and operation of development projects occurring within the San Joaquin Valley.

The District ISR rule exempts small development projects (see Table 4) from project-specific mitigation requirements. The District performed extensive analysis to identify small projects for which additional mitigation is not feasible. For instance, the exemptions include small residential housing developments of less than 50 units and commercial developments of less than 2,000 square feet.

All projects on the exemption list emit less than 2 tons per year of either PM₁₀ or NO_x, which is substantially lower than the District's 10-ton per year significance thresholds. Furthermore, as the tailpipe emissions from motor vehicles continue to decline, these projects will emit even less today than was estimated in 2005 when this rule was adopted. In addition, two tons per year is expected to result in daily emissions of less than the 100 lb/day screening level for either NO_x or PM₁₀ that the District has concluded that projects under the ISR exemption thresholds will have a less than significant impact on air quality.

Consequently, projects below ISR applicability thresholds are not expected to exceed the thresholds of significance for criteria pollutants emissions (see Section 8.3). In addition, projects below the ISR applicability thresholds are not expected to violate any air quality standards or contribute substantially to an existing or projected air quality violation and will not exceed the thresholds of significance for ambient air quality. In this case, the District concludes no emission calculation is needed and no ambient air quality analysis is required.

To meet the standards for adequacy for disclosure of potential environmental impacts and mitigation, the District recommends that the Lead Agency's environmental document include a qualitative assessment of why the project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation. The District recommends that the narrative include sufficient detail of the proposed project size and type and applicability of the ISR rule to provide decision makers and the public with information enabling them to make an informed decision regarding the environmental consequences of criteria pollutant emissions from the proposed development project.

For projects equal to or above the applicability thresholds, the District recommends that emissions from the project be quantified to determine if an ambient air quality analysis is needed.



Table 4: AAQA Analysis Screening Levels For Development Project

Development Project Type	Space/Size
Residential	50 dwelling units
Commercial	2,000 square feet
Light Industrial	25,000 square feet
Heavy Industrial	100,000 square feet
Medical Office	20,000 square feet
General Office	39,000 square feet
Educational	9,000 square feet
Governmental	10,000 square feet
Recreational	20,000 square feet
Transportation/Transit	Construction exhaust emissions equal or exceed two (2.0) tons NO _x or two (2.0) tons of PM ₁₀ *

* The District has established guidance when determining Indirect Source Review applicability for transportation projects. Projects in which construction of a new paved surface equals to or is less than 1/8 (0.125) miles in length are considered to have emissions below two tons NO_x and two tons PM₁₀. This applicability guidance is subject to change.

Project Construction Emissions

Compliance with Rule 9510 frequently reduces project specific emissions but may not be sufficient to reduce the project impact to less than significant levels. For large development projects, additional mitigation may be required and an Initial Study should be conducted to evaluate emission increases resulting from construction activities related to the project.

The District recommends that an ambient air quality analysis be performed when emissions of any criteria pollutant related to construction activities exceed the 100 pounds per day screening level, after compliance with Rule 9510 requirements and implementation of all enforceable mitigation measures.

If such ambient air quality analysis is determined to be necessary, the District recommends consultation with District staff to determine the appropriate model and input data to use in the analysis.

More information on ambient air quality and associated modeling can be found online at http://www.valleyair.org/busind/pto/Tox_Resources/AirQualityMonitoring.htm



Project Operational Emissions

Compliance with Rule 9510 frequently reduces project specific emissions but may not be sufficient to reduce the project impact to less than significant levels. For large development projects, additional mitigation may be required and an Initial Study should be conducted to evaluate emission increases resulting from the project operational activities.

The District recommends that an ambient air quality analysis be performed for all criteria pollutants when emissions of any criteria pollutant resulting from project operational activities exceed the 100 pounds per day screening level, after compliance with Rule 9510 requirements and implementation of all enforceable mitigation measures.

If such ambient air quality analysis is determined to be necessary, the District recommends consultation with District staff to determine the appropriate model and input data to use in the analysis.

More information on ambient air quality and associated modeling can be found online at http://www.valleyair.org/busind/pto/Tox_Resources/AirQualityMonitoring.htm

8.4.5 Ambient Air Quality - Carbon Monoxide Hot Spot from Mobile Sources

Emissions and ambient concentrations of carbon monoxide have decreased greatly in the recent past. These improvements are due largely to the introduction of lower emitting motor vehicles and cleaner burning fuels. The last exceedance of either the state or national CO standard recorded at any of the SJVAB's monitoring stations was in 1991. At present, all areas within the SJVAPCD have attained the federal CO standard and are attainment or unclassified for the state CO standard.

Despite the progress and success in achieving CO standards, localized CO concentrations still warrant concern in the SJV and should still be assessed in environmental documents. The reasons for this are twofold. First, state and federal laws require the SJVAB to attain and maintain ambient air quality standards. The District must ensure that increased motor vehicle use and congestion do not nullify the great strides that have been made with respect to ambient concentrations of CO. Secondly, the District must safeguard against localized high concentrations of CO that may expose nearby sensitive receptors that may not be recorded at a given monitoring sites. Because elevated CO concentrations are often localized, heavy traffic volumes and congestion can lead to high levels of CO, or CO "hotspots", while concentrations at the closest air quality monitoring station may be below state and federal standards.



Determining Significance of CO Impacts – Preliminary Screening

Based on the CO Protocol Analysis developed by the California Department of Transportation (CalTrans), and due to the fact that increased CO concentrations are usually associated with roadways that are congested and with heavy traffic volume, the District has established that preliminary screening can be used to determine with fair certainty that the effect a project has on any given intersection would not result in a CO hotspot. Therefore, the District has established that if neither of the following criteria are met at all intersections affected by the developmental project, the project will result in no potential to create a violation of the CO standard:

- A traffic study for the project indicates that the Level of Service (LOS) on one or more streets or at one or more intersections in the project vicinity will be reduced to LOS E or F; or
- A traffic study indicates that the project will substantially worsen an already existing LOS F on one or more streets or at more or more intersections in the project vicinity.

If either of the above criteria can be associated with any intersection affected by the project, the applicant/consultant would need to conduct a CO analysis to determine a project's significance.

Determining Significance of CO Impacts – CO Analysis

Even if the two above criteria are met, the project's influence on any given intersection may still not create a violation of the CO NAAQS/CAAQS standard thereby showing a less than significant effect on the air quality of the area. Prior to conducting a full CO air quality model, the effect of the project can still be determined to be less than- significant by conducting an analysis using a protocol developed by the Institute of Transportation Studies at University of California, Davis entitled Transportation Project-Level Carbon Monoxide Protocol. This is a project-level protocol for use by agencies to evaluate the potential local level CO impacts of a project. If the results of this analysis demonstrate no potential for significance, the Lead Agency should include a description of the Protocol Analysis results in a report to the District. If the results demonstrate that the project will potentially have a significant effect on any intersection, the Lead Agency should conduct a CO analysis.



8.5 Thresholds of Significance – Toxic Air Contaminants

The District’s current thresholds of significance for toxic air contaminant (TAC) emissions from the operations of both permitted and non-permitted sources are combined and presented in the following table.

Table 5: Air Quality Thresholds of Significance – Toxic Air Contaminants

Carcinogens	Maximally Exposed Individual risk equals or exceeds 10 in one million
Non-Carcinogens	Acute: Hazard Index equals or exceeds 1 for the Maximally Exposed Individual
	Chronic: Hazard Index equals or exceeds 1 for the Maximally Exposed Individual

Carcinogenic (cancer) risk is expressed as cancer cases per one million. Non-carcinogenic (acute and chronic) hazard indices (HI) are expressed as a ratio of expected exposure levels to acceptable exposure levels.

The significance of the impacts of TAC emissions from both permitted and non-permitted equipment and activities is evaluated under a single threshold, for example 10 in one million.

The most current thresholds of significance and risk assessment methodologies are available at www.valleyair.org/ceqa

8.5.1 Definition of Toxic Air Contaminants

TACs as defined by the California Health & Safety Code (CH&SC) §44321 are listed in Appendices AI and AII in AB 2588 Air Toxic “Hot Spots” and Assessment Act’s Emissions Inventory Criteria and Guideline Regulation document. Potential health impacts from TACs are generally categorized into two groups:

- 1) Carcinogenic (cancer causing) effects; and
- 2) Non-carcinogenic (non-cancer causing) effects

The non-carcinogenic effects can be further divided into long-term (chronic) health effects such as birth defects, neurological damage, or genetic damage; and short-term (acute) effects such as eye irritation, respiratory irritation, and nausea.



The California TAC list identifies about 700 plus pollutants. Carcinogenic and/or non-carcinogenic toxicity criteria have been established for a subset of these pollutants by the Office of Environmental Health Hazard Assessment (OEHHA), as required by CH&SC §44360.

TACs used in determining the potential exposure to the public should not be confused with the 189 Hazardous Air Pollutants (HAP) listed in the Clean Air Act.

8.5.2 Basis for Risk Thresholds

The District's risk management objectives for permitting and CEQA are as follows:

- Minimize health risks from new and modified sources of air pollution.
- Health risks from new and modified sources shall not be significant relative to the background risk levels and other risk levels that are typically accepted throughout the community.
- Avoid unreasonable restrictions on permitting.

A key factor in establishing the District's risk thresholds was the background risk levels. The 10 in a million risk threshold was established in 1995. According to the 2009 California Almanac of Emissions and Air Quality, the background cancer risk in 1990 was estimated at about 1,200 in a million. The District's comprehensive regulatory and incentive-based programs, combined with state and federal air toxic control regulations, have significantly reduced the public's exposure to air toxics over the past two decades. The cancer risk using current risk assessment methodologies has dropped from about 1,200 in a million in 1990 to under 200 in a million today.

To provide some context and appreciation for the District's threshold of significance for risk assessment, the following is a list of risks associated with other known activities (risk of occurrence in an individual's lifetime):

<u>Occurrence</u>	<u>Lifetime Risk</u>
Contracting cancer (from all sources)	250,000 in a million
Dying of cancer	140,000 in a million
Dying in a car accident	12,000 in a million
Dying from a fall	4,600 in a million
Dying from excessive heat	73 in a million
Being struck by lighting	7.4 in a million

As shown above, the District's threshold is very conservative in protecting public health. For instance, the chance of contracting cancer from an approvable project with risk less than 10 in a million is, on the face of it, less than significant when



compared to the 250,000 in a million overall chance of contracting cancer from all sources.

Therefore, the District concludes that use of the same risk thresholds in the District's risk management policy is appropriate to determine significance within the environmental review process. Revisions to the risk thresholds in the District's risk management policy will serve as revisions to the District CEQA thresholds of significance for toxic air contaminants.

8.5.3 Basis for Health Risk Assessment Methodology

The OEHHA Risk Assessment Guidelines are the standards for estimating health risks. OEHHA is responsible for developing and providing toxicological and medical information relevant to decisions involving public health to state and local government agencies. Historically, state laws have required OEHHA to develop Risk Assessment Guidelines for estimating health risk associated with various sources of air pollution. Furthermore, the Children's Environmental Health Protection Act (SB 25, Escutia, 1999) requires OEHHA to biennially review risk assessment methods for air toxics, and related information, to ensure that they adequately protect infants and children.

The District's risk management policy works in conjunction with the OEHHA Risk Assessment Guidelines. The District's risk management policy further clarifies and provides guidance on the appropriate options to use, such as a longer exposure period and more conservative air dispersion modeling.

District staff members are considered leading statewide experts in the field of health risk assessment and have developed significant resources from guidance documents to database tools to assist other agencies, consultants, and regulated sources.

Therefore, the District concludes that use of its risk management policy and the OEHHA Risk Assessment Guidelines is appropriate in determining significance within the environmental review process. Revisions to the OEHHA Risk Assessment Guidelines and/or the District's risk management policy will serve as revisions to the District CEQA risk assessment methodology.

*The latest policy is available at
www.valleyair.org/ceqa*



8.6 Thresholds of Significance – Odors

While offensive odors rarely cause any physical harm, they can be unpleasant, leading to considerable distress among the public and often resulting in citizen complaints to local governments and the District.

The project should be evaluated to determine the likelihood that the project would result in nuisance odors. Any project with the potential to frequently expose members of the public to objectionable odors should be deemed to have a significant impact. Nuisance odors may be assessed qualitatively taking into consideration of project design elements and proximity to off-site receptors that potentially would be exposed objectionable odors.

Due to the subjective nature of odor impacts, the number of variables that can influence the potential for an odor impact, and the variety of odor sources, there are no quantitative or formulaic methodologies to determine if potential odors would have a significant impact. Rather, projects must be assessed on a case-by-case basis.

Lead Agencies should consider all available pertinent information to qualitatively determine if a significant impact is likely to occur. Lead Agencies should disclose applicable information regarding the characteristics of the buffer zone between the sensitive receptor(s) and the odor source(s), local meteorological conditions, and the nature of the odor source. Consideration of such parameters assists in evaluating the potential for odor impacts as a result of the proposed project. To the extent feasible, the analysis of potential odor impacts should be based on District's experience and data regarding similar facilities in similar settings. Lead Agencies should contact the District's for information regarding specific facilities and categories of facilities, and associated odor complaint records.

Odor impacts on residential areas and other sensitive receptors, such as hospitals, day-care centers, schools, etc., warrant the closest scrutiny, but consideration should also be given to other land uses where people may congregate, such as recreational facilities, worksites, and commercial areas. An analysis of potential odor impacts should be conducted for the following two situations:

1. Generators – projects that would potentially generate odorous emissions proposed to locate near existing sensitive receptors or other land uses where people may congregate, and
2. Receivers – residential or other sensitive receptor projects or other projects built for the intent of attracting people locating near existing odor sources.

The intensity of an odor source's operations and its proximity to sensitive receptors influences the potential significance of odor emissions. The District has identified some common types of facilities that have been known to produce odors in the San Joaquin Valley Air Basin. These are presented in Table 6 (*Screening Levels For Potential Odor*



Sources) along with a reasonable distance from the source within which, the degree of odors could possibly be significant.

Table 6 (*Screening Levels for Potential Odor Sources*), can be used as a screening tool to qualitatively assess a project's potential to adversely affect area receptors. This list of facilities is not all-inclusive. The Lead Agency should evaluate facilities not included in the table or projects separated by greater distances if warranted by local conditions or special circumstances. If the proposed project would result in sensitive receptors being located closer than the screening level distances, a more detailed analysis should be provided.

Table 6: *Screening Levels for Potential Odor Sources*

Type of Facility	Distance
Wastewater Treatment Facilities	2 miles
Sanitary Landfill	1 mile
Transfer Station	1 mile
Composting Facility	1 mile
Petroleum Refinery	2 miles
Asphalt Batch Plant	1 mile
Chemical Manufacturing	1 mile
Fiberglass Manufacturing	1 mile
Painting/Coating Operations (e.g. auto body shops)	1 mile
Food Processing Facility	1 mile
Feed Lot/Dairy	1 mile
Rendering Plant	1 mile

*The most current screening tools are available on-line at the District's website
www.valleyair.org/ceqa*

The Lead Agency should prepare a more detailed analysis for any project that would result in an odor source and sensitive receptors being located closer to one another than the distances indicated in Table 6. When projects trigger the screening level distances in Table 6, the Lead Agency or consultant should contact the District's Compliance Division for information regarding odor complaints.



Existing Odor Sources

For projects involving a new receptor being located near an existing odor source(s), the District's Compliance Division should be contacted. The Compliance Division will provide information on odor complaints logged for the facility(ies) for the previous three years. Odor complaints should be mapped in relation to the odor source to establish a general boundary of any existing impacts. The location of the proposed project should be identified. For projects involving new receptors locating near an existing odor source where there is currently no nearby development and for new odor sources locating near existing receptors, the analysis should be based on a review of odor complaints for similar facilities. In assessing potential odor impacts, consideration also should be given to local meteorological conditions, particularly the intensity and direction of prevailing winds.

Because offensive odors rarely cause any physical harm and no requirements for their control are included in state or federal air quality regulations, the District has no rules or standards related to odor emissions, other than its nuisance rule. Any actions related to odors are based on citizen complaints to local governments and the District.

Lead Agencies can also make a determination of significance based on a review of District complaint records. For a project locating near an existing source of odors, the impact is potentially significant when the project site is at least as close as any other site that has already experienced significant odor problems related to the odor source. Significant odor problems are defined as:

- More than one confirmed complaint per year averaged over a three year period, or
- Three unconfirmed complaints per year averaged over a three-year period.

An unconfirmed complaint means that either the odor/air contaminant release could not be detected, or the source/facility cannot be determined. Because of the subjective nature of odor impacts and the lack of quantitative or formulaic methodologies, the significance determination of potential odor impacts should be considered on a case-by-case basis.

8.7 Thresholds of Significance – Accidental Releases

The California Emergency Management Agency (CalEMA) develops regulations for the California Accidental Release Prevention (CalARP) Program. The purpose of the CalARP program is to prevent accidental releases of substances that can cause serious harm to the public and the environment, to minimize the damage if releases do occur, and to satisfy community right-to-know laws. The CalARP program is implemented at the local level by the Certified Unified Program Agencies which may be the county health department, local Office of Emergency Services, or local fire department. The California Environmental Protection Agency has a section of its website devoted to CUPAs



(www.calepa.ca.gov/CUPA) that includes a directory. The CUPA for the area where a project is located should be contacted for the specific requirements.

The District has no responsibility for accidental releases under the CalARP program. Therefore, the District has not established a Threshold of Significance. The determination of significance for potential impacts from accidental releases of acutely hazardous air pollutants should be made in consultation with the local administering agency of the Risk Management Prevention Program. The county health department, Office of Emergency Services, or local fire department is usually the administering agency.

8.8 Thresholds of Significance – Cumulative Impacts

8.8.1 Introduction

By its very nature, air pollution has a cumulative impact. The District's nonattainment status is a result of past and present development within the San Joaquin Valley Air Basin (SJVAB). Furthermore, attainment of ambient air quality standards can be jeopardized by increasing emissions-generating activities in the region. No single project would be sufficient in size, by itself, to result in nonattainment of the regional air quality standards. Instead, a project's emissions may be individually limited, but cumulatively considerable when taken in combination with past, present, and future development within the San Joaquin Valley Air Basin.

When assessing whether there is a new significant cumulative effect, the Lead Agency shall consider whether the incremental effects of the project are cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects [CCR §15064(h)(1)].

Per CEQA Guidelines §15064(h)(3) a Lead Agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program, including, but not limited to an air quality attainment or maintenance plan that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located.



8.8.2 District Attainment Plans

As presented in Chapter 3, at the Federal level, the District is designated as extreme nonattainment for the 8-hour ozone standard and is designated nonattainment for Federal PM_{2.5} standards. Consistent with Clean Air Act requirements, the District has adopted attainment plans that demonstrate how the District will attain and maintain the National Ambient Air Quality Standards. These plans are developed through a public process, formally adopted by the State, and submitted by the Governor's designee to the US EPA. The Clean Air Act requires EPA to review each plan and any plan revisions and to approve the plan or plan revisions if consistent with the Clean Air Act.

Each attainment plan includes a comprehensive and exhaustive list of regulatory and incentive-based measures to reduce emissions of ozone and particulate matter precursors throughout the Valley. Consistent with the direction of each plan, the Governing Board adopted regulatory measures that, in the majority of cases, exceed the plan commitment for a given source category, especially through the implementation of the Confined Animal Facilities Rule (4570), Phase II of the Stationary Internal Combustion Engines Rule (4702), Stationary Gas Turbines Rule (4703), and multiple rules for Boilers, Steam Generators, and Process Heaters (4306, 4307, 4320).

Many of the rules implemented through the Extreme Ozone Attainment Demonstration Plan and 2007 Ozone Plan, such as the Indirect Source Review (ISR) rule, are the first of their type in the nation, or are deemed the most stringent in the nation. The District's (ISR) Rule bridges the gap between regulations and incentives to maximize reductions while minimizing socioeconomic impacts. The ISR rule requires developers of new development projects to reduce emissions during both the construction and operational phases of the project. The District works closely with developers to maximize on-site emissions reductions. However, if developers are not able to fully achieve required reductions through on-site measures, fees may be collected to fund off-site emission reduction projects.

The District's strategy to reduce emissions also includes the proactive use of incentives to obtain reductions that would otherwise not be cost-effective for industry or are outside the District's regulatory authority. The path towards attainment is being further accelerated by Valley industry and municipal investments in cleaner technologies and emissions reductions implemented at the state and local level. These included over 20 regulations developed by the California Air Resources Board (ARB) in the last 3 years, numerous transportation control measures implemented by the metropolitan planning organizations, and many measures implemented by the federal government that were not included in either ozone attainment plan.



The District expects air quality to continue to improve as recent regulations are fully implemented, new control technologies are developed, and increased partnership between government and private entities occurs through programs such as Healthy Air Living, the Fast Track Action Plan, Regional Energy Efficiency Strategy, and the Technology Advancement Program.

8.8.3 State Implementation Plan

The District's attainment plans are a regional component of the State Implementation Plan (SIP). The SIP includes annual increases in air pollutant emissions resulting from regional growth (including construction-generated emissions) anticipated according to local land use plans (e.g., general plans, regional transportation plans). The SIP also assumes the incremental increase in emissions will be partially offset through the implementation of stationary, area, and indirect source control measures contained within the SIP.

The SIP is the State of California's plan for attaining the National Ambient Air Quality Standards (NAAQS). The contents of a typical SIP fall into several categories:

- State-adopted control measures which consists of either rules/regulations or source-specific requirements (e.g., orders and consent decrees);
- State-submitted comprehensive air quality plans, such as attainment plans, maintenance plans, rate of progress plans, and transportation control plans demonstrating how these state regulatory and source-specific controls, in conjunction with federal programs, will bring and/or keep air quality in compliance with federal air quality standards;
- State-submitted "non-regulatory" requirements, such as emission inventories, small business compliance assistance programs; statutes demonstrating legal authority, monitoring networks, etc.); and
- Additional requirements promulgated by EPA (in the absence of a commensurate State provision) to satisfy a mandatory section 110 or part D (Clean Air Act) requirement.

8.8.4 Cumulative Impact - Criteria Pollutants

If a project is significant based on the thresholds of significance for criteria pollutants, then it is also cumulatively significant. This does not imply that if the project is below all such significance thresholds, it cannot be cumulatively significant.

For instance, another measure of a project's individual significance contained in the GAMAQI is the impact on criteria pollutant concentrations in the ambient air. If the concentration exceeds any of the federal health-based ambient air concentration standards or causes a worsening of areas already exceeding those standards, the project is considered to be individually significant. Lead Agencies



should also consider the cumulative impact of multiple simultaneously proposed projects, located within the same area. If the combined impacts of such projects cause or worsen an exceedance of the concentration standards, the project would have a cumulatively significant impact under CEQA.

For example, simultaneous proposals for two 3 ton per year NO_x sources located in the same area are each below the 10 ton per year criteria pollutant significance threshold. In this hypothetical example, analysis of each project's impact on ambient air quality shows that they do not individually cause an exceedance of any ambient air quality standard. However, when their combined emissions are considered, air quality modeling determines that their combined impacts cause an exceedance. In this hypothetical case, each of these projects would be considered to have a cumulatively significant impact.

Stationary Source Emissions - Permitted Equipment and Activities

As discussed in section 8.3.1 (Basis for Air Quality Thresholds of Significance), the District's thresholds of significance for criteria pollutants are based on District rule 2201 (New Source Review) offset requirements. Furthermore, New Source Review (NSR) is a major component of the District's attainment strategy. NSR provides mechanisms, including emission trade-offs, by which Authorities to Construct such sources may be granted, without interfering with the attainment or maintenance of Ambient Air Quality Standards. District implementation of NSR ensures that there is no net increase in emissions above specified thresholds from new and modified Stationary Sources for all nonattainment pollutants and their precursors. In fact, permitted emissions above offset thresholds equivalent to the District's thresholds of significance for criteria pollutants are mitigated to below the thresholds, and the District's attainment plans show that this level of emissions increase will not interfere with attainment or maintenance of ambient air quality standards.

The District's attainment plans demonstrate that project-specific net emissions increase below New Source Review (NSR) offset requirements will not prevent the District from achieving attainment. Consequently, emission impacts from sources permitted consistent with NSR requirements are not individually significant and are not cumulatively significant.

Stationary Source Emissions - Non-permitted Equipment and Activities

When determining cumulative significance, air quality impacts from all non-permitted equipment and activities emissions sources are to be considered when determining if project-specific emissions impacts would be individually significant.



The District concludes that when activities and emissions from non-permitted sources are individually significant when above the District's criteria pollutant thresholds of significance, they are also cumulatively significant.

Development Projects

Nearly all development projects within the San Joaquin Valley Air Basin have the potential to generate air pollutants, making it more difficult to attain State and Federal ambient air quality standards. Land use decisions and project design elements such as preventing urban sprawl, encouraging mix-use development, and project designs that reduce vehicle miles traveled (VMT) have proven to benefit air quality.

As discussed above, the SIP accounts for annual increases in air pollutant emissions resulting from regional growth (including construction-generated emissions) anticipated according to local land use plans (e.g., general plans, regional transportation plans). In addition to the State's strategies for reducing air impacts from future growth and development, the District's attainment plans include innovative strategies, such as the District's highly successful Emissions Reduction Incentive Program (ERIP), Rule 9410 (eTRIP), Healthy Air Living, and District Rule 9510 (Indirect Source Review).

The District's Indirect Source Review (ISR) Rule establishes a link between regulations and incentives to maximize reductions while minimizing socioeconomic impacts. The ISR Rule requires developers of new development projects to reduce emissions during both the construction and operational phases of the project. The District works closely with developers to maximize on-site emissions reductions. However, if developers are not able to fully achieve required reductions through on-site measures, fees may be collected to fund off-site emission reduction projects which result in real emission reductions throughout the San Joaquin Valley Air Basin.

As such, any proposed development project that would individually have a significant air quality impact would also be considered to have a significant cumulative air quality impact.

8.8.5 Cumulative Impact: Carbon Monoxide

Cumulative carbon monoxide impacts are accounted for in the CO hotspot analysis described earlier in this chapter. The CALINE4 model uses background concentrations that include CO contributions from other sources. Traffic levels used in the model should include all reasonably foreseeable projects that will contribute traffic to the intersections and road segments being analyzed.



8.8.6 Cumulative Impact: Toxic Air Contaminants (TAC) Emissions

Impacts from hazardous air pollutants are localized impacts. As presented above in section 8.3 (Thresholds of Significance - Toxic Air Contaminants), the District has established thresholds of significance for TACs that are extremely conservative and protective of health impacts on sensitive receptors. Because impacts from TACs are localized and the thresholds of significance for TACs have been established at such a conservative level, risks over the individual thresholds of significance are also considered cumulatively significant. No other cumulative risk thresholds apply.

8.9 Thresholds of Significance – Greenhouse Gas Emissions

This section is included here for informational purposes. The District's policies on addressing GHG emissions in CEQA were adopted through a separate process and are available at www.valleyair.org/Programs/CCAP/CCAP_idx.htm.

On December 17, 2009, the District's Governing Board adopted the District Policy: *Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency*. The District's Governing Board also approved the guidance document: *Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects Under CEQA*. In support of the policy and guidance document, District staff prepared a staff report: *Addressing Greenhouse Gas Emissions Under the California Environmental Quality Act*. These documents adopted in December of 2009 continue to be the relevant policies to address GHG emissions under CEQA. As these documents may be modified under a separate process, the latest versions should be referenced to determine the District's current guidance at the time of analyzing a particular project.

These documents and the supporting staff reports are available at the District's website:

www.valleyair.org/Programs/CCAP/CCAP_idx.htm

Check this location for the latest District policies on addressing GHG emissions in CEQA.

8.9.1 Development of District Guidelines on Addressing GHG

By enacting SB 97 in 2007, California's lawmakers expressly recognized the need to analyze greenhouse gas emissions as a part of the CEQA process. SB 97 required OPR to develop, and the Natural Resources Agency to adopt, amendments to the CEQA Guidelines addressing the analysis and mitigation of greenhouse gas emissions. Those CEQA Guidelines amendments clarified several points, including the following:



- Lead Agencies must analyze the greenhouse gas emissions of proposed projects, and must reach a conclusion regarding the significance of those emissions. [See CCR §15064.4];
- When a project's greenhouse gas emissions may be significant, Lead Agencies must consider a range of potential mitigation measures to reduce those emissions. [See CCR §15126.4(c)];
- Lead Agencies must analyze potentially significant impacts associated with placing projects in hazardous locations, including locations potentially affected by climate change. [See CCR §15126.2(a)];
- Lead Agencies may significantly streamline the analysis of greenhouse gases on a project level by using a programmatic greenhouse gas emissions reduction plan meeting certain criteria. [See CCR §15183.5(b)];
- CEQA mandates analysis of a proposed project's potential energy use (including transportation-related energy), sources of energy supply, and ways to reduce energy demand, including through the use of efficient transportation alternatives. (See CEQA Guidelines, Appendix F.)

It is widely recognized that no single project could generate enough GHG emissions to noticeably change the global climate temperature. However, the combination of GHG emissions from past, present and future projects could contribute substantially to global climate change. Thus, project specific GHG emissions should be evaluated in terms of whether or not they would result in a cumulatively significant impact on global climate change. GHG emissions, and their associated contribution to climate change, are inherently a cumulative impact issue. Therefore, project-level impacts of GHG emissions are treated as one-in-the-same as cumulative impacts.

In summary, the staff report evaluates different approaches for assessing significance of GHG emission impacts. As presented in the report, District staff reviewed the relevant scientific information and concluded that the existing science is inadequate to support quantification of the extent to which project specific GHG emissions would impact global climate features such as average air temperature, average rainfall, or average annual snow pack. In other words, the District was not able to determine a specific quantitative level of GHG emissions increase, above which a project would have a significant impact on the environment, and below which would have an insignificant impact. This is readily understood, when one considers that global climate change is the result of the sum total of GHG emissions, both manmade and natural that occurred in the past; that is occurring now; and will occur in the future.

In the absence of scientific evidence supporting establishment of a numerical threshold, the District policy applies performance based standards to assess project-specific GHG emission impacts on global climate change. The determination is founded on the principal that projects whose emissions have been reduced or mitigated consistent with the California Global Warming Solutions Act of 2006, commonly referred to as "AB 32", should be considered to have a less



than significant impact on global climate change. For a detailed discussion of the District's establishment of thresholds of significance for GHG emissions, and the District's application of said thresholds, the reader is referred to the above referenced staff report, District Policy, and District Guidance documents.

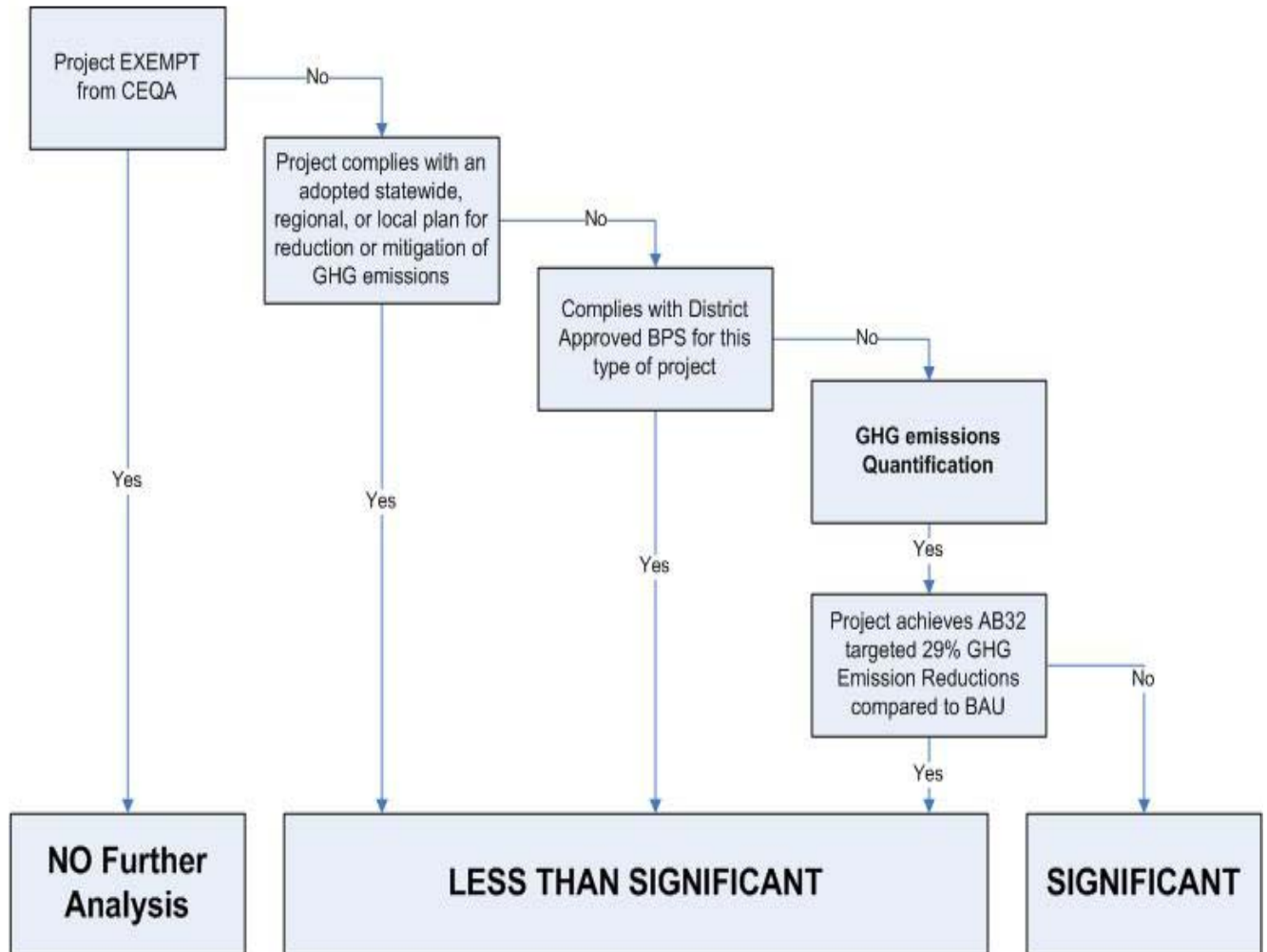
As presented in Figure 6 (*Process of Determining Significance of Greenhouse Gas Emissions*), the policy provides for a tiered approach in assessing significance of project specific GHG emission increases.

- Projects complying with an approved GHG emission reduction plan or GHG mitigation program which avoids or substantially reduces GHG emissions within the geographic area in which the project is located would be determined to have a less than significant individual and cumulative impact for GHG emissions. Such plans or programs must be specified in law or approved by the Lead Agency with jurisdiction over the affected resource and supported by a CEQA compliant environmental review document adopted by the Lead Agency. Projects complying with an approved GHG emission reduction plan or GHG mitigation program would not be required to implement Best Performance Standards (BPS).
- Projects implementing BPS would not require quantification of project specific GHG emissions. Consistent with CEQA Guideline, such projects would be determined to have a less than significant individual and cumulative impact for GHG emissions.
- Projects not implementing BPS would require quantification of project specific GHG emissions and demonstration that project specific GHG emissions would be reduced or mitigated by at least 29%, compared to Business as Usual (BAU), including GHG emission reductions achieved since the 2002-2004 baseline period, consistent with GHG emission reduction targets established in ARB's AB 32 Scoping Plan. Projects achieving at least a 29% *GHG emission reduction compared to BAU would be determined to have a less than significant individual and cumulative impact for GHG.*)

The District guidance for development projects also relies on the use of BPS. For development projects, BPS includes project design elements, land use decisions, and technologies that reduce GHG emissions. Projects implementing any combination of BPS, and/or demonstrating a total 29 percent reduction in GHG emissions from business-as-usual (BAU), would be determined to have a less than cumulatively significant impact on global climate change.



Figure 6: *Process of Determining Significance of Greenhouse Gas Emissions*





CHAPTER 9

MITIGATION MEASURES



9.1 Introduction

CEQA requires Lead Agencies to mitigate or avoid significant environmental impacts associated with discretionary projects. Environmental documents for projects that have any significant environmental impacts must identify all feasible mitigation measures or alternatives to reduce the impacts below a level of significance. If after the identification of all feasible mitigation measures, a project is still deemed to have significant environmental impacts, the Lead Agency can approve a project, but must adopt a Statement of Overriding Consideration to explain why further mitigation measures are not feasible and why approval of a project with significant unavoidable impacts is warranted.

By definition, air quality mitigation measures must go beyond existing regulations. Regulatory programs are in place at the federal, state, and air district level to reduce air pollutant emissions from nearly all sources, yet they are not always sufficient to eliminate all air quality impacts. For example, the ARB motor vehicle program has dramatically reduced average tailpipe emissions from the vehicle fleet. However, motor vehicle emissions will be a major source of Valley pollution problems in the foreseeable future due to growth in the number of vehicles and in miles traveled.

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.

Some examples the District considers to be feasible mitigation in light of existing regulations and research are included.

More measures are available on the District's website at:
<http://www.valleyair.org/transportation/GAMAQI-Mitigation-Measures.pdf>

The District recognizes that the final determination of feasibility will fall to the Lead Agency. In selecting appropriate air quality mitigation measures, the District advocates the following criteria:

Criteria required by CEQA:

- Mitigations shall be enforceable by permit conditions, legally binding agreements, or other measures (Public Resources Code §21081.6)
- Mitigation measures shall be capable of being monitored and enforced;



Recommended criteria:

- Mitigation measures should coincide with the level and timing of an impacts;
- The agency responsible should have adequate resources to implement the mitigation;
- Mitigation measures should be carried out within a reasonable period. Mitigation measures taking more than five years should contain interim targets;
- Mitigation measures benefits should be quantified with methods acceptable to the District

9.2 Voluntary Emission Reduction Agreement

Design elements, mitigation measures, and compliance with District rules and regulations may not be sufficient to reduce project-related impacts on air quality to a less than significant level. In such situations, project proponents may enter into a Voluntary Emission Reduction Agreement (VERA) with the District to reduce the project related impact on air quality to a less than significant level. A VERA is a mitigation measure by which the project proponent provides pound-for-pound mitigation of air emissions increases through a process that funds and implements emission reduction projects. A VERA can be implemented to address impacts from both construction and operational phases of a project.

To implement a VERA, the project proponent and the District enter into a contractual agreement in which the project proponent agrees to mitigate project specific emissions by providing funds to the District. The District's role is to administer the implementation of the VERA consisting of identifying emissions reductions projects, funding those projects and verifying that emission reductions have been successfully achieved. The VERA implementation process also provides opportunity for the project proponent to identify specific emission reduction projects to be administered by the District. The funds are disbursed by the District in the form of grants. Types of emission reduction projects that have been funded in the past include electrification of stationary internal combustion engines (such as agricultural irrigation pumps), replacing old heavy-duty trucks with new, cleaner, more efficient heavy-duty trucks, and replacement of old farm tractors.

The District verifies the actual emission reductions that have been achieved as a result of completed grant contracts, monitors the emission reduction projects, and ensures the enforceability of achieved reductions. The initial agreement is generally based on the projected maximum emissions increases as calculated by a District approved air quality impact assessment, and contains the corresponding maximum fiscal obligation. However, the District has designed flexibility into the VERA such that the final mitigation can be based on actual emissions related to the project as determined by actual equipment used, hours of operation, etc. After the project is mitigated, the District certifies to the Lead Agency that the mitigation is completed, providing the Lead Agency



with an enforceable mitigation measure demonstrating that project specific emissions have been mitigated to less than significant.

To ensure all feasible mitigation measures are incorporated into the project to reduce project air quality impact to less than significant, the District recommends the project proponent (and/or Lead Agency) engage in discussion with the District to have the VERA adopted by the District prior to the finalization of the environmental document. This process will allow the environmental document to appropriately characterize the project emissions and demonstrate that the project impact on air quality will be mitigated to less than significant under CEQA as a result of the implementation of the adopted VERA.

The District has been developing and implementing VERA contracts with project proponents to mitigate project specific emissions since 2005. It is the District's experience that implementation of a VERA is a feasible mitigation measure, which effectively achieves the emission reductions required by a Lead Agency, including mitigation of project-related impacts on air quality by supplying real and contemporaneous emissions reductions.

Therefore, Lead Agencies should require the project proponent to negotiate a VERA with the District prior to the Lead Agency's final approval of the CEQA document. This allows the Lead Agency to disclose to the public the certainty that the VERA is assuring full mitigation of air quality impacts as specified in the environmental review document or equivalent documentation certified by the Lead Agency.

9.2.1 Pollutant-by-Pollutant vs. Net Zero

Under a VERA, two mitigation approaches are available: "pollutant-by-pollutant" and "net zero".

Pollutant-by-Pollutant Mitigation

The mitigation of project emissions impacts "pollutant-by-pollutant" means that each NO_x, VOC and PM₁₀ project emission will be mitigated individually to their respective significance threshold level.

Net Zero Mitigation

The mitigation of project emissions impacts to "net zero" means that the sum of NO_x, VOC and PM₁₀ combined project emissions will be fully mitigated by the sum of NO_x, VOC and PM₁₀ combined emission reductions achieved under the VERA. The "net zero" concept is limited to the three pollutants NO_x, VOC and PM₁₀, due to their strong interrelatedness. NO_x is the driving pollutant for both the wintertime PM problem and the summertime ozone problem (in combination with VOC). The District considers "net zero" mitigation to result in a less than significant air quality impact for these three pollutants, even if VOC or PM₁₀ emissions remain above



their individual significance thresholds after mitigation, because this means that the mitigation has achieved excess reductions of NO_x, the critical component to the Valley's air quality issues.

Recommended Approach

The District strongly recommends the “net-zero” approach. This method results in a significantly larger amount of NO_x reduction, which is the primary driver to the formation of ozone and PM in the Valley.

9.2.2 Indirect Source Review and VERA

The District Rule 9510 (ISR) is a regulatory requirement while a VERA is a potentially feasible mitigation measure for projects subject to CEQA requirements. The emission reductions achieved under ISR are intended to satisfy ISR regulatory requirements. Even though compliance with District Rule 9510 substantially reduces project specific impacts on air quality, it may not be sufficient to reduce project specific emissions to less than significant levels under CEQA.

In contrast, VERAs provide emission reductions that can be used to satisfy both ISR and CEQA requirements. Entering into a VERA does not exempt a project from ISR requirements, but the emission reductions achieved under a VERA can be applied towards satisfying ISR emission reduction requirements.

For example, providing 1 ton of emission reduction under a VERA results in 1 ton of emission reduction for CEQA mitigation purposes and contributes to 1 ton of emission reduction for ISR purposes. In most cases, a VERA achieving a “net zero” mitigation provides sufficient emission reductions to also satisfy ISR emission reduction requirements.

9.3 Mitigating Criteria Pollutants Emission Impacts

9.3.1 Project Construction Emission Impacts

Although the impacts from construction-related air pollutant emissions are temporary in duration, in some cases, such emissions can represent a significant air quality impact. Construction activities such as grading, excavation, and travel on unpaved surfaces can generate substantial amounts of fugitive dust, and can lead to elevated concentrations of PM₁₀. Emissions from construction-related equipment engines also can contribute to elevated concentrations of PM₁₀ as well as increased emissions of ozone precursors.



Fugitive Dust

The recommended approach to mitigating fugitive dust emissions from construction-related activities focuses on a consideration of whether all feasible control measures are being implemented. District fugitive dust rules, collectively known as Regulation VIII, contain a series of requirements. The purpose of Regulation VIII is to reduce the amount of PM₁₀ entrained into the atmosphere as a result of emissions generated from anthropogenic (man-made) fugitive dust sources. Compliance with Regulation VIII does not constitute mitigation because it is already required by law. The District provides Enhanced and Additional Control Measures that will provide a greater degree of PM₁₀ reduction than required by Regulation VIII. Entering into a VERA with the District is also an approach to address mitigation of fugitive dust emissions. The District will recommend a VERA and these enhanced and additional measures when project conditions warrant; e.g. potential for impacting sensitive receptors, construction sites of significant size, or any other conditions that may warrant additional emission reductions necessary to minimize dust emissions to less than significant levels.

Exhaust Emissions – Construction Activities

Lead Agencies should also seek to reduce emissions from construction-related equipment exhaust. Feasible mitigation of construction exhaust emission includes use of construction-related equipment powered by engines meeting, at a minimum, Tier II emission standards, as set forth in §2423 of Title 13 of the California Code of Regulations, and Part 89 of Title 40 Code of Federal Regulations, and limitations of hours of activities. Lead Agencies can impose additional mitigation measures as conditions of project approval such as requirements for the project proponent to enter into a VERA with the District.

9.3.2 Project Operational Emission Impacts

Operational Emissions – Permitted Equipment and Activities

All permitted sources emitting more than the NSR Offset Thresholds for any criteria pollutant must offset all emission increases in excess of the thresholds. However, under certain circumstances, the District may be precluded by state law or other District rule requirements from requiring a stationary source to offset emissions increases. In such cases, the District will advise Lead Agencies of the need to impose additional mitigation measures as conditions of project approval, such as a requirement for the project proponent to enter into a Voluntary Emission Reduction Agreement (VERA) with the District.



Operational Emissions – Non-Permitted Equipment and Activities

Operational emissions from non-permitted equipment and activities are caused by mobile sources (on-site and on-road), combustion of fuels for space heating, cooking, and landscape maintenance, etc.

For industrial projects, onsite mobile sources commonly include off-road vehicles, such as forklifts and tractors, and on-road passenger vehicles use. Off-site mobile sources commonly include heavy-duty vehicles used to transport raw material and ship finished goods and light-duty vehicle use associated with employee trips. For commercial projects, mobile source activities include receipt of goods, and customer and employee trips. For development projects, mobile source activities commonly include vehicular travel from home to work, home to shop, and deliveries.

Mobile sources

Mitigation measures identified by the District to reduce operational air quality impacts from mobile sources are discussed below. Several examples of general approaches can be taken to reduce emissions from motor vehicles:

- Reduce vehicle trips. These measures reduce air pollutant emissions by entirely eliminating some of the vehicle trips associated with a project. An example is the provision of bicycle facilities to encourage bicycle use instead of driving.
- Reduce vehicle miles traveled. These measures reduce emissions by reducing the length of vehicle trips associated with a project. An example is satellite offices/telecommuting centers provided to reduce the length of employee commute trips.
- Use of low emission vehicles. These measures are not intended to reduce trips or VMT, but rather promote the use of fuels that are less polluting than gasoline or diesel. Less use of fuels results in less emission released into the atmosphere. For example,
 - Replace diesel fleet with alternative fuel engine technology and infrastructure;
 - Retrofit existing equipment to reduce emissions using methods such as particulate filters, oxidation catalysts, or other approved technologies;
 - Repower/Retrofit heavy-duty diesel fleet with cleaner diesel engine technology and/or diesel particulate filter after-treatment technology;
 - Replace diesel fleet vehicles with cleaner fueled low emission vehicles (i.e. school buses, buses, on- and off- road heavy duty vehicles, lighter duty trucks and passenger vehicles)



- Voluntary Emission Reduction Agreement. As discussed above, this is an agreement entered by the project proponent and the District by which the project proponent provides pound-for-pound mitigation of air emissions increases through a process that funds and implements emission reduction projects, and has found to be a feasible mitigation measure for many development projects.

More measures are available on the District's website at:
<http://www.valleyair.org/transportation/GAMAQI-Mitigation-Measures.pdf>

The District recommends that Lead Agencies use each of the above categories of measures where appropriate. However, caution should be used when selecting some types of measures. In general, measures that reduce vehicle trips entirely achieve the greatest emission reductions. This is because vehicle emissions are highest during the first several miles of a trip. Measures to reduce VMT are most effective when the trips reduced are long such that cold start emissions are less important. PM₁₀ emission reductions are better achieved by reducing VMT. This is because PM₁₀ emissions (due to entrained road dust) are more directly correlated to VMT.

Area sources

Area sources are sources that individually emit small quantities of air pollutants, but which cumulatively may represent significant quantities of emissions. Water heaters, fireplaces, wood heaters, lawn maintenance equipment, and application of paints and lacquers are examples of area source emissions. Mitigation measures include the following examples:

- Provide electric maintenance equipment
- Eliminate or limit the amount of traditional fireplaces installed (i.e., natural gas fireplaces/inserts or at least EPA certified wood stoves or inserts instead of open hearth fireplaces)
- Use solar or low-emission water heaters

More measures are available on the District's website at:
<http://www.valleyair.org/transportation/GAMAQI-Mitigation-Measures.pdf>



9.4 Mitigating Hazardous Air Pollutants

Specific mitigation measures should be identified and considered for those projects that may release toxic or hazardous air pollutants to the atmosphere in amounts that have the potential 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, facilities that may release toxic or hazardous substances to the atmosphere should not be located adjacent to sensitive receptors such as residences, schools, day-care centers, extended-care facilities, and hospitals.

Lead Agencies should also be aware that many facilities such as dry cleaners and gasoline stations produce toxic emissions, but under most circumstances, existing controls reduce impacts to less than significant levels.

Facilities and equipment that require permits from the District are screened for risks from toxic emissions and those exceeding thresholds are subject to detailed health risk assessments. Projects exceeding de minimus levels are required to install Toxic Best Available Control Technology (T-BACT) to reduce risks to below significance. If a significant impact remains after T-BACT is implemented, the permit may not be issued unless it meets the discretionary approval criteria of the District Risk Management Policy for Permitting New and Modified Sources.

Projects where significant numbers of diesel powered vehicles will be operating such as truck stops, transit centers, and warehousing may create risks from toxic diesel particulate emissions. These facilities and vehicles are not subject to District permit and so may need mitigation measures adopted by the Lead Agency to reduce this impact. Measures such as limiting idling, electrifying truck stops to power truck auxiliary equipment, use of diesel particulate filters, and use of alternative fuel heavy-duty trucks have been required by some jurisdictions.

9.5 Mitigating Odor Impacts

Appendix G (Environmental Checklist Form) of the state CEQA Guidelines specifies that the Lead Agency determines whether a project would “create objectionable odors affecting a substantial number of people.”

Projects that have a significant odor impact because they place sources of odors and members of the public near each other should establish a buffer zone to reduce odor impacts to a less than significant level. The dimensions of the buffer zone must ensure that the encroaching project does not expose the public to nuisance levels of odorous emissions.



In establishing the appropriate dimensions of the buffer zone, the Lead Agency should consider actions currently being taken at the facility to control odors, as well as any future actions to which the facility is firmly committed. A safety margin also should be considered in establishing a buffer zone to allow for future expansion of operations at the source of the odors.

In order to reduce the dimensions of the buffer zone, add-on control devices (e.g. filters or incinerators) and/or process modifications implemented at the source of the odors may be feasible, depending on the specific nature of the facility. Lead Agencies should consult the District for further information regarding add-on controls and process modifications to control odors. Odor mitigation measures that are targeted at the *receptors* (e.g. residential areas) that rely on sealing buildings, filtering air, or disclosure statements are not appropriate mitigation measures to be used in place of buffer zones or technical controls.

For some projects, operational changes, add-on controls, or process changes, such as carbon absorption, incineration, or relocation of stacks/vents can reduce odorous emissions. In many cases, however, the most effective mitigation strategy is to provide a sufficient distance, or buffer zone, between the source and the receptor(s). Recent experience has shown that locating upwind from an odor source does not necessarily eliminate potential problems. Even places with reliable prevailing winds experience days with light and variable winds and days with winds opposite prevailing winds related to the passage of storms. Residents in these upwind areas while exposed less frequently may be more sensitive to the odors.

9.6 Mitigating Air Quality Impacts from General and Area Plan Level

Selecting mitigation measures appropriate for a particular project can be a complex task. The complexity arises from several factors. CEQA applies to a wide variety of projects. Complete general plan updates covering thousands of acres are discretionary projects and so are parcel maps and even site plans in some jurisdictions. The general plan often only identifies the eventual use of a parcel of land in vague terms. The site plan review may occur too late in the process and affect too small of an area to allow effective mitigation measures to be identified. In addition, differences in conditions at a site greatly influence the effectiveness of mitigation measures. The overall approach recommended by the District is to use policy statements, design standards, and community-wide programs at the general plan/specific plan level, and site specific measures when the site specific uses are proposed.

As discussed in Chapter 6, the District has prepared a guidance document on these issues entitled *Air Quality Guidelines for General Plans (AQGGP)*. The AQGGP document provides guidance to local officials and staff on developing and implementing



local policies and programs to improve air quality to be included in local jurisdictions' general plans

There is no definitive line between plan and project. For example, in some cases, a developer will file a general plan amendment, zone change, and subdivision map or site plan simultaneously. In other cases, the general plan amendment is filed first and the other actions are filed later pending approval of the plan amendment. Some specific plans provide a high level of design detail and some land use approvals for individual parcels provide few details of the final use. This being the case, mitigation measures for each project are best identified on a project-by-project basis.

Agencies preparing new or updated plans for their communities have special responsibilities for mitigating air quality impacts. Large scale plans and policy documents often set the pattern of new development for the next twenty or more years. Land use patterns can be laid out in ways that produce more or less air pollution. Policies can be set in motion that encourage or discourage air quality friendly development. The District encourages local agencies to view their general plans, community plans, and specific plans as opportunities to improve the Valley's air quality.

9.7 Air Quality Design Guidelines

The District encourages cities and counties to adopt air quality friendly design guidelines as part of a general plan implementation strategy. Most current design practices can be improved upon. The District recommends the following websites to get ideas and concepts on what constitutes land use and design strategies that would be beneficial for air quality:

- The Local Government Commission's Center for Livable Communities (www.lgc.org/center)
- Walkable Communities, Inc. (www.walkable.org)

Design guidelines can be voluntary suggestions for developers or they can be standards adopted by ordinance that must be followed. The choice is up to the local jurisdiction. Numerous examples of design guidelines with air quality benefits are also available from California communities including Sacramento, San Diego, Modesto, and Merced.

Some examples of design guidelines are:

- Adopt air quality enhancing design guidelines/standards
- Designate pedestrian/transit oriented development areas on general plan/specific plan/ planned development land use maps
- Adopt ordinance limiting wood burning appliances/fireplace installations
- Fugitive dust regulation enforcement coordinated with the District



- Energy efficiency incentive programs
- Coordinate location of land uses to separate odor generators and sensitive receptors
- Provide traffic flow improvements for areas impacted by the project
- Provide on-site improvement: bikeways, transit infrastructure, pedestrian enhancements

More design guidelines are available at www.valleyair.org/ceqa/designguidelines

9.8 Quantifying Mitigation Measures

The effectiveness of proposed mitigation measures should be quantified when feasible. Because the measures' effectiveness will depend greatly on the specific characteristics of the project and its setting, this quantification should be based on a project-specific analysis.

When quantifying project emissions, the latest approved models by the District should always be used for air quality analysis. Models are subject to change. At the time of writing, the model available is the California Emissions Estimator Model (CalEEMod). CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and greenhouse gas (GHG) emissions associated with both construction and operations from a variety of land use projects. The model quantifies direct emissions from construction and operations (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use.

*The model is available at www.caleemod.com and at <http://www.valleyair.org/ISR/ISRResources.htm#Models>
Assistance with operating the model is available by contacting the District at (559) 230-6000, or hramodeler@valleyair.org*

In some cases, it simply may not be possible to quantify the effect of proposed mitigation measures. It may be that the specific conditions surrounding a particular project are so unique as to render extrapolation from other examples unreliable. A proposed measure may be innovative, with little precedent. The combined effects of a package of measures may be too difficult to quantify. While a certain degree of professional judgment is usually involved in estimating the effectiveness of mitigation measures, excessively speculative estimates should be avoided. If the Lead Agency cannot quantify mitigation effectiveness with a reasonable degree of certainty, the environmental document should at least address effectiveness qualitatively. If the Lead Agency makes a finding that non quantified mitigation measures reduce an impact to a level of insignificance, the environmental document should provide a detailed justification of that conclusion.